



NCCA

An Chomhairle Náisiúnta
Curacláim agus Measúnachta
National Council for
Curriculum and Assessment

Tuarascáil ar an gcomhairliúchán ar *Dhréachtchuraclam* *Matamaitice na Bunscoile*

Feabhra, 2023

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Réamhrá

Is comhlacht reachtúil de chuid na Roinne Oideachais í an Chomhairle Náisiúnta Curaclaim agus Measúnachta (CNCM). Cuireann CNCM comhairle ar an Aire Oideachais maidir le:

- churaclam agus faoi mheasúnú don oideachas luathóige, bunscoile agus iar-bhunscoile.
- nósanna imeachta measúnachta a úsáidtear i scoileanna agus scrúduithe in ábhair atá mar chuid den churaclam.

Forbraítear an chomhairle seo trí thaighde, comhairliúchán, machnamh agus líonrú.

Le foilsiú Litearthacht agus Uimhearthacht don Fhoghlaim agus don Saol: An Straitéis Náisiúnta chun an Litearthacht agus an Uimhearthacht a Fheabhsú i measc Leanaí agus Daoine Óga 2011-2020 (ROS, 2011), leagadh amach roinnt gníomhartha d'fhonn an curaclam a leasú. Dá réir sin, leagadh forbairt Churaclam Nua Matamaitice na Bunscoile (CMB) do Staid 1 go 4 amach i bPleananna Straitéiseacha CNCM, 2015-2017 agus 2018-2021, agus leagadh breis béime uirthi i bPleananna Gníomhaíochta ROS 2017 agus 2018.

Sa tuarascáil seo, tá torthaí ó chomhairliúcháin ar Dhréachtchuraclam Nua Matamaitice na Bunscoile a bhí ar bun idir an 24^ú Márta 2022 agus an 30^ú Meitheamh 2022.

Cúlra na bhforbairtí

Pleanáladh ar dtús go bhfoilseofaí curaclam matamaitice na bunscoile ina dhá chéim, faoi mar a rinneadh i gcás Churaclam Teanga na Bunscoile (CTB) agus ba í an tsonraíocht le haghaidh Chéim 1 agus Céim 2 an chéad fhoilseachán, agus ansin an tsonraíocht le haghaidh Chéim 3 agus Céim 4. Ar an mbonn sin, forbraíodh dréachtshonraíocht do Chéim 1 agus Céim 2 a bhí faoi réir comhairliúcháin i dtreo dheireadh 2017 agus go luath in 2018. Foilsíodh [tuarascáil ar an gcomhairliúchán](#) i mí an Mheithimh 2018. An samhradh sin, rinne an tAire Oideachais agus Scileanna a bhí ann ag an am, Richard Bruton TD, cinneadh Curaclam Matamaitice nua na Bunscoile a fhoilsiú mar shonraíocht iomlán ó Chéim 1 go 4. Rinneadh an cinneadh seo tar éis breithniú ar aiseolas ón gcóras i dtaca le cur i bhfeidhm *Churaclam Teanga na Bunscoile* ina dhá chéim.

Ó shin i leith, leanadh ar aghaidh le hobair thaighde agus forbartha ar shonraíocht shínte iomlán. Cuireadh [iarthéacs taighde](#) (Dooley, 2019) agus sraith cúig [pháipéar ghearra taighde](#) (Delaney, 2020; Leavy, 2020; Ní Mhuirí, 2020a, 2020b; Twohill, 2020) leis an taighde a bhí ann cheana féin. Chomh maith le sonraíocht an churaclaim a leathnú do Chéim 3 agus Céim 4, rinneadh go leor athruithe agus feabhsúchán maidir le dréacht tosaigh an churaclaim, mar fhreagairt ar na torthaí ón gcomhairliúchán in 2017/2018 agus ar an obair leanúnach forbartha a bhí ar siúl i gcomhthéacs *Churaclam Teanga na Bunscoile*. San áireamh leo sin, tá athbhrandáil an Chontanaim Dúl chun Cinn go dtí Tacar Uirlisí Matamaitice na Bunscoile; tabhairt isteach caibidil nua 'Curaclam Matamaitice na Bunscoile i bhfeidhm'; agus forbairt sraith coincheapa matamaitice chun tacú le pleanáil agus ullmhú múinteoirí maidir le teagasc agus foghlaim. Le linn an ama seo, d'fhorbair CNCM tacar tosaigh d'aon Ábhar Tacaíochta déag le dul in éineacht le sonraíocht an churaclaim don dara comhairliúchán seo. Faoi dheireadh, trí dhul i mbun comhairliúcháin maidir leis an CMB, rinneadh plé freisin ar mholtaí a cuireadh isteach i nDréachtchreat Curaclaim na Bunscoile (CNCM, 2020) maidir le réimse curaclaim i gCéim 1 agus Céim 2 don Mhatamaitic, Eolaíocht agus Teicneolaíocht (MET).

Comhthéacs an Chomhairliúcháin

I ndiaidh an chomhairliúcháin maidir le dréacht an CMB, rinneadh comhairliúchán cuimsitheach ar Dhréachtchreat Curaclaim na Bunscoile (CNCM, 2020), ar cuireadh síneadh leis mar thoradh ar COVID-19.

Mar thoradh air sin, tugadh faoi chomhairliúchán ar an dréachtsonraíocht agus ar na hábhair thacaíochta i dtéarma an tsamhraidh sa bhliain 2022 den chuid is mó agus tugadh deis d'éinne a raibh spéis acu tuairim maidir leis an dréacht a chur in iúl é sin a dhéanamh. Is téarma an-ghnóthach é an téarma seo i bhféilire na scoile. Agus seo san áireamh, chuir CNCM roinnt straitéisí cumarsáide i bhfeidhm chun rannpháirtíocht leis an gcomhairliúchán a chur chun cinn agus a spreagadh. Áiríodh orthu seo, postálacha seachtainiúla ar na meáin shóisialta; ailt a fhoilsiú sna foilseacháin INTOuch agus Leadership+; cumarsáid dhíreach leis na páirtithe oideachais; agus tacaíocht bhaill na Meithle Forbartha agus bhaill an Bhoird don Luath-óige agus don Bhunscoil a threisiú.

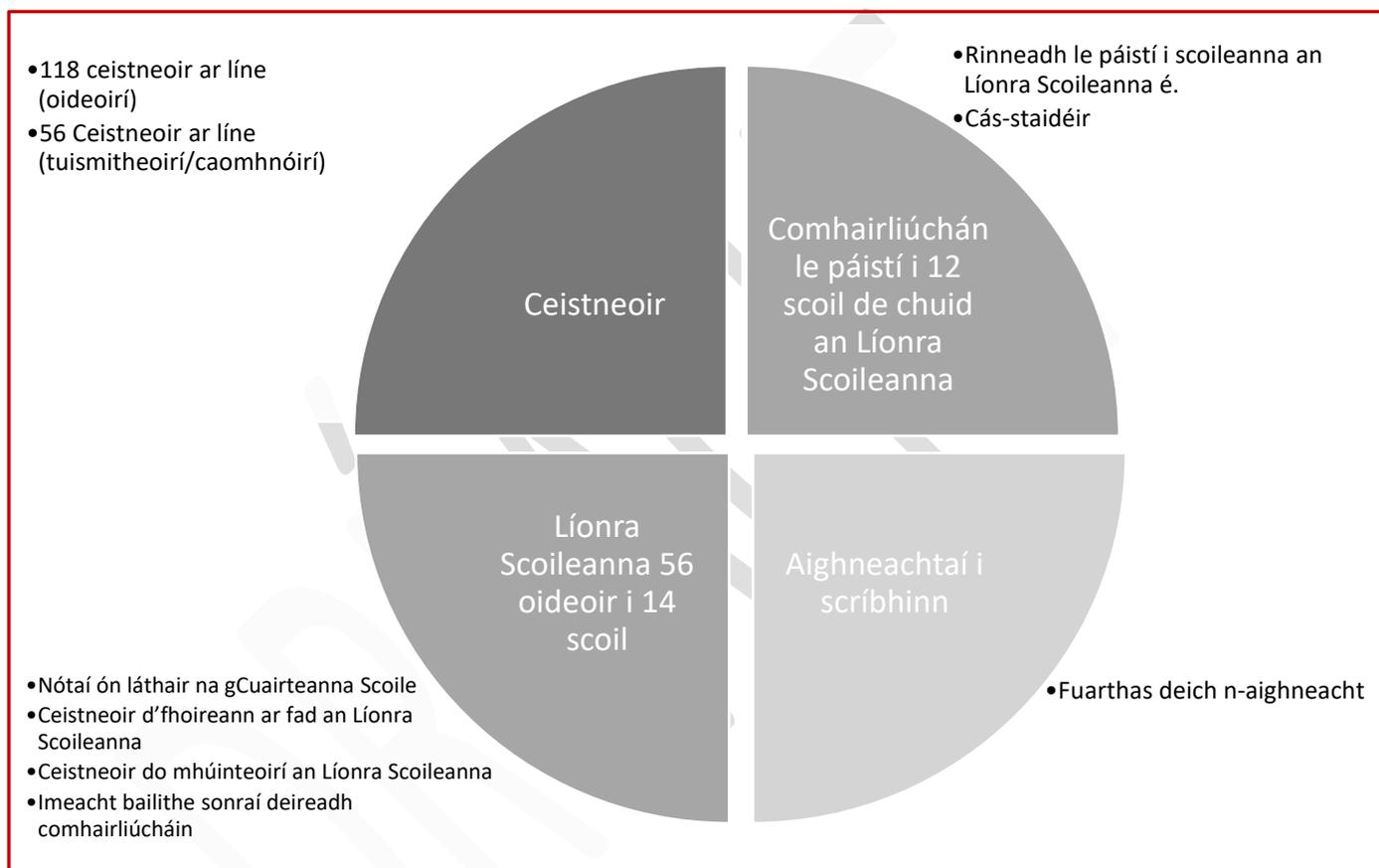
Faoi dheireadh, chuir an comhairliúchán deis ar fáil le haghaidh rannpháirtíocht agus comhoibriú leanúnach le comhghleacaithe sa tSeirbhís um Fhorbairt Ghairmiúil do Mhúinteoirí agus sa Chomhairle Náisiúnta um Oideachas Speisialta, a ghlac páirt i ngnéithe éagsúla dár gcuid oibre leis an Líonra Scoileanna, ar nós bheith i láthair le linn cuairteanna scoile agus ag an imeacht deireadh comhairliúcháin chun éisteacht le múinteoirí agus foghlaim uathu go díreach, rud a chabhródh leo, dá réir sin, FGL a chur in oiriúint.

DREACTH

Modheolaíocht

Chun tuairimí a bhailiú maidir leis an CMB, baineadh úsáid as ceithre shnáithe trínar bailíodh sonraí ó réimse foinsí – féach fíor 1. Léiríonn na próisis bailithe sonraí a úsáideadh sa chomhairliúchán seo comhthéacs agus aidhm an chomhairliúcháin, chomh maith le claontachtaí tógachaíocha sóisialta teoiriciúla an churaclaim féin (Merriam, 2009).

Forbhreathnú ar shnáithe agus foinsí sonraí an chomhairliúcháin



Fíor 1. Srac-fhorbhreathnú ar shnáithe agus foinsí sonraí an chomhairliúcháin

Bailiú sonraí

Ceistneoirí agus aighneachtaí scríofa

Foilsíodh dhá cheistneoir ar líne ar an 26^ú Aibreán agus dúnadh iad ar an 30^ú Meitheamh. Fuair ceistneoir d'oideoirí (10 gceist) 118 freagra iomlán agus fuair ceistneoir do thuismitheoirí/caomhnóirí agus eile (16 ceist) 56 freagra iomlán. Bhí meascán de cheisteanna cainníochtúla agus cáilíochtúla sna ceistneoirí seo agus measadh gur modh iontaofa a bhí iontu mar gheall ar ord seasmhach na gceisteanna agus an struchtúr a bhí i gceist leo (Bryman, 2008) chomh maith leis an inrochtaineacht agus solúbthacht a bhí i gceist don úsáideoir deiridh. Bailíodh sonraí cainníochtúla ag baint úsáid as scálaí Likert agus scálaí rangaithe agus bhí

sé úsáideach na freagraí agus an t-aiseolas a chainníochtú don dréacht-CMB agus, ag an am céanna, ba é aidhm na sonraí cáilíochtúla bealach a chur ar fáil le tuiscint agus brí níos mó a bhaint ó na freagraí (Robson, 2011).

Tugadh deis do dhaoine aonair agus d'eagraíochtaí aighneachtaí scríofa a chur isteach freisin maidir lena bhfreagra ginearálta ar an dréacht-CMB, chomh maith le haiseolas níos sainiúla maidir le réasúnaíocht agus aidhmeanna an churaclaim; comhpháirteanna an churaclaim; príomhchuir chuige oideolaíocha; agus Tacar uirlisí Matamaitice na Bunscoile. Fuarthas 10 n-aighneacht scríofa.

Líonra Scoileanna

Ghlac 14 scoil ar an iomlán páirt i snáithe Líonra Scoileanna an chomhairliúcháin idir an 24 Márta agus an 15 Meitheamh 2022. I ndiaidh glaoch poiblí do léirithe spéise maidir le rannpháirteachas leis an gcomhairliúchán maidir leis an dréacht CMB, cuireadh 15 scoil ar an ngearrliosta ar dtús agus earcaíodh iad. Ghlac 14 acu sin páirt. Bhí an líonra ionadaíoch ar réimse de chomhthéacsanna agus áiteanna scoileanna, lena n-áirítear: scoil DEIS, scoil tuaithe DEIS, scoil sa Ghaeltacht, Gaelscoil, scoil speisialta, scoil a bhfuil ranganna speisialta inti, scoil bheag tuaithe agus scoil mhór uirbeach. Sna 14 scoil, thriail 56 múinteoir an dréachtchuraclam ina seomraí ranga.

Bhí trí chomhchruinniú de scoileanna sa líonra ann, dhá chruinniú ar líne i mí an Mhárta agus i mí Aibreáin 2022 agus imeacht aghaidh ar aghaidh deireadh comhairliúcháin i mí an Mheithimh 2022. Bailíodh sonraí trí agallaimh ghrúpa, foirmeacha ar líne, ceistneoirí múinteoirí aonair, agus nótaí ón láthair. Idir na cruinnithe ar líne agus gach teacht le chéile aghaidh ar aghaidh, thug beirt Oifigeach Oideachais de chuid CNCM cuairt ar gach scoil agus bhailigh sonraí trí chomhráite gairmiúla, ceardlanna rannpháirtíochta, agus agallaimh ghrúpa. Chun cur le caighdeán na sonraí a bailíodh agus a tuairiscíodh, thug na hOifigigh Oideachais faoi sheisiún faisnéisithe i ndiaidh gach cuairte chun machnaimh agus tuairimí a roinnt. Lean an próiseas tras-anailíse seo ar aghaidh le linn na tras-scríbhneoireachta agus le linn ghlanadh na sonraí a bailíodh. Ar cheann de phríomhthosaíochtaí an tsnáithe seo de chuid an chomhairliúcháin, bhí, deis a thabhairt do mhúinteoirí a gcuid cuntas féin a thabhairt ar a gcuid tuairimí agus ar a dtaithe agus an dréacht-CMB á chur i bhfeidhm acu. Bailíodh aiseolas domhain agus moltaí praiticiúla a bhailiú maidir leis an gcuraclam a bheachtú agus a fheabhsú trí phlé agus ceardlanna leis na múinteoirí. Rinneadh an rud céanna i gcás moltaí maidir le réimse curaclaim MET, a moladh i n*Dréachtchreat Curaclaim na Bunscoile* (CNCM, 2020).

Comhairliúchán le páistí

Thug foireann taighde ó Choláiste Mhuire Gan Smál faoi chomhairliúchán le páistí, agus d'fhreastail ar 12 de na 14 scoil sa Líonra Scoileanna. Tugadh cuairt ar gach ceann den 12 scoil faoi dhó. Le linn na chéad chuairte, a raibh taighdeoir amháin i gceist léi, míníodh an staidéar agus tugadh amach ceamaraí meandracha agus míníodh a n-úsáid. Thug beirt thaighdeoirí cuairt ar gach ceann de na scoileanna 4-6 seachtaine ina dhiaidh sin. Bunaithe ar shamhail cheartabhunaithe Lundy maidir le rannpháirtíocht páistí (Lundy, 2007), baineadh úsáid as roinnt modhanna rannpháirtíochta le linn na cuairte seo chun na páistí a dhéanamh rannpháirteach go gníomhach sa phróiseas taighde agus lena chinntiú gur féidir brí a bhaint as a gcuid tuairimí bunaithe ar léargais pháisteláraithe. Áiríodh i measc na straitéisí rannpháirtíochta, scoláire-mar-iriseoir, tarraingt agus inscríbhinn scoláirí, gníomhaíochtaí sórtála, guth-ghrianghraif (úsáid a bhaint as ceamaraí meandracha), gníomhaíochtaí rangaithe diamaint, agus plé fócasghrúpa faoi stiúir páistí. Is féidir teacht ar na torthaí ó shnáithe seo an chomhairliúcháin ag [Nasc le cur isteach roimh fhoilsiú].

Anailís ar shonraí

Ba éard a bhí i gceist leis an anailís a rinneadh ar na sonraí cainníochtúla a bailíodh le linn na tréimhse comhairliúcháin ná staitisticí tuairisciúla (minicíochtaí) a úsáid agus na sonraí a chur i dtáblaí sular léiríodh i bhfoirm ghrafach iad don tuarascáil seo. Áit ar bith a bhfuil neamhréir sna freagraí, cuirtear seo in iúl sna torthaí. Cé gur tosaíodh ar 456 ceistneoir d'oideoirí, bhí líon na ndaoine a d'éirigh as an gceistneoir idir na ceisteanna aitheantais agus ceist 5 suntasach, agus ar an iomlán, críochnaíodh go hiomlán 118 ceistneoir. Ar an gcaoi chéanna, tosaíodh ar 133 ceistneoir do thuismitheoirí/caomhnóirí agus críochnaíodh 56 acu sin, agus laghdú comhchosúil le feiceáil i líon na ndaoine a d'éirigh as an gceistneoir i ndiaidh na gceisteanna aitheantais. Ar mhaithe le soiléireacht, léiríonn na torthaí a phléitear sa tuarascáil seo na freagraí ó na ceistneoirí a comhlánaíodh ina n-iomláine.

Baineadh úsáid as anailís cháilíochtúil ábhar i ngach ceann de na snáithí comhairliúcháin chun béim a leagan ar ghnéithe na sonraí cainníochtúla a bhain le príomhphointí ceistiúcháin an chomhairliúcháin (Schreier, 2014). Cuireadh córas catagóirí i bhfeidhm áit arbh fhéidir na sonraí a shainiú agus a chur isteach i gcatagóirí amháin nó níos mó (Kohlbacher, 2006). Bhíothas ábalta bealaí déaduchtacha lipéadaithe catagóirí a úsáid mar gheall ar an gcur chuige ginearálta seo i leith anailís na sonraí cáilíochtúla. Uaidh sin, aithníodh patrúin agus téamaí sna sonraí trí chódú téamach a dhéanamh ar na sonraí i ngach ceann de na catagóirí (Braun agus Clarke, 2006; Mayring, 2015); agus rinneadh na téamaí agus patrúin a leagan amach de réir a chéile (Merriam, 2009). Bhí próiseas anailíse sé chéim Braun agus Clarke (2006) úsáideach chun na gnéithe tábhachtacha laistigh de gach ceann de na téamaí a aithint. Ba iad na buanna a bhain leis an gcur chuige ginearálta seo a úsáid ná gur rialaíodh an próiseas ó thaobh na modheolaíochta de; go rabhthas ábalta na foinsí sonraí ar fad a anailísiú ar bhealach comhleanúnach céim-ar-chéim; agus go raibh an tsolúbthacht chuí ann (Kohlbacher, 2006; Schreier, 2014). Le caighdeán na hanailíse a chinntiú, rinneadh tras-anailísiú ar gach tacar sonraí, agus tugadh faoi sheiceálacha iontaofachta idirchódóra. Léiríodh iontaofacht láidir idirchódóra le linn comparáid a dhéanamh ar na hanailísí agus rinneadh leasuithe beaga i ndiaidh plé.

I bhfianaise dhaonra na n-oideoirí agus na dtuismitheoirí in Éirinn, ba shrian de chuid an chomhairliúcháin é an ráta íseal go leor freagairtí ar na ceistneoirí. Mar sin féin, cabhraíonn an ráta ard freagairtí ó thuismitheoirí ar cheistneoir na Comhairle Náisiúnta Tuismitheoirí (bunoideachas) [Féach Aighneacht Scríofa] an srian seo a laghdú, bíodh is gur i gcomhthéacs tuairimí tuismitheoirí ar an dréacht-CMB é sin. Ar an gcaoi chéanna, chuir Cumann Múinteoirí Éireann (CMÉ) roinnt imeachtaí comhairliúcháin aghaidh ar aghaidh agus ar líne lena mbaill ar bun sular leag siad a n-aighneacht scríofa isteach, agus cuireadh leis an aiseolas ó mhúinteoirí agus ceannairí scoile ar an gcaoi sin.

Agus machnamh á dhéanamh ar na torthaí, d'fhéadfadh sé gur thábhachtach freisin cuimhneamh ar eochair-thoisc idirdhealaithe idir an Líonra Scoileanna agus na snáithe eile sonraí a bailíodh le linn an chomhairliúcháin. Bhí rochtain ag rannpháirtithe an Líonra Scoileanna, trí chruinnithe ar líne agus cuairteanna scoile, ar ionchur díreach ón bhfeidhmeannach CNCM. Ba é aidhm an ionchuir seo tacú le rannpháirtithe maidir lena dtuiscint ar fhís, réasúnaíocht agus struchtúr an dréachtchuraclaim, sa chaoi is gurbh fhéidir le múinteoirí an curaclam a chur i bhfeidhm agus a thriail ina seomraí ranga le linn thréimhse an chomhairliúcháin.

Tuairisc ar na torthaí

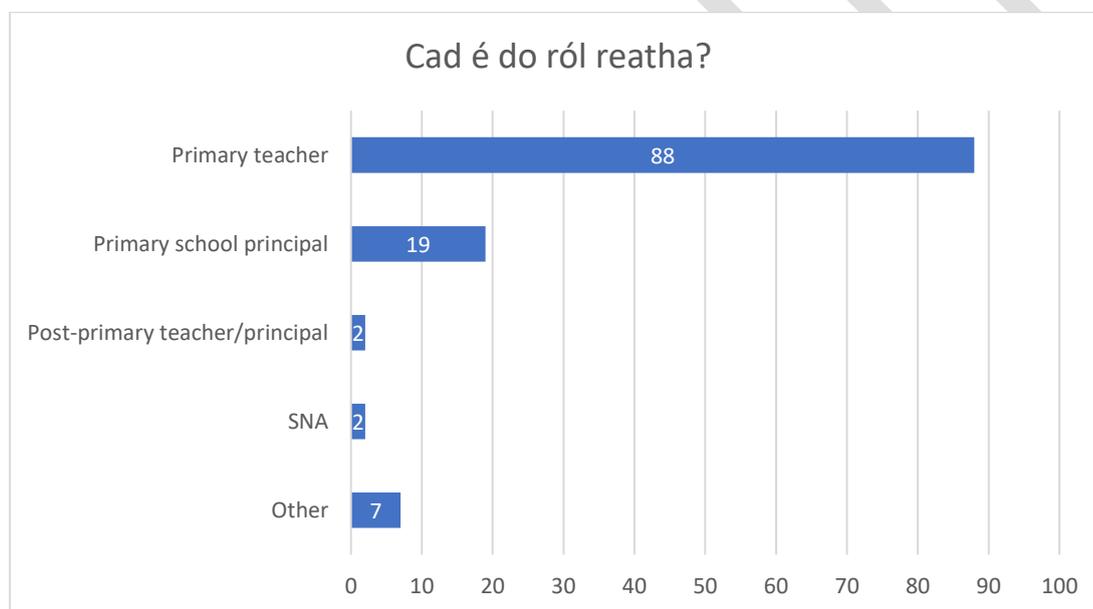
Ceistneoir na múinteoirí

Leagadh an ceistneoir do mhúinteoirí agus d'oidoírí eile amach faoi na ceannteidil seo a leanas:

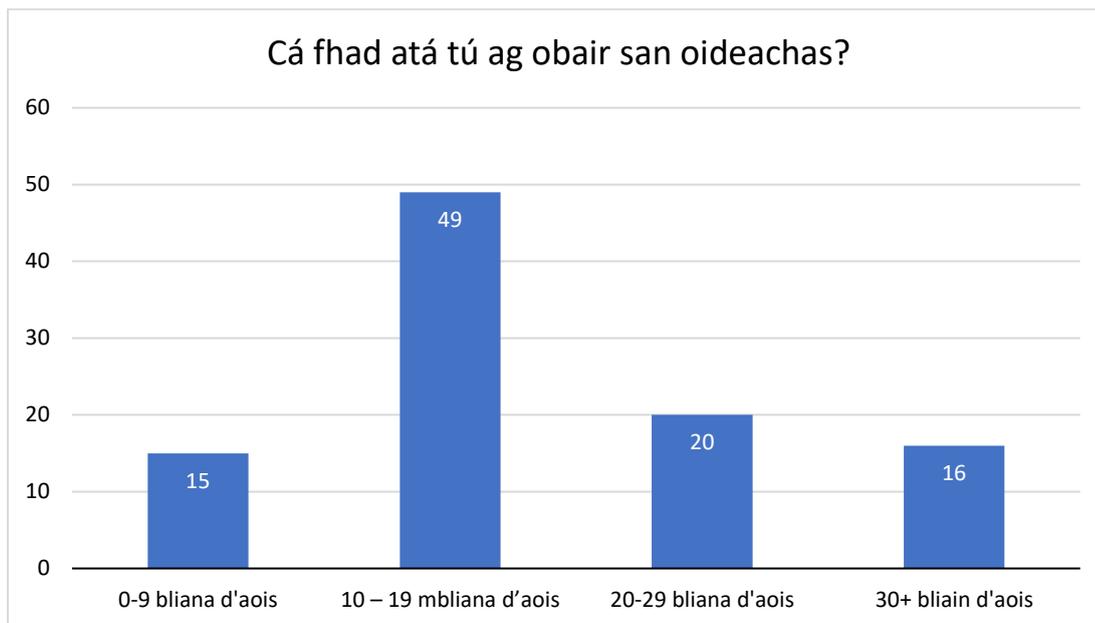
- Próifíl an fhreagróra
- Réasúnaíocht agus aidhmeanna
- Struchtúr agus cur i láthair
- Oideolaíocht agus foghlaim páistí
- Tacaíochtaí.

Próifíl an fhreagróra

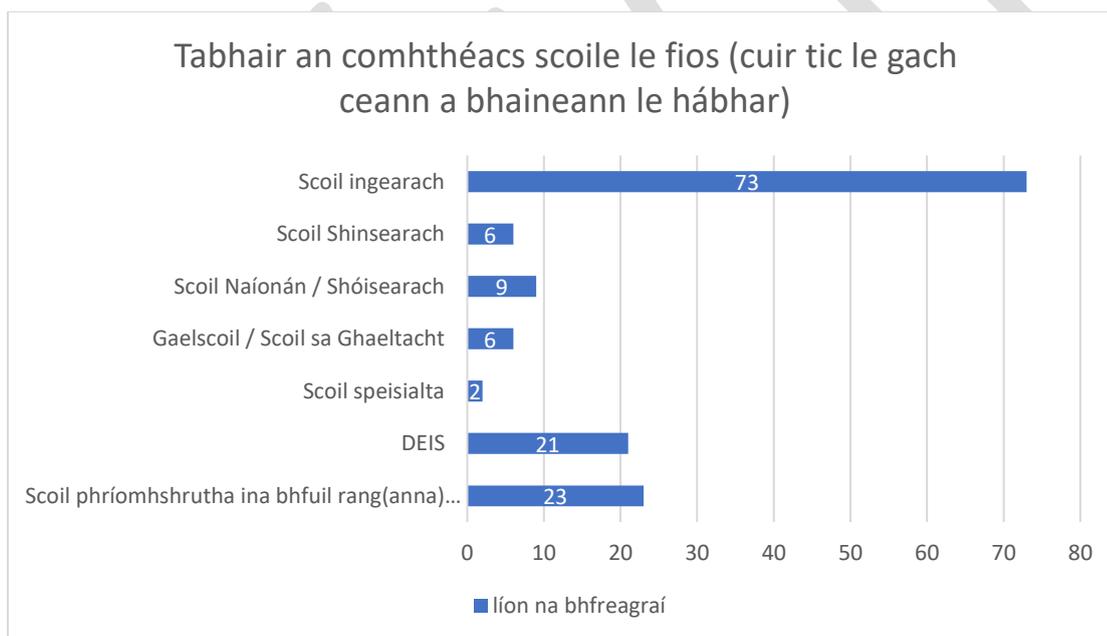
Fuarthas 118 freagra iomlán ar an gceistneoir d'oidoírí. Léiríonn Fíor 2 briseadh síos na bhfreagróirí agus tugtar sonraí i bhFíor 3 agus i bhFíor 4 ar an méid ama atá caite acu ag obair in oideachas agus ar a gcomhthéacsanna scoile.



Fíor 2: Briseadh síos fhreagróirí an cheistneora d'oidoírí



Fíor 3: Taithí na bhfreagróirí san oideachas (% de fhreagróirí)

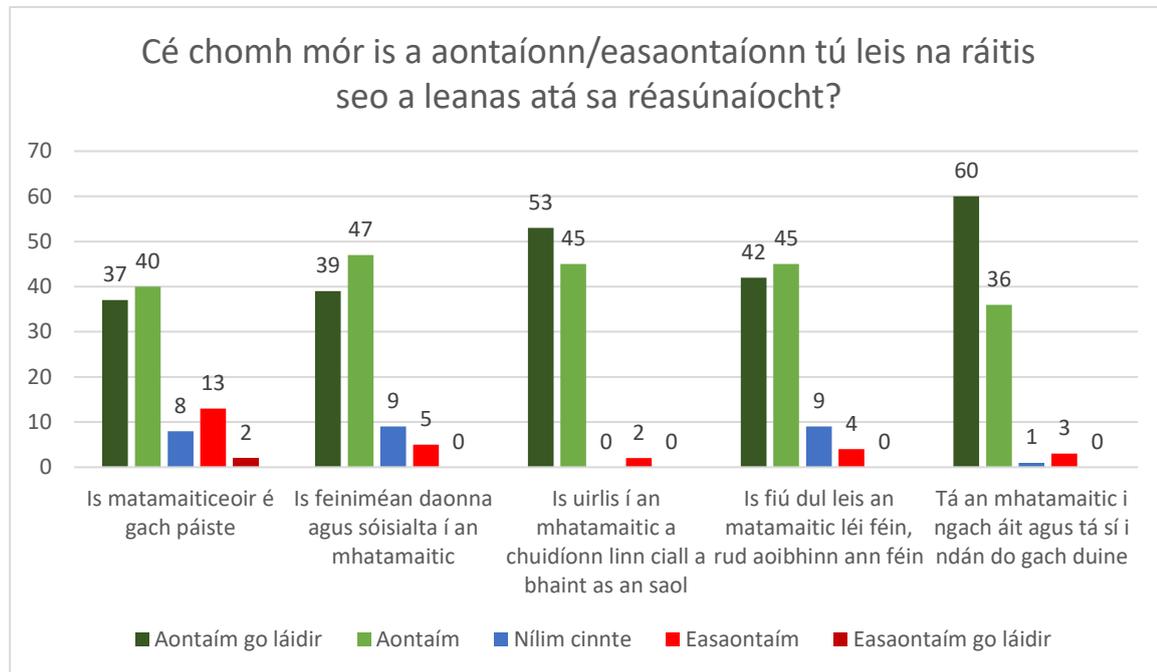


Fíor 4: Briseadh síos comhthéacsanna scoile na bhfreagróirí (ceadaítear níos mó ná freagra amháin a roghnú)

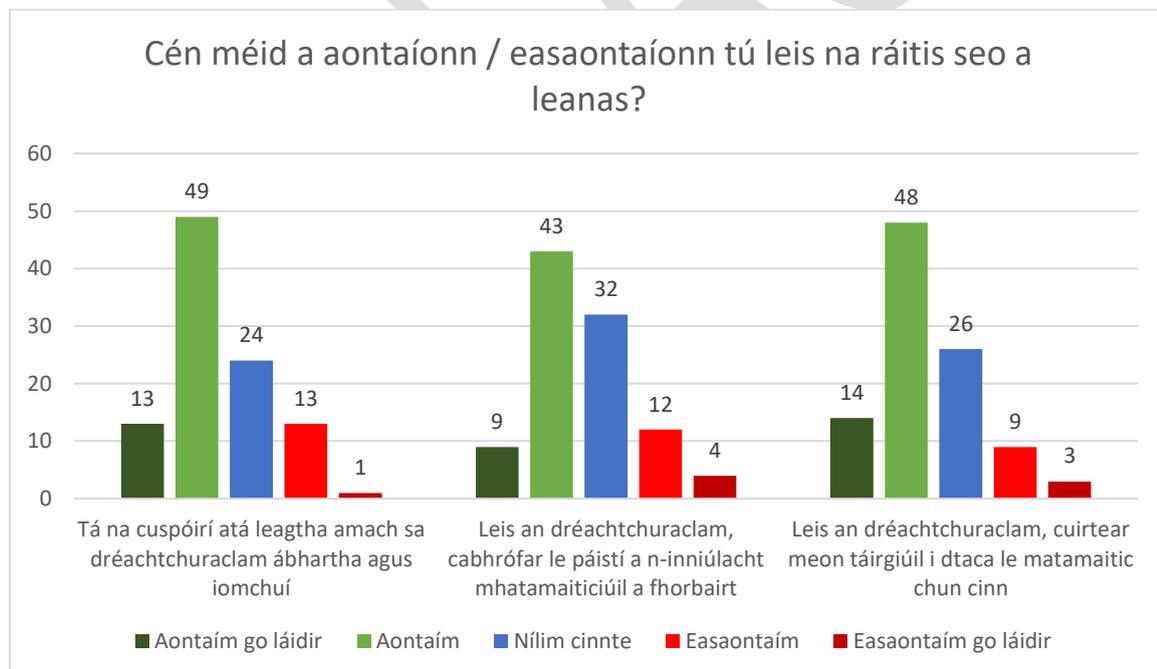
Réasúnaíocht agus Aidhmeanna

Léirítear i bhFíor 5 agus i bhFíor 6 freagraí a bhaineann le réasúnaíocht agus aidhmeanna an dréacht-CMB. Aontaíodh go láidir maidir le gach ceann de na cúig ráiteas laistigh den réasúnaíocht agus bhí an ráta ab airde aontaithe (96%) i gceist do 'Tá an mhatamaitic i ngach áit agus tá sí i ndán do gach duine'. Bhain an leibhéal ab ísle aontaithe (77%) leis an ráiteas 'Is matamaiticeoir é gach páiste', agus d'esaontaigh nó d'esaontaigh go láidir 15% de fhreagróirí. Maidir le haidhmeanna an dréachtchuraclaim, d'aontaigh 62% de

fhreagróirí go bhfuil siad ábhartha agus iomchuí, agus ní raibh 24% de fhreagróirí cinnte. D'aontaigh formhór na bhfreagróirí (52%) go gcuireann an dréacht CMB forbairt inniúlacht sa mhata chun cinn, bhí 32% de fhreagróirí éiginnte, agus d'esaontaigh 16% dóibh.



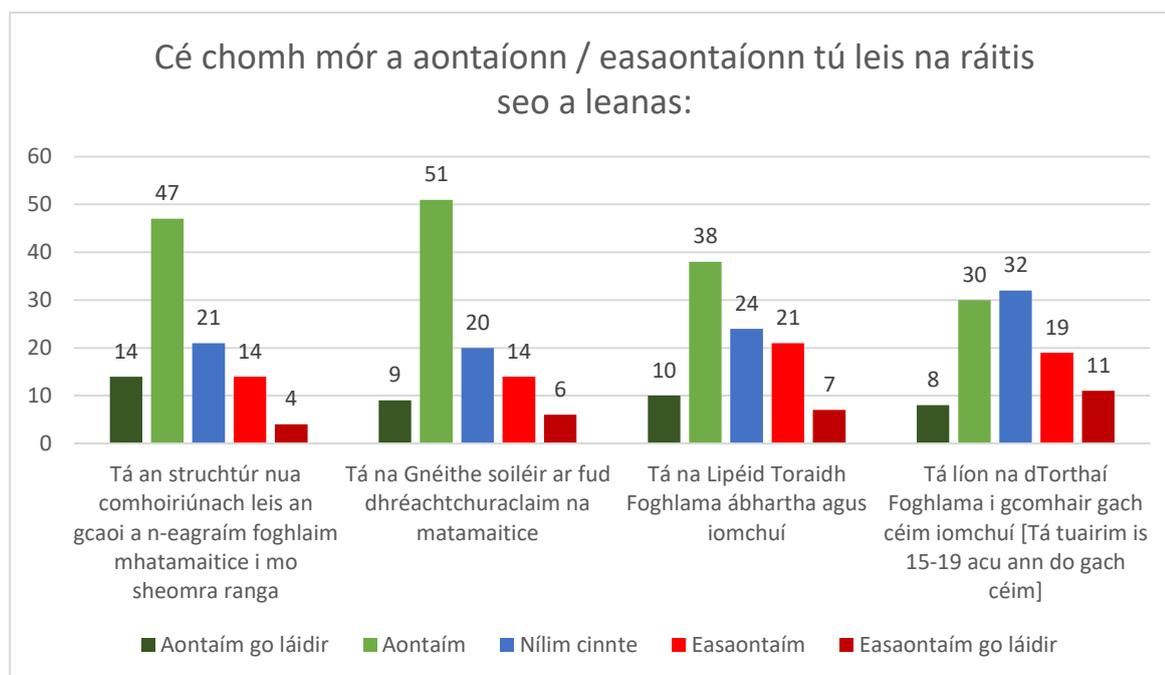
Fíor 5: Cé chomh mór agus a aontaíodh leis na ráitis sa réasúnaíocht (% na bhfreagraí)



Fíor 6: Cé chomh mór agus a aontaíodh le ráitis maidir le haidhmeanna an churaclaim (% na bhfreagraí)

Struchtúr agus cur i láthair

Cuireadh ceithre ráiteas maidir le struchtúr an dréacht CMB in iúl sa cheistneoir (féach Fíor 7). D'aontaigh 61% de fhreagróirí go bhfuil an struchtúr nua comhoiriúnach leis an gcaoi a n-eagraíonn siad foghlaim mhatamaitice ina seomra ranga, d'eaontaigh 21% de fhreagróirí agus ní raibh 18% cinnte. Maidir leis an ráiteas go bhfuil na Lipéid Toraidh Foghlama ábhartha agus iomchuí, d'aontaigh 48%, bhí 24% éiginnte, agus d'eaontaigh 28%. Maidir le líon na dtorthaí foghlama ag gach céim, d'aontaigh 38% gur líon oiriúnach atá ann, bhí 32% éiginnte, agus d'eaontaigh 30%.



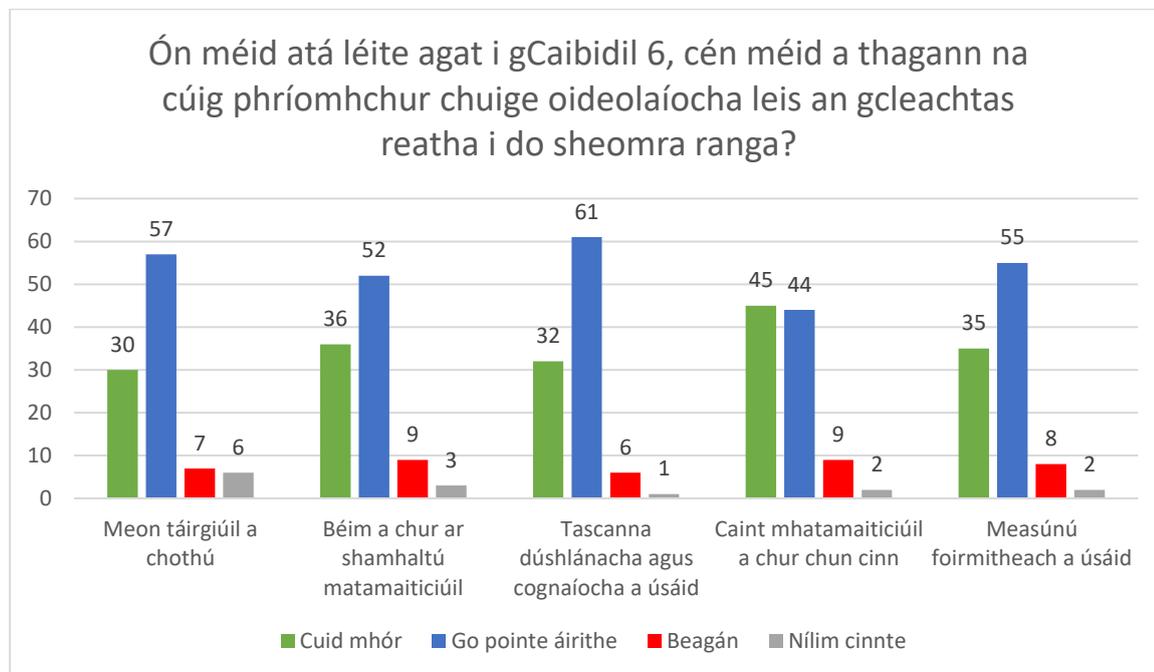
Fíor 7: Cé chomh mór agus a aontaíodh le ráitis maidir le struchtúr agus leagan amach an churaclaim (% na bhfreagraí)

Fiafraíodh de na freagróirí an raibh aon tuairimí breise acu faoin gcaoi a bhfuil an dréacht-CMB leagtha amach agus/nó eagraithe. Tháinig sé chun solais go bhfuil na pointí uileghabhálacha seo a leanas ábhartha:

- Fáiltítear roimh aidhmeanna agus réasúnaíocht ghinearálta an dréachtchuraclaim.
- Luadh imní maidir le heaspa mionsonraí laistigh de na torthaí foghlama agus dúradh go raibh siad “doiléir” and “leathan”. Lorgaíodh eolas níos sainiúla nó aidhmeanna níos soiléire maidir leis na rudaí ba cheart a bheith ar eolas nó bainte amach ag páistí ag deireadh na bliana, le leanúnachas na foghlama a chinntiú thar ranganna.
- Cuireadh imní in iúl go bhfuil an t-athrú ar an leagan amach róshuntasach, nach bhfuil sé éasca a úsáid, agus go bhféadfaidh sé é a bheith dúshlánach do mhúinteoirí é a leanúint agus a chur i bhfeidhm.
- I measc na moltaí a rinneadh, moladh go mbeadh ‘tuiscint uimheartha’ agus ‘gníomhaíochtaí matamaitice luatha’ níos feiceálaí; go mbeadh naisc níos soiléire idir na gnéithe agus na torthaí foghlama; nach mbeadh na torthaí foghlama chomh huailmhianach sna céimeanna ar fad.

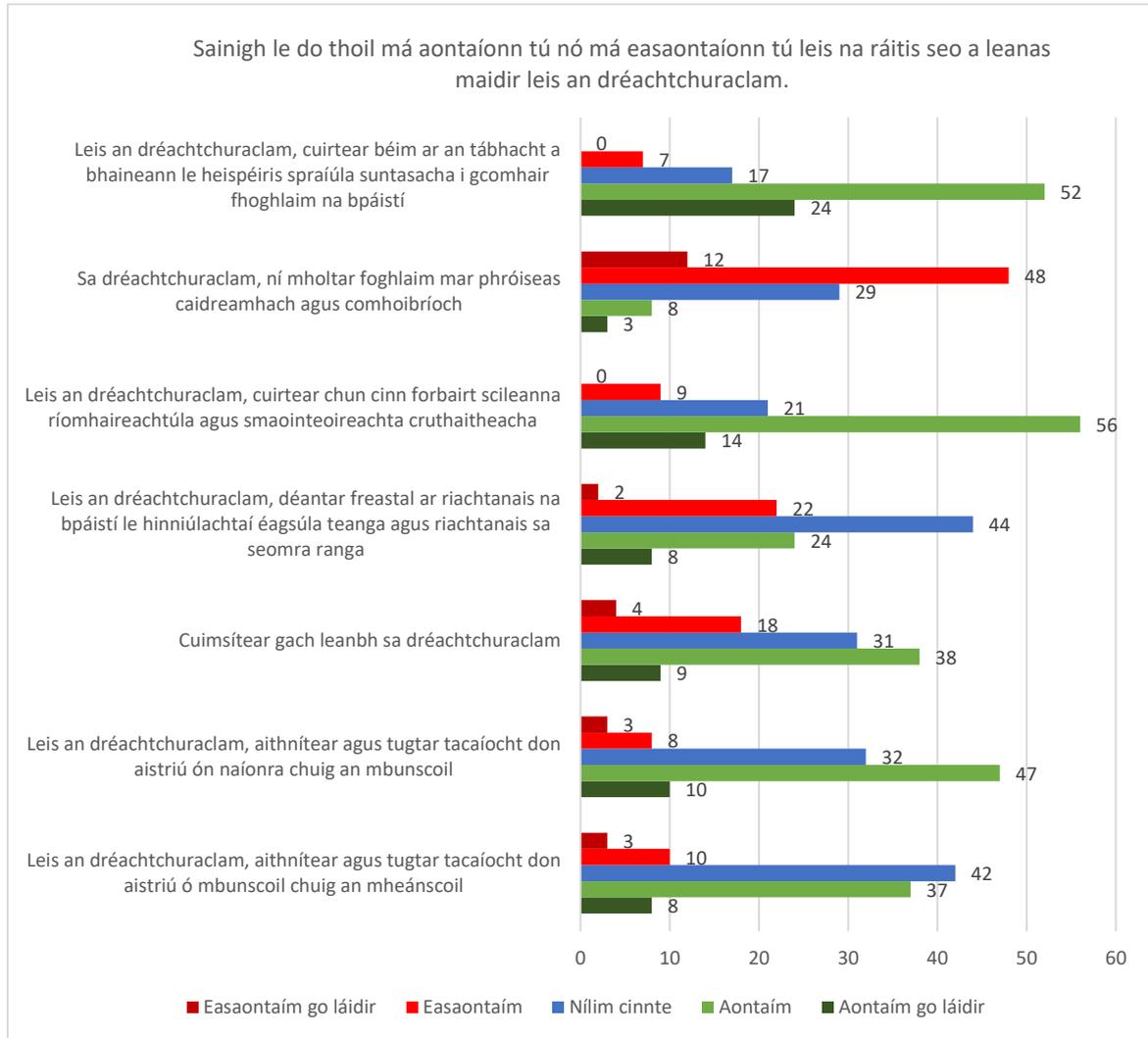
Oideolaíocht agus foghlaim páistí

Iarradh ar na freagróirí a chur in iúl cé chomh mór agus atá ailíniú i gceist idir na cúig chleachtas oideolaíochta atá leagtha amach i gCaibidil 6 agus an cleachtas reatha (féach Fíor 8). Cé go raibh na torthaí cosúil lena chéile ar an iomlán maidir le gach ceann de na cúig chleachtas, bhí an toradh ab airde, ‘cuid mhór’ (45%), ag mata-chaint a chur chun cinn. Ar an iomlán, bhain an scór roinnte ba lú (87%) le meon táirgiúil a chothú i gcás na bhfreagraí, ‘cuid mhór’, agus, ‘go pointe áirithe’.



Fíor 8: An méid a aontaíodh go mbeidh ailíniú idir na cleachtais oideolaíochta agus na cleachtais reatha (% de fhreagraí)

Léiríonn Fíor 9 freagraí maidir le príomhráitis a bhain le foghlaim, ionchuimsiú, agus aistrithe. D'aontaigh 76% de fhreagróirí go gcuirtear béim sa dréacht-CMB ar an tábhacht a bhaineann le taithí spráíúil shuntasach. Mar fhreagra ar an ráiteas, “Sa dréachtchuraclam, ní mholtar foghlaim mar phróiseas caidreamhach agus comhoibríoch”, d'eaontaigh 60% de fhreagróirí, bhí 29% éiginnte, agus d'aontaigh 11%. D'aontaigh 70% de fhreagróirí go gcuirtear chun cinn forbairt scileanna ríomhaireachtúla agus smaointeoireachta cruthaithí sa dréachtchuraclam, bhí 21% éiginnte agus d'eaontaigh 9%. Nuair a fiafraíodh de na freagróirí cé chomh mór agus a d'aontaigh siad leis an ráiteas go bhfreastalaíonn an dréachtchuraclam ar pháistí a bhfuil réimse cumas agus riachtanas teanga acu, bhí 44% de fhreagróirí éiginnte, d'aontaigh 32%, agus d'eaontaigh 24%. D'aontaigh 47% de fhreagróirí go gcuimsítear gach leanbh sa dréachtchuraclam, bhí 31% éiginnte, agus d'eaontaigh 22%. Aontaíodh níos mó go n-aithnítear agus go dtugtar tacaíocht don aistriú ón naíonra chuig an mbunscoil sa dréachtchuraclam (57%) ná mar a aontaíodh i gcás an aistrithe ón mbunscoil go hiar-bhunscoil (45%) agus bhí líon suntasach freagróirí éiginnte (32% agus 42%).



Fíor 9: An méid a aontaítear le ráitis maidir leis an dréachtchuraclam (% na bhfreagraí)

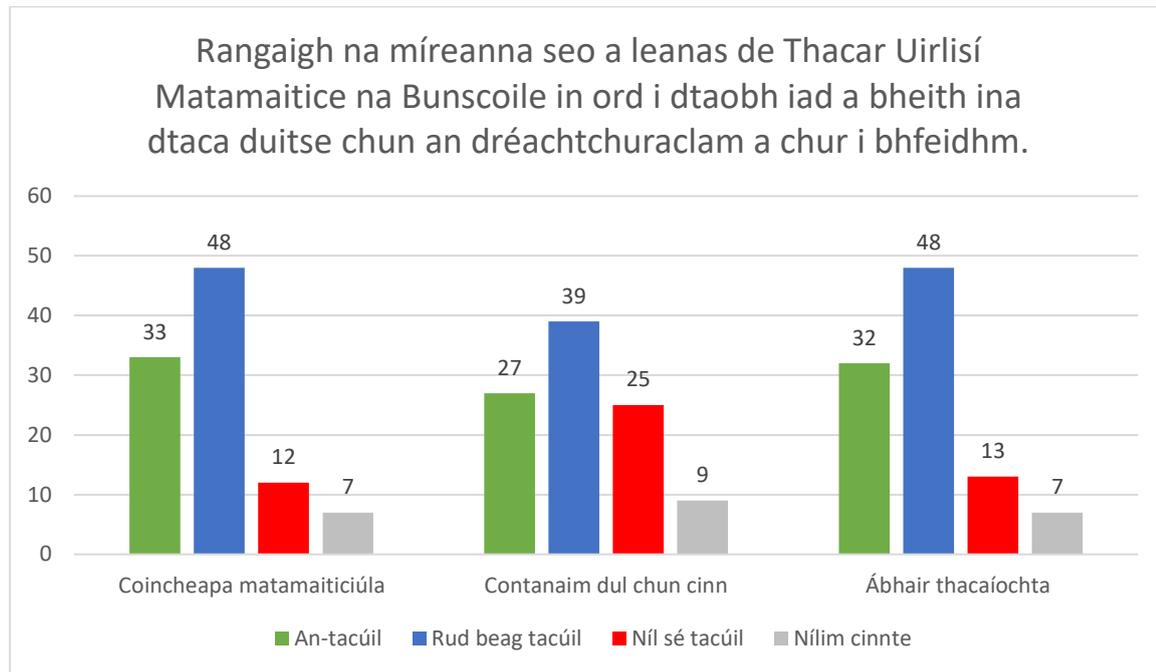
Fiafraíodh de na freagróirí arbh ann d'aon chuid de dhréachtchuraclam na matamaitice a d'fhéadfaí / ba cheart a bhaint? Bhí na pointí seo a leanas i measc na bhfreagraí aonair a tugadh:

- Tá an dréacht-CMB rófhada agus ba cheart athbhreithniú a dhéanamh air agus é a gheallú. Moladh amháin a bhí ann ná nach mbeadh aon cheann de na contanaim dul chun cinn níos faide ná leathanach amháin in aghaidh an Lipéid Toraidh Foghlama.
- Topaicí faoi leith ar nós na roinnte fada agus gnéithe den airgeadas a bhaint amach.
- Luadh an t-ábhar breise a cuireadh le réimse an ailgéabair agus na gcruthanna agus spáis, agus bhí ceist ann maidir lenar baineadh amach chun spás a dhéanamh do na réimsí sin.

Tacaíochtaí

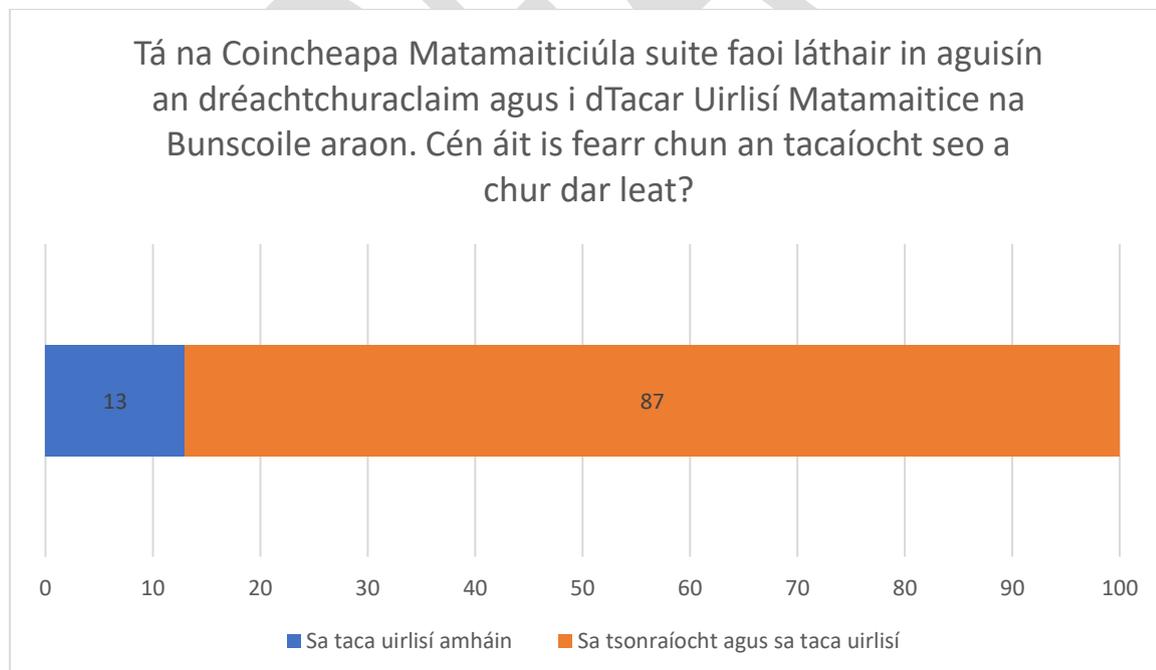
Iarradh ar fhreagróirí úsáideacht codanna éagsúla de Thacar Uirlisí Matamaitice na Bunscoile maidir le bheith ag tacú le cur i bhfeidhm an churaclaim a rangú. Shíl 33% de fhreagróirí go raibh na coincheapa antacúil, shíl 48% go raibh siad tacúil go leor, shíl 12% nach raibh siad tacúil, agus ní raibh 7% cinnte. Rátáladh beagnach mar an gcéanna na hábhair thacaíochta, ach amháin gur shíl 1% sa bhreis nach raibh siad tacúil.

Shíl 27% de fhreagróirí go raibh na contanaim dul chun cinn an-tacúil, shíl 39% go raibh siad tacúil go leor, shíl 15% nach raibh siad tacúil, agus ní raibh 9% cinnte.



Fíor 10: Cé chomh mór agus a tacaíodh le gach ceann de chodanna Thacar Uirlisí Matamaitice na Bunscoile (% de fhreagraí)

Nuair a lorgaíodh tuairimí faoi áit na gcoincheapa matamaiticiúla, bhraith formhór mór (87%) gur cheart dóibh a bheith sa tsonraíocht agus i dTacar Uirlisí Matamaitice na Bunscoile araon (féach Fíor 11).



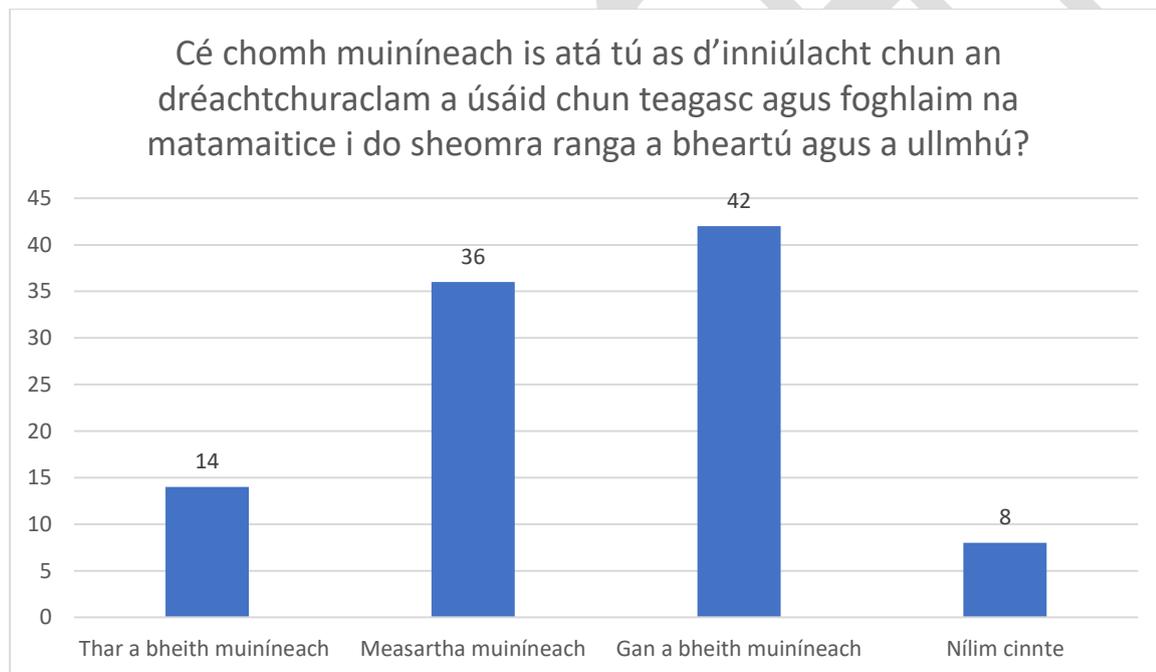
Fíor 11: Rogha áite do na coincheapa matamaiticiúla (% de fhreagraí)

Luaigh freagróirí gur mhaith leo na tacaíochtaí seo a leanas a fheiceáil chun tacú le cur i bhfeidhm an CMB nua:

- Samplaí dá chur i bhfeidhm i roinnt cásanna scoile, lena n-áirítear ceachtanna samhalta.
- Samplaí de thascanna atá dúshlánach ó thaobh na cognaíochta de, gníomhaíochtaí ionchuimsitheacha, agus samhaltú matamaitice.
- Naisc chomhtháthaithe éasca le húsáid sa churaclam ar fad.
- Leagan ar líne den churaclam a bhfuil naisc idirghníomhacha ann.
- Tacaíochtaí d'ullmhúcháin taifeadta (gearrthéarmach agus fadtéarmach; srac-fhorléargas/ bileoga tagartha in aghaidh gach réimse snáithe)
- Tacaíocht do thopaicí faoi leith curaclaim ar nós uirlisí le tuiscint uimheartha a theagasc, spraoi, ionchuimsiú, comhtháthú, smaointeoireachta ríomhaireachtúil, ailgéabar, dul chun cinn le teanga mhatamaiticiúil, agus meonta táirgiúla a fhorbairt.

Chomh maith leis na tacaíochtaí curaclaim seo, luaigh freagróirí freisin go bhfuil gá le níos mó ama don mhata, deiseanna FGL, agus maoiniú agus acmhainní.

Faoi dheireadh, fiafraíodh sa cheistneoir cé chomh muiníneach is atáthar maidir le hinniúlacht chun an dréachtchuraclam a úsáid chun teagasc agus foghlaim na matamaitice a bheartú agus a ullmhú. Bhraith 14% de fhreagróirí thar a bheith muiníneach, bhraith 36% measartha muiníneach, bhraith 42% gan a bheith muiníneach agus ní raibh 8% cinnte.



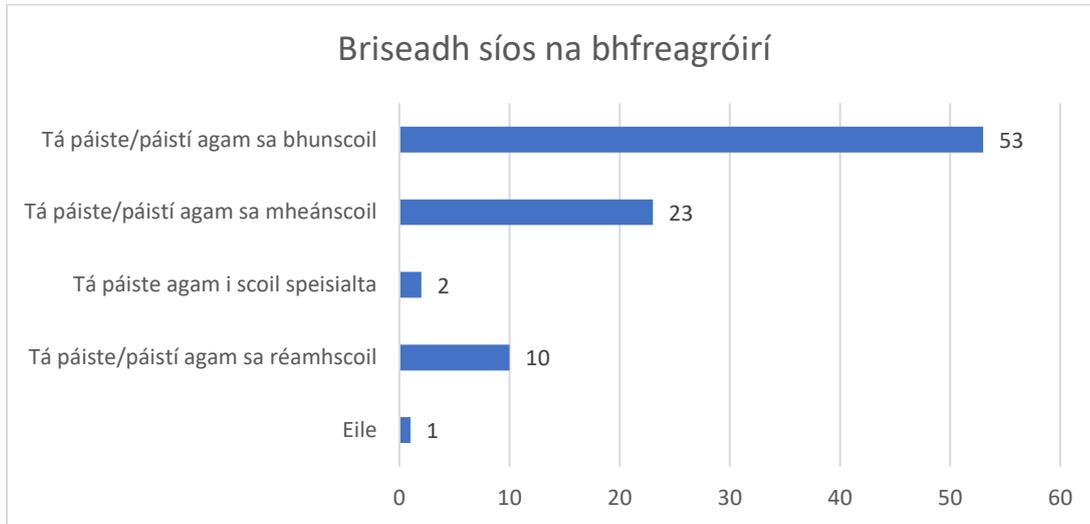
Fíor 12: Cé chomh muiníneach is atáthar maidir le hinniúlacht chun an dréachtchuraclam a úsáid chun teagasc agus foghlaim na matamaitice a bheartú agus a ullmhú (% de fhreagraí)

Ceistneoir Tuismitheoirí/Caomhnóirí

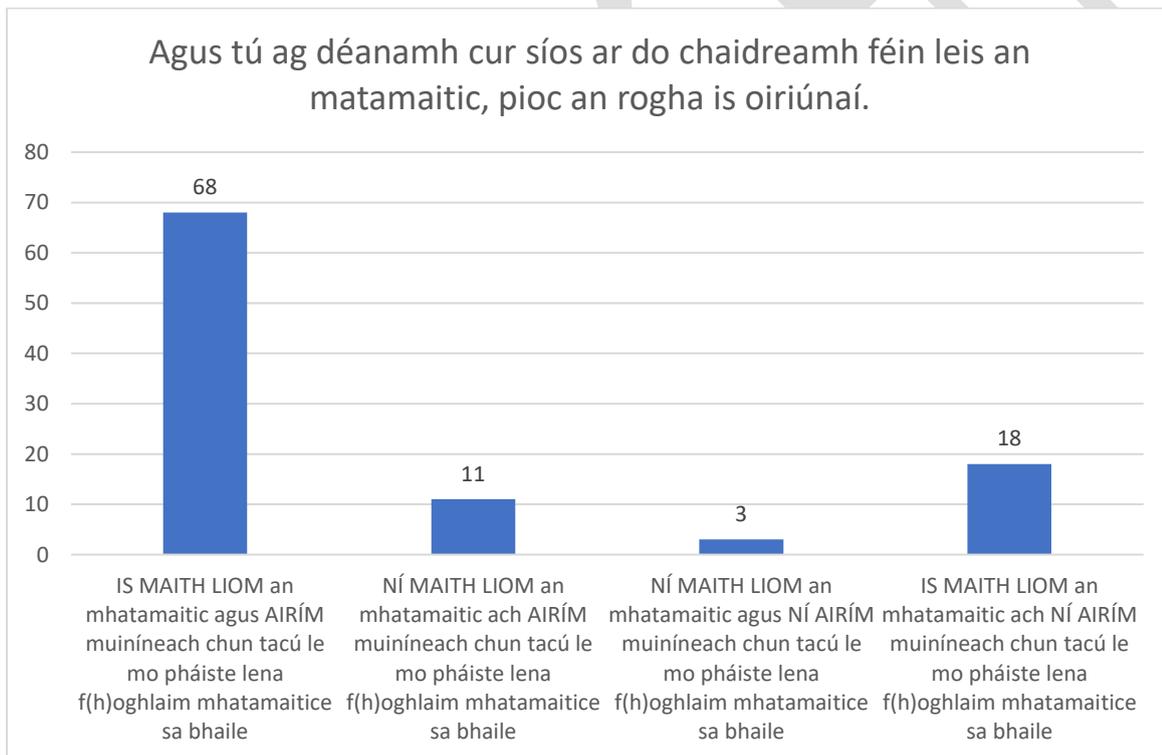
Próifíl an fhreagróra

Fuarthas 56 freagra iomlán ar cheistneoir na dtuismitheoirí/caomhnóirí. Faoi mar a luaitear sa chéad chuid eile, tagann an uimhir seo in éineacht le ceistneoir a rinne an Chomhairle Náisiúnta Tuismitheoirí (Bunoideachas) a fuair 868 freagra. Léirítear i bhFíor 13 próifíl an 56 freagróir (ceadaíodh níos mó ná

freagra amháin ar an gceist seo) agus tugann Fíor 14 léargas ar chaidreamh na bhfreagróirí leis an matamaitic.



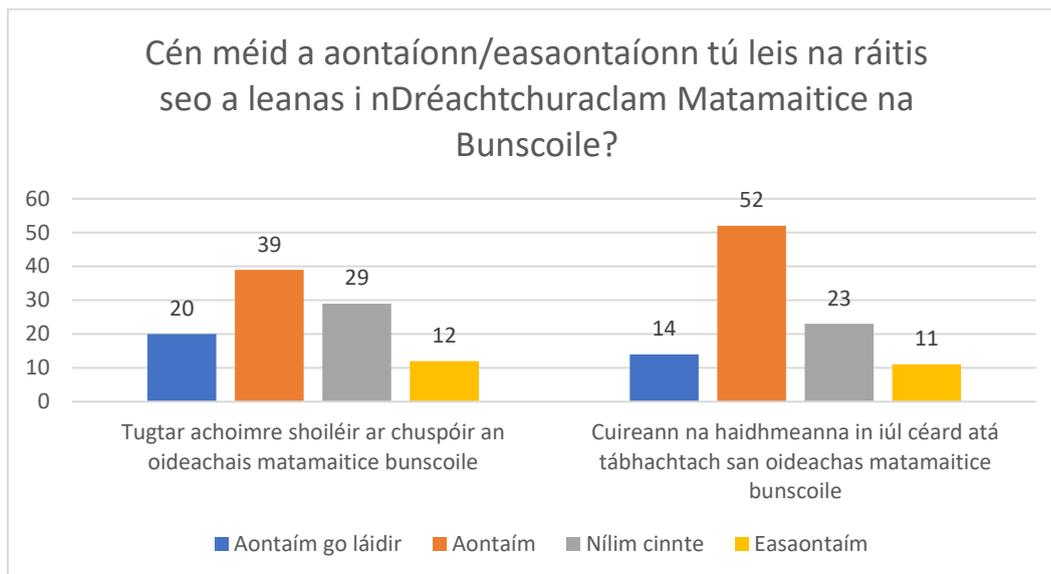
Fíor 13: Briseadh síos próifíl tuismitheoirí/caomhnóirí



Fíor 14: Caidreamh na bhfreagróirí féin leis an matamaitic (% de fhreagróirí)

Aidhmeanna agus réasúnaíocht

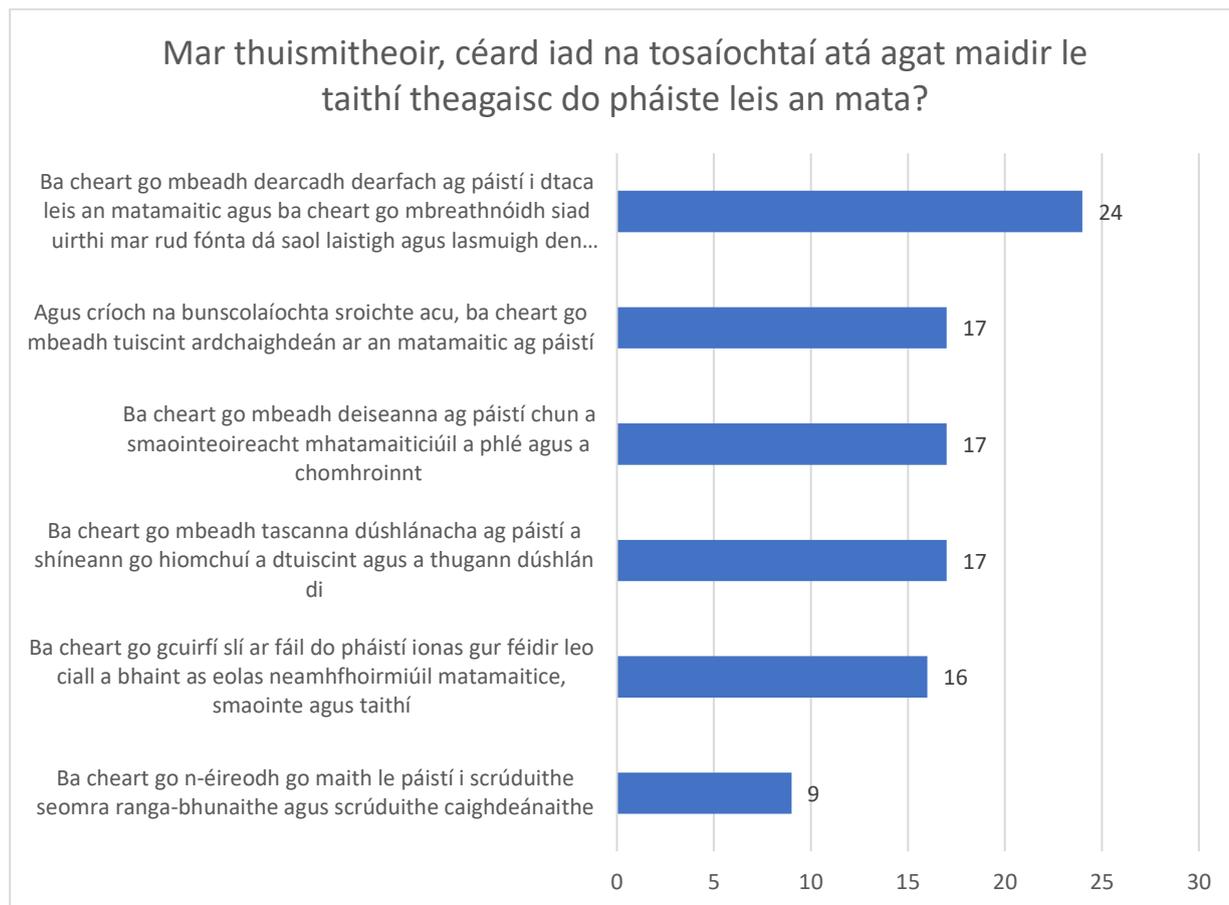
D'aontaigh nó d'aontaigh go láidir 59% de fhreagróirí go leagtar aidhm an oideachais mhata amach go soiléir sa dréacht-CMB, bhí 29% éiginnte, agus d'esaontaigh 12% (féach Fíor 15). Ag an am céanna, d'aontaigh nó d'aontaigh go láidir dhá thrian de fhreagróirí go léiríonn na haidhmeanna na gnéithe a bhfuil tábhacht ag baint leo i mata na bunscoile, bhí 23% éiginnte, agus d'esaontaigh 11%.



Fíor 15: Cé chomh mór agus a aontaíodh leis na ráitis maidir le cuspóir agus aidhmeanna an CMB nua (% de fhreagróirí)

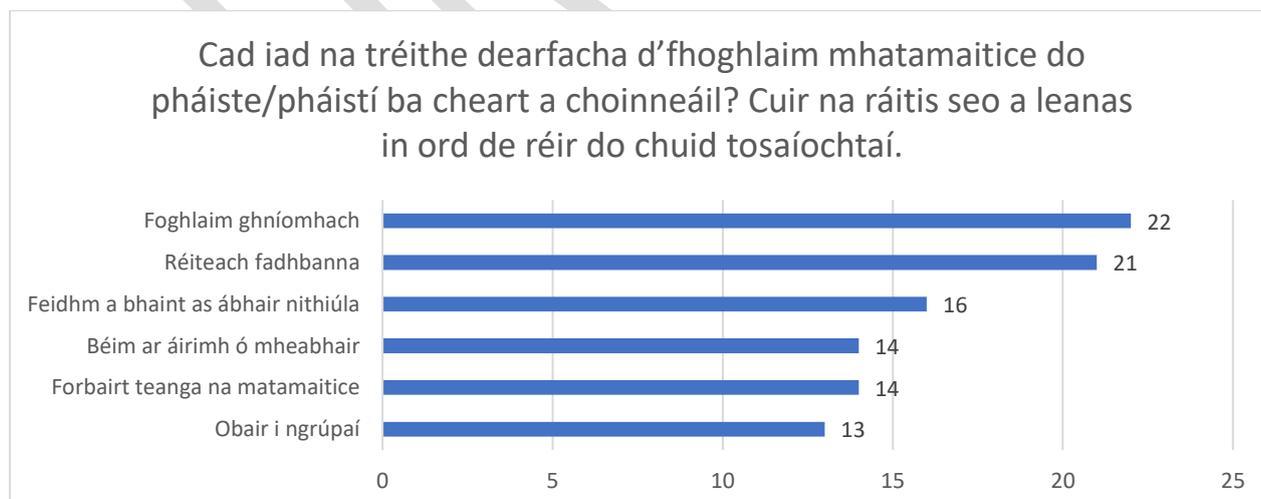
Tosaíochtaí maidir le foghlaim na bpáistí

Maidir le tosaíochtaí d'fhoghlaim na bpáistí a rangú (Fíor 16), bhí, 'Ba cheart go mbeadh dearcthaí dearfacha ag páistí i dtaca leis an matamaitic agus ba cheart go mbreathnóidís uirthi mar rud fóna dá saol laistigh agus lasmuigh den scoil araon', ag barr an liosta le 24%. Ina dhiaidh sin, bhí roghanna a bhain le sealbhú tuisceana níos airde ar an matamaitic (17%), deiseanna chun tuairimí agus smaointe a phlé agus a roinnt (17%), deiseanna dúshlán a bheith roimh scoláirí (17%), agus spás a bheith ar fáil chun go mbeadh deis acu brí a bhaint as a gcuid matamaitice (16%). Faoi dheireadh, síleadh gurb é, 'Ba cheart go n-éireodh go maith le páistí i scrúduithe seomra ranga-bhunaithe agus scrúduithe caighdeánaithe', an tosaíocht ba lú tábhacht agus gan ach 9% ag an gceann sin.



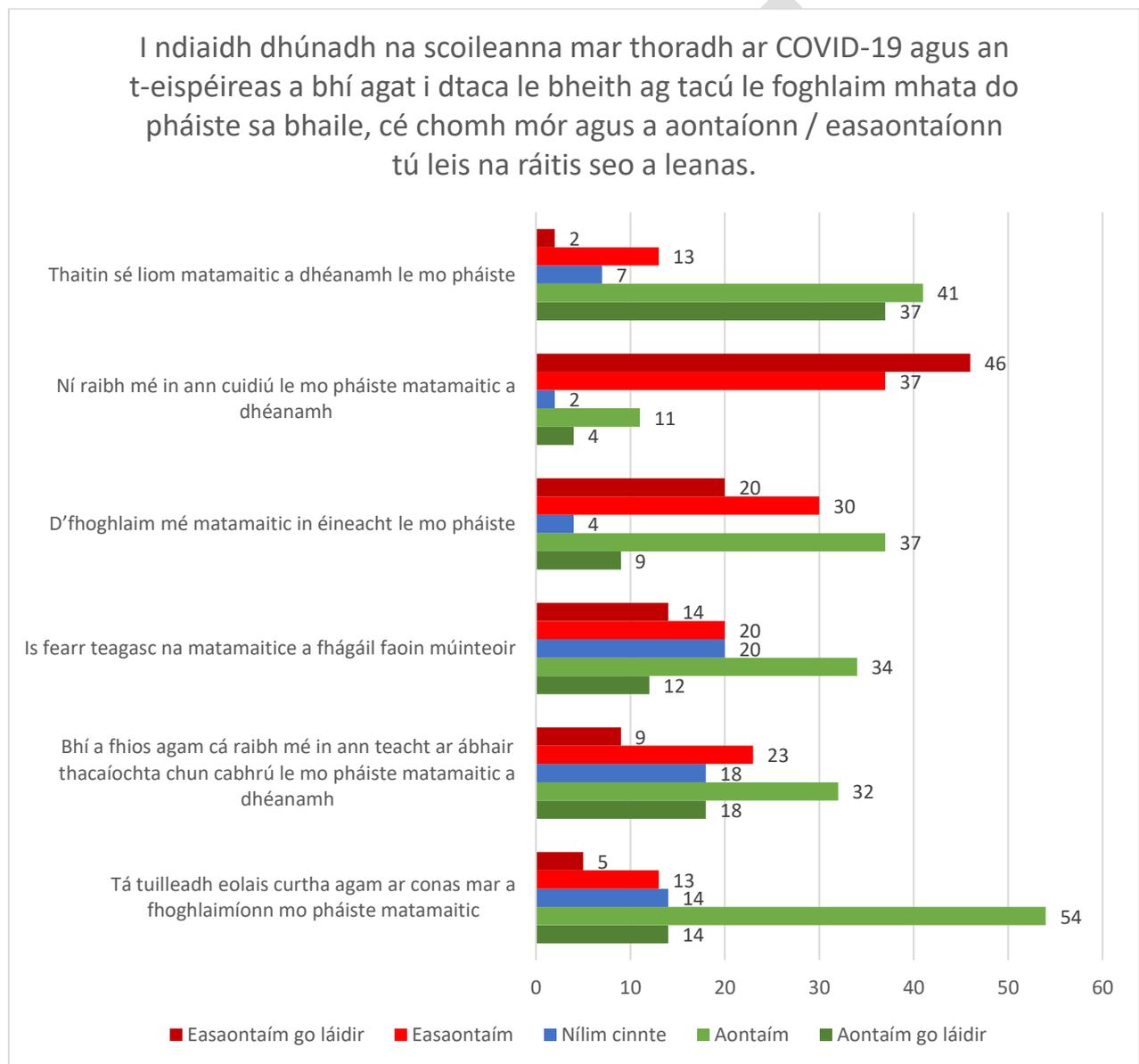
Fíor 16: Tosaíochtaí maidir le foghlaim na bpáistí (% scór tosaíochta ón ngníomhaíocht rangaithe)

Nuair a fiafraíodh de na freagróirí céard iad na gnéithe dearfacha den fhoghlaim mhatamaitice ba cheart a choinneáil, rangáíodh an fhoghlaim ghníomhach agus réiteach fadhbanna mar an dá phríomhthosaíocht, agus rangáíodh chomh dearfach céanna, a bheag nó a mhór, úsáid a bhaint as ábhair phraiticiúla, ríomhanna meabhracha, teanga mhatamaitice, agus obair ghrúpa (féach Fíor 17.)



Fíor 17: Gnéithe dearfacha foghlama ba cheart a choinneáil (% scór tosaíochta ón ngníomhaíocht rangaithe)

Thug freagróirí tuairimí maidir le ráitis a bhain le dúnadh scoileanna de dheasca COVID-19 agus an t-eispéireas a bhí acu i dtaca le bheith ag cabhrú le foghlaim mhata a bpáiste. D'aontaigh nó d'aontaigh go láidir 15% de fhreagróirí leis an ráiteas 'Ní raibh mé in ann cuidiú le mo pháiste matamaitic a dhéanamh', agus d'esaontaigh líon suntasach na bhfreagróirí, is é sin, 83%. D'esaontaigh leath de na freagróirí gur fhoghlaim siad mata lena bpáiste agus d'aontaigh 46%. D'aontaigh 46% de fhreagróirí gur fearr teagasc na matamaitice a fhágáil faoin múinteoir, d'esaontaigh 34% de fhreagróirí agus ní raibh 20% cinnte. D'aontaigh leath de na freagróirí go raibh a fhios acu cá raibh siad in ann teacht ar ábhair thacaíochta chun cabhrú lena bpáiste matamaitic a dhéanamh, d'esaontaigh 32% de fhreagróirí agus ní raibh 18% cinnte. D'aontaigh formhór na bhfreagróirí, is é sin 68%, go raibh níos mó ar eolas acu faoin gcaoi a bhfoghlaímíonn a bpáiste mata, d'esaontaigh 18% de fhreagróirí agus ní raibh 14% cinnte.



Fíor 18: Cé chomh mór agus a aontaíodh le ráitis a bhain le COVID-19 agus dúnadh scoileanna (% de fhreagróirí)

Tacaíochtaí a mholtar agus tráchtanna deiridh

Iarradh ar na freagróirí na hábhair thacaíochta a shainiú ar mhaith leo iad a bheith ar fáil in éineacht leis an gcuraclam nua chun cuidiú leo le foghlaim mhataimice a bpáiste sa bhaile. Roinneadh na pointí seo a leanas:

- Forléargas ar churaclam matamaitice nua na bunscoile agus na hathruithe atá á gcur i bhfeidhm.
- Forléargais agus tacaíochtaí a bhaineann le haois agus le rang.
- Tacaíochtaí, samplaí, agus físeáin i réimsí faoi leith ar nós cluichí mata, réiteach fadhbanna, modhanna nós imeachta, mata meabhrach, imní i leith an mhata a laghdú, agus an chaoi a mbaineann an mhata leis an bhfíorshaol.
- Acmhainní ar líne d'fhoghlaim mhata páistí atá úsáideach agus 'sábháilte' a aithint.
- Obair bhaile a bhfuil "níos mó i gceist léi ná táblaí amháin".

Faoi dheireadh, tugadh deis do thuismitheoirí/caomhnóirí aon tuairimí deiridh a bhí acu maidir leis an dréacht-CMB a roinnt. Mar fhreagra air seo, roinneadh na pointí seo a leanas:

- Leagadh béim ar an tábhacht a bhaineann le hábhair nithiúla chun mata a dhéanamh níos spreagúla.
- Léiríodh imní maidir le castacht agus leibhéal an ábhair sna contanaim dul chun cinn.
- Lorgáíodh soiléireacht maidir leis na nithe a bhfuiltear ag súil leis na páistí iad a fhoghlaim i ngach rang.
- Lorgáíodh comhtháthú breise de ghnéithe den smaointeoireacht ríomhaireachtúil, códú, agus ríomheolaíocht i gcuraclam matamaitice na bunscoile.
- Leagadh béim ar thábhacht bunfhríicí uimheartha agus matamaitice meabhraí do pháistí agus gur cheart tús áite a thabhairt dóibh seachas don áireamhán.
- Lorgáíodh béim níos mó ar na naisc idir an mhata agus an saol laethúil.
- Leagadh béim ar an tábhacht a bhaineann le cumarsáid idir an scoil agus an baile maidir le foghlaim mhata páistí a bhunú agus a choinneáil.
- Lorgáíodh eispéiris dhúshlánacha foghlama do pháistí ardghnóthachtála.
- Lorgáíodh uasoiliúint rialta do mhúinteoirí agus tuismitheoirí.
- Lorgáíodh foghlaim neamhspleách agus faoi stiúir an pháiste a chur chun tosaigh.
- Fáiltíodh go háirithe leis an ráiteas sa réasúnaíocht gur 'matamaiticeoir é gach páiste' agus luaigh freagróir amháin, *"go bhfuil gach páiste ábalta agus go bhfuil an dearcadh dearfach seo i leith na matamaitice chomh tábhachtach don saol. Ba mhaith linn go ndéanfadh ár gcuid páistí botún agus go smaoinéis go cruthaitheach."*

Aighneachtaí scríofa

Fuair CNCM 10 n-aighneacht scríofa mar fhreagra ar an dréacht-CMB. Is féidir teacht ar na haighneachtaí seo chomh maith le liosta na bhfreagróirí san Aguisín. Fuarthas cead ó gach duine den deichniúr freagróirí na haighneachtaí seo a roinnt. Sa chuid seo, tá achoimre ghearr ar na príomhthéamaí a tháinig chun solais sna haighneachtaí seo.

I measc ghnéithe dearfacha an dréacht-CMB ar leagadh béim orthu sna haighneachtaí, bhí leagan amach, réasúnaíocht agus aidhmeanna láidre shonraíocht an churaclaim. Fáiltíodh roimh an bhfís maidir le hinniúlacht sa mhata a fhorbairt i bpáistí, go háirithe an bhéim ar mheon táirgiúil. Luaigh freagróirí nádúr

páisteláraithe an churaclaim a chruthóidh aistear foghlama níos leithlí agus pearsantaithe do pháiste chomh maith le heispéiris foghlama dearfacha bunaithe ar spraoi. Meastar gur dea-rud iad na coincheapa matamaiticiúla a cuireadh leis an gcuraclam agus an bhéim ar thógáil ar an tuiscint agus na scileanna atá ag páistí cheana féin. D'fháiltigh freagróirí freisin roimh na hÁbhair Tacaíochta nua, go háirithe iad siúd a dhírigh ar thimpeallachtaí saibhre foghlama, mata-chaint, agus tascanna atá dúshlánach ó thaobh na cognaíochta de.

Léiríodh imní i roinnt aighneachtaí scríofa nach raibh dóthain sonraí nó nasc chuig bhunchaighdeáin (naisc chuig noirm rangbhunaithe) sna Torthaí Foghlama agus chreid roinnt daoine go bhféadfadh doiléire agus deacrachtaí teacht aníos mar thoradh air seo, go háirithe do mhúinteoirí nuacháilithe. Lorgaíodh in aighneacht amháin nasc níos soiléire idir na Torthaí Foghlama agus na Contanaim Dul chun Cinn; agus ráitis níos sonraí maidir le ról an mhúinteora agus 'céard' ba cheart a mhúineadh agus an curaclam á chur i bhfeidhm. Lorgaíodh i roinnt aighneachtaí tagairtí níos sainiúla don ionchuimsiú; bunús agus cuspóir na dTorthaí Foghlama; spraoi; rannpháirtíocht; smaointeoireacht ríomhaireachtúil; agus oideolaíochtaí ar nós 'teagasc díreach idirghníomhach' laistigh de shonraíocht an churaclaim, agus, ag an am céanna, lorgaíodh in aighneachtaí eile béim níos mó ar scileanna digiteacha agus ar litearthacht airgeadais.

Thug na haighneachtaí le fios go raibh féidearthacht ann do níos mó comhleanúnachais idir an curaclam nua agus *Curaclam Teanga na Bunscoile* (CNCM, 2019), *Dréachtchreat Curaclaim na Bunscoile* (CNCM, 2020), chomh maith leis an treoir maidir le *hUllmhúchán don Teagasc agus don Fhoghlaim* (CNCM, 2021), agus ailíniú níos fearr le príomhscileanna na Sraithe Sóisearaí (CNCM, 2015) agus *Aistear* (CNCM, 2009). Lorgaíodh freisin athbhreithniú ar réim na teanga le go mbeadh sí níos inrochtana agus comhleanúnach leis an gcaoi a gcuireann páistí a gcuid foghlama in iúl.

Maidir le tacaíochtaí breise a chur ar fáil mar chuid de Thacar Uirlisí Matamaitice na Bunscoile, léiríonn na moltaí a rinneadh sna haighneachtaí scríofa go bhfuil gá le níos mó soiléireachta maidir leis an gcaoi leis an gcuraclam a úsáid ar mhaithe le pleanáil; samplaí de na cúig ghnéithe d'Inniúlacht Mhatamaiticiúil; tacaíochtaí a dhíríonn ar mhúinteoirí a fheabhsú; agus soláthar samplaí barántúla d'fhoghlaim páistí a thagann le gnáthchásanna seomraí ranga na hÉireann; agus cur isteach nasc agus feidhmeanna úsáideacha chun dul trí ghnéithe éagsúla den churaclam i leagan ar líne na sonraíochta.

Faoi dheireadh, chomh maith leis an aiseolas maidir leis an gcuraclam, cuireadh in iúl i roinnt aighneachtaí go bhfuil gá le coinníollacha feabhsaithe le cur i bhfeidhm fiúntach an churaclaim a chumasú, lena n-áirítear líon níos lú páistí sna ranganna; acmhainní agus maoiniú; am chun gníomhaíochtaí praiticiúla a dhéanamh. Leag freagróirí béim freisin ar an ngá le forbairt ghairmiúil atá praiticiúil, curtha in oiriúint, agus a chuireann am agus spás ar fáil do mhúinteoirí le comhoibriú a dhéanamh agus tuiscint a fháil ar an leagan amach agus an fhealsúnacht atá mar bhonn leis an gcuraclam, agus ina dtaispeántar ceachtanna praiticiúla.

Tá aighneacht na Comhairle Náisiúnta Tuismitheoirí (Bunoideachas) bunaithe ar cheistneoir cuimsitheach a rinne an eagraíocht. Fuarthas tuairimí 868 tuismitheoir/caomhnóir agus 196 páiste. Chuir na suirbhéanna seo léargais spéisiúla ar fáil d'fhorbairt churaclaim, ar nós meonta tuisceanacha agus caidrimh le matamaitic; tosaíochtaí d'fhoghlaim páistí sa bhunscoil; agus eispéiris na foghlama ag an mbaile le linn phaindéim COVID-19. Tugann na suirbhéanna seo treoir úsáideach freisin maidir le hábhair thacaíochtaí a fhorbairt do thuismitheoirí ionas gur féidir leo cabhrú le foghlaim mhatamaitice a gcuid páistí sa bhaile. Tháinig sé chun solais i bhfreagraí ar cheisteanna a bhain go sonrath leis an gcuraclam reatha go mbíonn deacrachtaí ag páistí le deachúlacha agus réiteach fadhbanna, go háirithe fadhbanna scríofa; agus lorgaíodh níos mó ama le linn an ranga le ciall a bhaint as a gcuid foghlama matamaitice. Dúirt líon suntasach tuismitheoirí go raibh an curaclam reatha róshimplithe; agus thuairiscigh siad gur theastaigh uathu go mbeadh an mhatamaitic níos dúshlánaí agus luaigh go háirithe deiseanna le haghaidh níos mó dul chun cinn agus forbartha ar an

bhfoghlaim sna luathbhlianta. Luaigh roinnt tuismitheoirí freisin ceist gníomhaíochtaí réitithe fadhbanna a bhfuil an-chuid litearthachta i gceist leo agus cheistigh siad fiúntas gníomhaíochtaí a bhaineann le táblaí agus mata mheabhrach. Bunaithe ar líon suntasach na bhfreagraí ar na suirbhéanna seo, cuireann siad go mór le tuairimí páistí agus tuismitheoirí a bailíodh le linn an chomhairliúcháin.

Torthaí Líonra Scoileanna

Léireofar sa chuid seo torthaí na sonraí a bailíodh ón Líonra Scoileanna. Léirítear iad faoi cheithre phríomh-cheannteidil. Is iad sin:

- Sonraíocht agus struchtúr curaclaim
- Tuairimí na múinteoirí maidir le príomhathruithe
- Sraith straitéisí don mhúinteoir
- An curaclam a chur i bhfeidhm.

Sonraíocht agus struchtúr curaclaim

Réasúnaíocht agus aidhmeanna curaclaim

Bhí go leor plé mar gheall ar an réasúnaíocht a cuireadh i láthair sa dréachtshonraíocht. D'fháiltigh formhór na múinteoirí le príomhráitis na réasúnaíochta agus d'aithin siad go raibh siad ríthábhachtach maidir leis an athrú meoin is gá le go ndéanfadh an curaclam nua difríocht shuntasach i bhfoghlaim mhatamaitice páistí. Bhí plé faoi leith ann maidir leis an ráiteas, 'Is matamaiticeoir é gach páiste', agus dúirt roinnt múinteoirí nach sílfeadh gach páiste anois gur matamaiticeoirí iad, agus go leagann siad béim shuntasach ar cé acu atá an freagra ceart nó mícheart acu. Braitheadh go raibh an ráiteas seo tábhachtach i dtaca le hathrú meoin a chothú maidir leis an matamaitic agus le bheith ag cabhrú le páistí a thuiscint go mbaineann níos mó leis an matamaitic ná an freagra ceart a fháil. D'fháiltigh an líonra le haidhm ghinearálta an dréacht-CMB. Cé gur aithníodh go raibh gach ceann de ghnéithe na hinniúlachta sa mhatamaitic tábhachtach, braitheadh gurb iad an tuiscint choincheapúil, meon táirgiúil, agus réasúnaíocht oiriúnaitheach na gnéithe is tábhachtaí. Dúirt múinteoirí go bhfuil an curaclam reatha "lán agus trom" agus go bhfuil cur chuige níos moille ag teastáil do na haidhmeanna nua seo agus níos mó ama le haghaidh smaointeoireachta agus plé.

Struchtúr, leagan amach and ailíniú

Fáiltíodh go forleathan leis na grafaicí eolais agus leagan amach ginearálta na dréachtshonraíochta. Léiríodh gurbh fhearr cáipéis sonraíochta a bhí níos giorra seachas ceann níos faide, agus, mar sin, moladh go leagfaí an t-ábhar amach ar bhealach níos simplí. D'aithin múinteoirí an t-ailíniú struchtúrtha idir an dréacht CMB agus an CTB. Mar sin féin, chuir go leor múinteoirí in iúl go mbaineann drochdhearthaí le rolladh amach tosaigh an CTB do go leor daoine agus go bhfuil scoileanna go fóill i mbun luathchéimeanna a chur i bhfeidhm. É sin ráite, dúradh go mbaineann dúshlán le húsáid an téarma 'lipéad toraidh foghlama' agus go bhfuil míréir ag baint le húsáid 'gnéithe' idir an CTB agus an dréacht-CMB.

Maidir leis an leagan amach, bhí meon dearfach ag múinteoirí maidir leis na grafaicí eolais a úsáideadh sa dréachtshonraíocht. Braitheadh go ndéanann siad achoimre ar phríomhtheachtaireachtaí agus ar phríomhsmaointe ar bhealach an-ghonta. Luaigh roinnt múinteoirí go bhféadfaí cur le húsáid dathanna sna grafaicí eolais, chomh maith le códú de réir dathanna i gcáipéisí uile an churaclaim ionas go mbeadh sé níos éasca iad a úsáid.

Luaigh múinteoirí freisin ailíniú le matamaitic iar-bhunscoile. Leagadh béim freisin ar an gcaoi ar cheart don aistear idir an dá earnáil a bheith éasca do scoláirí. Luaigh roinnt múinteoirí go gcabhródh athrú ó dhírú ar an 'bhfreagra' go dtí an 't-aistear i dtreo an fhreagra' le páistí nuair a fhágann siad bunscoileanna. Moladh freisin go ndéanfaí na heispéiris foghlama sna contanaim dul chun cinn a athbhreithniú bunaithe ar an méid atá sa churaclam matamaitice ag leibhéal na sraithe sóisearaí.

Torthaí foghlama a úsáid

Roinn rannpháirtithe freagraí measctha maidir leis an athrú go húsáid a bhaint as torthaí foghlama. Dúirt roinnt múinteoirí nach raibh siad chomh trína chéile céanna ag líon na dtorthaí foghlama i gcomparáid leis na cuspóirí reatha foghlama. Luaigh siad freisin gur bhain níos mó saoirse, spás le haghaidh cruthaitheachta agus deis bualadh leis na páistí san áit a bhfuil siad ó thaobh na foghlama de leis na torthaí foghlama. D'fháiltigh scoileanna beaga roimh an gcaoi a mbeadh na torthaí foghlama ag rith thar dhá bhliain. Ar an lámh eile, léirigh roinnt múinteoirí inní go raibh na torthaí foghlama róleathan agus go bhféadfadh an iomarca mearbhaill a bheith i gceist mura mbeadh aidhmeanna foghlama faoi leith ann do gach rang. Dúradh go ndéanadh úsáid a bhaint as torthaí foghlama eolas na múinteoirí ar inneachar ábhair a thástáil agus lorgaíodh níos mó tacaíochta scaflála maidir leis na torthaí foghlama a úsáid. Bhraith roinnt múinteoirí gur chinntigh leagan amach churaclam 1999 freagracht ó thaobh na foghlama de agus go leagann an dréacht CMB níos mó freagrachta ar an múinteoir aonair. Luadh go bhféadfadh céad-taithí an mhúinteora ar shaoirse agus gníomhú den chineál seo a bheith scanrúil. Lorg múinteoirí nasc níos mó idir an curaclam reatha agus an dréacht-CMB agus dúradh go raibh níos mó tacaíochta ag teastáil chun na torthaí foghlama a bhainistiú. Bhraith siad go raibh níos mó sonraí nó tuilleadh tascairí ag teastáil leis an bhfoghlaim laistigh de na torthaí foghlama a léiriú.

Réim teanga

Ar an iomlán, braithheadh go raibh an teanga sa dréachtsonraíocht insroichte. D'fháiltigh múinteoirí roimh na moltaí praiticiúla i gCaibidil 6 agus dúradh gur leagadh amach ar bhealach an-soiléir agus achomair iad. É sin ráite, measadh go raibh cuid den téacs tuairisciúil a úsáideadh sa chaibidil chéanna ró-acadúil agus casta agus lorgaíodh athbhreithniú ar théacs den chineál sin lena chinntiú go bhfuil sé insroichte. Cé go bhfuiltear ag súil le go mbainfear úsáid as roinnt teanga nua (meon táirgiúil a chothú nó tascanna atá dúshlánach ó thaobh na cognaíochta de, mar shampla), ba cheart nach mbeadh an iomarca de seo ann agus nach mbainfí úsáid as ach amháin chun cur síos a dhéanamh ar chleachtais nó smaointe nua. Chun athrú a sheachaint, moladh nár cheart an frása, 'Trí eispéiris chuí rannpháirteacha foghlama, ba cheart go mbeadh páistí in ann..., a úsáid ag tús gach toraidh foghlama. Fáiltíodh mar uirlis úsáideach an ghluais agus moladh coitianta a roinneadh ná go mbeadh feidhm luchóg os comhair an deilbhín sa leagan ar líne de cháipéisí an churaclaim.

Aiseolas ar mholtaí do réimse nua curaclaim de Mhata, Eolaíocht agus Teicneolaíocht

Ar an iomlán, fáiltíodh roimh réimse curaclaim, 'Matamaitic, Eolaíocht agus Teicneolaíocht', faoi mar a moladh i nDréachtchreat Curaclaim na Bunscoile (CNCM, 2020) agus dúirt rannpháirtithe go bhfuil daoine cleachta go maith le coincheap STEM sa chóras faoi láthair. Leagadh béim ar an gcaoi ar ghá go mbeadh an réimse curaclaim leagtha amach ar bhealach soiléir agus éasca le húsáid agus go rachfaí i ngleic le ceist an ró-ualaithe curaclaim. Ar an gcaoi seo, beidh feidhmiúlacht cháipéisí an churaclaim ríthábhachtach agus is gá go ndéanfar an curaclam nua mata a ailíniú leis an méid a thagann ina dhiaidh.

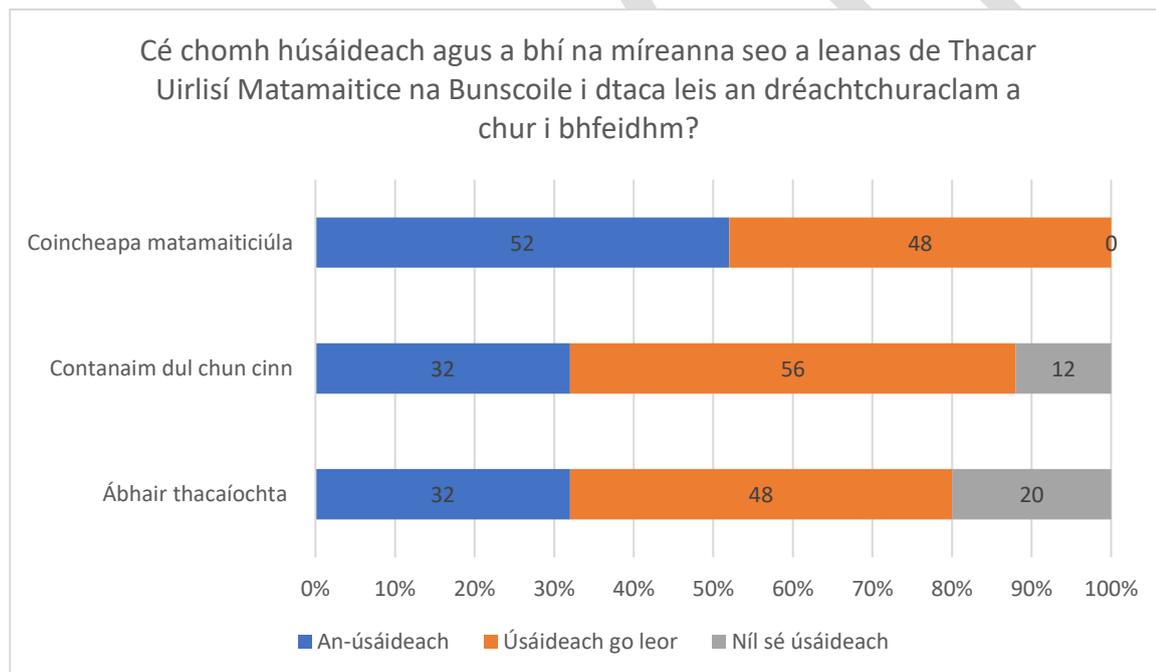
Bheadh sé úsáideach torthaí foghlama a nascadh ó pheirspictíocht na pleanála de, ach braithheadh freisin go bhféadfaí na hábhair a nascadh ar leibhéal níos doimhne, mar shampla, trí chreat foghlama ar bhonn

scileanna agus fiosraithe. Aontaíodh go mbeadh obair thionscadail ina cur chuige oideolaíochta úsáideach leis na réimsí a nascadh.

Luadh mar dheacracht easpa taithí múinteoirí le comhtháthú fiúntach. Bheadh samplaí oibrithe sainithe ag teastáil, a thaispeánann an chaoi a ndéantar pleanáil do thionscadail agus an chaoi a n-oibrítear amach iad. Beidh ar mhúinteoirí a thaispeáint an chaoi ar féidir leo torthaí éagsúla foghlama a thabhairt le chéile agus an chaoi a mbíonn na hábhair ar fad ag brath ar a chéile le ceisteanna nó fadhbanna móra a réiteach. Lorg rannpháirtithe go láidir liosta samplaí de théamaí oiriúnacha nó ceisteanna a d'fhéadfadh múinteoirí a úsáid dá mba mhian leo. Ba cheart na samplaí seo a nuashonrú ar bhonn bliantúil agus thabharfaidís smaointe fiúntacha agus reatha ar fáil.

Tacar Uirlisí Matamaitice na Bunscoile

Maidir le Tacar Uirlisí Matamaitice na Bunscoile, d'oibrigh múinteoirí sa líonra scoileanna leis na coincheapa matamaiticiúla, contanaim dul chun cinn, agus aon cheann déag de dhréacht-ábhair thacaíochta. Sa cheistneoir líonra scoileanna deireanach, iarradh ar rannpháirtithe úsáideacht ghinearálta na ngnéithe éagsúla seo de Thacar Uirlisí Matamaitice na Bunscoile a rátáil (féach Fíor 19).



Fíor 19: Cé chomh húsáideach agus a bhí na ngnéithe éagsúla de Thacar Uirlisí Matamaitice na Bunscoile

Coincheapa Matamaiticiúla

Ar an iomlán, d'fháiltigh múinteoirí roimh chuimsiú na gcoincheap matamaiticiúil sa tacar uirlisí, agus aithníodh gur nasc úsáideach iad idir na torthaí foghlama agus na contanaim dul chun cinn. Dúirt múinteoirí go raibh na coincheapa matamaiticiúla cabhrach agus úsáideach i dtaca leis an bhfoghlaim a dhéanamh níos praiticiúla. Ar an iomlán, braitheadh gur cheart nach mbeadh na coincheapa matamaiticiúla ach sa spás tacaíochta. É sin ráite, lorg roinnt múinteoirí tuilleadh tacaíochta chun na torthaí foghlama a úsáid.

Roinneadh moltaí maidir le leagan amach na gcoincheap a fheabhsú lena chinntiú go dtuigeann múinteoirí nach torthaí foghlama iad.

Contanaim dul chun cinn

Luadh inní maidir le leibhéal an ábhair sna contanaim dul chun cinn agus dúirt roinnt múinteoirí go raibh sé 'plódaithe' agus 'iomarcach'. Cé gur aithníodh go bhfuil siad seo sa spás tacaíochta, bhraith múinteoirí fós go bhféadfaidís múinteoirí a chur faoi bhrú iarracht a dhéanamh agus eispéiris foghlama a chur ar fáil sna réimsí seo ar fad. Braitheadh go raibh cuid den fhoghlaim a ndearnadh cur síos uirthi iontu deacair a thuiscint, go háirithe sna garspriocanna uachtaracha. Dúirt go leor múinteoirí go raibh na garspriocanna uachtaracha seo ró-ard agus dúirt cuid acu nach mbeadh daltaí rang a sé atá ag obair ag leibhéal an-ard sa mhatamaitic ábalta dul i ngleic leo fiú. Lorgaíodh go ndéanfaí athbhreithniú ar na garspriocanna uachtaracha seo go háirithe. D'fhiafraigh rannpháirtithe eile an bhféadfaí na cleachtais oideolaíochta a dtacaítear leo sa dréachsonraíocht a nascadh níos mó leis na heispéiris foghlama atá sna contanaim dul chun cinn. Braitheadh nach raibh na ráitis reatha róshaibhir agus iarradh go gcuirfí isteach níos mó gnéithe praiticiúla. Dúradh gur cheart go ndéanfaí athbhreithniú orthu seo le leibhéal an ábhair a laghdú agus le go mbeidís níos insroichte.

Dúirt an dream a oibríonn san oideachas speisialta go raibh na garspriocanna íochtaracha iontach ionchuimsitheach agus cabhrach. Bhraith siad go n-ionchuimsíonn an teanga na páistí ar fad, agus measadh go raibh frásaí sna contanaim dul chun cinn ar nós, 'faoi láthair tá ...', 'taispeántar X dó', agus 'faigheann sé/sí taithí ar ...' an-úsáideach ar fad. Aithníodh an obair forbartha a cuireadh i gcrích maidir lena chinntiú go n-ionchuimsíonn na céimeanna seo gach páiste ó bhí an comhairliúchán deireanach ann. Braitheadh gur leag sé seo béim ar an teachtaireacht gur féidir le gach páiste, beag beann ar chumas nó gá, taithí a bheith aige/aici ar fhoghlaim shaibhir mhatamaitice ar bhealach an-fhiúntach.

Ábhair thacaíochta

San athbhreithniú a rinne siad ar na hábhair thacaíochta, luaigh múinteoirí gnéithe a bhraith siad a bheith go háirithe úsáideach. Fáiltíodh roimh smaointe praiticiúla ar nós fréamhacha abairtí, gluaiseachtaí cainte, ceisteanna noda agus deiseanna le haghaidh caint mhata, chomh maith le samplaí sonracha de thascanna agus gníomhaíochtaí teagaisc. Lorg múinteoirí béim níos mó ar smaointe praiticiúla sna hábhair thacaíochta ar fad reatha agus amach anseo sna staid éagsúla agus i ngach ceann de na snáithí. Dúradh go bhféadfaí cuid den téacs sna hábhair reatha a laghdú lena chinntiú go gcoinnítear gearr go leor iad, rud a ligfeadh do mhúinteoirí na príomhsmaointe a thuiscint níos tapúla. Dúradh nach dteastaíonn an téacs neamhábhartha maidir le réasúnaíocht smaointe éagsúla ó mhúinteoirí i ndáiríre. Tugadh breis moltaí freisin maidir leis an teanga a úsáideadh sna dréacht-ábhair thacaíochta, agus dúirt múinteoirí go raibh an teanga a úsáideadh i gcásanna áirithe an-acadúil.

Theastaigh uathu siúd a oibríonn san oideachas speisialta go mbeadh na hábhair thacaíochta aireach ar pháistí de gach riachtanas. Mar shampla, d'fhéadfadh an dréacht-ábhar tacaíochta, 'Tacú le Forbairt Súile Mata sa Bhaile agus sa Phobal', tagairt a dhéanamh do réimse céadfach na mata sa timpeallacht, ar nós dath a thabhairt faoi deara nó lámh a chur ar rudaí in ollmhargadh. Chomh maith leis sin, lorgaíodh go bhforbrófaí conairí RSO, ar nós na gconairí a forbraíodh don CTB, chun tacú níos mó le hionchuimsiú.

Moltaí le haghaidh ábhair thacaíochta

Chuir rannpháirtithe ón líonra scoileanna moltaí ar fáil maidir le tuilleadh tacaíochtaí. Bhain croí-mholadh a rinneadh le mol lárnach ar líne a chruthú do na hacmhainní agus ábhair thacaíochta ar fad a bhaineann leis an matamaitic. Aontaíodh gur cheart go mbeadh áit den chineál seo a mbeadh gach rud ar fáil ann éasca a úsáid agus go mbeadh na cáipéisí curaclaim ar fad le fáil ann le hullmhúchán agus pleanáil a dhéanamh

éasca do mhúinteoirí. Lorg múinteoirí banc samplaí nó smaointe le tacú leis na cúig chleachtas oideolaíochta. Mar shampla, bhraith múinteoirí go mbeadh samplaí de thascanna oiriúnacha a bheadh dúshlánach ó thaobh na cognaíochta de i ngach céim de gach snáithe tábhachtach lena cinntiú go dtéann múinteoirí i dtaithe ar an gcleachtas seo. Ar a bharr sin, moladh go mbunófaí áis roinnte lena ligean do mhúinteoirí acmhainní a chruthaítear i réimsí den chineál seo a roinnt. Chabhródh sé seo le hullmhúchán agus chinnteodh sé go n-úsáidfí am an mhúinteora ar bhealach níos éifeachtaí.

D'iarr líon suntasach rannpháirtithe go ndéanfaí an uirlis reatha phleanála a nuashonrú. Bhraith múinteoirí go bhfuil sé deacair an uirlis reatha a úsáid agus nach dtagann sé leis na gnéithe ar fad de thacar uirlisí na múinteoirí a bhaineann leis an CTB. Labhair múinteoirí freisin ar an Ullmhúchán don Teagasc agus don Fhoghlaim a foilsíodh le déanaí agus ar an gcaoi ar cheart d'ábhair thacaíochta nascadh níos mó leis na smaointe atá san fhoilseachán seo. Chomh maith leis sin, lorgaíodh samplaí físe le múinteoirí a bhfuil an CMB á chur i bhfeidhm acu sa seomra ranga agus atá ag labhairt faoina n-eispéiris a thaispeáint.

Díríodh méid mór ar réimse rannpháirtíocht agus tacaíocht na dtuismitheoirí/caomhnóirí san aiseolas ó scoileanna. Moladh go láidir gur ghá go dtuigfeadh tuismitheoirí/caomhnóirí na hathruithe atá á ndéanamh sa CMB nua agus na cúiseanna atá leis na hathruithe seo. Dúirt múinteoirí gur féidir le tuismitheoirí/caomhnóirí díriú ar ghráid scrúdaithe caighdeánaithe agus gur ghá príomhtheachtaireachtaí an CMB nua a chur in iúl dóibh go díreach le cabhrú leo an fócas seo a athrú. Ar a bharr sin, moladh go bhforbrófaí acmhainní cothrom le dáta do thuismitheoirí páistí i ngach céim, rud a chuirfeadh nodanna agus cluichí úsáideacha ar fáil dóibh a nascann leis an bhfoghlaim atá ag tarlú ar scoil. Luaigh múinteoirí go lorgaíonn tuismitheoirí/caomhnóirí acmhainní go minic le cabhrú le foghlaim mhatamaitice a bpáiste sa bhaile agus go mbeadh áit a mbeadh ábhair den chineál seo ar fáil an-tábhachtach agus úsáideach. Luadh gur cheart ábhair thacaíochta atá dírithe ar thuismitheoirí a aistriú go roinnt teangacha i gcás scoileanna ina bhfuil daonra ard páistí a bhfuil an Béarla mar Theanga Bhreise acu. Bheadh sé seo cabhrach i dtaca le hiarracht a dhéanamh na teorainneacha cultúrtha agus teanga a bhíonn rompu a dhruimim.

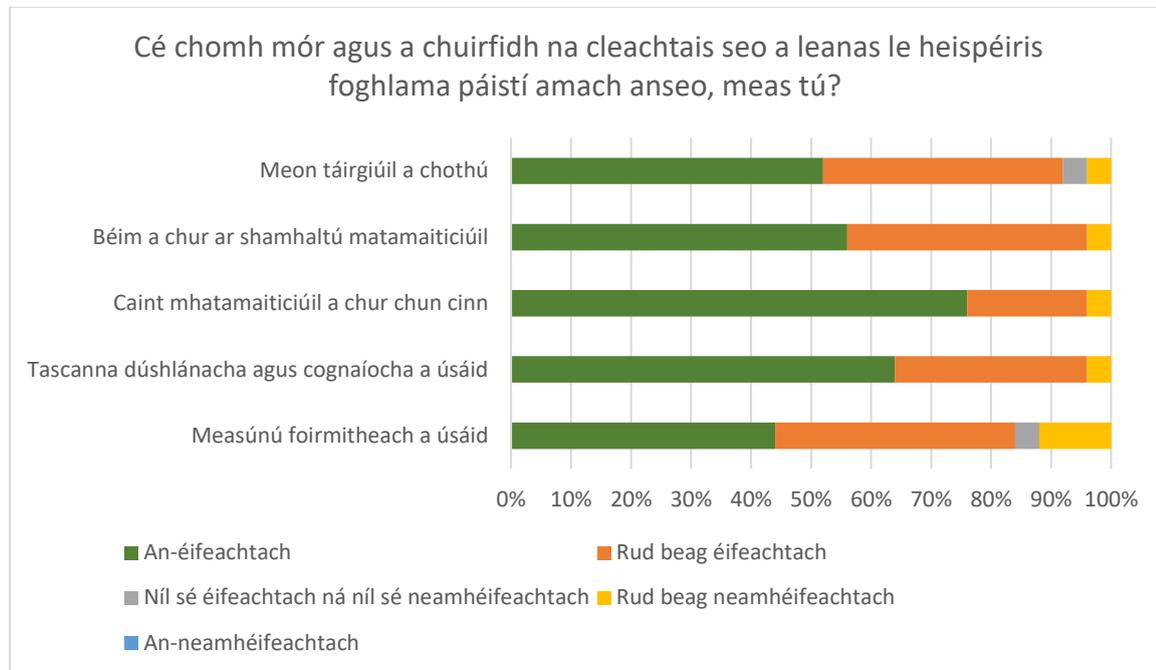
Faoi dheireadh, maidir le measúnú, lorgaíodh tacaíochtaí díreacha le cabhrú le múinteoirí i réimse an mheasúnaithe ar réamheolas, os rud é go mbíonn sé chomh lárnach i ngach seomra ranga. D'iarr múinteoirí go mbeadh smaointe measúnaithe nasctha go dlúth leis an gcáipéisíocht churaclaim ar fad a bhaineann leis an CMB nua.

Tuairimí na múinteoirí maidir le príomhathruithe

Foghlaim páistí

Thug múinteoirí an Líonra Scoileanna faoi deara go raibh páistí níos spreagtha agus níos rannpháirtí nuair a cuireadh na cleachtais oideolaíochta a moladh sa dréacht-CMB i bhfeidhm. Dúirt múinteoirí gur freastalaíodh ar réimse níos leithne de roghanna foghlama agus cumais trí úsáid a bhaint as na cleachtais seo. Leagadh béim ar na buntáistí a bhaineann le mata-chaint, go háirithe d'fhoghlaiméirí a bhfuil an Béarla mar theanga bhreise acu, dóibh siúd a bhféadfadh sé go raibh meonta diúltacha acu i leith na matamaitice nó dóibh siúd ar nós leo a bheith ag streachailt leis an mata. Thuairiscigh múinteoirí amháin "athrú suntasach i gcultúr an tseomra ranga, áit a raibh páistí oscailte maidir le bheith ag labhairt faoina gcuid smaointe". Dúradh gur ghné an-dearfach ar fad é meon táirgiúil a chothú i leith na mata, go háirithe i gcás páistí sna ranganna sinsearach ar nós leo béim shuntasach a leagan ar an bhfreagra ceart a fháil. Bhraith múinteoirí go mbeadh tairbhe le baint i ndeireadh na dála as níos mó béime a leagan ar an bpróiseas agus ar an tuiscint. Dúradh go raibh deiseanna ann don fhoghlaim ghníomhach spráúil mar thoradh ar thascanna a bhí dúshlánach ó thaobh na cognaíochta de agus braithfeadh go raibh béim ar oideolaíocht spráúil tábhachtach

do pháistí i ngach rang. Measadh gur féidir le mata an spraoi a bhaineann léi a chailleadh i ranganna sinsearacha na bunscoile agus gur féidir é seo tionchar a imirt ar dhearchthaí páistí maidir leis an ábhar. Spreag cur chun cinn an mheasúnaithe fhoirmithigh mar chleachtas ardú sa phiarmheasúnú agus san fhéinmheasúnú. I gceistneoir deireanach an líonra scoileanna, iarradh ar mhúinteoirí a bhí rannpháirteach machnamh a dhéanamh ar cé chomh mór agus a chuirfeadh na cleachtais oideolaíochta le heispéiris foghlama páistí (féach Fíor 20).



Fíor 20: Cé chomh mór agus a chuirfidh na cleachtais oideolaíochta le heispéiris foghlama páistí

Luaigh roinnt múinteoirí gur ghlac na cleachtais nua oideolaíochta an-chuid ama, cé go raibh siad an-tairbheach, agus luaigh siad inní maidir leis an gcaoi a bhfuiltear ag súil go ndéanfaí siad an líon céanna ábhar a mhúineadh agus a mhúintí roimhe. Luadh obair bhaile freisin mar ghné le machnamh a dhéanamh air ar bhealach difriúil amach anseo. Roinn scoileanna roinnt bealaí nua ina bhfuil cleachtais obair bhaile mata athraithe acu.

Ról múinteoirí

Luaigh go leor múinteoirí líonra scoileanna an t-athrú ina ról mar mhúinteoir nuair a chuir siad an curaclam i bhfeidhm. Luaigh múinteoirí go háirithe gur deiseanna maithe foghlama gairmiúla iad níos mó ama a thabhairt do pháistí le dul i ngleic le foghlaim mhata agus gan deifir a bheith orthu idirghabháil a dhéanamh. Labhair múinteoirí eile maidir le meon athraithe a thabhairt faoi deara agus béim ar dhearcadh dearfach a chothú i leith na mata, agus ní ar an bhfreagra ceart amháin a fháil, agus deiseanna a chur ar fáil do pháistí a bheith níos páirtí ina bhfoghlaim mhata. Labhair múinteoir amháin maidir le “spreagadh nua” a bhraith siad do na cleachtais oideolaíochta a raibh béim á leagan orthu.

Luaigh roinnt múinteoirí go mb’fhéidir go mbeadh gá le hathrú ar ról an Mhúinteora Oideachais Speisialta (MOS) freisin, agus go mbainfeadh cumarsáid idir an múinteoir ranga agus an MOS ní hamháin leis an ábhar a clúdaíodh agus leis an gcaoi ar cheart dul i ngleic leis an bhfoghlaim mhata. Chun meon táirgiúil a chothú i measc páistí, bhraith roinnt rannpháirtithe go mbeadh béim níos mó ar thacaíocht laistigh den seomra ranga, go háirithe sna ranganna sinsearacha.

An curaclam a chur i bhfeidhm

Deiseanna

Chomh maith leis na buntáistí don fhoghlaim agus teagasc atá leagtha amach thuas, d'aithin rannpháirtithe sa líonra scoileanna deiseanna breise a bhaineann le tabhairt isteach CMB nua. Luaigh líon ard rannpháirtithe dul i ngleic leis na dúshláin a bhaineann le ró-ualú curaclaim. Braitheadh go mbaineann an-tábhacht le ró-ualú agus an méid inneachair a laghdú ar mhaithe le ham a chur ar fáil d'eispéiris foghlama mata níos fiúntaí do pháistí ina gcuimsítear na cleachtais oideolaíochta a leagtar amach sa dréacht CMB.

Dúirt rannpháirtithe sa líonra scoile go bhfuil ról tuismitheoirí/caomhnóirí riachtanach. D'aithin scoileanna an t-am seo mar dheis le cumarsáid a dhéanamh le tuismitheoirí maidir leis an gcaoi a bhfuil foghlaim agus teagasc matamaitice ag athrú agus le dul i ngleic le haon chúiseanna inní a d'fhéadfadh a bheith acu.

Shíl múinteoirí gur dheis é forbairt churaclam nua matamaitice leis an ábhar a nuashonrú. Cheistigh roinnt múinteoirí an raibh gá ann fós le béim chomh láidir a leagan ar choincheapa bunaithe ar uimhreacha i ngach rang. Moladh go mbeadh áireamhán níos feiceálaí, go háirithe sna ranganna níos sinsearaí. Roinn múinteoirí taithí ar an gcaoi a bhfuil athrú tagtha ar eispéiris fíorshaoil páistí le topaicí faoi leith matamaitice le fiche bliain anuas. Mar shampla, i gcás an airgid, bíonn níos lú taithí ag páistí ar bhoinn agus airgeadh tirim ná mar a bhí, agus tá sé tábhachtach go mbeadh athruithe den chineál seo le sonrú sa churaclam.

Bhraith rannpháirtithe gur spreag rannpháirtíocht sa chomhairliúchán comhráite oscailte maidir leis an matamaitic ina scoil. Pléadh an t-ionchuimsiú, úsáid téacsleabhar agus oideolaíocht mhatamaitice, agus braitheadh go raibh siad sin ar fad tairbheach do mheon ginearálta múinteoirí sna scoileanna.

Dúshlán a síltear iad a bheith ann

Luadh gur dúshlán suntasach reatha é ró-ualú curaclaim sa chóras. Labhair múinteoirí faoin mbrú a bhaineann le hábhar a 'chlúdach' lena chinntiú go gclúdaítear na topaicí ar fad roimh na scrúduithe caighdeánaithe. Labhair múinteoirí faoin gcaoi nach bhfuil dóthain ama ann chun aon chineál doimhneachta a bheith i gceist leis an bhfoghlaim leis an gcuraclam reatha agus bhraith siad nach ndéanfaí ach athrú an-bheag ar an oideolaíocht mura rachfaí i ngleic leis an gceist seo, mar gur dócha go mbeadh an claonadh i múinteoirí úsáid a bhaint as téacsleabhair.

Bhraith formhór na múinteoirí sa líonra scoileanna gurb é an measúnú caighdeánaithe an dúshlán is suntasaí. Measadh gur ghá an cultúr ardtábhachta a bhaineann leis an measúnú a athrú dá mbeadh scoileanna le meon táirgiúil i leith na matamaitice a chothú go fiúntach i measc páistí. Iarradh i roinnt scoileanna go laghdófaí an tástáil chaighdeánaithe do gach dhá bhliain agus bhraith rannpháirtithe eile gur cheart é a stopadh agus meastóireacht iomlán a dhéanamh ar an gcuspóir atá leis agus na hiarmhairtí atá ann d'fhoghlaim mhatamaitice páistí.

Aithníodh mar athrú suntasach do rannpháirtithe sa líonra scoileanna a bheith ag obair le torthaí leathana foghlama. Bhraith roinnt rannpháirtithe go bhféadfadh neamhréir i gcaighdeán chur i bhfeidhm an churaclam nó i gcaighdeán ó mhúinteoir amháin go múinteoir eile nó ó scoil amháin go scoil eile a bheith i gceist leis seo. Bhraith rannpháirtithe eile go mbeadh dúshlán i gceist leo ó thaobh an ullmhúcháin agus na pleanála de. Luadh go gcaithfear múinteoirí nuacháilithe a ullmhú go maith le gur féidir leo obair leis an CMB nua a luaithe agus a thosaíonn siad ag obair agus dúradh go bhféadfadh sé a bheith dúshlánach go maith do mhúinteoirí nuacháilithe obair leis.

Phléigh rannpháirtithe sa líonra scoile an t-athrú suntasach a theastaíonn má tá an CMB nua le cur i bhfeidhm go rathúil. Beidh an t-am cuí ag teastáil ó scoileanna leis na hathruithe sa churaclam nua a fhiosrú, le hullmhú dóibh, agus lena gcur i bhfeidhm. Mura gcuirtear an t-am cuí nó FGL ar fáil, bhraith múinteoirí go bhféadfadh deacrachtaí suntasacha a bheith ann maidir le cur i bhfeidhm an churaclaim. Lorg scoileanna freisin go gcinnteodh na páirtithe oideachais ar fad go ndéanfaí nuashonrú ar a gcuid teachtaireachtaí leis na hathruithe a bhaineann leis an CMB nua a shonrú, rud a chabhródh chun cur i bhfeidhm réidh a bhaint amach. Tá múinteoirí ag súil go láidir go dtacóidh an córas le scoileanna agus go gcumasóidh sé iad leis an bhfís seo d'fhoghlaim mhata páistí a bhaint amach.

Cultúr atá ag athrú

Cé gur fháiltigh an líonra scoileanna roimh na hathruithe maidir le hoideolaíocht agus foghlaim sa dréacht CMB ar an iomlán, luaigh siad go mbeidh am agus iarracht i gceist le nósanna agus meonta reatha a athrú. Is céim thábhachtach sa phróiseas seo é am a thabhairt do mhúinteoirí comhráite doimhne gairmiúla a bheith acu faoin gcleachtas reatha. I dtaca leis seo, braitheadh go mbeadh ról tábhachtach le himirt ag ceannaireacht na scoile. Chun cabhrú le scoileanna dul i dtaithe ar an CMB nua, tá gá le réasúnaíocht an-soiléir agus cuimsitheach don athrú, agus is gá go ndéantar seo a chur in iúl go soiléir do scoileanna agus do thuismitheoirí/caomhnóirí.

Agus cuid de na buntáistí a thug na múinteoirí féin faoi deara le linn an chomhairliúcháin, luadh príomhghnéithe, lena n-áirítear freagracht chomhroinnte a fhorbairt, cumarsáid éifeachtach a úsáid, a bheith oscailte d'athruithe agus do smaointe nua, agus a bheith toilteanach tacú le comhghleacaithe, agus braitheadh go raibh siad seo ar fad tábhachtach. Dúradh go raibh ceist mhuinín an mhúinteora lárnach sa phróiseas. Beidh timpeallacht shábháilte ag teastáil ó mhúinteoirí le hathruithe a dhéanamh agus a mheas.

Tacú le cur i bhfeidhm an churaclaim

Lorgaíodh go láidir go gcuirfí an t-am cuí agus FGL ar fáil do thabhairt isteach an churaclaim nua. Lorg scoileanna FGL aghaidh ar aghaidh, seasmhach, agus comhoibríoch ar mhaithe leis an gcaighdeán cur i bhfeidhm a theastaíonn le nádúr uaillmhianach an churaclaim a chinntiú. Dúradh gur cheart an FGL a bheith ag díriú ar an gcuma a bheidh ar an CMB seo sa seomra ranga. Cé gur féidir múinteoirí a stiúradh i dtreo bunúis theoiriciúla, léitheoireacht chúlra agus taighde, níor cheart go gcaithfí mórán ama orthu sna seisiúin FGL. Ba cheart go leagfaí an príomhbhéim ar réimsí nua an churaclaim, lena n-áirítear oideolaíocht agus réimsí nua inneachair. Bheadh gá ann tús áite a thabhairt do réimsí nua a bhaineann leis an ailgéabar agus cruthanna agus spás, ionas go mbeadh múinteoirí ábalta a gcuid tuiscint choincheapúil féin a fháil ar na réimsí sin.

Léirigh an t-aiseolas gurbh fhearr le rannpháirtithe go mbeadh FGL aghaidh ar aghaidh sa scoil a mhairfeadh lá iomlán i gceist, a chumasódh comhráite gairmiúla a bhaineann le comhthéacs faoi leith na scoile. Is gá go ndéantar comhráite den chineál seo a scafláil do scoileanna agus go mbeidh am ar leataobh do mhachnamh fiúntach. I bhfianaise a gcuid eispéireas leis an FGL agus cúrsaí inseirbhíse a rinneadh roimhe, leag scoileanna béim ar an tábhacht a bhaineann le samhail sheasmhach tacaíochta, áit ar féidir le múinteoirí comhghleacaithe a leanúint, dea-chleachtas a fheiceáil, agus comhoibriú a dhéanamh mar ghairmithe, lena n-áirítear scoileanna beaga a chur le chéile nuair is cuí. Go deimhin, léirigh múinteoirí inní nach mbeidís sách muiníneach agus cumasaithe leis an gcuraclam nua a chur i bhfeidhm gan an cur chuige seo i leith FGL agus tacaíochtaí a bheith i gceist. D'iarr scoileanna freisin go ndéanadh institiúidí Oideachas Tosaigh Múinteoirí tús a chur le hullmhúchán le mic léinn reatha lena chinntiú go mbeidh siad réidh le plé leis an CMB.

Maidir le hamlíne don chur i bhfeidhm, cuireadh in iúl go láidir gur “theastaigh am fiúntach d’athrú fiúntach”. Bhraith rannpháirtithe go gcabhróidh cur chuige mall struchtúrtha lena thabhairt isteach. Aontaíodh freisin gur cheart go mbeadh scoileanna ábalta gné amháin den churaclam a thriail ag an aon am amháin, mar shampla, tosú le príomhchur chuige oideolaíochta amháin.

Eispéiris maidir le bheith rannpháirteach sa chomhairliúchán

Ós rud é go raibh an comhairliúchán ar bun ón 24 Márta go 30 Meitheamh, luaigh roinnt rannpháirtithe sa líonra scoileanna nádúr gnóthach an ama seo den bhliain i scoileanna. Go sonrach, dúshlán suntasach a aithníodh ná tabhairt isteach na scrúduithe caighdeánaithe a bhí ar bun le linn an chomhairliúcháin. Bhí drogall ar roinnt múinteoirí plé leis an dréacht CMB mar gheall ar na scrúduithe caighdeánaithe a bhí ag teacht, agus luaigh rannpháirtithe eile gur chaith siad am ag déanamh dul siar ar thopaicí, agus gur theorannaigh sin an t-am a bhí ann leis na topaicí nua sa dréacht CMB a thriail.

DREACTH

Comhairliúchán le páistí: Achoimre fheidhmeach

Tugadh faoi chomhairliúchán ceithre-shnáithe ar an Dréachtchuraclam Matamaitice Bunscoile (CMB) sa chéad leath de 2022 le haiseolas a bhailiú ó oideoirí, tuismitheoirí agus caomhnóirí, líonraí scoileanna, agus páistí. Ba é aidhm an taighde ná léargais a fháil ar eispéiris páistí le matamaitic na bunscoile. Baineadh úsáid as Samhail Cheartbhunaithe Rannpháirtíochta Lundy (2007) chun dearadh na modheolaíochta rannpháirtíochta a úsáideadh leis na páistí a treorú agus a leagan amach. Thug Coiste Eitic Taighde Choláiste Mhuire gan Smál cead eitice don taighde agus rinneadh gach eolas, foirmeacha ceada agus aontaithe a sheoladh chuig an dá sheomra ranga déag a dheonaigh páirt a ghlacadh sa staidéar taighde. Tugadh cuairt ar gach seomra ranga faoi dhó. Le linn na chéad chuairte, cuireadh ball den fhoireann taighde in aithne do na páistí, rinneadh cur síos ar an staidéar, agus tugadh amach ceamaraí meandracha a bhí oiriúnach do pháistí. Le linn an dara cuairt, thart ar mhí ina dhiaidh sin, d'fhill an taighdeoir ar an scoil in éineacht leis an dara taighdeoir agus d'oibrigh siad leis na páistí chun léargais a fháil ar a gcuid eispéireas maidir leis an matamaitic. Bhain na taighdeoirí úsáid as tacar uirlisí de chúig straitéis rannpháirtíochta páistí chun guth a thabhairt d'eispéiris páistí, mar atá: (1) Photovoice (2) Tarraing agus Taispeáin, (3) Scoláire mar Iriseoir (lena n-áirítear Vox Pop), (4) Gníomhaíocht rangaithe snáithe, agus (5) Agallaimh Ghrúpaí Fócais.

I ndiaidh anailís chuimsithitheach ar shonraí an chorpais, ag baint úsáid as modhanna teoirice fódaíthe, tháinig seacht dtéama chun cinn:

Téama 1: Eispéiris páistí le comhoibriú agus cumarsáid sa mhatamaitic

Téama 2: Tuairimí páistí ar ról múinteoirí sa rang matamaitice

Téama 3: Eispéiris páistí leis an matamaitic

Téama 4: Eispéiris páistí le leabhair mhatamaitice

Téama 5: Eispéiris páistí le comhthéacs sa mhatamaitic

Téama 6: Eispéiris páistí i dtaca le dúshlán sa mhatamaitic

Téama 7: Eispéiris páistí leis an measúnú.

Maidir le heispéiris páistí le comhoibriú agus cumarsáid agus iad ag tabhairt faoin matamaitic (Téama 1), luaigh gach rang seachas ceann amháin obair le daoine eile. Luaigh na páistí sna naoi rang eile tabhairt faoi obair ghrúpa de chineál éigin. Rinne páistí sna deich rang tagairt do ghné shóisialta na hoibre grúpa, an deis a bheith ag obair le cairde, agus an taitneamh a bhain leis an gcomhoibriú. Beag beann ar eispéiris, chuir páistí fonn níos mó comhoibríthe a dhéanamh in iúl. Braitheadh gur ghnéithe lárnacha den obair ghrúpa iad an labhairt agus an chumarsáid. Mar sin, i gcás na ranganna nár thuairiscigh obair ghrúpa nó nár thuairiscigh ach fíorbheagán obair ghrúpa, leag siad sin níos lú béime ar ról an díoscúrsa sa mhatamaitic. I gcodarsnacht leis seo, luaigh go leor páistí i gceithre rang go sonrath tábhacht na cumarsáide sa mhatamaitic. I gcás rang amháin, phléigh páistí lárnacht na mata-chainte' ina gcuid foghlama mata, rud a thacaigh leo i dtaca le tuiscint choincheapúil a fhorbairt agus gníomhaíochtaí a bhí dúshlánach ó thaobh na cognaíochta de a réiteach. Beag beann ar an méid taithí a bhí acu ar an gcumarsáid sa rang matamaitice, d'aithin na páistí ar fad go toilteanach na buntáistí féideartha a bhaineann léi agus an fonn atá orthu tabhairt faoi níos mó cumarsáide.

Fuarthas amach tuairimí páistí ar ról múinteoirí sa rang matamaitice le linn an chomhairliúcháin freisin (Téama 2). In go leor ranganna, braitheadh gur duine lárnach é/i an múinteoir. Mar shampla, bhraith go leor páistí gur 'mínteoir' é/i an múinteoir. D'aithin roinnt páistí ról an mhúinteora mar 'chúntóir' nuair a theastaigh cabhair uathu. Cé gur tháinig an múinteoir mar 'mhínteoir' agus 'cúntóir' aníos go minic, i gcás na bpáistí i ranganna a rinne níos mó obair ghrúpa agus cumarsáide, ní dheanadh mórán tagairtí dá

múinteoir ná do ról an mhúinteora. Sna comhthéacsanna seo, ní raibh béim chomh láidir céanna ar ról an mhúinteora agus léirigh aon tagairtí a rinneadh don mhúinteoir gur ‘éascaitheoir’ a bhí ann/inti.

Bhí éagsúlacht i gceist le heispéiris páistí leis an matamaitic (Téama 3). I gcás na bpáistí a luaigh eispéiris foghlama inar díriodh ar an nós imeachta den chuid is mó, go ginearálta, chuir siad mothúcháin dhiúltacha in iúl mar fhreagra ar a n-eispéiris leis an matamaitic. I gcuid de na ranganna seo, bhraith páistí go raibh an-tábhacht ag baint leis an ‘bhfreagra ceart’ a fháil sa mhatamaitic, agus i gcásanna áirithe, gurb é sin an t-aon sprioc sa mhata. Mar an gcéanna, i gcás cuid de na ranganna seo, d’aithin páistí go mbaineann luach le ‘luas’ sa mhatamaitic agus go gcúitítear sin. I gcodarsnacht leis seo, labhair páistí i roinnt ranganna eile go dearfach maidir le deiseanna rialta chun tabhairt faoi ghníomhaíochtaí matamaitice fiúntacha foghlaimeoir-láraithe. Áiríodh leo seo gníomhaíochtaí réitithe agus curtha fadhbanna a bhí dúshlánach ó thaobh na cognaíochta de, a bhí leabaithe go domhain i gcomhthéacsanna saibhre agus a raibh roinnt freagraí cearta ag baint leo. Sna ranganna seo, chuir páistí in iúl go mbaineann tábhacht níos mó leis an tuiscint agus cruinneas sa mhatamaitic ná leis an luas. D’aithin páistí ar bhonn uilíoch gur thaitin deiseanna foghlama níos idirghníomhaí níos mó leo, lena n-áirítear úsáid a bhaint as comhthéacsanna fíorshaoil, eispéiris phraiticiúla, agus eispéiris spráíúla matamaitice ar nós cluichí mata. Cheistigh páistí i rang sinsearach amháin an dearcadh nach bhfuil cuir chuige bunaithe ar leasú ábhartha dóibh. Chuir siad in iúl go seasmhach gur theastaigh réimse níos éagsúla de chuir chuige foghlama uathu lena spéis agus a dtaitneamh sa mhatamaitic a spreagadh.

Fuarthas léargais spéisiúla ar eispéiris na bpáistí maidir leis na téacsleabhair mhatamaitice (Téama 4) mar thoradh ar an gcomhairliúchán agus tuairiscíodh an-éagsúlacht ó thaobh úsáid téacsleabhar de. Ba mhinic a tugadh freagraí mothúcháin nuair a luadh téacsleabhair. Bhain freagairtí diúltacha go leor páistí le tuairimí go raibh gníomhaíochtaí téacsleabhair leamh agus fadálach. I gcodarsnacht, i gcás roinnt páistí sna ranganna, ní raibh an dímheas céanna acu ar an téacsleabhar. Bhí roinnt páistí an-chriticiúil ar fad maidir le leagan amach sraitheanna éagsúla de théacsleabhair, agus áirítear ina measc sin fad an leabhair, deiseanna teoranta le haghaidh dul siar, agus caighdeán na mínithe. Cé gur aithníodh deacrachtaí éagsúla a bhaineann le téacsleabhair mhatamaitice, chreid go leor páistí go bhfuil áit don téacsleabhar ina gcuid foghlama agus d’aithin siad gnéithe na sraithe a d’úsáid siad, agus a ról agus iad ag tabhairt faoi dhul siar. Mar sin féin, luaigh páistí gur chuir na téacsleabhair eispéiris teoranta foghlama ar fáil i gcomparáid le cuir chuige eile agus chuir siad i gcoinne an iomarca úsáide a bhaint astu. Léirigh páistí fonn eispéiris mhatamaitice lasmuigh den téacsleabhar a bheith acu. Chuir rang amháin nár bhain úsáid as téacsleabhair sa rang mata le linn na bliana sin scoile in iúl gurbh fhearr leo an cur chuige seo, ba iad na cúiseanna a luadh leis sin ná gur braithheadh go raibh níos mó solúbthachta, eispéiris ardchaighdeán níos fearr, agus níos mó freagrachta as a gcuid foghlama i gceist.

Foghlaímíodh freisin faoi thaithí páistí ar chomhthéacs sa mhatamaitic (Téama 5) le linn na hanailíse ar na sonraí. Léirigh go leor páistí feasacht mhaith ar an ról atá ag comhthéacs sa mhatamaitic, ag tógáil ar ról na matamaitice ina gcuid caitheamh aimsire, ina n-eispéireas sa saol laethúil, agus ina saol gairmiúil amach anseo. Go ginearálta, bhraith siad gurbh iad na snáithí matamaitice ba luachmhaire ná na cinn is ábhartha dóibh ó thaobh an fhíorshaoil de. I gcodarsnacht, i roinnt ranganna, níor éirigh le páistí ábharthacht réimsí áirithe matamaitice a thabhairt faoi deara. Bhí sé seo le brath go háirithe i gcás an ailgéabair. Is argóint mhaith é an t-easnamh seo d’úsáid níos mó a bhaint as comhthéacsanna agus na coincheapa seo á múineadh. Lorgaíodh go láidir, rud a bhí le brath sna ranganna ar fad, go ndéanfaí níos mó matamaitice fiúntaí agus faoi stiúir comhthéacs i scoileanna. In dhá rang, labhair páistí go spreagtha faoi chomhthéacsanna a úsáideadh chun an fhoghlaim mhatamaitice a chur i gcomhthéacs agus léirigh siad meas soiléir ar ról na matamaitice sa saol laethúil.

Agus eispéiris páistí i dtaca le dúshlán sa mhatamaitic (Téama 6) á bhfiosrú, bhí sé soiléir gur fháiltigh go leor páistí roimh dhúshlán sa mhatamaitic agus gur aithin siad an deis foghlama a tháinig aníos ó bheith ag plé le gníomhaíochtaí dúshlánacha. I gcás líon beag páistí, ba í an mhatamaitic dhúshlánach an chúis ar thaitin an mhatamaitic leo. Bhraith na páistí seo go raibh ceangal idir an taitneamh agus an chaoi ar bhraith siad gur bhain siad rud siad rud éigin amach agus gur éirigh leo agus gníomhaíochtaí dúshlánacha curtha díobh. I gcás na bpáistí a raibh taithí acu ar thascanna a bhí dúshlánach ó thaobh na cogaíochta de, thagair siad don tacaíocht a fuair siad ó bheith ag comhoibriú le páistí eile, ag roinnt réiteach, agus ag tabhairt faoi chaint mhata. É sin ráite, níor theastaigh ó na páistí go mbeadh gach gníomhaíocht dúshlánach agus theastaigh dhúshlán a raibh siad in ann dul i ngleic leo uathu. Bhain caveat tábhachtach do go leor páistí i dtaca le heolas a bheith acu ar cathain a bheadh gníomhaíochtaí dúshlánacha le déanamh. Thaitin sé le páistí a fhios a bheith acu, roimh ré, cé acu a bheadh nó nach mbeadh gníomhaíocht dúshlánach. Os a choinne sin, níor thaitin matamaitic nach raibh dúshlánach go leor le páistí agus luaigh siad an leadrán a bhaineann le gníomhaíochtaí a bhaineann le hoibriúcháin uimheartha nó tascanna a dhírigh ar nósanna imeachta.

Thug comhairliúchán na bpáistí eispéiris roinnt páistí le measúnú (Téama 7) chun solais. Rinne páistí i gceithre rang cur síos ar an bhfreagra mothúcháinach a bhí acu ar thástáil mhatamaitice, a raibh mearbhall, fearg, frustrachas, agus bród i gceist leis. I gcodarsnacht, thuiriscigh páistí gur féidir le scrúduithe obair dhian a chúiteamh agus aiseolas a chur ar fáil. Dúirt páistí ó rang amháin go raibh dialanna matamaitice úsáideach mar áis mheasúnaithe. Dúirt na páistí seo freisin gur straitéis úsáideach féinmheasúnaithe sa rang matamaitice é córas 'soilse tráchta'. I gcodarsnacht leis seo, thuiriscigh páistí i rang eile measúnuithe aonair nár bhain aon deiseanna leo maidir leis na páistí a bheith in ann athbhreithniú a dhéanamh ar na scrúduithe seo nó breathnú orthu i ndiaidh dóibh iad a chríochnú nó a cheartú. Luaigh páistí an tábhacht a bhaineann le múinteoirí a bheith ag dul i dtaití ar thuiscint reatha páistí ar an matamaitic le bonn a chur faoina gcleachtas.

Conclúidí agus treoir don todhchaí

Is príomhghné d'obair CNCM i bhforbairt churaclaim é comhairliúchán. Príomhthosaíocht a bhain leis an gcomhairliúchán maidir leis an dréacht-CMB ná tuairimí oideoirí, tuismitheoirí/caomhnóirí, agus páistí a fháil ar an bhfís nua d'fhoghlaim mhata páistí i mbunscoileanna. Agus réimse leathan taighde ann chun bonn a chur faoi fhorbairtí go dtí seo, léiríonn an t-aiseolas atá faighte sa chomhairliúchán gur gá go mbeadh an bunús a bhaineann le hathrú a dhéanamh níos soiléire fós do pháirtithe leasmhara. Chomh maith leis sin, tugann na torthaí le fios go neartófaí an curaclam dá gcuirfí mínte soiléire ann maidir leis na hathruithe atá ar bun i dtaca le foghlaim na bpáistí, oideolaíocht, agus ról an mhúinteora maidir le bheith ag obair i dtreo na físe nua seo d'fhoghlaim mhatamaitice sa bhunscoil. Ar a bharr sin, rachadh sé chun tairbhe don tsonraíocht churaclaim dá ndéanfaí athbhreithniú breise chun réim na teanga, teachtaireachtaí faoin ionchuimsiú agus deiseanna do naisc a bheachtú agus a bharrfheabhsú; chomh maith le hailíniú agus comhsheasmhacht le cáipéisí eile curaclaim agus forbairtí ar nós *Ullmhúchán don Teagasc agus don Fhoghlaim - Treoir do gach Bunscoil agus Scoil Speisialta (CNCM, 2021)* agus *Creat Curaclaim na Bunscoile (le foilsiú)*.

Príomhforbairt a tháinig aníos le linn na chéad chéime den chomhairliúchán ar an gcuraclam ná na coincheapa matamaiticiúla a cuireadh isteach agus forbairt na dréacht-ábhar tacaíochta. Ar an iomlán, fáiltíodh roimh na tacaíochtaí breise seo agus leis na féidearthachtaí a bhaineann leis an spás ar líne i dtaca le níos mó deiseanna a chur ar fáil le haghaidh nascachta agus ar mhaithe le hionramháil an churaclaim a éascú. Léiríonn aiseolas maidir leis na tacaíochtaí curaclaim gur cheart d'fhorbairtí nua díriú ar na nithe seo a leanas a chur ar fáil: samplaí d'fhoghlaim páistí; samplaí de cheachtanna praiticiúla i suíomhanna barántúla ag baint úsáid as tascanna atá dúshlánach ó thaobh na cogaíochta de agus samhltú matamaiticiúil, agus measúnú; forbairt mol lárnach ar líne a bhfuil acmhainní agus tacaíochtaí a réitigh múinteoirí ann; tacaíochtaí le dul tríd an gcuraclam agus lena phleanáil; chomh maith le léargais níos ginearálta ar ghnéithe éagsúla den churaclam amhail na cúig ghné den inniúlacht mhatamaiticiúil nó an t-ionchuimsiú a chur chun cinn i seomra ranga matamaitice na bunscoile.

D'ainneoin forleithne na dtorthaí foghlama sa bhunscoil i ndiaidh fhoilsiú an CTB, léiríonn torthaí an chomhairliúcháin go bhfuil roinnt éiginnteachta, eagla, agus imní ann go fóill maidir le bheith ag obair le torthaí foghlama. Cé gur tháinig an cheist seo aníos níos mó i sonraí na gceistneoirí, léiríonn an t-aiseolas ó shnáithe an chomhairliúcháin go mbeidh gá le níos mó ama agus tacaíochtaí le múinteoirí a chumasú le dul i ngleic le torthaí foghlama agus iad a úsáid mar is cuí. Ar a bharr sin, léiríonn na torthaí go mb'fhéidir gur ghá athbhreithniú a dhéanamh ar an gcur síos ar thorthaí foghlama agus ar lipéid sa dréacht-CMB ó thaobh shoiléire céille agus inrochtana de.

Bhain na príomhléargais a fuarthas ó shnáithe sonraí an líonra scoileanna leis na hathruithe i dtaca le teagasc agus foghlaim a d'aithin na múinteoirí a ghlac páirt. Bhí ceisteanna a bhain le muinín múinteoirí glacadh leis na hathruithe seo agus iad a chur i bhfeidhm le brath sna snáitheanna ar fad. Aithnítear sa tuarascáil seo tuairimí múinteoirí go mbeidh am agus iarracht múinteoirí ag teastáil chun aistriú fiúntach a dhéanamh i dtreo an curaclaim nua a chur i bhfeidhm, ní hamháin le hathruithe cultúrtha agus oideolaíochta a dhéanamh, ach an t-athrú meoin a theastaíonn chomh maith. Chomh maith le tacaíochtaí curaclaim, leag múinteoirí béim ar an tábhacht a bhaineann le deiseanna forbartha gairmiúla laistigh den scoil agus atá curtha in oiriúint a thugann deis do mhúinteoirí machnamh, plé, agus comhoibriú a dhéanamh le gairmithe eile ar mhaithe leis na hathruithe curaclaim a chur in oiriúint dá gcomhthéacsanna fein.

Na chéad chéimeanna eile

Tabharfar sonraíocht an Churaclaim Matamaitice Bunscoile nua chun críche sna míonna amach romhainn. Beidh torthaí an chomhairliúcháin atá leagtha amach sa tuarascáil seo mar bhonn leis an obair seo. Mar chuid de seo, díreoidh an obair ar athbhreithniú iomlán na sonraíochta agus ailíniú an churaclaim le fíis, prionsabail, agus príomhinniúlachtaí Chreat Curaclaim na Bunscoile. Díreoidh na forbairtí seo freisin ar MET a fhorbairt mar réimse curaclaim. Beidh sé tábhachtach freisin an chumarsáid chúí a dhéanamh chun béim a leagan ar na príomhathruithe a thugtar isteach sa churaclam nua, le hoideoirí agus le tuismitheoirí araon, agus obair le páirtithe oideachais chun soiléire agus leanúnachas a chinntiú sa chóras ar fad. I ndiaidh fhoilsiú na sonraíochta, breathnófar ansin ar chur chun cinn an tacair d'uirlisí matamaitice bunscoile, cumarsáid, agus comhoibriú leantach le seirbhísí tacaíochtaí agus soláthróirí oideachais tosaigh.

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- Foireann Bhunscoil Shóisearach Dhún Búinne, Co. na Mí
- Hannafin, Michelle
- Cumann Múinteoirí Éireann (INTO)
- Institiúid Oideachais Marino
- Monnelly, Alan
- Comhairle Náisiúnta um Oideachas Speisialta (NCSE)
- Comhairle Náisiúnta Tuismitheoirí, Bunoideachas
- Foireann PACT, Roinn na Ríomheolaíochta, Ollscoil Mhá Nuad.

DRAFT



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Curraclaim agus Measúnachta
National Council for
Curriculum and Assessment



Draft Primary Mathematics Curriculum

Written submission template for organisations, groups and individuals responding to the *Draft Primary Mathematics Curriculum*

This template is intended to support you (and your colleagues/organisation) in developing a written submission in response to the [Draft Primary Mathematics Curriculum](#). Please e-mail your completed submission to pmc.submissions@ncca.ie

Individual submission details

Name	Marie Byrne & Áine O Callaghan
Date	31/05/2022

The NCCA will publish written submissions received during the consultation. The submissions will include the author's/contributor's name/organisation. Do you consent to this submission being posted online?

Yes

No

Please provide some brief background information on your organisation (if applicable).

Classroom teachers in an infant school. DEIS band 2.

The remainder of the template includes two sections. Section 1 invites your overall comments and observations on the *Draft Primary Mathematics Curriculum*. Section 2 is structured to align with main sections of the draft curriculum.

Section 1

Please outline your overall response to the *Draft Primary Mathematics Curriculum*.

The overall rationale and aims of the maths curriculum are sound. We agree that the new maths curriculum needs to foster maths as a subject that is seen everywhere and is for everyone. However, this new curriculum will not be able to support teachers effectively.

We have outlined some concerns below:

1. *Clear continuity, with visible targets*

We appreciate that general learning outcomes give teachers freedom to pitch topics at the level of their individual classes. However, the new curriculum topic gives little to no guidelines or specific targets for class levels. Specific targets need to be included (For example; what number should we expect the main body of students to be able to count to/backwards from/recognise at infant level? What 2D and 3D shapes should a child be able to recognise and discuss in 2nd class?). These do not need to be prescriptive; teachers have always and should always be given the freedom to edit these expectations in line with what they know about their class. However, removing any and all specific targets leaves teachers (in particular newly qualified teachers or teachers new to a class level) guessing as to what they are working towards.

These targets need to be included at the class levels on the curriculum. Having teachers dig through the progression continua at each topic is unfeasible.

In summary we need:

- Specific targets listed for topics such as number, shape and space, fractions etc. A clear 'in general' goal for that class level.
- An explanatory section to reassure teachers that, as usual, these targets are a general idea of what you can expect from the main body of a class. There has always been and will always be flexibility to move these targets should you need to for your specific class

2. *Playful Learning; mentioned a lot but not supported at all*

The importance of playful learning is key in both the new PLC, and the new maths curriculum. Rightly so. However, our classrooms and teachers are in no way supported to actually engage with playful learning.

We need renewed and sustained training and support in Aistear for ALL members of staff. This has not happened ever, and yet we are expected to use Aistear as a vehicle for so much of our teaching.

It is also impossible to implement playful learning without funding for resources and man power. Aistear is only Aistear with the support of another teacher. We need extra hours and more members of the SE team to properly engage with the new maths curriculum.

In summary we need:

- Funding for Aistear training at whole staff level
- Increase funds for schools specifically for Aistear resources
- Increase the number of SE teachers to support the implementation of Aistear

3. *In person training for the new curriculum*

We appreciate that Covid stopped in person training for the New Primary Language Curriculum, and webinars were the only suitable option at the time. We have to acknowledge that this is a huge part of the reason we are struggling so much with its implementation (one of many). This can not be repeated for in-service on this new maths curriculum.

We need hands on, in person training. We need people fluent in the new curriculum to demonstrate in person what this curriculum would look like in practice in our schools. Our school is a DEIS band 2 school, with huge socio economic issues and language barriers. We need in person training to flesh out how we adapt the new curriculum to suit our setting. It needs to be whole staff input; working at team levels will not suffice.

Furthermore, it is worth noting that in the online content the junior classes were grossly underrepresented during video examples. Demonstrations were always in older classes; highly organised and rehearsed. There were no examples of playful learning as it happens in an infant room. This cannot be repeated for the maths curriculum.

In summary for this we need:

- In person in-service training; schools closed on those days
- Experts fluent in the language of the new curriculum who can come in and guide us as how to best use the curriculum in our specific school settings
- If there are any video supports/examples/vignettes, infant classes need to be represented more. They can be the hardest lessons to visualise, so their inclusion is an absolute necessity.

Section 2

Rationale and Aims [see pages 9 – 14]

The rationale for the *Draft Primary Mathematics Curriculum* addresses the importance of mathematics in children’s lives, while the over-arching aim of the draft curriculum is the development of mathematical proficiency.

Please give your overall feedback in relation to the Rationale and Aims.

Curriculum structure - Strands, Learning Outcome Labels, Elements and Learning Outcomes [see pages 15 – 24]

The *Draft Primary Mathematics Curriculum* is structured according to five Strands: Algebra; Data and Chance; Measures; Number; Shape and Space. Attached to these Strands are 15 Learning Outcome Labels, which contain Learning Outcomes for each stage.



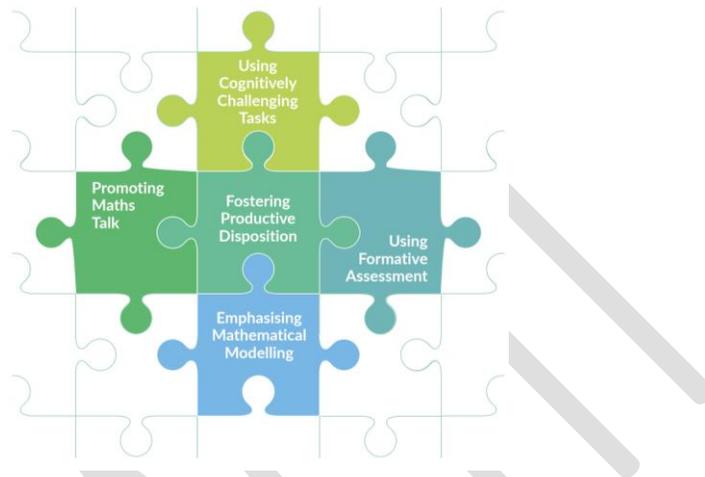
Mathematical processes are categorised into four Elements: Understanding and Connecting; Communicating; Reasoning; Applying and Problem solving.



Please give your overall feedback in relation to the curriculum components mentioned above. Please quote full text of any learning outcome you wish to draw attention to.

The Primary Mathematics Curriculum in Practice [see pages 25 – 37]

The *Draft Primary Mathematics Curriculum* proposes five key pedagogical approaches which underpin and embody a new vision for children’s learning in terms of teachers’ everyday practice.



Please give your overall feedback in relation to these key pedagogical approaches.

DRAFT

Primary Mathematics Toolkit

The Primary Mathematics Toolkit will contain four components: Mathematical Concepts, Progression Continua, Support Materials and Examples of Children’s Learning. For consultation, the *Draft Overview of the Primary Mathematics Toolkit* contains Mathematical Concepts, Progression Continua and 11 Support Materials.

Please give your overall feedback in relation to the supports outlined and suggestions on additional supports.

Data Protection

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Organisation submission details

Name	Kate O'Sullivan
Position	Financial Education Manager
Organisation	Competition and Consumer Protection Commission (CCPC)
Date	30/06/2022

The NCCA will publish written submissions received during the consultation. The submissions will include the author's/contributor's name/organisation. Do you consent to this submission being posted online?

Yes

No

Please provide some brief background information on your organisation (if applicable).

The Competition and Consumer Protection Commission ('the CCPC') is the statutory body responsible for promoting compliance with, and enforcing competition and consumer protection law. We strive to improve consumer welfare across the economy by enforcing a wide range of legislative instruments, including product safety legislation.

Our aim is to make markets work better for consumers. To achieve this, we work to influence public debate and policy development, grow public understanding of the importance of open and competitive markets, promote competition and highlight the interests of consumers.

We have a specific statutory role in financial education in “*providing information in relation to financial services, including information in relation to the costs to consumers, and the risks and benefits associated with the provision of those services, and promoting the development of financial education and capability.*”¹

The CCPC fulfils its statutory role in the development of financial education and capability by delivering financial education programmes, conducting research and through the implementation of a three-year Financial Well-being Strategy. The CCPC’s financial education programmes include:

- [Money skills for life](#) – a workplace financial education programme;
- [Money Matters](#) – a programme on personal finance for Junior Cycle teachers and students; and
- [Money Counts](#), which provides resources for the Leaving Cert Applied.

The remainder of the template includes two sections. Section 1 invites your overall comments and observations on the *Draft Primary Mathematics Curriculum*. Section 2 is structured to align with main sections of the draft curriculum.

¹ Section 10(3)(j) of the Competition and Consumer Protection Act 2014.

Section 1

Please outline your overall response to the *Draft Primary Mathematics Curriculum*.

The CCPC welcomes the inclusion of specific learning outcomes from junior infants up to 6th class in relation to money in the *Draft Primary Mathematics Curriculum*. It is the CCPC's view that financial education should begin as early as possible in a child's life and continue into adulthood. This allows children to develop the life skills necessary to make financial decisions later in life.

In 2018, the CCPC published the 'Financial Capability and Well-being in Ireland' study which examined levels of financial well-being and financial capability in Ireland². The study found low levels of financial resilience across significant segments of the Irish population and identified the behaviours of 'active saving' and 'not borrowing for daily expenses' as being key to financial well-being. The CCPC Financial Capability and Well-being study also showed a strong relationship between receiving financial education as a child and higher levels of financial well-being as an adult. This finding is further supported by a breadth of international research, guidelines and experiences outlining the long-term benefits of developing positive financial attitudes and behaviours from early education onwards.

In 2020 the CCPC made a submission to the NCCA on the *Draft Primary Curriculum* supporting the inclusion of financial education on the curriculum³. We had identified "Mathematics, Science and Technology Education" and "Wellbeing" curriculum areas as being suitable to include learning outcomes in relation to financial education from junior infants to 6th class. We also highlighted in our submission that financial education is ideally placed to develop the competencies of "being mathematical", "fostering wellbeing", and "being a digital learner", whilst also supporting the principle of inclusive education and diversity. Therefore, we are very heartened to see the inclusion of learning outcomes on money in the *Draft Primary Mathematics Curriculum* at all levels.

² A summary report is available here: <https://www.ccpc.ie/business/wp-content/uploads/sites/3/2018/12/Financial-capability-2018.pdf>. The full report can be found here: <https://www.ccpc.ie/business/wp-content/uploads/sites/3/2018/12/Financial-Well-being-in-Ireland-Final-December-2018.pdf>

³ The full submission is available here: <https://www.ccpc.ie/business/wp-content/uploads/sites/3/2022/05/2020.12.18-CCPC-response-to-the-NCCA-consultation-on-the-Draft-Primary-Curriculum-Framework.pdf>

The CCPC recommends that other elements of money and the way children interact with money are dealt with in the “Wellbeing” curriculum area of the primary curriculum to complement the elements covered under the Draft Primary Maths Curriculum. This would include managing the emotions children may have about money and the risks involved with money. This is particularly important to recognise the diversity of experience of money of many children and to support the principle of inclusive education and diversity. This, alongside the learning outcomes on money in the *Draft Primary Mathematics Curriculum*, would provide a more comprehensive financial education for children.

Section 2

Rationale and Aims [see pages 9 – 14]

The rationale for the *Draft Primary Mathematics Curriculum* addresses the importance of mathematics in children’s lives, while the over-arching aim of the draft curriculum is the development of mathematical proficiency.

Please give your overall feedback in relation to the Rationale and Aims.

The CCPC welcomes the rationale for the *Draft Primary Mathematics Curriculum*, particularly ‘Mathematics is a tool that helps us to make sense of our world’. It is important that mathematics is connected to the real world and can be applied outside the classroom. Developing financial education through mathematics allows that connection to be made.

Developing financial education through the mathematics curriculum also supports ‘Mathematics is everywhere and for everyone’, as every child will have to deal with finances and money throughout their lives. The CCPC believes that there is merit in incorporating financial education at all levels of the primary school curriculum and we welcome that money forms part of the key learning outcomes throughout the *Draft Primary Mathematics Curriculum*. The CCPC believes that financial literacy and the ability to critically engage as consumers with financial products are essential life skills meaning that the comprehensive inclusion of financial education across relevant areas of the Primary Curriculum are a necessary part of supporting the Framework to deliver on its vision.

Further to this the CCPC believes that financial education complements the wider focus on literacy and numeracy across the education system in Ireland. In the ‘Literacy and Numeracy for Learning and Life’ Strategy 2011 – 2020 published by the Department of Education and Skills, it is identified that numeracy is not only the ability to use numbers and to add, subtract, multiply and divide, but also “encompasses the ability to use mathematical understanding and skills to solve problems and meet the demands of day-to-day living in complex social settings”⁴. This was also echoed in the NCCA report on the main findings from parents on the *Draft Primary Curriculum*, where it was noted that parents considered that “this area is very important for children’s futures and it should

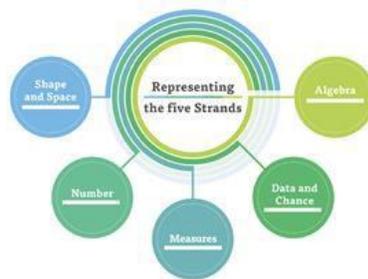
⁴ Department of Education and Skills (2011), Literacy and Numeracy for Learning and Life: The National Strategy to Improve Literacy and Numeracy among Children and Young People 2011 – 2020, see: https://www.education.ie/en/publications/policy-reports/lit_num_strategy_full.pdf

link to the real world”⁵.

Curriculum structure - *Strands, Learning Outcome Labels, Elements and Learning Outcomes*

[see pages 15 – 24]

The *Draft Primary Mathematics Curriculum* is structured according to five Strands: Algebra; Data and Chance; Measures; Number; Shape and Space. Attached to these Strands are 15 Learning Outcome Labels, which contain Learning Outcomes for each stage.



Mathematical processes are categorised into four Elements: Understanding and Connecting; Communicating; Reasoning; Applying and Problem solving.



⁵ National Council for Curriculum and Assessment (2019), Primary Curriculum Review and Redevelopment: Report of main findings from parents on the review and redevelopment of the Primary Curriculum, see: https://ncca.ie/media/4041/parents_focus_group_report1.pdf

Please give your overall feedback in relation to the curriculum components mentioned above.
Please quote full text of any learning outcome you wish to draw attention to.

The CCPC welcomes the inclusion learning outcomes for various age groups in relation to money under the “Measures” strand. We particularly welcome the focus on “appropriately playful learning experiences” of money at junior and senior infants and “appropriately engaging learning experiences thereafter”.

The learning outcomes outlined in relation to money are suitable for the *Draft Primary Maths Curriculum*. We would, however, recommend adding digital elements such as the use of cards and online payments as a way of making children familiar with the increasingly digital way consumers interact with money. In the UK Financial Education Planning Framework elements such as credit cards, debit cards and online payments are introduced from the age of seven onwards⁶. The shift to digital banking and digital financial decision making has been accelerated by the COVID-19 crisis. Therefore, the development of digital skills must be seen as a critical part of providing children with the skills to navigate financial decisions in the future. This also supports the “being a digital learner” competency in the *Draft Primary Curriculum Framework*.

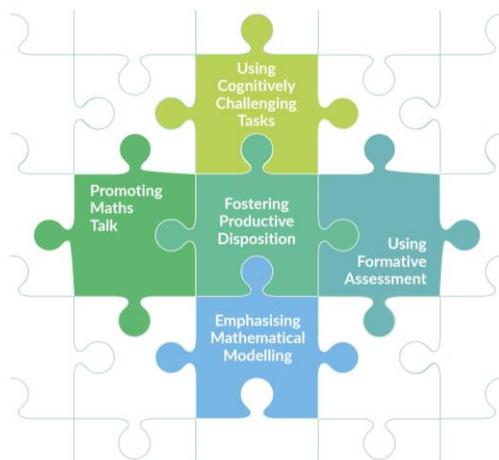
Further to this the CCPC welcomes that one of the learning outcomes under measures focuses on children making financial plans, however we would like to see this extended further to incorporate receipts specifically. In the UK Financial Education Planning Framework keeping receipts forms a key learning outcome for managing your money for children aged between seven and 11 years old. Keeping receipts can help teach children about budgeting and also allows them to better understand the cost of individual items. This would in turn feed into the learning outcome that children would “make informed judgements about transactions and financial plans”. To build on this further the CCPC would again like to see an earlier focus on teaching children on needs vs wants. The UK Financial Education Planning Framework incorporates teaching children about needs vs wants from the age of five onwards. This is under the learning outcome in the UK framework of becoming a critical consumer. This should help children achieve the learning outcome in the proposed framework of being able “to recognise the value of money and use euro and cent in a range of meaningful contexts”, and also set children up to develop and build on this to develop budgeting skills and habits in 5th and 6th class.

The OECD’s International Network on Financial Education (INFE) and the European Commission are currently developing a financial competence framework for children and young people which they plan to launch in early 2023. Competences in relation to digital finance and sustainability are being specifically developed in line with European Commission priorities. OECD INFE are the global leader on financial education best practice, policy and research. We would suggest that once the framework is published that elements of competences related to the primary school age range be considered in terms of the learning outcomes and toolkit.

⁶ Young Money, Financial Education Planning Framework 3 – 11 years, see: <https://www.young-enterprise.org.uk/wp-content/uploads/2019/01/FINANCIAL-EDUCATION-PLANNING-FRAMEWORK-3-11-ONLINE-2020.pdf>

The Primary Mathematics Curriculum in Practice [see pages 25 – 37]

The *Draft Primary Mathematics Curriculum* proposes five key pedagogical approaches which underpin and embody a new vision for children’s learning in terms of teachers’ everyday practice.



Please give your overall feedback in relation to these key pedagogical approaches.

The CCPC believes that there are many learning opportunities to develop financial education across the five pedagogical approaches, however in particular the CCPC welcomes the approach of “Promoting Maths Talk” in relation to financial education.

Among the many suggestions for “Promoting Maths Talk” is the concept of “providing suggestions for parents on how to promote and stimulate Maths Talk at home allowing waiting time and time for sustained interaction.” The CCPC believes that incorporating financial education into the curriculum could provide a key opportunity for parents to stimulate a discussion around maths and would provide children with a tangible example of how maths forms an everyday part of their lives and builds further on the learning outcomes around money. International research has indicated parents are vitally important in building children’s financial literacy⁷. Research conducted in Flanders in Belgium has indicated a positive impact for students in terms of improved financial literacy when their parents were involved. This is particularly true for students who come from a lower socio-economic background. The CCPC supports this approach as it is crucial that the curriculum would try to incorporate that children come from a diverse range of backgrounds where meanings around money can be different. This should be reinforced through the “Wellbeing” curriculum area of the primary curriculum in helping children to deal with any emotions and experiences they might have around money.

The CCPC also believes that it is appropriate to incorporate financial education into “identifying and selecting appropriate situations and problems to generate Maths Talk”. Discussion in around basic money concepts like budgeting and understanding the value of money will help children develop their problem-solving skills which is an essential element of the mathematical learning process.

⁷ Financial Education in Flanders, see: <http://eufin.org/docs/Financial-education-in-Flanders-Belgium.pdf>

Primary Mathematics Toolkit

The Primary Mathematics Toolkit will contain four components: Mathematical Concepts, Progression Continua, Support Materials and Examples of Children's Learning. For consultation, the *Draft Overview of the Primary Mathematics Toolkit* contains Mathematical Concepts, Progression Continua and 11 Support Materials.

Please give your overall feedback in relation to the supports outlined and suggestions on additional supports.

The toolkit could include practical information for teachers on how to teach about money. As mentioned in our submission to the NCCA's consultation on the *Draft Primary Curriculum* in 2020, the CCPC is also committed to providing resources and supports for teachers to be able to teach financial education and to be used in the classroom. This will include detailed, free and open-to-use digital resources on financial education in the classroom, directly linked to learning outcomes from junior infants to 6th class. The CCPC is currently working with the Junior Cycle for Teachers (JCT) Maths team in order to develop financial education resources for junior cycle. We would welcome an opportunity to work with the NCCA and teachers to establish similar successful collaborations at primary level. This would also allow for an improved transition between 6th class and junior cycle in terms of corresponding material linking into curriculum specifications.

International evidence, including OECD guidelines and UK⁸, Portuguese and Austrian experiences have demonstrated the importance of supporting and enabling teachers to successfully deliver financial education within the primary curriculum. Teacher confidence needs to be supported, particularly if teachers have not delivered financial education before. Training and support for teachers in teaching financial education should begin in teacher training colleges and universities, and should be continued throughout their career. All training and material should be developed with the input of teachers and take into the account the diversity of schools and of individual children.

The CCPC is committed to supporting and contributing to teacher training on financial education and continuous professional development for teachers at all levels of the educational system. The CCPC recognises the particular importance of training within a transition phase from the old to the new curriculum.

Data Protection

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⁸ All Party Parliamentary Group on Financial Education for Young People (2016), *Financial Education in Schools: Two Years On – Job Done?*, see: [APPG-on-Financial-Education-for-Young-People-Final-Report-May-2016.pdf](https://www.enterprise.org.uk/wp-content/uploads/2016/05/APPG-on-Financial-Education-for-Young-People-Final-Report-May-2016.pdf) (young-enterprise.org.uk)



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Organisation submission details

Name	
Position	
Organisation	Dunboyne Junior Primary school
Date	May 2022

The NCCA will publish written submissions received during the consultation. The submissions will include the author's/contributor's name/organisation. Do you consent to this submission being posted online?

Yes

Yes

No

Please provide some brief background information on your organisation (if applicable).

WE are a Junior school with 5 of each class from Junior Infants -2nd class.

The remainder of the template includes two sections. Section 1 invites your overall comments and observations on the *Draft Primary Mathematics Curriculum*. Section 2 is structured to align with main sections of the draft curriculum.

Section 1

Please outline your overall response to the *Draft Primary Mathematics Curriculum*.

Aspects of the curriculum that remain closely linked to the 1999 Primary Mathematics Curriculum include the strands, learning outcome labels which are similar to the 1999 strand units with some minor changes, and common elements.

It is difficult to Navigate and we feel we need time allocated for inservice to get to grips with it. . Could you have the labels, outcomes, concepts and progression continua for each of the strands together? This would help for planning purposes.

The draft learning outcomes however are quite vague in comparison to the previous curriculum. What is the baseline for each of the class levels in the progression continua? Each child and class will be different but what would the general standard be at each year level.? This will have Implications for standardised testing.

We require more specifications and clear guidance to avoid major discrepancies across schools and/or teachers. The progression continua need to provide a little more detail and clarification on where a standard for specific class levels should be at. Eg At the moment we know Junior infants need to know everything about numbers 1-5, senior Infants 5-10, First class 10-100, 2nd class 100-200. We use this as the Norm .

Support materials are great and would be enjoyable for students while providing for beneficial teaching and learning experiences. However, many tasks, activities and practices would be difficult to implement in many mainstream classrooms with high volumes of students all with varying educational needs and a sole adult in the classroom to implement and manage such ideas.

We feel we need training in implementing this new Curriculum. NQTs have had little or no training in setting up Maths stations for practical maths tasks in classes due to all the time they missed out in College due to Covid. This sort of work is normally done in tutorials in College which they missed out on. Experienced teachers find it difficult to do this active maths without the support of another adult in their class especially in our Junior school setting.

We need extra staff to help with more hands on learning experiences and to facilitate maths talk and to monitor it.

Section 2

Rationale and Aims [see pages 9 – 14]

The rationale for the *Draft Primary Mathematics Curriculum* addresses the importance of mathematics in children's lives, while the over-arching aim of the draft curriculum is the development of mathematical proficiency.

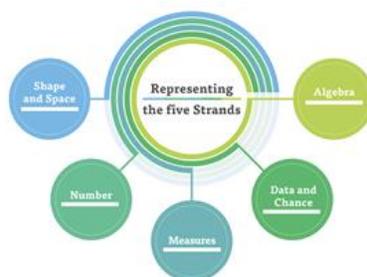
Please give your overall feedback in relation to the Rationale and Aims.

Positive response to both the rationale and aims of the draft curriculum.

Great to see the promotion of 'Maths Talk' and encouragement for students to express their understanding, which will benefit both teachers in their assessment of student learning and support other students in observing alternate strategies. We also agree that the practical Aistear Approach is the best way for young children to grasp the mathematical concepts but how do we facilitate that with young children in a Junior school with big class sizes and a wide range of abilities and also include SEN students? It is impossible for one teacher in a classroom to do all that. We need classroom assistants in every Junior class.

Curriculum structure - *Strands, Learning Outcome Labels, Elements and Learning Outcomes* [see pages 15 – 24]

The *Draft Primary Mathematics Curriculum* is structured according to five Strands: Algebra; Data and Chance; Measures; Number; Shape and Space. Attached to these Strands are 15 Learning Outcome Labels, which contain Learning Outcomes for each stage.



Mathematical processes are categorised into four Elements: Understanding and Connecting; Communicating; Reasoning; Applying and Problem solving.



Please give your overall feedback in relation to the curriculum components mentioned above. Please quote full text of any learning outcome you wish to draw attention to.

Strands: Kept similar to the same as 1999 curriculum, no issues.

Learning Outcome Labels: Correspond well to the former strand units of the 1999 curriculum. Some changes that work well such as grouping length, capacity, area, weight into one label (measuring) as all progress at similar pace.

Elements: Little change, no issues.

Learning Outcomes: Overall response is that there is a serious lack of detail specifying what content needs to be taught at each class level and the learning outcomes are too vague to provide for adequate teaching and learning.

Example: In the former 1999 curriculum for first class; shape and space, there was a clear instruction on which 2D & 3D shapes need to be taught. Associated with these were activities such as constructing shapes, identifying shapes in the environment, combining and partitioning of shapes, as well as clear linkage and integration. Comparing this to the draft curriculum the sole learning outcome for shape would change to 'children should be able to examine, categorise and model 3-D and 2-D shapes.' The lack of clear information about which shapes need to be taught would result in a discrepancy in content taught across schools and/or teachers. This is seen again in the draft Progression Continua of learning outcome label 13 – Space, which does not outline which shapes are required to be taught.

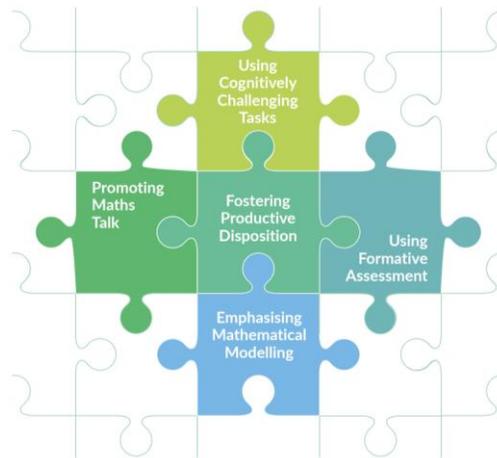
This lack of clarity is seen across many of the new learning outcomes. While the progression continua provide some clarity on the specifics of what content should be taught in some learning outcome labels (For First Class):

- Time: Reading analogue clock in hours and half-hours,
- Fractions: Halves of sets,
- Money: Up to 50c,

The lack of guidance as to where the standard for class levels would be will lead to discrepancies. It is understandable that students progress at different levels, hence the progression continua, but guidance should still be given as to what the standard for a class level would be, otherwise teachers will need to revert back to the 1999 curriculum for clarity.

The Primary Mathematics Curriculum in Practice [see pages 25 – 37]

The *Draft Primary Mathematics Curriculum* proposes five key pedagogical approaches which underpin and embody a new vision for children's learning in terms of teachers' everyday practice.



Please give your overall feedback in relation to these key pedagogical approaches.

Overall our school felt very positive about the key pedagogical approaches.
 We like that there are suggestions as to how the teacher could ensure that these pedagogical approaches are active in their classroom.
 We felt it would be helpful if examples of cognitively challenging tasks should be provided for each of the essential ideas and concepts.

Primary Mathematics Toolkit

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Please give your overall feedback in relation to the supports outlined and suggestions on additional supports.

Support materials are great and would be enjoyable for students while providing for beneficial teaching and learning experiences. However, many tasks, activities and practices would be difficult to implement in many mainstream classrooms with high volumes of students all with varying educational needs and a sole adult in the classroom to implement and manage such ideas.

There could be more ideas on integration included.

Time will need to be given to teachers to explore the tool kit. We would benefit from Inservice to explore the resources.

Examples of learning experiences for each class level and under each concept would be very helpful.

Data Protection

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Individual submission details

Name	Michelle Hannafin
Date	25/06/2022

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Yes

No

Please provide some brief background information on your organisation (if applicable).

I am a teacher who is very interested in maths education. I have a specific interest in the senior end of the school and have taught in senior classes for the past ten years. I am currently completing an M.Ed in Maynooth University on the topic of maths education. I have spent a considerable amount of time reading about maths education and am coming from an informed perspective. I also have experience in providing CPD for teachers in various subjects. I designed and facilitate an EPV course which is approved by the DES. I am writing a submission as I want the best possible maths curriculum. All suggestions are made in an effort to make the curriculum document more useful for teachers. Please consider all suggestions as an opportunity to reflect.

This submission is written on behalf of myself. However, I also run a business and an Instagram page for primary teachers in Ireland. I surveyed over 2000 teachers on their perspectives on maths education in

the senior primary classroom. In this submission I will also share some of the perspectives of other teachers through the results of this survey where they are relevant.

I would be very happy to be further involved in sharing my opinions by meeting with or speaking to an NCCA representative. It is hard to share all perspectives in a written submission. I am removed from the creation of the draft specification, so I am able to give an unbiased perspective.

I would also like to note that having an open consultation in May and June is poor timing. Teachers are very busy this time of year and have less interest in curriculum development as they are tired and focused on finishing up the year. Term one is the best time to look for teacher perspectives.

Thank you for reading this submission.

The remainder of the template includes two sections. Section 1 invites your overall comments and observations on the *Draft Primary Mathematics Curriculum*. Section 2 is structured to align with main sections of the draft curriculum.

Section 1

Please outline your overall response to the *Draft Primary Mathematics Curriculum*.

To begin I considered what teachers value in a curriculum document. I have outlined my thoughts below. When you consider the draft curriculum does it meet these targets? If not how can it be changed to support them? I am looking for a practical, useful and useable document.

What am I looking for in a curriculum?

- Concepts and language explained clearly so they are easy to understand.
- A clear outline of progression from junior infants to 6th class.
- Specific learning outcomes.
- Clarity. I want to know what the children 'should' be able to do at the end of a year while understanding that each child will learn at a different pace.
- An awareness that learning is recursive, and skills build year on year.
- Agency. An understanding that teachers will have different approaches and skills and that they will need to adapt the learning to suit the needs of their class. Not every class will be at the same level.
- Different types of learning included. The importance of factual knowledge recognised for senior classes.
- Useful and practical pedagogies that support learning.
- Realistic. Does it affirm and build on current good practice?
- Is it easy to navigate and use?
- Practical. Many teachers find teaching maths difficult. Having specific outcomes/teaching pedagogies that are easy to follow and use will support them.
- Support. What CPD be provided to help teachers upskill?

My overall response is mixed. At the moment the document would not be easily useable by teachers and this should be the key aim. Below I outline some key points below and further expand on them later in the document. I have tried to be very clear as I want the best curriculum possible. My key interest is in the pedagogies chosen. I believe that play-based learning and interactive direct instruction are two key pedagogies that could be included to enhance the curriculum. They are currently the focus of my M.Ed dissertation and I find them very effective pedagogies.

- The rationale is clear and useful.
- The elements of mathematical proficiency are not explained well. Examples and clear definitions are needed.
- The structure in terms of strands is good. I appreciate the suggested changes to measures as many of the topics link well.

- The elements are fine; nothing new.
- Organising learning outcomes in stages is a good idea as they are recursive, however I think a clear explanation that teachers need to teach each strand every year would be helpful. Some teachers will find it confusing. A rationale for the use of stages might also be useful.
- The learning outcomes are very poor. They are too vague. Teachers want to know 'What do I need to teach?' or 'What should the children be able to do?'. This should be evident at a glance from the curriculum. Teachers can then use their agency to teach them in a way that suits their class. In the survey I carried out 41% (813 teachers) of currently practicing teachers are not confident teaching maths in senior primary classrooms. They need to know specifically what to teach, otherwise they will simply rely on the textbook which is not what the NCCA or I want. Similarly, NQT's or teachers teaching a class level for the first time will look for clear guidelines on what to teach in the class.
- Having only five key pedagogical approaches is limited. Where is the role of the teacher? The explanations of each of the approaches is waffly and doesn't give clear examples of how they might be used.

I have spent a considerable amount of time looking at this document. While my views are my own please consider me an informed and interested teacher who wants the best possible curriculum. Thank you for considering my perspectives.

Section 2

Rationale and Aims [see pages 9 – 14]

The rationale for the *Draft Primary Mathematics Curriculum* addresses the importance of mathematics in children's lives, while the over-arching aim of the draft curriculum is the development of mathematical proficiency.

Please give your overall feedback in relation to the Rationale and Aims.

Rationale:

The Rationale is very good. It clearly lays out key thoughts about mathematics and how mathematics is experienced.

Aims:

Firstly, I wish to note that the five aspects of mathematical proficiency are taken from research *Adding It Up: Helping Children Learn Mathematics* (NRC, 2001). This is perfectly acceptable and these have informed a number of authors and curricula. I agree with the importance of these five elements and that they are interwoven and interdependent.

In the draft curriculum the explanations of each of the aspects of mathematical proficiency are not sufficiently clear and are often confusing. In some cases the explanations are inaccurate and do not reflect the document they were taken from. The first sentence of the paragraph to explain them should be a definition that is easily understood by teachers who are not familiar with the research behind them. Rather than "The curriculum aims to..." the sentences could be started with "Conceptual understanding is...". Most of these are not clear.

The definitions and examples for each of these are provided in *Adding it Up* (NRC, 2001).

Below I have illustrated one example where the draft curriculum is confusing and inaccurate in terms of the elements of mathematical proficiency.

Here is procedural fluency as defined by the draft curriculum: P. 14.

"Procedural Fluency. The curriculum aims to provide children with opportunities to create their own informal strategies and to integrate new concepts and maths procedures as they build on these strategies. It aims to support children to justify the use of commonly used mathematical procedures and informal strategies, and through this, to strengthen their understanding and skills."

The main aim of procedural fluency is **not** children having opportunities to create informal strategies and to integrate new concepts. This definition is confusing and impractical. I do agree that children should be able to create informal strategies and use them, however this is not the essence of procedural fluency. In the second sentence the curriculum says children should justify the use of procedures. Again, while this is a critically important maths skill, it is not procedural fluency. There are further sentences to describe it but in my opinion the first two sentences should clearly explain the concept. The definition

of procedural fluency in Adding it Up (NRC, 2001) which is where the aspects of mathematical proficiency are taken from for our curriculum is:

Procedural fluency refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently.

This definition is much clearer. It does not need to be changed for our curriculum, especially when the changes not only alter the meaning of the term but also are confusing. Procedural fluency is children's ability to use procedures with skill and knowing when and how to use them. I believe the authors should revisit the original explanation and use it. By all means add to the explanation but it is important to ensure that the meaning is retained. The two definitions shared above do not have the same meaning.

In my opinion procedural fluency as being able to use procedures flexibly, accurately and efficiently is essential. At the senior end of the school this automaticity greatly aids conceptual understanding and children's ability to be creative in mathematics. Children need to achieve automaticity in single digit addition, subtraction, multiplication and division. This should also be emphasised in the curriculum. "The automatic retrieval of basic math facts is critical to solving complex problems because complex problems have simpler problems embedded in them" (Willingham, 2009). Children need to fluently be able to solve simple problems to keep their working memory free to solve more difficult problems. In my own classroom this is apparent when teaching a range of topics such as fractions and long multiplication. If a child cannot multiply by 7,8 or 9 the sum 98×78 is almost impossible for them as it takes them too long to do the simple multiplication and is too hard to retain the procedure. This concept is also reinforced by Kirschner et al. (2006), "we are skilful in an area because our long-term memory contains huge amounts of information concerning the area. That information permits us to quickly recognise the characteristics of a situation and indicates to use, often unconsciously, what to do and when to do it." It is important to consider how human cognitive architecture is organised. (Sweller – cognitive load theory) when considering how children learn. An emphasis should be placed on the importance of learning and retaining basic facts in the four operations.

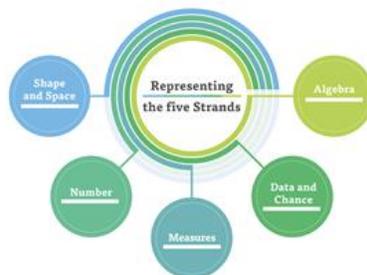
By changing the definition of procedural fluency to 'children use their own informal strategies' the concept has become unclear. While sometimes children can use their own strategies there is also an importance to learning basic mathematical procedures and skills. Having good factual and procedural knowledge allows children to build their conceptual understanding.

This is one example of how the definitions in the curriculum are unclear and do not retain their original meaning. I would highly recommend revisiting each of the original definitions in the Adding It Up document (NRC, 2001) and checking that the meaning is clear in our curriculum. This is not the only example I could have chosen. I did not have time to go through each of the explanations in this detail.

The speech bubbles from different parties do not add much to the explanations and are generally unnecessary. Consider adding the definitions of each to the glossary of terms at the end of the document.

Curriculum structure - *Strands, Learning Outcome Labels, Elements and Learning Outcomes* [see pages 15 – 24]

The *Draft Primary Mathematics Curriculum* is structured according to five Strands: Algebra; Data and Chance; Measures; Number; Shape and Space. Attached to these Strands are 15 Learning Outcome Labels, which contain Learning Outcomes for each stage.



Mathematical processes are categorised into four Elements: Understanding and Connecting; Communicating; Reasoning; Applying and Problem solving.



Please give your overall feedback in relation to the curriculum components mentioned above. Please quote full text of any learning outcome you wish to draw attention to.

The five strands are clear and useful.

The elements are also fine. Is there a place in the curriculum for the types of mathematical learning? Learning mathematics requires three types of knowledge: factual, procedural and conceptual (Willingham, 2009). Children need to learn factual knowledge which in turn supports their procedural and conceptual understanding.

Learning outcomes:

The learning outcomes across the draft curriculum are vague and unhelpful. Is there a need to have both learning outcomes and progression criteria? Teachers will have to refer to both the curriculum and the toolkit to do their planning. Are the outcomes necessary? Could teachers plan using the progression criteria instead? The learning outcomes should help teachers plan what to teach and currently they are difficult to use. Teachers would find planning much easier with one set to work from. The progression criteria are far more useful as they outline what the children should be able to do.

In the PLC the milestones were not a success. They are cumbersome and when the need to include them in planning was dropped they were no longer widely used by teachers. The concept is useful but if they are not practical they will not be used. This was evidenced in the roll out of the PLC. I would highly recommend either making specific learning outcomes or having only the progression criteria. Ideally,

they should both be in the curriculum document. The progression criteria are what teachers will need to use as the outcomes are too vague. Therefore, they should be central to the curriculum document.

Teachers do not like the PLC. They find it confusing, difficult to use and overwhelming. It would be far more beneficial to have specific learning outcomes in the curriculum. Teachers can still have agency and flexibility across the stages and address the needs of their class. Having specific outcomes does not reduce teacher agency. Teachers will be able to explain that their class need to work on the specific outcomes for a class below or above the level they are teaching to. I do this frequently; this year in time my 4th class were originally working to the 2nd class curriculum in the strand unit of time. I used my agency to teach the concepts my class needed to learn. By the end of the year most children were meeting the 4th class curriculum objectives. Having specific objectives does not prevent teachers from being flexible and autonomous.

I realise that the format is highly unlikely to change at this point. However, clear examples of how to use the curriculum to plan with both the outcomes and progression criteria should be central to showing teachers how to use the maths curriculum. In the PLC this caused a lot of confusion. It would be preferable not to repeat this experience!

Time: Draft Curriculum P. 21

I want to outline some of the questions I had when only using the outcomes across the four stages. The progression criteria do answer most of these which shows that they will be needed in the curriculum, not as an aside.

Time	<i>Through appropriately playful learning experiences children should be able to develop a sense of time and its purpose.</i>	<i>Through appropriately engaging learning experiences children should be able to understand how time is measured, expressed and represented. Through appropriately engaging learning experiences children should be able to explore equivalent expressions of time.</i>	<i>Through appropriately engaging learning experiences children should be able to compare, approximate and measure time using appropriate units of measurement. Through appropriately engaging learning experiences children should be able to identify the relationship between different units and representations of time.</i>	<i>Through appropriately engaging learning experiences children should be able to solve and pose practical tasks and problems involving the interpretation and calculation of time.</i>
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- Jr/Sr Infants: **A sense of time.** Is this in years/weeks/day/night? Is there any introduction to the clock?
- 1st / 2nd class: **Children should be able to understand how time is measured, expressed and represented.** What units are they using to measure? Hourly intervals? Half hour intervals? 15 min intervals? **Equivalent expressions of time.** Is this comparing digital and analogue time? What expressions of time? Hours? Minutes?
- 3rd / 4th class: **to compare, approximate and measure time using appropriate units of measurement.** What units of measurement? 15 min intervals? 5 min intervals? 1 min intervals? Compare to what? **Identify the relationship between different units and representations of time.** What units? What representations? Fractions? Decimals? Analogue/digital?
- 5th / 6th class: **solve and pose practical tasks and problems involving the interpretation and calculation of time.** What time skills should the children be able to do? Can all children read the clock? What practical tasks and problems? What skills will these include? What is interpretation of time? What is calculation of time?

As discussed above this example shows that the outcomes are vague and illustrates the questions teachers might have when they go to the curriculum to see what they are to teach in relation to time for their class.

In this section I have highlighted key sentences from P.18 of the draft curriculum where the rationale and use of learning outcomes is described. After each sentence from the curriculum my thoughts are shared in bold.

“Learning Outcomes, when shared with children, can support them to hold clear expectations and to be active agents in their own learning.” **The outcomes are unshareable as they are not specific to what children are learning. I agree that sharing learning outcomes is a highly effective strategy. However, there are no shareable outcomes in the curriculum. Teachers will have to decide themselves on the outcome and rewrite them to share them with the children. While sharing the learning outcome is an excellent strategy the outcomes in the curriculum are not suitable for this purpose.**

“Learning Outcomes allow for teacher agency and flexibility in exercising professional judgement and decision-making around planning, teaching and assessment for individual contexts.” **Teachers already exercise their agency and flexibility by adapting learning to suit their own class. They do this with the current specific learning objectives. The outcomes don’t need to be vague for teachers to be agentic.**

In the document (P. 18) the three sentences below are what learning outcomes help teachers to do:

1. “Prepare for, teach and reflect on their use of appropriate methods for teaching and learning mathematical ideas.” **The outcomes are so vague that they are not helpful. For each outcome I have to try and figure out what I am meant to teach. I will need to refer to the progression toolkit as well as the curriculum document. I do not find the outcomes helpful to prepare, teach or reflect as they are too broad.**
2. “Focus the use of assessment to gather evidence of children’s learning and understanding, thereby enabling teachers to adapt their teaching and respond appropriately to children’s learning.” **The outcomes do not do this. They are not clear so there is nothing to assess against. Teachers already assess the children and adapt their teaching to respond to children’s learning. This can be done with specific outcomes.**
3. “Provide focused feedback to children and parents/ guardians.” **How can extremely vague outcomes help teachers provide focused feedback to children or parents?**

Please reconsider having specific learning outcomes. It is possible to allow for agency and flexibility with specific outcomes. Specific outcomes are useful and practical for teachers. The progression criteria are more specific however teachers who are new to a class level or an NQT may find it challenging to establish where their class are as there are no guidelines on what is expected to be achieved in each class. If

continuing to use the outcomes as they are please consider putting the progression criteria in the curriculum document also.

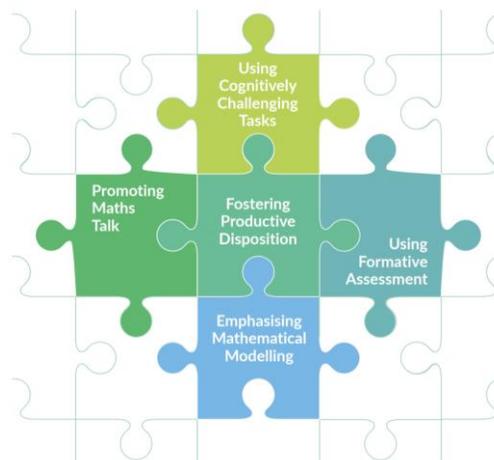
Please consider:

- **Are the outcomes presented in a way that teachers can easily navigate and use them?**
- **Could the progression criteria be used instead of learning outcomes in planning as they are more useful for teachers?**
- **Should teachers have to interpret every sentence of the learning outcomes?**

Many teachers already lack confidence in teaching maths. A curriculum that is vague will not help them to teach. The curriculum should be a document that can be referred to daily. It should be clear and easy to navigate. Originally, I did not see the progression criteria as they were in a separate document.

The Primary Mathematics Curriculum in Practice [see pages 25 – 37]

The *Draft Primary Mathematics Curriculum* proposes five key pedagogical approaches which underpin and embody a new vision for children’s learning in terms of teachers’ everyday practice.



Please give your overall feedback in relation to these key pedagogical approaches.

Firstly, I question is what other pedagogical approaches were considered? While it mentions that these are not an “exhaustive nor hierarchical” list I cannot find other approaches mentioned in either the curriculum or the reports published. I have read many of the research reports underpinning the curriculum.

While I think these five approaches are important I believe there is a serious oversight in not including both the role of the teacher and play-based learning as key pedagogical approaches. I believe that these could underpin many of the approaches mentioned as the five key approaches.

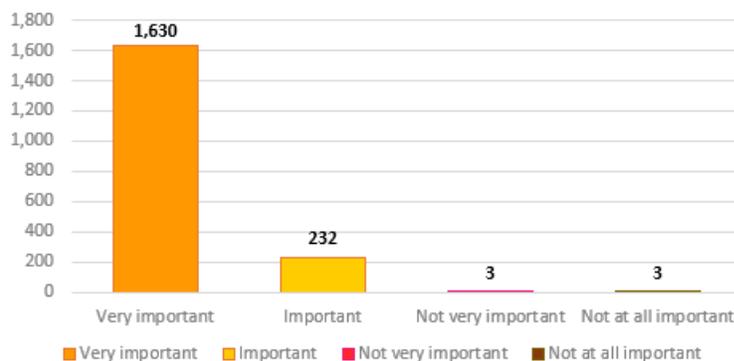
The teacher plays an essential role in maths education. The teacher will foster the productive disposition, facilitate maths talk and develop the cognitively challenging tasks based on the needs of the child.

Moreover, the teacher leads the learning. They activate prior knowledge, find out the level of the children, teach the concepts, check for understanding, design active learning experiences and assess the learning. I believe that the teacher should be central to the curriculum.

I feel that 'interactive direct instruction' is a key pedagogical approach used in my classroom and in many classrooms around Ireland. In this form of direct instruction children are actively involved in the learning process. The children have an opportunity to engage in dialogue, ask and answer questions, talk with a partner, work on mini whiteboards, show different ways to solve a problem. The children are not sitting and passively listening. They are actively involved in their learning. The teacher models examples, asks questions and involves the children in talk. I have found this to be a highly effective teaching strategy in the senior classes. Hattie (2017) defines direct instruction as intentional, well-planned, and student-centred guided approach to teaching. It is not an archaic or didactic method of teaching maths but is positive, child-centred and active.

I asked teachers how important they felt the role of the teacher was in providing maths education. 99.7% of teachers voted for very important or important. 1852 teachers felt the teacher had an important role. In comparison only 6 teachers voted for not very important or important, representing 0.3% of those who answered. It is clear that the currently practicing teachers of Ireland value the role of the teacher. Suggestions on how the teacher can lead learning in an interactive and interesting way would be a very beneficial approach. Teachers would be able to take these suggestions on board as it would not be very far removed from their current practice.

How important do you think the role of the teacher is in providing quality maths education?



(Hannafin, 2022)

The pedagogical approaches are not complete. The role of the teacher needs to be outlined. If this curriculum is for the teacher it should explain what the teacher can do in order to use these approaches.

It is disappointing to see play-based learning only in junior and senior infants. I believe play-based learning should be a key pedagogy in our new curriculum. There is a place for play in the senior primary classroom. Play provides motivation for learning and certainly helps to foster a positive disposition. I use play-based learning on a daily basis in my senior classroom. The children love to learn through games and playful

learning. Here are a few quotes from children in my class this year. I asked them about their experience of using games during maths in the classroom.

- “Learning maths through games is awesome.” (4th class child, 2022)
- “The games made learning fun for me.” (4th class child, 2022)
- “When we do a game first it helps me understand what we are actually doing.” (4th class child, 2022)
- “Today during maths I felt great because it was fun and I understood everything very clearly.” (4th class child, 2022)

The children love a playful learning approach. It encourages math talk and allowed me to create cognitively challenging tasks. Play is how children learn and it should be valued. It is important to have an understanding of what play is as a methodology. It is a wide spectrum that encompasses many types of play. While free play is not a highly effective teaching strategy many other types of play are effective to help children reach an explicit learning goal. In the senior classroom using guided play, games and playful instruction is a way to enthuse and motivate children to learn.



(Zosh et al., 2018)

Thinking about play as a spectrum enables us to retain a play essence where children experience joy and have agency in their play contexts while also recognizing that play may take many different forms and serve many different functions (Zosh et al., 2018). Play can be used as a teaching strategy in the senior primary classroom. Play supports learning. “Play can be joyful, iterative, socially interactive, meaningful and actively engaging. Play increases children’s motivation. It helps connect children’s knowledge, experiences and interests. Because play supports learning, it should have an important role in school” (Mardell et al., 2021:1).

Active, engaged, meaningful, social, iterative and joyful are characteristics that individually and collectively appear in a number of scientific articles that highlight processes involved in optimal learning. These same characteristics coalesce in play. Thus, playful learning – and in particular guided play – should confer real learning advantages for academic and social outcomes (Zosh et al, 2018).

Again, the teacher has a key role in setting up playful learning experiences that help children achieve specific learning objectives.

I believe that the role of the teacher in the form of interactive direct instruction and play-based learning are two key pedagogies that should be included in our new curriculum.

- The teacher has a key role in many of the pedagogies already suggested. However, the role of the teacher is not mentioned in any of them. The curriculum is for the teacher and the teacher plays a key role in organising the learning and supporting the children in their learning.

- Interactive direct instruction when combined with play is a highly effective teaching strategy.
- Play is motivating and engaging for children.
- These pedagogies are easy to use and implement. Children’s learning can be extended on and they can be cognitively challenged through the development of games and activities that help them reach a learning target.
- Both play and interactive direct instruction are child-centred approaches that are based on the theory of how children learn in maths. They underpin many of the key pedagogies already included.

We should not be asking our children to discover the curriculum. This is not an efficient or helpful way for children to learn. Children need to be taught problem solving skills before attempting to solve problems. This also needs to be outlined as many of the pedagogies mentioned are problem-solving type pedagogies. Children should be actively engaged in learning, however the teacher has a key role in creating the learning experiences.

Using playful learning and direct instruction in mathematics are the focus of my M.Ed studies in Maynooth University. I would be happy to share more information on either of these strategies and I passionately believe are highly effective ways to teach maths. Moreover, they are practical and child-centred. Please consider adding these pedagogies to the curriculum.

Primary Mathematics Toolkit

The Primary Mathematics Toolkit will contain four components: Mathematical Concepts, Progression Continua, Support Materials and Examples of Children’s Learning. For consultation, the *Draft Overview of the Primary Mathematics Toolkit* contains Mathematical Concepts, Progression Continua and 11 Support Materials.

Please give your overall feedback in relation to the supports outlined and suggestions on additional supports.

I am looking forward to seeing the support materials and examples of children’s learning. These sound like they will be very useful and practical for teachers. I think they will be very welcome and will provide much needed support for teachers.

The progression criteria are far more useful and useable for teachers than the learning outcomes which are generally confusing. These need to be in the same document. I know there was confusion with the PLC initially, but I think in maths the progression criteria are absolutely necessary, so teachers know specifically what to teach. These need to be available to teachers in an easily accessible format. The online PLC is time consuming to navigate. Please consider having a document with both the outcomes and progression criteria in them or combining them.

Is the current organisation the best way to present the information? Are the vague learning outcomes across four stages needed? Can teachers plan with the progression criteria rather than outcomes? In maths teachers need specific goals to teach towards.

Additional supports:

- In-person seminars should be provided as support when the new curriculum is rolled out. Ideally a number of them over a number of years. Webinars are hard to engage with.
- Meetings in clusters of local/ similar size schools would be very beneficial as best practice could be shared.
- CPD on how to teach maths effectively is needed. Teaching maths an entirely separate skill to doing maths oneself. Findings from the survey I carried out show that over 1000 teachers felt their teacher training did not provide them with adequate skills to teach maths in a senior primary classroom. This represented 77% of total respondents.
- Practical examples of mathematical modelling and math talk in action are needed in the curriculum. Teachers need to know what that will look like.
- Funding is needed to buy maths equipment. Use of concrete resources is very poor in senior classes and teachers rely heavily on the textbook. Teachers need access to resources and many schools have no budget for maths equipment.
- Class size impacts teachers' ability to teach maths. Differentiation is much easier to achieve in a class of 18 than a class of 32. Many of the dialogic approaches such as math talk and mathematical modelling will be very difficult to use in larger overcrowded classrooms. Despite the reduction in class size over recent years we continue to have some of the largest classes in Europe. This will impact teachers' ability to use some of the approaches.
- Team teaching; could schools be trained in how to team teach for maths?

Data Protection

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www.ncca.ie/en/privacy-statement or you can contact the NCCA's Data Protection Officer at dpo@ncca.ie.



NCCA

An Chomhairle Náisiúnta
Curraclaim agus Measúnachta
National Council for
Curriculum and Assessment



Draft Primary Mathematics Curriculum

Written submission template for organisations, groups and individuals responding to the *Draft Primary Mathematics Curriculum*

This template is intended to support you (and your colleagues/organisation) in developing a written submission in response to the [Draft Primary Mathematics Curriculum](#). Please e-mail your completed submission to pmc.submissions@ncca.ie

Organisation submission details

Name	Máirín Ní Chéileachair
Position	Director of Education, Research and Learning
Organisation	Irish National Teachers' Organisation
Date	07/09/2022

The NCCA will publish written submissions received during the consultation. The submissions will include the author's/contributor's name/organisation. Do you consent to this submission being posted online?

Yes

No

Introduction

The Irish National Teachers' Organisation (INTO), as the largest teacher union in Ireland, welcomes the opportunity to respond to the draft specification of the *Primary Mathematics Curriculum (PMC)* for junior infants to sixth class. Since the publication of the 1999 Primary School Curriculum, the INTO has been involved in ongoing engagement with members to seek feedback on the opportunities presented and challenges posed by that curriculum. The findings of an INTO survey of teachers and school leaders on mathematics in 2004 highlighted some of the constraints of the 1999 mathematics curriculum including a lack of resourcing and content overload (INTO, 2005). Feedback from members as part of this survey also suggested that there was a large emphasis on the use of textbooks.

Similar findings emerged from a later survey on numeracy which was conducted by INTO to help inform the organisation's Consultative Conference on Education in November 2013 which was

based on the theme of *Numeracy in the Primary School*. The majority of respondents called for a skills-based curriculum that was both challenging and relevant and one that incorporated increased use of ICT (INTO, 2014). At the 2015 Education Conference on *Primary School Curriculum: Have Your Say* a number of challenges were identified including curriculum overload; lack of time; over-emphasis on standardised testing and accommodating the needs of children with SEN and EAL (INTO, 2017). An initial submission on the *Draft Specification of the Primary Mathematics Curriculum (PMC) for Junior Infants to Second Class* was produced by INTO in March 2018 following engagement with members throughout the country.

Considering the significance of the teacher's voice in policy, the INTO supports the partnership approach to curriculum development. Teachers appreciate the opportunity to engage in consultation to ensure that their views and concerns regarding the draft specification are captured. In order to inform its position, the INTO organised a number of consultation focus groups with members. Three face-to-face focus groups were held in different parts of the country as well as two online focus groups. A number of INTO branches as well as individual members also provided feedback. Much valuable information was gathered from members during this consultation process despite the short time frame allowed and the scheduling of the consultation during an extremely busy final term of the school year. Concerns were also expressed by members regarding the limited time allowed to schools to engage with the draft curriculum documents having just emerged from the very challenging pandemic period.

Main Findings

Curriculum Content and Structure

Learning outcomes & Progression Continua

Similar to views expressed by teachers regarding the initial draft of the PMC in 2018, participants in INTO's consultation described the Learning Outcomes as being vague and lacking in detail. The broad and non-specific nature of the learning outcomes will place an additional burden on teachers as they attempt to interpret and develop ethereal learning outcomes into meaningful classroom practice. The vague and highly non-prescriptive nature of the learning outcomes poses a particular difficulty for newly qualified teachers (NQTs) and other inexperienced teachers who will find the new curriculum difficult to navigate and 'flesh out' for a particular class level in the absence of broader teaching experience. There is a widespread belief expressed by INTO members that the learning outcomes in their current form pose a significant risk of creating an even greater reliance on textbooks and accompanying planning templates provided by educational publishers.

The *Mathematical Concepts* in the Primary Mathematics Toolkit (PMT) are a welcome inclusion, and these are viewed as useful signposts to teachers in planning teaching and learning and translating the learning outcomes into practice but further and more detailed development of this would be viewed as helpful by teachers.

Teachers are also concerned about the move away from specific content being assigned to each class level as in the current mathematics curriculum. This lack of certainty makes it difficult for teachers to start planning with a new class as, in the absence of defined learning outcomes for specific classes, it is not immediately clear what exact content would have been covered by previous teachers during the first half of a particular 'stage.' This places much greater importance on the whole school plan to define what content should be covered at each class level as well as clear communication between teachers of different classes. The INTO highlights the importance of providing opportunities for school staffs to work together and plan collaboratively to ensure consistency and also calls for the development of Guidance on Whole School Planning to complement *Preparation for Teaching and Learning – Guidance for all Primary and Special Schools (NCCA, 2021)*

Teachers feel very strongly that absolute clarity and consistency regarding the content to be covered are very important and the draft curriculum provides neither. Many teachers expressed the view that the nature of mathematics is such that it demands a structured, incremental approach rather than some other subjects such as History or Geography which have traditionally been presented as a 'menu curriculum' with a large degree of choice and autonomy afforded to schools and individual teachers. Pupils must develop a clear understanding of foundational mathematical concepts before they can progress and engage in problem solving. It is important that pupils feel confident and competent in using basic mathematical skills as they will form the cornerstone of future learning in the area of STEM. As such, there should be no ambiguity around what content is to be covered at which class level otherwise some aspects of the curriculum could be overlooked. This would have a significant impact on pupils' mathematical development leaving them unable to engage with later aspects of the curriculum having potentially missed out on foundational learning.

Some respondents felt that the provision of learning outcomes across stages rather than for specific class levels would not be a significant challenge given that teachers are already differentiating within their classes based on current curriculum objectives. In schools with multi-class settings this will not be a new concept. However, teachers continue to report an uncertainty regarding the function and purpose of the Progression Continua. Many teachers indicated that their experience of using progression continua through their engagement with the Primary Language Curriculum (PLC) to date has not helped to clarify this, with some members describing them as “unclear” with little evidence of natural progression along the continuum. There is also a perception among teachers that there is a large amount of ‘hidden content’ within the progression continua with little obvious connection to the accompanying learning outcomes.

Teachers expressed unease at the extent and nature of the changes being proposed in the draft PMC. This curriculum signals significant pedagogical and cultural change not least regarding the move to a learning outcomes-based curriculum. Unfortunately, teachers’ experiences of learning outcomes in implementing the PLC over recent years have not been positive. INTO members consistently report a high level of dissatisfaction with the PLC. It is seen as having added significant complexity to their planning and preparation without any discernible positive impact on teaching and learning. Teachers are frustrated by its cumbersome, text laden layout and the absence of clearly defined content for each class level. Further research is required on the meanings, understandings and interpretations of learning outcomes in curriculum, particularly, for young children in junior in primary schools. It remains to be seen whether a learning outcomes approach will be appropriate to the Irish primary context.

Language

During the previous consultation process in 2018, teachers raised concerns regarding the inaccessible and unfamiliar nature of the language used throughout the curriculum documents. Unfortunately, these concerns are echoed by teachers in response to this latest draft of the curriculum. In particular, the terms used to describe the five key pedagogical practices in Chapter 6 of the curriculum document are seen as overly complex and verbose. Members feel that the language used in the progression continua could also be more precise and succinct to avoid any possible misconceptions. The concerns about language point to a need for more careful consideration of language use and of the relevance of such language to the lived reality of practicing teachers. There is also a need to provide opportunities for teachers to engage in meaningful professional development in regard to recent curricular and pedagogical developments.

The language used to explain the various aspects of the curriculum may also cause confusion as it does not reflect the language used in the PLC. In the Language Curriculum the term ‘element’ describes essential language learning, and each element has a set of learning outcomes (NCCA, 2015, p 30). Conversely, in the PMC the term ‘elements’ refers to mathematical processes/skills, and each learning outcome label has a set of learning outcomes (NCCA, 2018, p. 28). Teachers questioned why the more appropriate and familiar term ‘mathematical skills’ was not retained and used in place of the newly adopted term ‘elements’ thereby avoiding any confusion or mixed messaging between the maths and language curricula.

In addition to this, teachers felt that within the content of the curriculum there should be a much greater emphasis on the importance and centrality of mathematical language. The importance of mathematical language is not adequately reflected in the curriculum documents currently. Teachers

wish to see specific content relating to mathematical language incorporated into the curriculum. Teachers referred to the helpful appendices contained in the teacher guidelines for the 1999 curriculum and require similar resources and supports for the PMC such as a glossary of mathematical terms relevant to the content. The glossary in the current draft of the PMC is for interpreting the curriculum rather than as a teaching resource. Teachers also referred to the overview of symbols, notation, and terminology relevant to each class level which was included with the 1999 maths curriculum as a helpful feature which they wish to see replicated.

Play

Teachers broadly welcome the increased emphasis on play-based learning experiences and playful pedagogy for all primary school classes in the draft curriculum. Teachers recognise the value of such approaches in facilitating discovery-based, child-centred learning and to foster positive dispositions towards mathematics. Teachers again however expressed reservations about the lack of adequate training and professional development for *Aistear* which was never adequately funded or resourced to be fully implemented and embedded in all schools. The INTO recommends that professional development for all teachers on play-based pedagogy should take place either prior to the introduction of the PMC or as an integral part of the implementation process.

In addition to this, significantly increased funding is required for schools to purchase and develop the necessary resources and supports to enable play-based approaches for example to purchase concrete materials to move away from textbooks and fully embrace play-based pedagogy. INTO has long highlighted the inadequate funding provided to primary and special schools in Ireland which leaves them unable to provide much needed resources and equipment to enhance children's learning experiences.

General Issues

The *Draft Primary Curriculum Framework* proposes the grouping of Mathematics with Science, Technology and Engineering; teachers emphasise the importance of ensuring that sufficient, distinct time is allocated to Mathematics due to the crucial importance of the development of foundational numeracy and maths skills in the early years of primary school.

Teachers expressed the view that more foregrounding of calculator use in senior classes is necessary. This would be particularly helpful for students experiencing difficulty with number facts and operations who could engage more meaningfully with other mathematical concepts if released from such difficulties by calculator use.

Teachers welcome their acknowledgement as 'agentic professionals' in this draft PMC and in the *Draft Primary Curriculum Framework*. It would be preferable however if the curriculum sought to allow teacher agency in how to teach specified content rather than agency in choosing what to teach which is how this draft curriculum is perceived currently by teachers.

Resources

During the consultation focus groups, teachers were asked to identify essential resources and supports required for successful implementation of the curriculum. Despite their misgivings regarding learning

outcomes and other aspects of the curriculum content, teachers generally felt that the concepts and ideas behind the new curriculum are good and well-intentioned but are not practical for implementation in the current conditions of Irish schools and classrooms – most notably class size, lack of appropriate resources especially for hands-on practical activities and not enough time to give to hands-on learning activities in an overloaded school day are seen as significant barriers to implementation.

The capacity of this curriculum to address the challenges and shortcomings of the 1999 curriculum is entirely dependent on appropriate funding, resources and supports being made available to schools. Teachers prioritised the following supports as essential for successful implementation of the PMC:

- Sufficient time allowed for high quality CPD (with the majority being face to face), planning and collaboration

Sustained support available to all schools within a much shorter timeframe than has been the experience heretofore

- Support service personnel modelling and demonstrating the curriculum in action in individual classrooms to make it real and meaningful for teachers
- Support should be available locally, making greater use of local education centres, PDST associates and facilitators. Availability of such personnel would give schools a more accessible and local contact point for support
- Use of teacher supply panels to release teachers from their class to engage with support services and collaborate with colleagues in exploring and implementing the curriculum – each school to be allowed an allocation of hours based on school size (Similar to CLASS hours)
- More staff in schools to facilitate greater use of team teaching and collaborative approaches

Curriculum Rollout & CPD

Teachers articulated very clear views on the requirement for high quality and fit-for-purpose CPD to launch and rollout the new curriculum. Key demands in this regard include:

- CPD must not be delivered by solely online means, the majority must be face to face.
- Timely face-to-face inputs provided to all schools and teachers.
- Teachers require time and space for collaboration and engagement with colleagues in both their own and other schools. School based planning days must be a feature of CPD and Sustained Support for a number of years to facilitate the embedding of the new curriculum.

While online webinars are seen as useful for optional CPD and the development of teacher's own interests, teachers do not see them as being effective or appropriate for CPD required to advance national priorities or the facilitation of curriculum reform due to the limited engagement they allow. Reforms of the scale being proposed require engagement and buy-in from all teachers and this cannot be engendered by online webinars alone. Teachers, in the main, did not find online approaches utilised for the PLC a positive experience. The current model of online webinars for CPD as utilised for the rollout of the PLC is not effective for teachers and therefore, they demand that CPD for the redeveloped Maths Curriculum be provided in a format similar to that of the 1999 Curriculum i.e.

planned school closures to give teachers the time, space and opportunity to engage with and reflect on the curriculum content and the wider changes in pedagogy and practice.

Teachers' views and experiences of online CPD as identified by our focus groups have many commonalities with international research (Lander, Lewis, Nahavandi, Amsbury & Barnett, 2020) on teachers' perspectives on and experiences of online professional development. The translation of content into practice is a particular challenge, not unique to CPD delivered by online methods, but potentially exacerbated by decontextualised and generic online approaches which take no account of the nuance of individual school contexts. The limitations of online approaches in facilitating interaction and collaboration between teachers have also been identified as a significant disadvantage. This was highlighted by teachers in our focus groups who require more time and space to engage and collaborate with colleagues in their own and other schools to explore and develop understandings of curricular and pedagogical change.

In general, webinars for the PLC were deemed by teachers to be of poor quality and unhelpful. They are perceived as regurgitating the content of the curriculum book. Teachers want and need practical and concrete supports – something that illustrates what the curriculum looks like in practice in a real classroom context. Where online engagement is required, ideally a full day school closure should be sanctioned as teachers have not found the half-day closures effective. It is difficult to focus on the content when coming directly from the classroom, possibly dealing with issues which emerged in school that day, children left in school who were not collected, etc. Teachers also highlighted poor communication of the rationale behind the PLC and of the move to a learning outcomes-based curriculum with many teachers reporting continued uncertainty of what this means for their classroom practice.

Teachers conveyed an unequivocal demand for clear guidance, direction, and practical supports in developing fit-for-purpose whole school, yearly/termly and short-term plans for maths to take account of the PMC. Worked examples of planning documents for a variety of different contexts are seen as essential. Teachers cite negative experiences of attempting to navigate the planning involved in implementing the PLC and feel that more support in this regard is very important for PMC. Teachers expressed disappointment and frustration with a lack of adequate support from PDST in planning for and implementing the PLC and fear that schools will again be left to their own devices to implement and embed the PMC with every school having to 'reinvent the wheel.'

Principal teachers who participated in the consultation process identified a requirement for specific briefing/training for principals ahead of a wider roll out to the general teacher population – this tailored support would ensure that principals are informed and aware of the context and content of new curriculum and can help to prepare their school communities for the curriculum in conjunction with PDST and other supports.

Conclusion

Having considered the draft curriculum specification, and engaged with members the INTO makes the following recommendations regarding the content and implementation of the PMC:

- The learning outcomes and associated mathematical concepts should be reviewed and further developed as necessary to provide certainty and clear guidance to teachers enabling them to plan focused, appropriate, and enriching learning experiences for all children.
- Language used throughout the curriculum documents should be reviewed and revised in the interests of clarity, accessibility, and relevance to practising teachers.
- Specific curriculum content and resource materials must be developed to reflect the centrality of mathematical language and to promote a coherent approach to mathematical language across all classes.
- High quality, timely, and in-person initial CPD must be provided to all schools and teachers prior to the implementation of the curriculum together with ongoing and accessible sustained support. The majority of this support must be of a face to face nature
- School based planning days must be provided to schools for a number of years to allow schools the time and space to embed new curricula and new practices and pedagogies.
- Guidance on Whole School Planning to complement *Preparation for Teaching and Learning – Guidance for all Primary and Special Schools (NCCA, 2021)* must be developed to facilitate schools in planning for a new Mathematics Curriculum and the subsequent roll out of the Primary Curriculum Framework.

A learning outcomes approach creates a significant shift in curriculum culture which will require investment and support for teachers to enable them to develop a curriculum that meets the needs of their individual contexts. Any curriculum process model which relies on teacher judgement is far more demanding on teachers and thus far more challenging to implement in practice (Stenhouse, 1975). Therefore, the INTO reiterates that teachers need more time, support, and professional development opportunities to allow them to engage with this new approach to curriculum.

In conclusion, the INTO reiterates that the wider issues of class size, resourcing, time and sustained CPD must be addressed to ensure effective implementation of any new curriculum.

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National Council for
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primary
developments
foráis sa bhunscolaíocht

Draft Primary Mathematics Curriculum

Written submission template for organisations, groups and individuals responding to the *Draft Primary Mathematics Curriculum*

This template is intended to support you (and your colleagues/organisation) in developing a written submission in response to the [Draft Primary Mathematics Curriculum](#). Please e-mail your completed submission to pmc.submissions@ncca.ie

Organisation submission details

Name	Marino Institute of Education Response prepared by: Dr. Seán Delaney Dr. Maja Haals Brosnan Breed Murphy Dr. Bridget Flanagan
Position	Registrar Head of Department for Arts, Maths, PE and Early Childhood Education Assistant lecturer in Mathematics Education Part-time lecturer in Mathematics Education
Organisation	Marino Institute of Education
Date	29/06/2022

The NCCA will publish written submissions received during the consultation. The submissions will include the author's/contributor's name/organisation. Do you consent to this submission being posted online?

Yes

No

Please provide some brief background information on your organisation (if applicable).

Marino Institute of Education (MIE) welcomes the opportunity to respond to the National Council for Curriculum and Assessment on the Draft Primary Mathematics Curriculum. MIE is an autonomous, charitable higher education institute, under the co-trusteeship of the Congregation of Christian Brothers European Province and Trinity College Dublin, the University of Dublin. MIE is a teaching, learning and research community with involvement in teacher education dating back to 1905 when the Christian Brothers' Educational Research and Resource Training Centre was established and this centre was subsequently recognised as a Teacher Training College in 1929. The undergraduate programmes offered in MIE include the Bachelor of Education, the Baitsiléir san Oideachas Trí Mheán na Gaeilge, the Bachelor of Science in Early Childhood Education and the Bachelor of Science in Education Studies while postgraduate programmes include the Professional Master of Education (Primary) and the Master in Education Studies (Primary Mathematics Education). Additional programmes offered by MIE include the Migrant Teacher Bridging Programme and Continuing Professional Development programmes for teachers.

The remainder of the template includes two sections. Section 1 invites your overall comments and observations on the *Draft Primary Mathematics Curriculum*. Section 2 is structured to align with main sections of the draft curriculum.

Section 1

Please outline your overall response to the *Draft Primary Mathematics Curriculum*.

The development of the Draft Primary Mathematics Curriculum which is underpinned by theoretical and philosophical beliefs and aims to develop the mathematical proficiency of children in primary school is welcome. A shift in key pedagogical practices to include a focus on fostering productive disposition and the use of cognitively challenging tasks is considered a positive development. Flexible, open-ended learning outcomes provide opportunities for teachers to exercise their agency and offers opportunities for teachers to design instruction that matches the needs of children in their class. However, the open-ended learning outcomes reduce specificity and therefore provide less guidance and direction for teachers than the previous curriculum. Areas which we feel warrant further attention in the Draft Primary Mathematics Curriculum include inclusion, differentiation, play and engagement.

The curriculum notes the benefits of five key pedagogical practices for their potential to foster an inclusive learning environment and culture. The extent to which social and cultural contexts can significantly impact on children's mathematical development is relevant in the context of guiding mathematics education. A section highlighting issues of inclusion and the value of culturally responsive mathematics pedagogy within the curriculum is desirable, as Irish primary schools are characterised by increasing ethnic, linguistic and cultural diversity.

Greater reference to differentiation would strengthen the curriculum, emphasising the importance of designing learner-centred mathematics instruction. This could be achieved by adopting the principles of Universal Design for Learning in the teaching of all curriculum strands.

'Playful learning experiences' are mentioned repeatedly in the learning outcomes for children at Stage 1. A statement on the value of play in the curriculum would add to the document. Play can also effectively facilitate the development of conceptual understanding of mathematical ideas with children in Stage 2, Stage 3 and Stage 4, such as when learning about measures, data, chance and probability.

Student engagement is a multifaceted idea involving behavioural engagement, cognitive engagement and emotional engagement which presents significant benefits for learners of mathematics. Engagement will be discussed in further detail in the context of the rationale and aims of the curriculum.

Finally, in 1999 the curriculum designers laid out the curriculum objectives for mathematics – uniquely – class level by class level. The departure from the 1999 approach to the current one of setting out more open-ended learning outcomes at four different stages is likely to create an exigency for a range of classroom supports, especially in the form of mathematics representations and tasks, for teachers. Has thought been given to the supports that will be

provided to classroom teachers for teaching mathematics in this way? In addition, because textbook publishers play a role in creating resources which are frequently used by teachers and children, has consideration been given to explicitly communicating the rationale for the more open ended learning outcomes with textbook publishers so that resources and textbooks can reflect the different develop rates at which children progress and the diversity of needs which exist in classrooms? This requirement is further magnified for teachers in multi-grade classrooms.

Section 2

Rationale and Aims [see pages 9 – 14]

The rationale for the *Draft Primary Mathematics Curriculum* addresses the importance of mathematics in children's lives, while the over-arching aim of the draft curriculum is the development of mathematical proficiency.

Please give your overall feedback in relation to the Rationale and Aims.

The rationale for the Draft Primary Mathematics Curriculum clearly sets out the context of children's learning of mathematics and the importance of mathematics in their lives. We welcome the continued emphasis on the development of positive dispositions, which also feature in the Aistear Framework. Some evidence from forthcoming research points to how children in Ireland tend to either be very positively disposed or very negatively disposed towards mathematics, highlighting the importance of promoting a positive disposition among all children towards mathematics. Encouraging children to develop their perseverance and resilience link directly with the importance of supporting children to engage in productive struggle when developing problem-solving skills (Schoenfeld, 2018).

We welcome the selection of mathematical proficiency as the overall aim of the curriculum. The interdependence and interwoven nature of conceptual understanding, procedural fluency, adaptive reasoning, strategic competence and productive disposition as aspects of mathematical proficiency are clearly explained and visually presented in the infographic. We encourage the curriculum development team to consider extending the aspect of productive disposition to emphasise student engagement. Student engagement is a multidimensional construct consisting of behavioural engagement, cognitive engagement and emotional engagement which results in a deeper student relationship with mathematics (Fredricks et al., 2004). Encouraging meta-cognition and reflective practices regarding engagement with mathematics can positively contribute to enhanced levels of mathematical knowledge (Ingram, 2013). Promoting an awareness of student engagement would place an emphasis on supporting children to monitor themselves as learners of mathematics, develop meta-awareness among children of challenge and struggle in learning mathematics and the value of both, and help them appreciate the connection between challenge and learning.

Curriculum structure - *Strands, Learning Outcome Labels, Elements and Learning Outcomes* [see pages 15 – 24]

The *Draft Primary Mathematics Curriculum* is structured according to five Strands: Algebra; Data and Chance; Measures; Number; Shape and Space. Attached to these Strands are 15 Learning Outcome Labels, which contain Learning Outcomes for each stage.



Mathematical processes are categorised into four Elements: Understanding and Connecting; Communicating; Reasoning; Applying and Problem solving.



Please give your overall feedback in relation to the curriculum components mentioned above. Please quote full text of any learning outcome you wish to draw attention to.

Overall, we are supportive of the curriculum structure, built around five strands and four elements. In this submission, feedback relating to the curriculum components focuses mainly on learning outcomes, followed by a brief reference to elements.

Although flexible, open-ended learning outcomes offer potential benefits with regard to facilitating teachers to exercise their agency and supporting teachers to design instruction that meet the needs of a diverse range learners, the Draft Primary Mathematics Curriculum may not provide sufficient structure for all teachers, particularly those who are inexperienced, with regard to guidance on what mathematical content needs to be taught. Specific skills, concepts and learning trajectories associated with each strand are clearly and coherently set out in the Primary Mathematics Toolkit and greater cross-referencing of these developmental trajectories in the Draft Primary Mathematics Curriculum may support teachers who need guidance. Without providing clarity regarding mathematical concepts and skills within the curriculum document, some teachers, particularly those who are inexperienced may find themselves relying primarily on textbooks for guidance, resulting in textbooks becoming a de facto syllabus and therefore potentially reducing opportunities for using mathematical knowledge in the real contexts in which it is useful.

Within the learning outcomes, we suggest placing the frequently used phrases ‘Through appropriately playful learning experiences children should be able to:’ and ‘Through appropriately engaging learning experiences children should be able to:’ at the beginning of each column in order to avoid unnecessary repetition in the learning outcomes within the columns. Also, the soft-copy version of the document would be more user-friendly if the pages in landscape orientation were rotated in the original document prior to upload on the internet.

With reference to the learning outcomes for Stage 1 of the Measures Strand, the absence of reference to language development is considered an oversight. Furthermore, consistent references to the development of

ordering, comparing and matching skills in Stage 1 of the Measures strand is recommended, due to the importance of these skills for the later development of number concepts.

The learning outcome related to Transformation at Stage 1 would benefit from greater clarity, to illustrate if this learning outcome is intended to apply to 2-D and 3-D shapes, or 3-D shapes only, and to highlight what a child in Stage 1 should understand following learning about transformations. Using terms such as polygons and polyhedrons (and non-polygons and non-polyhedrons) instead of 2-D and 3-D shapes may help reduce some confusion around classifying shapes. With reference to the idea of transformations at Stage 2, the understanding of a line is that it extends in both directions indefinitely, and therefore the idea of a dilated line has the potential to be imprecise and/or misunderstood.

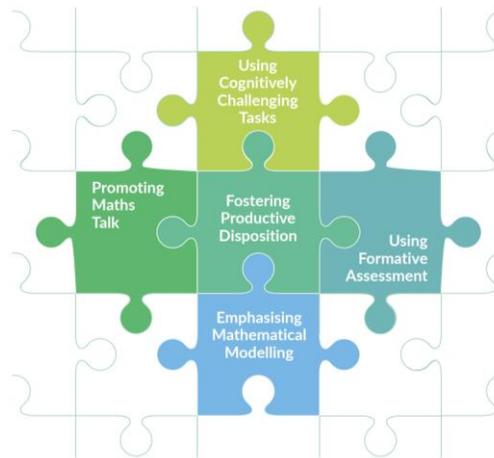
Transformation	<i>Through appropriately playful learning experiences children should be able to explore the effects of shape movements.</i>	<i>Through appropriately engaging learning experiences children should be able to understand that shapes and lines can be reflected, rotated, dilated and translated.</i>	<i>Through appropriately engaging learning experiences children should be able to model and explain the effects of transformations on shapes and lines.</i>	<i>Through appropriately engaging learning experiences children should be able to perform and devise a range of steps involving transformations.</i>
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The inclusion of a series of concepts for exploration at each stage sets out the key ideas which relate to each learning outcome label. These are useful to teachers as they plan instruction. At times, simpler explanations would suffice. The concepts of multiplication and division provided do not extend to the scaling structure of multiplication and the ratio structure of division, which are typically used by children in the senior classes in real life scenarios.

While the use of technology is encouraged within the curriculum in the context of maths talk and mathematical modelling, coding also offers opportunities to enhance children’s problem-solving skills and mathematical proficiency. In the interest of grammatical correctness and to avoid ambiguity, it is recommended to change the element label ‘Applying and Problem-solving’ to ‘Applying Mathematics and Problem-Solving’ or simply ‘Problem-Solving’. Similarly, the meaning of the word ‘apply’ is unclear in relation to ‘problem-solving situations’ in the following statement; ‘Children should investigate, develop, select, apply, interpret, model and compare a variety of problem-solving situations and strategies as they explore mathematics and deepen their mathematical understanding’.

The Primary Mathematics Curriculum in Practice [see pages 25 – 37]

The *Draft Primary Mathematics Curriculum* proposes five key pedagogical approaches which underpin and embody a new vision for children’s learning in terms of teachers’ everyday practice.



Please give your overall feedback in relation to these key pedagogical approaches.

We strongly support the use of the five key pedagogical approaches outlined in the Draft Primary Mathematics Curriculum. We are particularly pleased to see the inclusion of the use of cognitively challenging tasks and the emphasis on fostering productive disposition. In order to maximise the potential learning from using cognitively challenging tasks, we feel it is necessary to specifically make children aware of their meta-practices, not only valuing struggle and normalising mistakes as steps towards deeper understanding but also as mechanisms to monitor their own developments as learners, analysing the effectiveness of thinking strategies etc. Also, the term ‘task’, which is frequently used in the document, has a rather specific definition in that a task involves three elements. Tasks focus attention on the products students are required to formulate, the operations needed in the process of generating the product and the resources available to students (Doyle, 1983). The curriculum would benefit from clarification of this rich meaning of the idea of a task.

The section of the curriculum document which explains each of the five pedagogical approaches, suggests possible ways of incorporating them into mathematics teaching and outlines their benefits is informative and useful. It may be helpful if the online version of the curriculum includes links to videos of teachers and children in classrooms showcasing how these practices can be practically implemented i.e. what math talks/cognitively challenging tasks /mathematical modelling look like at various stages, such as what maths talk may look like with children at the beginning of Stage 3, and what maths talk looks a few weeks later after a teacher has consistently encouraged children to speak about the approaches they are using.

Primary Mathematics Toolkit

The Primary Mathematics Toolkit will contain four components: Mathematical Concepts, Progression Continua, Support Materials and Examples of Children’s Learning. For consultation, the *Draft Overview of the Primary Mathematics Toolkit* contains Mathematical Concepts, Progression Continua and 11 Support Materials.

Please give your overall feedback in relation to the supports outlined and suggestions on additional supports.

In terms of supporting teachers to plan their instruction and to effectively sequence the concepts and skills which children will learn, the progression continua offer significant support and are a strong aspect of the toolkit.

The supports outlined for creating rich environments and the introduction to maths talk are particularly effective in that they provide both background information and practical examples to illustrate how they may be implemented in the context of primary mathematics teaching and learning.

The Draft Primary Mathematics Toolkit and the Draft Primary Mathematics Curriculum make repeated references to ‘appropriately playful learning experiences’ for children at Stage 1 and ‘appropriately engaging learning experiences’ for children at Stage 2, Stage 3 and Stage 4. The documents would benefit from an explanation of what is meant by the terms ‘appropriately playful learning experiences’ and ‘appropriately engaging learning experiences’ which includes some of the characteristics of each.

It is important to recognise that maths talk is useful for children at all stages of primary school and in addition to the support materials currently developed for stages 1 and 2, further support materials for those teaching children in stages 3 and 4 would support teachers teaching more complex mathematical concepts.

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www.ncca.ie/en/privacy-statement or you can contact the NCCA's Data Protection Officer at dpo@ncca.ie.



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Draft Primary Mathematics Curriculum

Written submission template for organisations, groups and individuals responding to the *Draft Primary Mathematics Curriculum*

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Individual submission details

Name	Alan Monnelly
Date	16/07/2022

The NCCA will publish written submissions received during the consultation. The submissions will include the author's/contributor's name/organisation. Do you consent to this submission being posted online?

Yes

Please provide some brief background information on your organisation (if applicable).

Degree in Electrical Engineering at UCD (1965).

12 years Industrial experience in Europe, UK. and Ireland. Writer on the ISCIP Project with Trinity College/Dublin VEC Curriculum Development Unit (while teaching at Ballyfermot Vocational School) and obtaining an H Dip in Ed. from UCD (1977).

M.Litt. Trinity (1999). "Thinking Children and Mathematics: Methods to enhance mathematical pedagogy".

Member of the Steering Committee of the Project Mathematics programme and member of the subsequent Teacher Trainers Team (while teaching mathematics and physics at Newpark Comprehensive School & head of Transition Year.)

Three years in the UK at the Anglo-European School (Essex) teaching GCSE O and A-Level in Mathematics and Physics but also (more interestingly!) the same subjects for the French Baccalaureate.

Member of Transition Year Teacher Training cohort for Mathematics.

One of the team of five writers for the Alternate Leaving Cert (LCA) in Shannon Curriculum Development Unit. (Mathematics and Science/technology) and subsequent teacher trainer.

Two years as a Tutor in mathematics with the OU, while still at Newpark Comprehensive School.

These years of experience in industry, teaching and Curriculum Development (mainly at second level), have given me a deep insight into what style of pedagogics is needed in order to improve *all* young pupils' *understanding* of mathematics. During my own teaching practice I believe I have shown how this might be done.

The Draft Primary Mathematics Curriculum as presented is a realistic basis upon which to build such an understanding.

The remainder of the template includes two sections. Section 1 invites your overall comments and observations on the *Draft Primary Mathematics Curriculum*. Section 2 is structured to align with main sections of the draft curriculum.

Section 1

Please outline your overall response to the *Draft Primary Mathematics Curriculum*.

In my opinion the Draft Curriculum is one of the best child-centred pedagogical programmes I have ever read. Throughout the text there is a consistent the strong theme of teaching young people to think more deeply about their own 'thinking'. The subject is mathematics but the teaching practices promoted could apply to many other school subject and ought to become the template for Second level. The aim of creating a society of citizens well-disposed to mathematics is most welcome, at the moment many citizens seem to see the subject as a 'Weapon of Math Destruction'.

The New Vision is brave and I know will be well received but introducing more *practical activities* might incur extra expense; and I wonder if this might choke-off some positive endeavours?

Section 2

Rationale and Aims [see pages 9 – 14]

The rationale for the *Draft Primary Mathematics Curriculum* addresses the importance of mathematics in children’s lives, while the over-arching aim of the draft curriculum is the development of mathematical proficiency.

Please give your overall feedback in relation to the Rationale and Aims.

The rationale for the *Draft Primary Mathematics Curriculum* addresses the importance of mathematics in children’s lives, while the over-arching aim of the draft curriculum is the development of mathematical proficiency.

Experiences in school mathematics ought to help children see that mathematics (for many that just means numbers!) is a part of their lives and those experiences should help pupils realise that from the time they rise to the time they sleep, ‘numbers’ have *measured, pictured* and *dictated their day*.

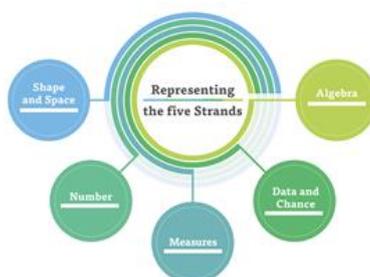
Is there an idea in The Aims of a moving away from the textbook dictating the nature of mathematics and a moving to a series of richer activities based on pupils surveying the world around them? If so this should make mathematics more to real(?) for children and might, perhaps, stop the them being influenced by the so frequently heard cry of, “I never understood maths and hated it”. I am not dismissing the usefulness of a textbook use but having it more as a useful resource for reading / learning and generating questions.

“Maths proficiency building on what they already know”. True of course, but what exactly do they already “know” or more importantly understand?. Mathematical lessons are meant to stimulate curiosity, intrigue and fun (!), and hence develop a bank of knowledge and *understanding* that children can then bring to bear on problems. When children to *realise* that they have this bank of knowledge their self-worth will improve along with their confidence.

In the Draft an important proposal is made namely to *interweave* (integrating?) the basic skills and operations used in mathematics. To move away from the compartmentalisation of arithmetic/ geometry/ algebra; enabling pupils broaden their thinking and use both sides of their brain! However, I would encourage *very early* use be made of the instruments hidden in the *oft forgotten geometry box*. They can become powerful aids in modelling (explaining) so many mathematical concepts visually /physically/ and thence mentally.

Curriculum structure - *Strands, Learning Outcome Labels, Elements and Learning Outcomes* [see pages 15 – 24]

The *Draft Primary Mathematics Curriculum* is structured according to five Strands: Algebra; Data and Chance; Measures; Number; Shape and Space. Attached to these Strands are 15 Learning Outcome Labels, which contain Learning Outcomes for each stage.



Mathematical processes are categorised into four Elements: Understanding and Connecting; Communicating; Reasoning; Applying and Problem solving.



Please give your overall feedback in relation to the curriculum components mentioned above.
Please quote full text of any learning outcome you wish to draw attention to.

As with previous sections of the Draft this presentation is clear and comprehensive. The Five Strands and associated Elements spell out the desired teaching practices. Pupils should be made aware of both these graphics; given suitable interpretations and explanation of the thinking behind them. Their acceptance of such a structure and underlying philosophy will enhance the positive disposition that the Draft wishes to achieve.

The graphic is clever but I am wondering if the 'degree measure' for each Strand has some specific message? Eg., Space and Shape 180 ... Algebra 360. Does this imply that algebra is the ultimate goal, or that it is the basis upon which all school is maths is based?

Maybe it is I bias but I believe that the concepts generated in Space and Shape (ie. geometrical methods) should, in most cases, be used as the investigative technique. Their use can help to explain both visually (and mechanically) mathematical ideas. While researching for my M. Lit. I found (and since also designed) models for all the concepts that underly school mathematics. For a pupil to have solved a problem using a model that they have made/created, encourages their analytical thinking and helps to improve the pupil's confidence. Also the model can be taken home to answer the parental question, "what did you do in school today"!

I seem to be worried about the priority listing of the Strands (perhaps wrongly). Data and Choice are topics that pupils can appreciate easily. I would include Permutations as a study; bringing in Order, Priority, Status, Permutations and Combinations. Such aspects feature in Sport and Music, - topics that children might not readily associate with math lessons.

Measure and Number have an all presence in all mathematical practices; but the operations on numbers can be confusing for pupils. The order of priority, from easier to difficult seems to be - addition, division, subtraction and multiplication. A startling 'game' that might focus on the priority of operation is to compare the results of simple sums done on a scientific calculator and a non-scientific one.

Pupils should make their own addition/multiplication squares and delve into the patterns that can be seen in the array. They make the squared boxes using the set squares and the 'sliding parallel' method.

Algebra seems to be the big 'never understood' part of school mathematics. The introduction of symbolic patterns can be quietly introduced when modelling for a variable, or a change of, design.

Teachers should collect a bank of fun games and diagrammatic resources that mimic algebraic methods. The whole topic of algebra and its usefulness will become clearer to learners and promote much use of the Draft's four Elements!

The Learning Outcome charts very clear and easy to understand.

Among all the excellent pedagogics in the Draft the real highlight for me is the Element graphic. If children begin to understand what is happening, what and why they are doing particular work (?) positive results will follow - whether it is maths or any of their other subjects. Learners should learn how they are learning!

Communications: Fun comparing social language with the special vocabulary used in maths. Meaningful group discussions and talking with their teachers. (The rhombus is a favourite strange creature (??)?)

Understanding and Connecting: Facts and figures are the diet of maths and many pupils know that they, know (sort of) but also know that they do not understand . They must learn to gather and link other related ideas and facts in order to build a bank of knowledge for solving problems. I often wonder when reading books on 'How to solve problems' that ask the problem solver to 'recall already known facts' - the work now suggested in the Draft is the very way to build such 'Previous Knowledge.

Reasoning: For many defining what the problem is, is the problem. Other subject areas might be introduced as examples of how to approach matters; word puzzles, logical problems, visual tricks and so on.

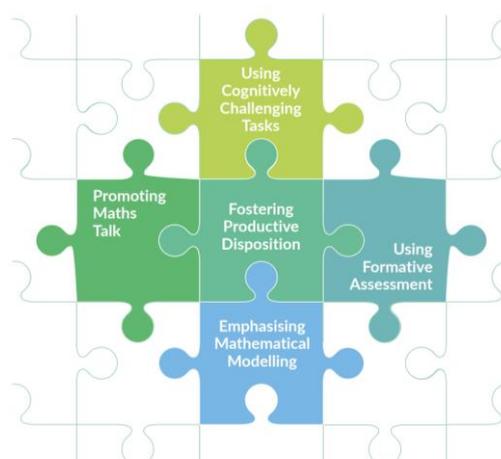
Applying and Solving Problems: Pupils must learn to read and realise what the problem is. An abundance of material is available for all sorts of problem that can be used in class and also at home. For many math problems a drawing or a model will help to children to see what is being asked. There are many paperback books with sensible (and non-sensible) problems and puzzles that will provide plenty of practice. It is perhaps in this area that emphasis on how the process is so important in solving problems - yet pupils should feel the satisfaction on proving the correct result.

The section on Learning Outcomes: Very clear. I like the phrase "appropriate engaging". Appropriate to children's intellectual, of course, but always extending gently the presentations to be a little more sophisticated?

Is Algebra listed first for some reason? Excuse my paranoia!

The Primary Mathematics Curriculum in Practice [see pages 25 – 37]

The *Draft Primary Mathematics Curriculum* proposes five key pedagogical approaches which underpin and embody a new vision for children's learning in terms of teachers' everyday practice.



Please give your overall feedback in relation to these key pedagogical approaches.

The *Draft Primary Mathematics Curriculum* proposes five key pedagogical approaches which underpin and embody a new vision for children's learning in terms of teachers' everyday practice.

THIS SECTION SHOULD BE READ AND RE-READ BY TEACHERS (AND THOSE WHO DESIGN AND PRODUCE EDUCATIONAL MATERIAL.

I, and many others will applaud this is a New Vision for Primary mathematics. Although the pedagogy here is for younger children the educational philosophy is applicable to much older children and, in fact should become the template for Second level, (and Third!).

Its power/strength of this Draft Curriculum is in its overall objective of teaching / helping young people to think clearly and confidently. If followed correctly the Draft proposals will result in children having a very *positive* experience of mathematics; no more 'I hate maths', and, as with so much of Primary education, be helpful in their adult life.

A great leap forward will be achieved if pupils can become comfortable with '*maths talk*' and extend such talk into the symbolic language of maths. Using techniques of '*modeling*' will allow the learner to see the structure of the problem. '*Cognitive tasks*' will present much fun into thinking and unraveling problems, (good for showing them at home too!). '*Formative assessment*' means teacher and pupil will measure progress. Finally the pupil will become a person with a '*productive disposition*'.

Teachers should be constantly aware of the Five Interconnected practices in their classroom work. If done so it will mean that means that mathematical concepts can be '*gently*' introduced to very young children and then, by a way I call the *Spiral Effect*, be re-introduced in at more sophisticated level as the pupils move up the year groups.

Primary Mathematics Toolkit

The Primary Mathematics Toolkit will contain four components: Mathematical Concepts, Progression Continua, Support Materials and Examples of Children's Learning. For consultation, the *Draft Overview of the Primary Mathematics Toolkit* contains Mathematical Concepts, Progression Continua and 11 Support Materials.

Please give your overall feedback in relation to the supports outlined and suggestions on additional supports.

One concern: Is my worry about the possible lack of, or difficulty obtaining materials for much of the envisaged practical a valid concern?

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Draft Primary Mathematics Curriculum

Written submission template for organisations, groups and individuals responding to the *Draft Primary Mathematics Curriculum*

This template is intended to support you (and your colleagues/organisation) in developing a written submission in response to the [Draft Primary Mathematics Curriculum](#). Please e-mail your completed submission to pmc.submissions@ncca.ie

Organisation submission details

Name	Madeline Hickey
Position	Specialist Lead – Policy and Practice
Organisation	National Council for Special Education (NCSE)
Date	30 th June 2022

The NCCA will publish written submissions received during the consultation. The submissions will include the author's/contributor's name/organisation. Do you consent to this submission being posted online?

Yes

Please provide some brief background information on your organisation (if applicable).

The NCSE aspires to a society where children and adults with special educational needs receive an education that enables them achieve their potential. We promote a continuum of educational provision which is inclusive and responsive, and provides an appropriate education for children and adults with special educational needs. We provide supports to schools; advice to educators, parents and guardians; research into special education; provide policy advice to the Minister for Education and Skills to improve education services for students with special educational needs.

Research advises that students with additional needs are well supported with only 1% in special classes and 1% in special schools. 25% of the education budget is now invested in supporting special education.

- 1 in every 4/5 teacher posts supports special education
- Over 19,000 special needs assistants are in place

- Assistive technology, specialist furniture/equipment and adapted school buildings are provided
- A special school transport system is in place
- A school inclusion model is being piloted which will provide
 - In-school therapy (occupational and speech & language and behaviour) service to improve school capacity
 - A national school nursing scheme
 - A national SNA training course
 - Enhanced NCSE support teams
 - Enhanced NEPS provision.

The remainder of the template includes two sections. Section 1 invites your overall comments and observations on the *Draft Primary Mathematics Curriculum*. Section 2 is structured to align with main sections of the draft curriculum.

Section 1

Please outline your overall response to the *Draft Primary Mathematics Curriculum*.

- Recognition and acknowledgement of the **unique learning journey and needs of each child**
- Promotion of **teacher agency**, autonomy, flexibility, professional judgement and teacher knowledge in their own school contexts
- Some **links to the terminology** of the PLC and Aistear e.g. Strands, Elements, Stages, Learning Outcomes, appropriately playful / appropriately engaging Learning Experiences.
- A **reference is made to align** the *Draft Primary Maths Curriculum* to the recent interagency publication, *Preparation for Teaching and Learning: Guidance for all Primary and Special Schools*.

Areas to Consider:

- To support the proposed **alignment of the *Draft Primary Maths Curriculum*** to the recent interagency publication, *Preparation for Teaching and Learning: Guidance for all Primary and Special Schools*, consideration could be given to highlighting the connections explicitly and elaborating on the key messages of the Guidance document to demonstrate the connections to the *Draft Primary Maths Curriculum*.
- **Replication of the layout and structure** of the Primary Language Curriculum. Teachers accessing this curriculum should have immediate familiarity due to their knowledge of the PLC. This alignment could be at chapter title and graphics level. Consideration should be given to presenting the Maths Concepts in Chapter 10 of the Draft PMC and the Language Concepts of Chapter 10 of the PLC in a similar and familiar structure. The PLC is presented through Elements across Strands, while Maths is presented through Learning Outcomes across Stages.
- **Reference** should be made to the *Primary Curriculum Framework* and, in particular, the development of the **Key Competency of ‘Being Mathematical’ and its associated attributes**. This should be included and aligned with the aims and rationale of the *Draft Primary Maths Curriculum*.
- Emphasising the inclusive nature, design and development of the *Draft Primary Maths Curriculum*, as an inclusive curriculum for all children in all primary and special school contexts. **The term Inclusion and Diversity** is used in the *Primary Curriculum Framework* and therefore this should transfer to the terminology of the Draft PMC.
- Consideration should be given to including the ***Additional Support Pathways*** in the *Draft Primary Maths Toolkit*
- Recommend removing all **references to the term ‘planning’** in the following Support Material <https://ncca.ie/media/5466/7-preparation-for-teaching-and-learning-in-primary-mathematics.pdf>
- The Progression Continua should be considered when **creating Examples of Children’s Mathematical Learning and in the Support Materials**. This would be very important for teachers in special schools and special classes.
- The term **‘*progression milestones*’** appears to be interpreted differently in the Draft PMC. Considering the PLC, it could cause confusion for teachers, in particular, special class teachers who will most likely use the Progression Continua.
- A deeper **examination of the language used in the Progression Continua** is needed to ensure that it is inclusive for all learners. For example, use of the terms ‘recites’, ‘counts’, ‘describes’, ‘explains’ and ‘justifies’ may look different for individual learners.
- Consideration should be given to **developing Support Materials for all children in all school contexts**. Drawing on the expertise of the NCSE Primary Curriculum team and the Visiting

Teachers for the Blind/Visually Impaired' and Deaf/Hard of Hearing, support materials could be developed collaboratively to support teachers in all school contexts.

- To promote engagement from teachers working in primary and special schools, it would be important to consider **alignment of all Curricula**. For example, to highlight how the Draft PMC through its Strands, Elements and Learning Outcomes has been developed to align to the *Junior Cycle specification for Maths*, the *Aistear framework* and the *Primary Curriculum Framework*. The alignment could be demonstrated through an infographic.

Section 2

Rationale and Aims [see pages 9 – 14]

The rationale for the *Draft Primary Mathematics Curriculum* addresses the importance of mathematics in children’s lives, while the over-arching aim of the draft curriculum is the development of mathematical proficiency.

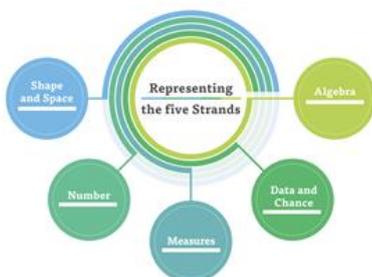
Please give your overall feedback in relation to the Rationale and Aims.

Areas to consider:

- Chapter 3 of the Draft PMC (Aims) is generic and links with the thinking of the *Preparation for Teaching and Learning Guidance* document by first looking at the child (child-centred). The Draft PMC introduces mathematical proficiencies. Consideration should be given to presenting this through three headings: children and their lives, children’s connections with others and children’s mathematical thinking and development.
- Consideration should be given to enhancing Figure 5 (p. 9) developing a link to Mathematics and the information that is conveyed.
- The rationale could include reference to how the Draft PMC through its Strands, Elements and Learning Outcomes has been developed to align to the Junior Cycle specification for Maths. The alignment could be illustrated through an infographic.
- Consideration should be given to address the diverse needs of all learners. For example, on p.10 ‘*Primary mathematics education should provide children with opportunities to engage with deep, meaningful and challenging mathematics in educational settings, including social and familial settings. Such engagement will result in children co-constructing knowledge and skills as they interact and collaborate to solve complex and real problems*’.
- Recommend inserting ‘supported by using a number of tools such as numbers’ on p.14. ‘*Children should detect mathematical relationships ... using a number of tools such as numbers, concrete materials, manipulatives, symbols, words or graphics.*’
- Research from Butterworth could be added to the Aims section of the Draft PMC, particularly in relation to children’s innate sense of number. See Butterworth (1999) *What Counts: How every brain is hardwired for Maths* and <https://www.mathematicalbrain.com/>

Curriculum structure - Strands, Learning Outcome Labels, Elements and Learning Outcomes [see pages 15 – 24]

The *Draft Primary Mathematics Curriculum* is structured according to five Strands: Algebra; Data and Chance; Measures; Number; Shape and Space. Attached to these Strands are 15 Learning Outcome Labels, which contain Learning Outcomes for each stage.



Mathematical processes are categorised into four Elements: Understanding and Connecting; Communicating; Reasoning; Applying and Problem solving.



Please give your overall feedback in relation to the curriculum components mentioned above. Please quote full text of any learning outcome you wish to draw attention to.

- Recognition and acknowledgement of the unique learning journey and needs of each child.
- Promotion of teacher agency, autonomy, flexibility, professional judgement and teacher knowledge in their own school contexts.
- Some links to the terminology of the PLC and Aistear Framework e.g. Strands, Elements, Stages, Learning Outcomes, playful and engaging Learning Experiences.

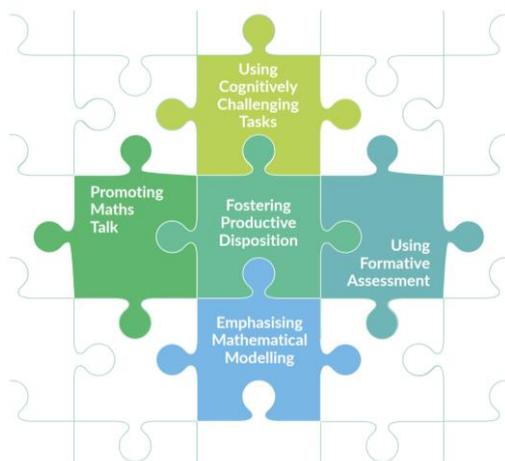
Areas to Consider:

- Replication of the layout and structure of the Primary Language Curriculum. Teachers accessing this curriculum should have immediate familiarity due to their knowledge of the PLC. Consider renaming Chapter 4 as 'Strands and Elements'. Consider renaming 'Maths Elements' to 'Elements' as demonstrated in the PLC. Alternatively consider renaming 'Strands' to 'Maths Strands'.
- A single graphic could be used to represent both the strands and the elements.
- *Figure 7: Representing the Five Strands* (p.15) is somewhat confusing, in terms of the colours used for each strand and their interconnectedness. They are listed alphabetically rather than by stages of development. Is there a hierarchical aspect to the strands? Should the infographic demonstrate this? Is there a significance to the starting point of each of the coloured lines? Should the Strand of Number be the starting part for all Strands and built upon, as it is a fundamental Maths concept underpinning all Strands?
- The Elements appear to describe overarching key mathematical skills. Should the LO labels be organised under the four Elements similar to the PLC? The Elements appear only in the Progression Continua in the Maths Toolkit, and do not appear to be aligned to the LO labels. Are the Elements a compulsory part of the curriculum or are they identified as an optional part of the Toolkit?
- The Mathematical Elements could be renamed 'Elements'. The graphic suggests an anticlockwise approach to the Elements (large and small arrows). Is this significant? Is there a hierarchical aspect to the four Elements, should certain mathematical Elements be completed first?
- The Elements are introduced on p.17 before the LOs. However, unlike the PLC, these Elements are not incorporated until the Progression Continua level.
- Why was the term 'label' added to 'Learning Outcome Labels'? Could this be included in the descriptive paragraph instead, so that the title is 'Learning Outcomes' (similar to the PLC)?
- Chapter 5 should include a graphic that provides an 'Overview of the Learning Outcomes' including LOs, Strands and Elements. (Similar to p.19 of the PLC).
- The descriptor of each Learning Outcome (Chapter 5) appears to be very broad in nature. Could reference be made to the Progression Continua here as a useful tool for teaching and learning?
- A playful and engaging approach to Maths teaching and learning needs to be encouraged at all stages (1 to 4). Emphasis should also be placed on the stage of development, rather than the class level.

- Where there are blank gaps appearing in the Learning Outcomes, does this indicate/imply that there are no expectations to work on particular LOs at particular stages? For example:
 - Strand: Algebra - LO: Expressions and Equations – Blank for Stage 1
 - Strand: Data and Chance – LO: Chance – Blank for Stages 1 and 2
 - Strand: Number – LO: Uses of Number – Blank for Stages 2, 3 and 4
 - Strand Number – LO: Numeration & Counting – Blank for Stages 3 and 4
 - What is the expectation for a child who has not grasped all a Learning Outcome, i.e. entering first class and not having a clear understanding of Number
- Following the subsequent development of 'early a' following the first draft of the PLC, it is important to consider how 'blank' spaces in the overview of LOs will be received by teachers. An explanation should be offered to explain the rationale for this.
- Should the Maths curriculum include a definition of 'data' in the main text or Glossary, similar to the definition of 'text' in the PLC i.e. all examples/forms of data.

The Primary Mathematics Curriculum in Practice [see pages 25 – 37]

The *Draft Primary Mathematics Curriculum* proposes five key pedagogical approaches which underpin and embody a new vision for children's learning in terms of teachers' everyday practice.



Please give your overall feedback in relation to these key pedagogical approaches.

- To assist teachers in bringing the curriculum to life, examples of children's learning and support materials can be found in the toolkit.
- Through the five pedagogical practices, an emphasis has been placed on the process rather than the product.
- An aim of the pedagogical practices is to 'allow for children to learn and develop at a pace and level of challenge that is individual to their needs and interests...'
- Bringing Mathematics outside the classroom and in the home environment is emphasised.
- There is a strong emphasis on developing meaningful dispositions for children.

Areas to Consider:

- Consideration could be given to recognise the Preparation for Teaching and *Learning Guidance*, with particular reference to the three pillars and the visible preparation, which informs the curriculum in practice.
- At the beginning of the document on p.25, it suggests that there are five key pedagogical practices. However at the end of the section, it states that 'it is important to note that this list of

pedagogical practices is neither exhaustive nor hierarchical. Consideration could be given to state this from the beginning.

- Most of the suggested pedagogical practices are very high functioning and need elaboration and differentiation for learners with SEN.
- Although interconnectivity it outlined as being a feature of the listed pedagogical practices it is however open to confusion. In some cases there is an overlap of a key pedagogical practice with the suggestions to develop the practice. For example: 'Cognitively Challenging Tasks' is identified as a pedagogical approach and can be referred to as 'low-threshold, high ceiling tasks' yet low threshold, high ceiling tasks are suggested as part of developing productive dispositions.
- On p.26 it states that 'learning experiences can be found in the progression continua'. Is this message consistent with the PLC?
- To keep in line with the PLC, consideration could be given to define 'dispositions' on p.27.
- The opening section outlines that the pedagogical practices are not hierarchical or linear. However, the message of p.32 suggests that Maths Talk, Maths modelling and productive dispositions lead to cognitively challenging tasks.
- Consideration could be given to include the NCCA Continuum of Assessment to assist teachers in understanding the connections with the Draft PMC.
- Significant consideration needs to be given to the function and role of the Progression Continua in the Draft PMC to ensure that it delivers the same message as the PLC. For example, 'The Progression Continua, found in the Primary Maths toolkit, may be a useful tool for teachers in planning for formative assessment in the classroom'. The Progression Continua in the PLC are not designed to be used in terms of formative assessment.

Primary Mathematics Toolkit

The Primary Mathematics Toolkit will contain four components: Mathematical Concepts, Progression Continua, Support Materials and Examples of Children's Learning. For consultation, the *Draft Overview of the Primary Mathematics Toolkit* contains Mathematical Concepts, Progression Continua and 11 Support Materials.

Please give your overall feedback in relation to the supports outlined and suggestions on additional supports.

The Primary Mathematics Toolkit Chapter 7 (p.38):

- Chapter 7 of the Draft PMC book is titled 'The Primary Mathematics Toolkit'. However, it highlights an overview of the toolkit. Teachers may misinterpret that this is the entire toolkit.
- In the first paragraph, the language could be considered misleading and somewhat confusing. For example, *'The four components of the toolkit are described in the following section...'* Simpler language to consider might be 'the components of the toolkit are...'
- In the fourth paragraph, the following could be inserted. 'While the progression continua suggest **one** typical learning journey in Maths ...'

Mathematical Concepts:

- Consideration should be given to moving the Mathematical concepts solely to the toolkit as a support material.
- Consideration should be given to presenting the Maths Concepts in Chapter 10 of the Draft PMC and the Language Concepts in Chapter 10 of the PLC in a similar and familiar structure. The PLC is presented through Elements and across Strands, while Maths is presented through Learning Outcomes and across stages. Could the rationale be stated to help teachers to see the connection?

- Are all of the Mathematical Concepts considered as concepts? Some might be categorised as: practical examples/helpful hints/descriptors/glossary/Maths facts. Would the language of Maths ideas/facts/statements be more accurate than Maths concepts?
- By introducing Mathematical Concepts as 'essential', are they considered compulsory? In the PLC, the information in the Curriculum book is considered compulsory and the toolkit is considered optional.
- Table 2 on p. 4 of the toolkit refers to an 'overview of mathematical concepts in the Primary Maths Curriculum'. However, this is not what is shown in the table. The table is an index showing where to find the concepts.
- Example of readability and language used that is may be cumbersome for teachers. See quote from p.39, *'There are 15 progression continua tables, one for each of the LO labels. Each continuum describes the learning journey across 11 progression milestones (a-k). Progression Milestones describe learning in terms of mathematical content and processes. In progression continua, mathematical processes are categorised as 4 key elements – understanding and connecting, communicating, reasoning, applying and Problem solving.'*

Progression Continua:

- The use of the term 'Milestones': Unlike the PLC, in the Draft PMC, the progression steps within each Progression Continua are called 'Progression Milestones a-k'. Consideration should be given to referring to these as progression continuum/continua or progression steps in line with the PLC
- The use of the term 'Milestones': In the PLC, Milestones are a collective summary of the Learning Outcomes across each Strand. Since the roll out of the PLC for Stages 1 – 4 (2019), the progression milestones are not emphasised over the progression continua.
- There are a very large number of progression continua arising from having one for every Element under every Learning Outcome. This is not the case in PLC. Is there a hierarchical rationale for this?
- Many of the words used at steps 'a' of the progression continua use language from the Additional Support Pathways including 'attends' and 'responds' etc. This may render use of the pathways difficult/ confusing. The word 'engages' may be more beneficial to use. Alternatively, if using the language of the Additional Support Pathways such as 'attend, respond' etc, consideration should also be made to include 'experiencing' to acknowledge the learning at that earliest stage.
- Progression Continua: a significant number of the Progression Continua start at 'e' or even 'g'. Consideration needs to be given to some of the following questions.
 - Unless it is clarified that some children will not be expected to work on this LO, it will cause confusion among teachers of children. There needs to be clear instruction around this.
 - What would a teacher of a child with significant needs do in 5th class? (For example, the child might be accessing the curriculum at 'a' – but this is not available). Guidance for teachers around whether this LO applies to every child is needed. Consideration needs to be given to ensure that the Draft PMC is a curriculum for all.
 - Other examples: chance (f/g), variables expressions and equations (e). We must ensure that all children access all of the LOs of the Draft PMC.
- Could a list of prerequisite skills and foundational skills be included in the blank sections of the Progression Continua? Is this the function of the mathematical concepts?
- The Progression Continua for Number only goes as far as milestone (d). This suggests that 'a-d' is sufficient for all Junior and Senior Infant children. What is suggested for the teacher to aid differentiation for exceptionally able children in the Infant class? Similar challenges may arise for teachers of exceptionally able children in first class around the area of numeration and counting, which stops at 'g'.

- The toolkit does make reference to the words ‘additional needs’, ‘special educational needs’ or ‘inclusion’. Could we encourage use of the term ‘all’ children/learners.
- The word ‘recite’ in the progression continua e.g. (Algebra 1 – Patterns, rules and relationships). ‘*Recites number word sequences forwards and backwards to 10*’. The word ‘recites’ could cause confusion for teachers, therefore consideration needs to be given to an inclusive definition of what ‘recites’ looks like for children in all school contexts. Guidance around this suggestion could be taken from how ‘text, implements and surfaces’ are defined in the PLC. Possible inclusion of such terms should be considered for the Glossary. Other examples include terms such as describe, discuss, justify etc...

Support Materials

- Consideration should be given to including the *Additional Support Pathways* in the *Draft Primary Maths Toolkit*
- Consideration should be given to developing support materials for all children in all school contexts. Drawing on the expertise of the NCSE Primary Curriculum team and the Visiting Teachers for the Blind/Visually Impaired and the Deaf/Hard of Hearing, support materials could be developed collaboratively to support teachers in all school contexts.
- P.21: ‘*While the Progression Continua suggest a typical learning journey in mathematics throughout primary school, teachers should exercise professional judgement when making decisions as to the learning experiences which are most appropriate for the children in their classroom.*’ These Support Materials should assist teachers in making professional judgements in creating engaging meaningful and inclusive learning experiences for all children in their classrooms.

Examples of Children’s Learning:

- Overall it is difficult to imagine what activities would engage children in learning at the earliest levels of ‘a’, ‘b’ and ‘c’ particularly for some strands and learning outcomes. The PLC does not yet provide support for teachers of children with the highest level of need in the support material. If this is similar for the Maths curriculum, it may be too difficult for teachers to engage with in such contexts.
- Consideration should be given to addressing the concrete – pictorial – abstract representations of children’s learning to provide an inclusive approach to Learning Outcomes and Learning Experiences.

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National Council for
Curriculum and Assessment



Draft Primary Mathematics Curriculum

Written submission template for organisations, groups and individuals responding to the *Draft Primary Mathematics Curriculum*

This template is intended to support you (and your colleagues/organisation) in developing a written submission in response to the [Draft Primary Mathematics Curriculum](#). Please e-mail your completed submission to pmc.submissions@ncca.ie

Organisation submission details

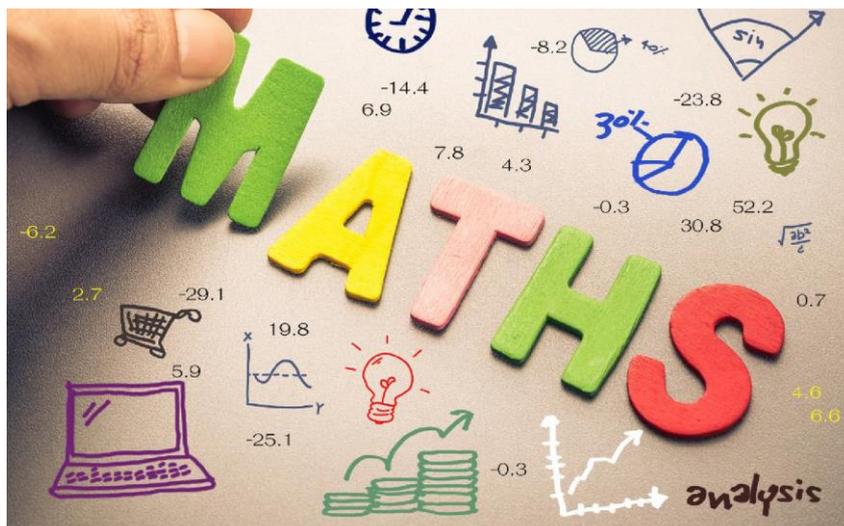
Name	Áine Lynch
Position	CEO
Organisation	National Parents Council
Date	30 th September 2022

The NCCA will publish written submissions received during the consultation. The submissions will include the author's/contributor's name/organisation. Do you consent to this submission being posted online?

Yes

No

Please provide some brief background information on your organisation (if applicable).



National Parents Council Primary

NPC submission to the National Council for Curriculum and Assessment on Parents Feedback to the Draft Primary Maths Curriculum



National Parents Council Primary (NPC) is the representative organisation for parents of children in primary or early education. NPC was established as a charitable organisation in 1985, under the programme for Government, as the representative organisation for parents of children attending primary school. It received statutory recognition in the Education Act 1998.

NPC Vision

NPC want to see an Ireland where every child has the opportunity to reach their full potential.

NPC Mission

NPC exists to ensure that all parents are supported and empowered to become effective partners in their children's education. NPC will work to increase the capacity and capability of the primary education sector, to achieve true partnership and deliver better outcomes for all children.

NPC's Key Activities are:

- Representing the parents' voice in primary education
- Advocacy
- Building participation
- Service delivery

NPC Service Delivery

NPC services are aimed at empowering parents so that they can support their children in all aspects of education.

Helpline

The NPC helpline is a national confidential service for parents. The helpline staff listen and give information and support to parents to help them make the best possible decisions for and with their children.

Training and Development

The NPC Training and Development programme is a national programme of training, development and support for parents. The purpose is to empower parents to play an active part in their child's education at every level.

Website

The NPC's website www.npc.ie aims to provide parents with information regarding primary education. The site also allows parents an opportunity to give NPC their views regarding primary education issues.

Introduction

The NCCA have developed a draft of the Primary Maths Curriculum and we, the National Parents Council wanted to know what parents thought of it, and what their general opinions are around the topic learning Maths. The Survey ran for just a short period of time, over the course of a weekend and the response rate was very positive with a total of 868 surveys completed. Parents had the opportunity to highlight what they find important about maths learning for their children, as well as being able share what they feel is working well and highlighting what they would like to change. Furthermore, Parents were encouraged to ask their children to fill out a similar survey which was adapted for children.

The vast majority of parents who filled out this survey have a child in primary school at 92% of the total. The other eight percent is made up of families with a child in preschool, secondary school, a special school or they have more than one child at different stages of education.

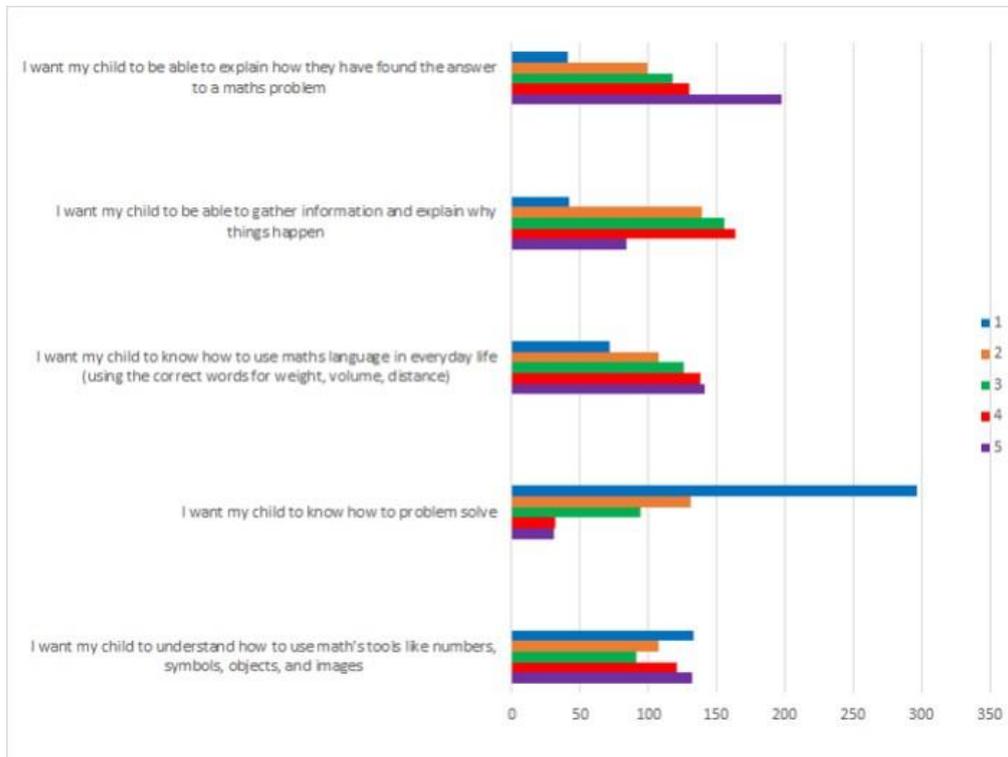
73% of children are in a single grade class making it the most common answer; 19% are in a mixed grade class; 7% attend a Gaelscoil; just less than 1% are in a special class; and barely 1% attend a special school.

Parents views of what is important about learning Maths

A total of 585 parents ranked five statements in order of importance. Knowing how to problem solve was selected as most important by 27% of parents. 20% chose how to use maths tools such as numbers, symbols, objects, and images as their second most important statement. Gathering information and being able to explain why things happen, using and understanding maths language, and being able to explain how they have found the answer to a problem made up the remaining 53% of parent's choices.

The graph below illustrates that an almost equal amount of parents ranked "I want my child to understand how to use maths tools like numbers symbols, objects and images" as their number 1 choice as those who ranked it as their number 5 choice, indicating that parents are divided on the importance of that particular skill. There also appears to be mixed views on the importance of using maths language in everyday life, with similar numbers of parents ranking this as their 2nd, 3rd, 4th and 5th most important skills.

The graph below clearly represents an obvious distinction on parents' views regarding the level of importance relating to children being able to explain how an answer to a maths problem has been found and, for parents who want their child to know how to problem solve with most parents assigning rank 1 or 2 to the skill of problem-solving and most parents ranking being able to explain how they got the answer as 4 or 5 in terms of importance.



We asked parents to rank the following four statements on a scale of 1-4;

“I want my child to use their maths skills in the real world”, “I want my child to be confident in the maths ability”,

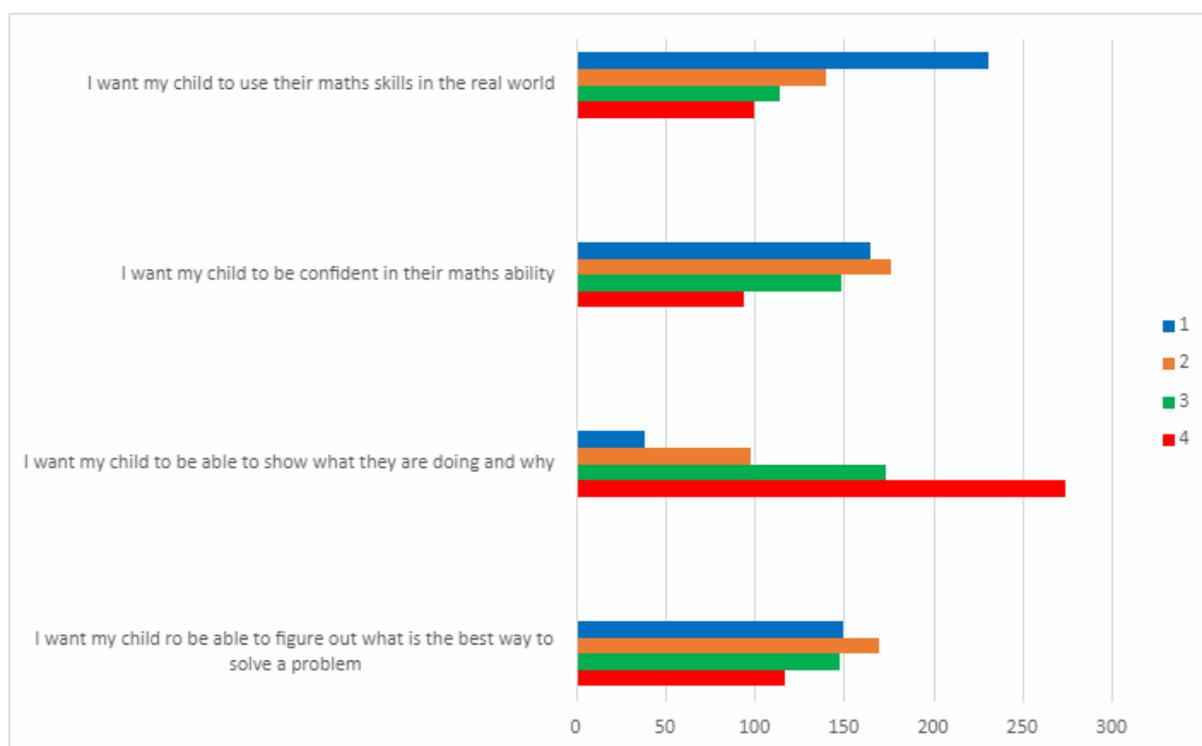
“I want my child to be able to show what they are doing and why”, and,

“I want my child to be able to figure out the best way to solve a problem”.

Most parents (29%) selected that being able to use maths in the real world as number 1. Being confident in their maths ability was chosen by 27% of parents as the overall second most important statement.

For the third statement, most parents ranked it at either 3 or 4, this shows that the majority of parent's are more focussed on their children using maths outside of school, being confident, and understanding the best way to solve a problem, and are less concerned about their child being able to show what they are doing and why in comparison.

The graph below clearly illustrates the almost equal statistics across the ranking scale for the fourth statement; so although 150 parents ranked this statement as number 1, 117 ranked it as number 4; both of these are substantial numbers of responses.



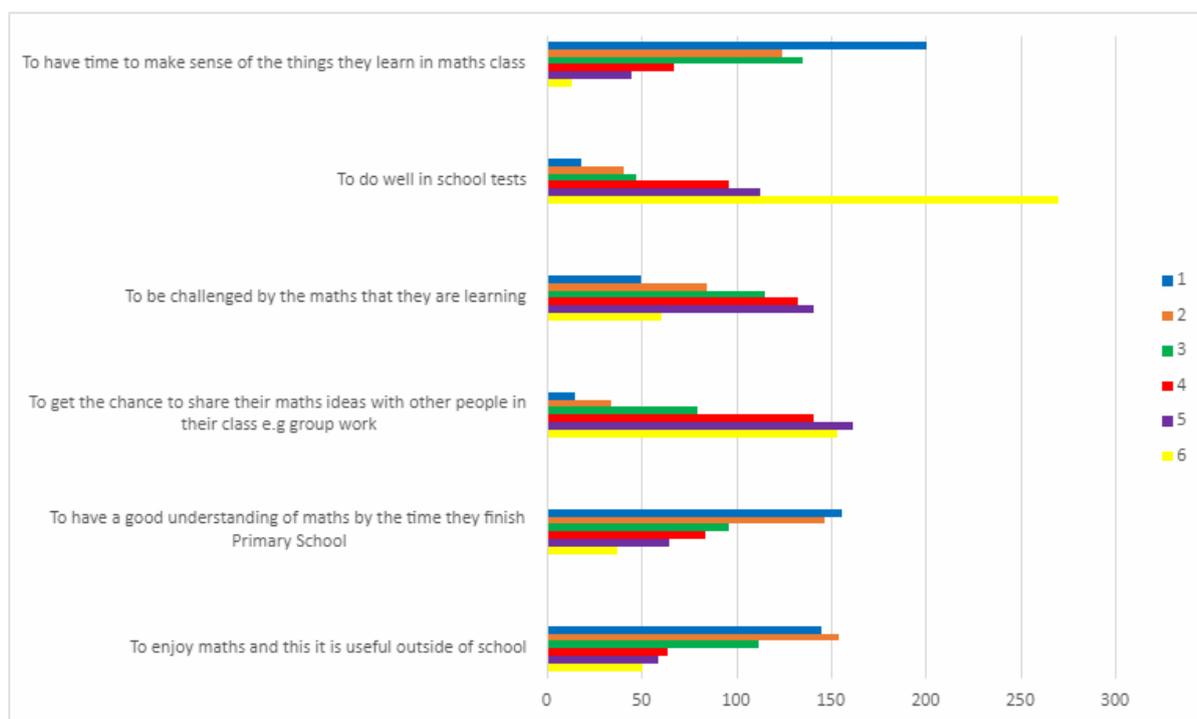
What Parents Feel Children Need in Order to Succeed in Maths Education

Parents responses highlight that children having the necessary time to make sense of what they learn in maths class most important as 34% selected this as number 1 on the Likert scale.

Doing well in school tests was ranked lowest on the scale as 46% of parents ranked it at number 6 and only 10% ranked it at number 1 and, being challenged by the learning was most commonly chosen as between 3 and 5 on the scale.

Children having opportunities to engage in group work and share their learning was ranked on the latter end of the Likert scale with nearly 80% of the parents ranking it between 3 and 6. Similarly, this was reflected in the children’s survey for Likert scale responses; however when it came to asking the children what way they would like to learn maths, group work was a common suggestion. Therefore, it is something that appears to be valued but less so on a comparative scale.

To have a good understanding of maths by the time children finish primary school was rated as number 1 by 27%, and number 2 by 25% of parents. These high rankings show that 52% of parents consider this statement as very important. Similarly, 51% ranked enjoying maths and finding it useful outside of school between 1 and 2 on the Likert scale.



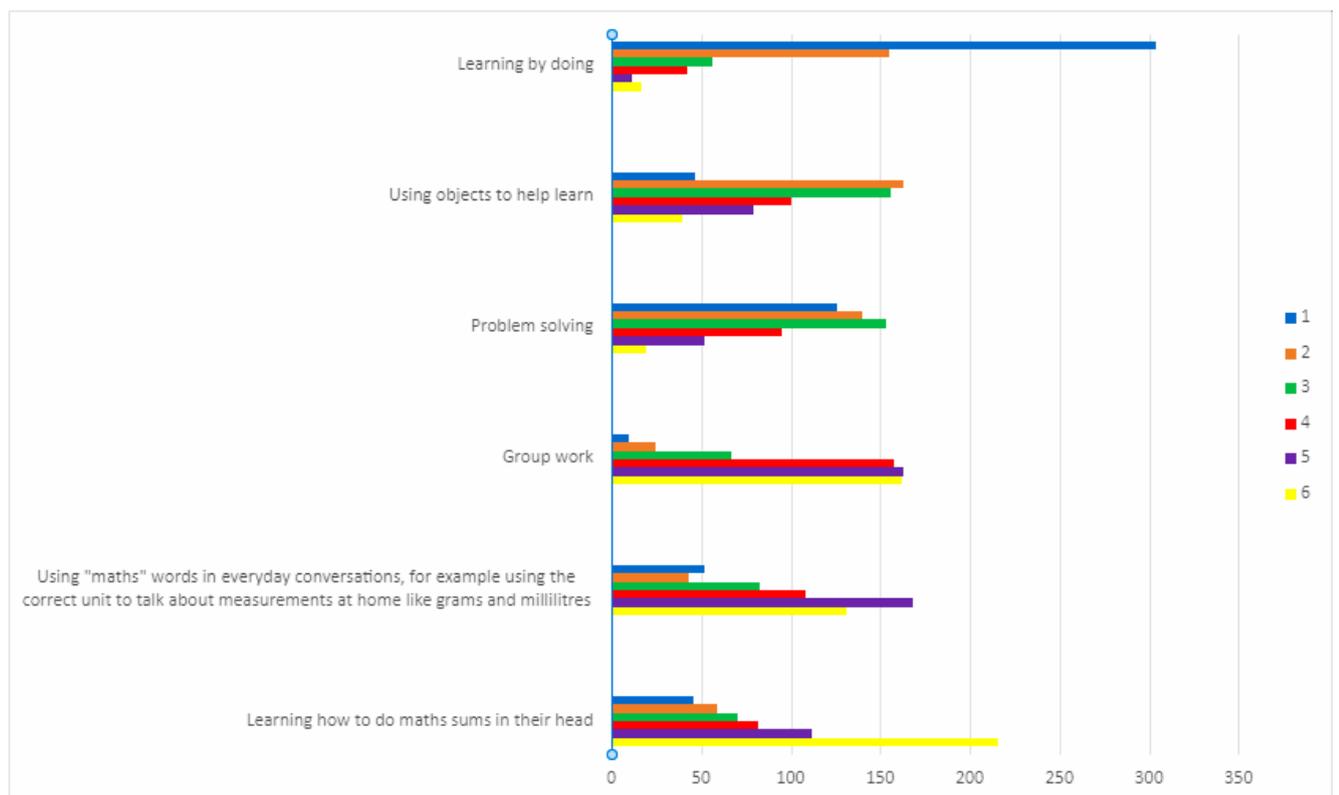
Parents Responses on how Children Learn Best

The graph below shows that “Learning by doing” was the most commonly ranked statement at number 1 on the Likert scale as nearly 80% of parents ranked it at 2 or above and less than 3% voted it at number 6.

Children learning how to do maths sums in their head was the most common statement to be ranked at number 6 on the scale by 37% of all parents. 8 percent of parents voted this as number 1 on the scale and 30% ranked it between 1 and 3 (175 parents).

Using objects to help children learn was ranked in the middle, mostly between 2 and 4 on the Likert scale and group work was more toward the latter end of the scale with the majority of parents selecting between 3 and 6.

The data for this question is best represented in the graph below.



What Parents Feel Could be Removed for Children's Maths Learning

Parents expressed their concern for the level of maths that is being taught, many feel their children are not being challenged enough and they particularly highlighted that having more opportunities to progress in the early school years would be good. However, parents also noted that the maths questions that are literacy dense are over complicated for many children, and for children with dyslexia the riddle-type of questions are very confusing. It was a common response from parents that learning tables off by heart is a memory game and unnecessary and that mental maths takes away from children being able to figure out the problem; while some children find it very easy others find it very difficult.

Parent's Relationships with Maths

Positively, 73% of parents responded that they like maths and feel able to help their child with maths. The next highest statistic was that 12% of parents do not like maths but that feel able to help their child. Another 9% like maths but do not feel able to help their child and 5% do not like maths but do feel able to help their child.

Though most parents are able to help their child with maths, almost 15% of parents say they feel unable to help their child with their maths learning at home.

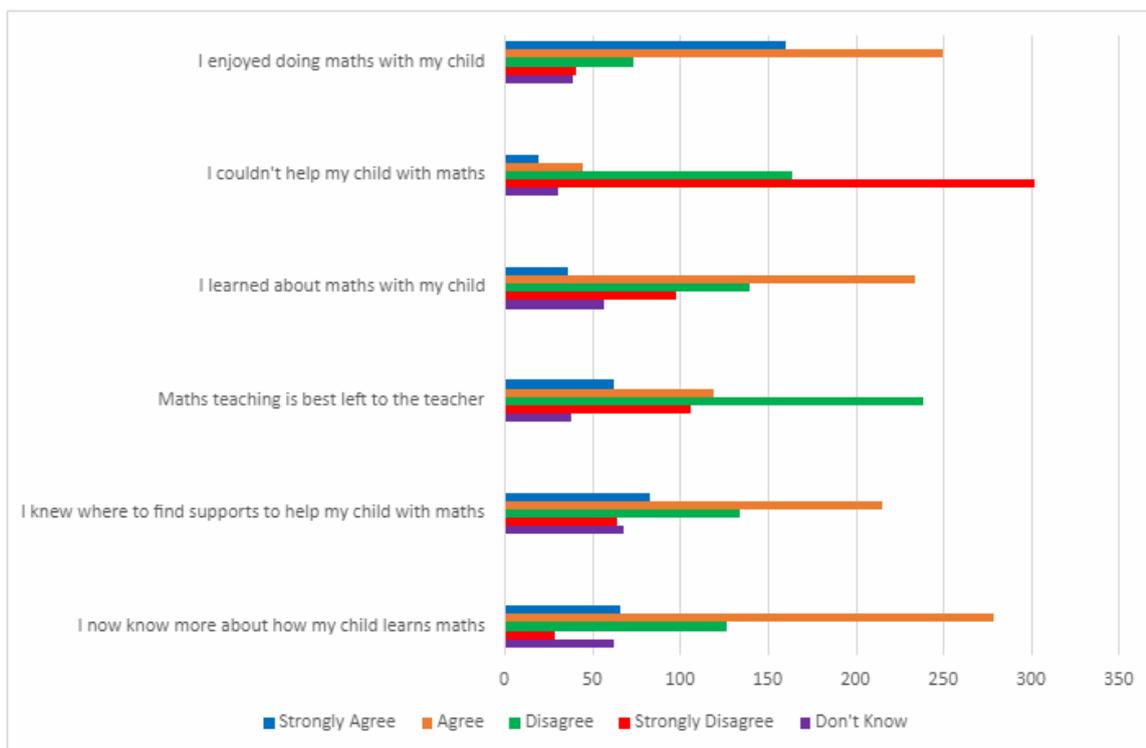
Parent's Experiences of the Covid-19 School Closures

Throughout the Covid-19 school closures, parents and children were faced with some changes in their children's learning at home. More than half (54%), responded that they could help their child with maths during the school closures. Interestingly this is a much lower statistic than the 73% of parents who highlighted that their relationship with maths was good and feel able to help their child.

There was a 3% response from parents who strongly agreed that they could not help their children with maths during the Covid-19 school closures, and a further 8% who agreed to this statement. That is 64 families who struggled with maths learning at home during this period and a further 35% did not know where to find supports.

73% of parents either strongly agreed or agreed that they enjoyed doing maths with their child throughout the school closure and 61% highlighted that they now know more about how their child learns maths.

The Majority of parents (61%) responded that they do not feel that the teaching of maths should be left to the teacher whereas 32% do. In the children’s survey there were contrasting statistics as 52% of children feel their teacher is better at teaching maths.

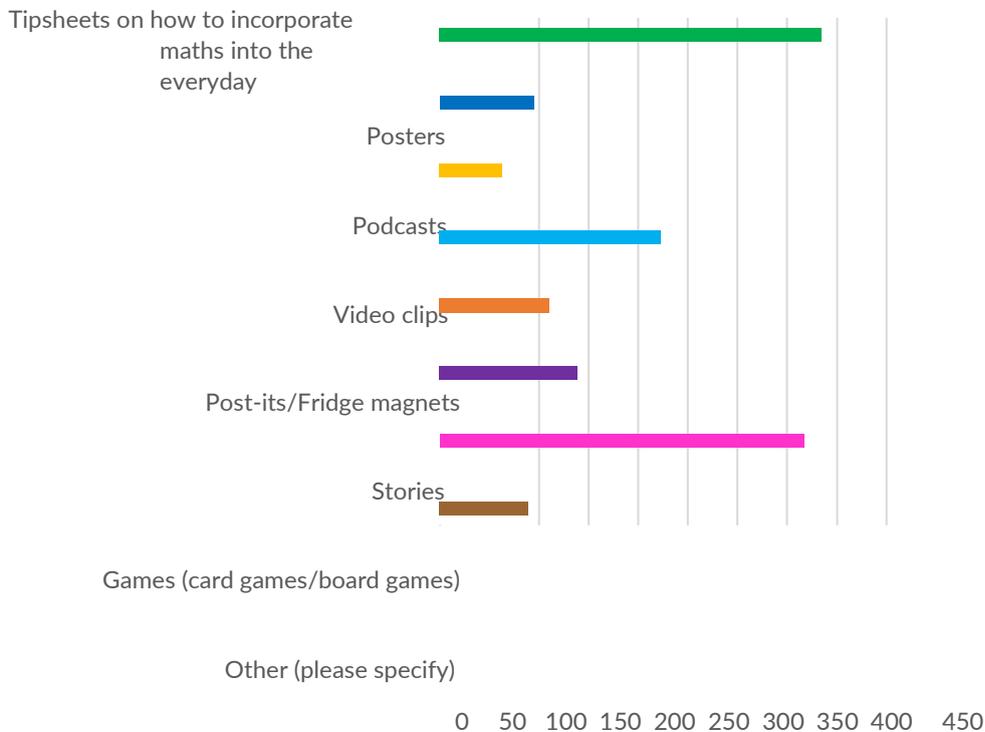


Parent’s Feedback on the Supports Needed to Help Children’s Maths Learning at home

The graph below clearly illustrates that parent’s most preferred supports would be tip-sheets on incorporating maths in the everyday, and games. Posters, video-clips and stories were also highlighted as beneficial.

Parents who had other suggestions for supports commented that having specific supports for individual children's needs would be helpful, such as to support children who did not find their in-school maths challenging, or those who found it too challenging.

A very common concern was of the way maths is taught in schools now differs from how parents learnt it and therefore challenges learning at home. Parents recommended that the areas and topic which are taught in school each month is discussed with parents, that teachers upload videos to the school website or onto the homework application, or that there are in- school tutorials for parents to help their children learn maths.



Parents’ Additional Comments on the Draft Primary Mathematics Curriculum

The general consensus from parents’ additional comments is that the curriculum is over- simplified, and Ireland should look to other countries’ approaches to maths education. Some parents resort to teaching their own versions of maths at home, while others hire tutors for primary school aged children.

There were recommendations to use more maths language, Aistear for older age groups, and

incorporating maths more into the real world. Parents also noted the curriculum needs to support children with learning difficulties and disabilities and that teachers need to be trained how to effectively teach the curriculum to all children.

Children at different stages of learning was an issue for parents, some noting their child is gifted and that they do not have the appropriate support, and others noting their child needs more help to stay on par with peers. Furthermore, many parents noted that they are not familiar with the curriculum and would like more information on it.



**Primary (NPC) submission to the National
Council for Curriculum and Assessment
(NCCA)**

Children's Feedback to the Draft Primary Maths Curriculum



Introduction

The NCCA have developed a draft of the Primary Maths Curriculum and we, the National Parents Council wanted to know what children thought of it, and what their general opinions are around learning about Maths. The Survey ran for a short period of time, over the course of a weekend and the response rate was very positive with a total of 196 surveys completed.

Children had the opportunity to share their opinions on their own maths education, what they do and do not enjoy about mathematics, what they find most important about maths, and their experiences from the school closures due to Covid-19.

Of the 196 children who responded, 99% are attending either a primary school or a Gaelscoil. Two of the respondents selected the 'other' category and both stated they are attending preschool.

The respondents involved children from a range of different classes from junior infants to sixth class. Two children noted that they are due to start preschool in September 2022, one finished sixth class in June 2022, and three noted that they are commencing sixth class in September 2022.

While finding out some more about the type of classes children are learning within, 70% highlighted that they have only one grade in their classroom, while 26% have more than one. However, three of the five children who selected 'other' have two or more grades in their classroom and the final two also attend Additional Needs Support (ASN). One of the children attend a special class and one attends a special school.

Children's Feedback on how they feel about Maths

In asking the children how they personally feel about maths there was a positive response by the majority as 54% highlighted that they like maths and that they are good at maths and 16% noted they do like maths but that they find it difficult.

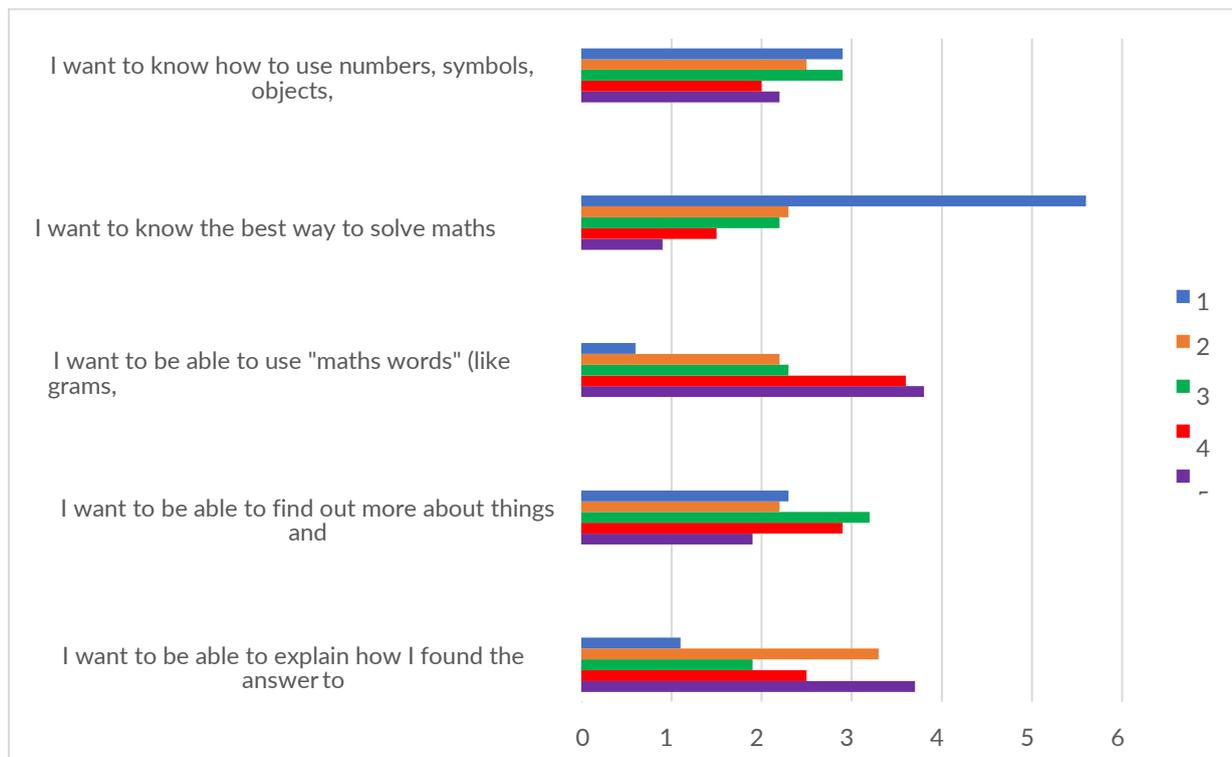
However, in contrast there were 37 children who selected that they do not like maths, 22 of them stated that though they do not like maths, they are good at it and the remaining 15 do not like it but also find it hard.

What Children find Important about Maths

The graph below illustrates that the most common option that children ranked as number 1 on the Likert scale is that they want to know the best way to solve problem. 45% of children chose this as number one and over 80% ranked it between 1 and 3. Reflecting on [question 4 of] the parents surveys, the idea of knowing the best way to problem solve was not as highly regarded in comparison to other options.

Maths language was ranked on the latter end of the scale at either 4 or 5 by 59% of children. Being able to explain how to find the answers to maths problems had mixed scores, 33% ranked it at number 2 but 37% ranked it number 5 on the scale.

The graph illustrates the almost even rankings between 1 and 5 for children wanting to know how to use maths tools (numbers, symbols, etc.); 43% ranked it at either 1 or 2 and 34% ranking at 4 or 5. There was a similar pattern in children's responses to being able to find out more about things and explaining why they happen in a maths context, the favoured response however was the middle of the scale as over a quarter of children selected number 3.



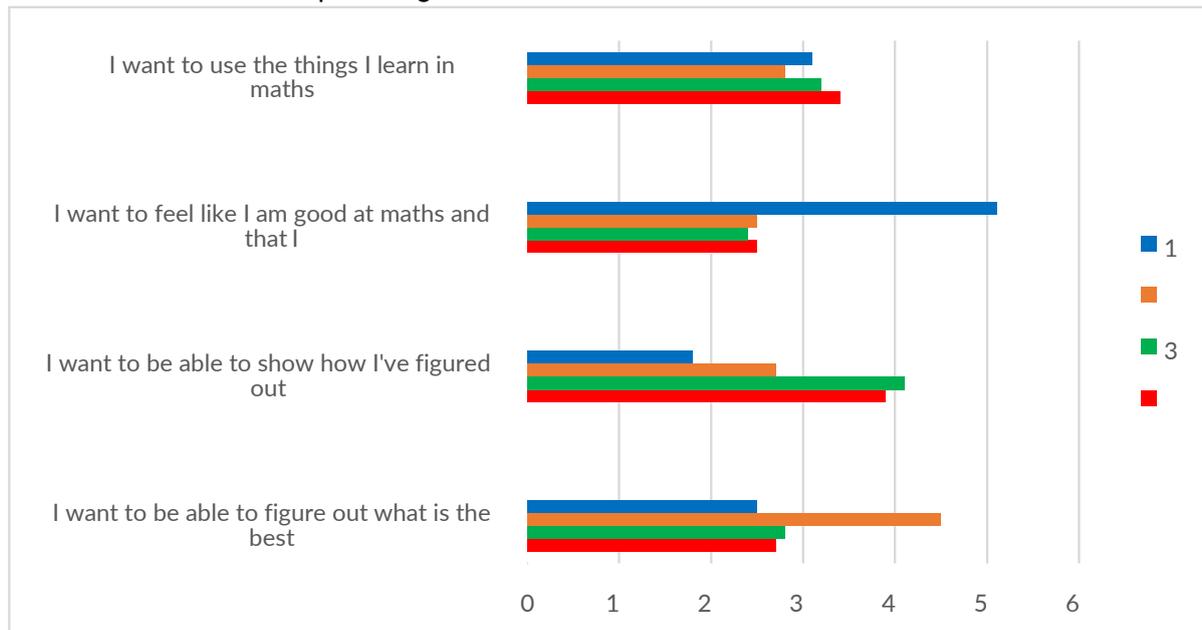
What children want from their Maths Education

Children's responses to the statements shown on the graph below clearly illustrates that children feeling they are good at maths and enjoying it is a number one priority for 41% of them.

Showing how they figure out maths problems is of less importance to them as 64% ranked it as either third or fourth on their scale of importance.

Wanting to be able to transfer skills learnt in maths class to situations outside of school had very mixed responses; between 22% and 27% of children responded at each level on the Likert scale.

Lastly, being able to figure out the best way to problem solve was ranked favourably at number 2 on the scale, however in terms of percentages, 56% ranked it at or above 2, and 44% ranked it at or below 3.

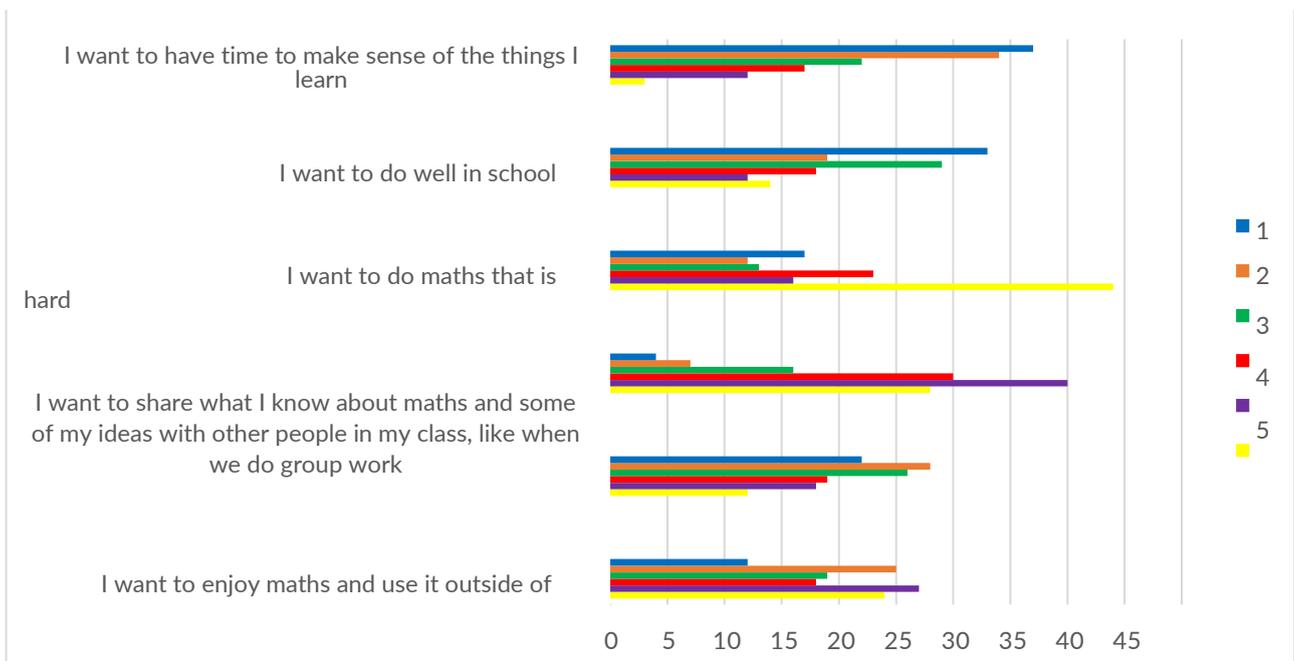


The graph below shows that children’s most common priority is having time to make sense of what they learn as 74% ranked this statement between 1-3. This is echoed in the parent survey results as over 55% ranked it highly on the Likert scale. Wanting to do well in school tests was also ranked as highly important as 41% of children ranked it between 1 and 2.

Wanting to do maths that is hard was the least favoured statement and was ranked bottom of the scale by 35% of children. However, 14% chose this as number 1 on the scale, thus 17 children out of the 125 that responded to this question do want to challenge their maths ability.

Group work was also commonly ranked on the lower end of the Likert scale with 78% of children ranking it between 3 and 6. Understanding maths by the end of primary school was mostly ranked in the middle of the scale as 58% of children selected between 2 and 4.

Wanting to enjoy maths outside of school was commonly selected at the lower end of the scale as 51% ranked it at either 5 or 6. However, 30% ranked it at either 1 or 2 and the remainder ranked it at 3 or 4.

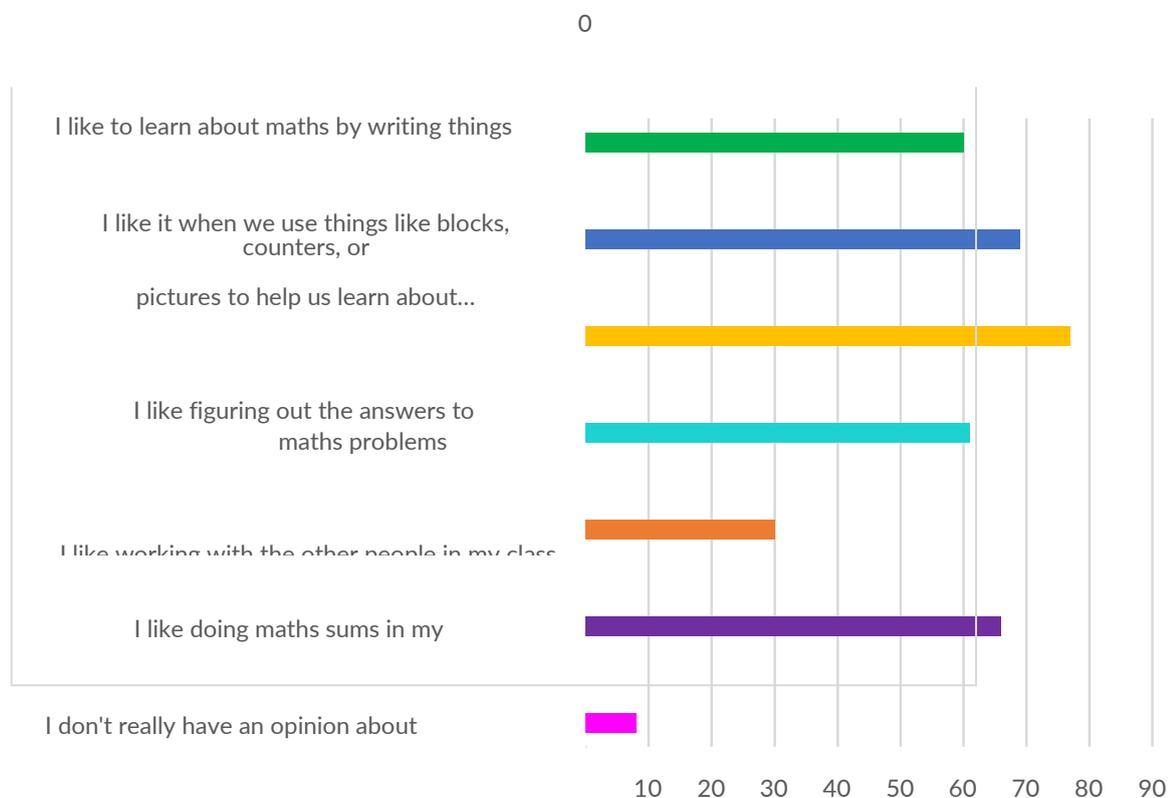


What Children Enjoy Learning about in Maths

This was a multiple-choice question which has allowed children to show the variety of ways in which they like to learn about maths. Figuring out answers to maths problems was the overall preferred learning method as it was selected by 62% of children. Using objects such as counters and blocks was second favourite and was closely followed by children selecting that they like doing sums in their heads.

49% of children selected that they enjoy doing group work. Interestingly, in previous questions where children were asked to rank statements, group work did not appear as a favourite approach to learning; however, in comparison, this statistic shows that although it may not be their favourite method they do still enjoy group work as an approach to learning maths.

Using maths language outside of maths class as a learning support was selected by 24% of children and 6% did not have an opinion along with the 71 children who skipped by this question.



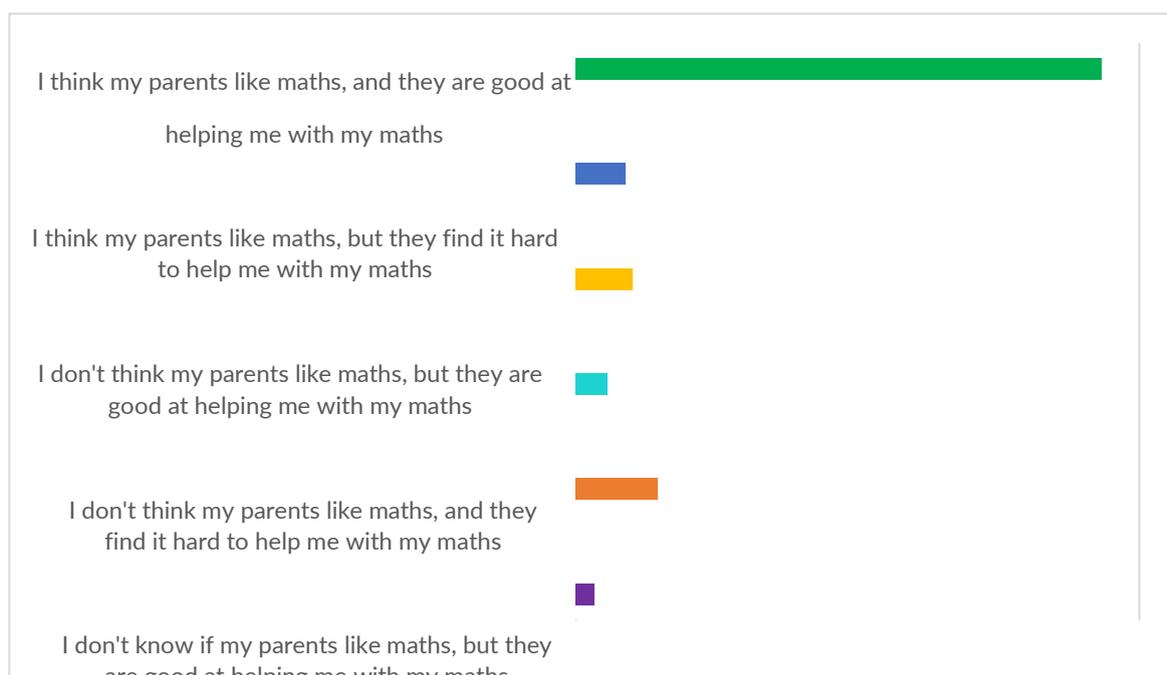
Children’s Feedback on the Maths they Would Like to have Replaced

Problem solving, fractions, and written problems were the most frequent topics that children highlighted that they would like to remove from the maths curriculum. Furthermore, “time” was referred to often however it is unclear if the frequency of it being mentioned was in the context of needing more time to understand and practice maths or if it was in relation to the concept of time as a maths topic; however, there were instances where both have been specified by other children for this question.

Children’s Responses for if their Parents Enjoy Maths and/or can Help them with their Maths

Referring to the graph below, it is clear that the majority (67%) of children answered that they think their parents do like maths are good at helping the children with their maths. The next highest statistic is that 11% of children do not know if their parents like maths but they can help the children with their maths work. 7% chose that they do not think their parents like math but that they are good at helping the children with their maths. Therefore, the three highest statistics all indicate that children do feel that their parents can help them with their maths work.

Parents liking maths but finding it hard to help, parents not liking maths and finding it difficult to help, and children unsure if their parents like maths but feeling their parents find it hard to help were less common selections, however a combined total of 16 children have parents who find it difficult to help them with their maths work.



Children’s Perspectives on Maths Learning during the Covid-19 School Closures

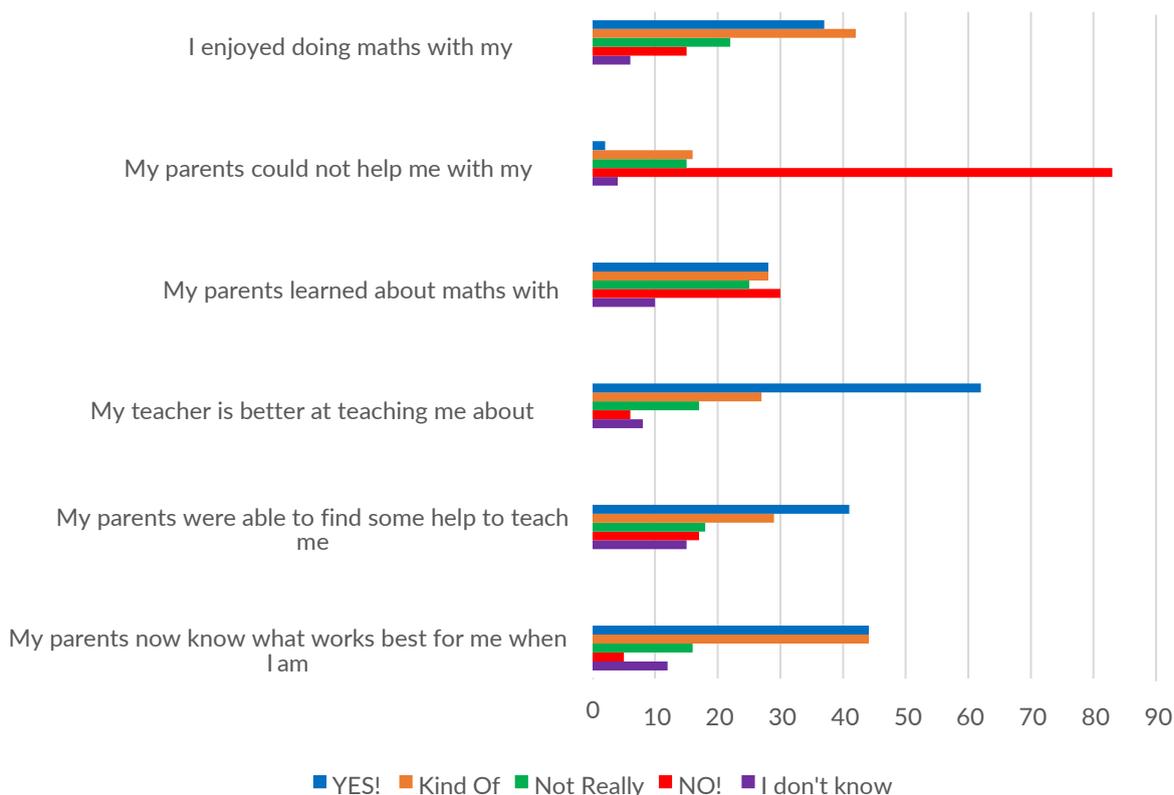
Positively, the data shows that most children felt their parents could help them with their maths, however there were still children who felt their parents could not help them. These statistics concern the period when schools were closed which means that if those children’s parents did not have access to what they required to support their child, then the child had limited support for their maths learning at home during this time.

An interesting statistic is that 52% of children suggested that their teacher is better at teaching them about maths; however, only 11% of parents chose this answer in the parent survey. 73% of children selected “yes” or “kind-of” to the statement that their parents now know more about how they learn maths and 65% noted that they enjoyed doing maths with their parents.

65 children noted that their parents learned maths with them, this is potentially a link to parents who commented in the parent survey that the way their children learn maths is different to how the parents themselves had learnt it when they were in school.

Furthermore, 29% of children indicated that their parents did not know where to find the supports they needed to help their children with maths.

Please refer to the graph below for further details of this analysis.



Children’s Responses to Various Types of At-Home Maths Learning Supports

The graph below clearly illustrates that children would prefer to have games to help their parents best support their maths learning and furthermore, 43% also recognised that it would be helpful if their parents had tips on how to support maths learning in the everyday context.

In order of preference based on the children’s responses, having video clips, fridge magnets, story books, posters, and podcasts would all be very helpful supports to have available.

However, 17% of children selected that they do not want any of these supports at home and 12% selected that they would like something else at home.

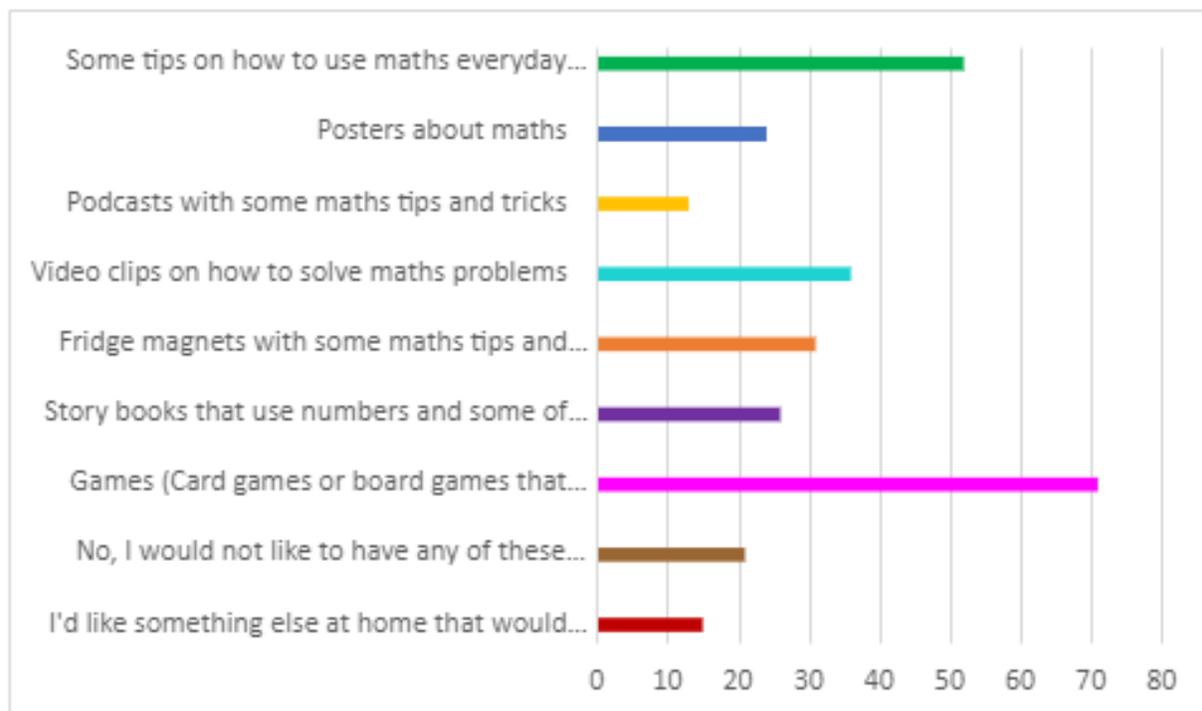
In terms of other supports, children left comments that they would like resources such as a blackboard, whiteboard, abacus, paper, something that “is not incredibly boring”, quizzes, apps, computer games, and a tutor.

Children’s Additional Comments on How they Believe their Maths Learning Should Look

Group work and making maths learning fun dominated the children’s responses to what they think maths learning should look like.

Other comments were to have shorter maths lessons, less tests, and removing reading questions.

Maths learning was referred to as being too easy and it was suggested that it should be possible to progress depending on ability rather than whole class progression.





NCCA

An Chomhairle Náisiúnta
Curaclaim agus Measúnachta
National Council for
Curriculum and Assessment



Draft Primary Mathematics Curriculum

Written submission template for organisations, groups and individuals responding to the *Draft Primary Mathematics Curriculum*

This template is intended to support you (and your colleagues/organisation) in developing a written submission in response to the [Draft Primary Mathematics Curriculum](#). Please e-mail your completed submission to pmc.submissions@ncca.ie

Organisation submission details

Name	PACT team
Position	
Organisation	Maynooth University, Department of Computer Science
Date	30 th June 2022

The NCCA will publish written submissions received during the consultation. The submissions will include the author's/contributor's name/organisation. Do you consent to this submission being posted online?

Yes

No

Please provide some brief background information on your organisation (if applicable).

PACT team - Programming, Algorithms, Computational Thinking (Maynooth University).

The PACT team at Maynooth University Department of Computer Science develops computer science resources and supports for teachers at both primary and secondary school level. All our workshops, school visits, and materials are available free of charge. Teachers do not need any prior knowledge of computer science to attend our teacher CPD workshops. We specialise in computational thinking, using our resources to increase students' problem-solving skillsets and their engagement in STEM subjects.

Our “unplugged” teaching materials are adapted from our involvement as the national representatives developing tasks for the International Bebras Computational Thinking Challenge, through the Irish Computer Society’s National Bebras Challenge. Our teacher training and school visit programme is currently funded by Science Foundation Ireland Discover Programme (InSPECT and CoCoA projects) and Maynooth University. Since 2012, our PACT team has directly engaged with over 500 teachers and 25,000 students.

The remainder of the template includes two sections. Section 1 invites your overall comments and observations on the *Draft Primary Mathematics Curriculum*. Section 2 is structured to align with main sections of the draft curriculum.

Section 1

Please outline your overall response to the *Draft Primary Mathematics Curriculum*.

In the *Draft Primary Mathematics Curriculum* there is only one mention of computational thinking: on p. 17 under Element 4: Applying and Problem Solving.

This contrasts with the “*Draft Primary Curriculum Framework*” document which was available for consultation until February 2022, and which explicitly referenced demands to include computational thinking (CT) in the primary curriculum. We strongly support this inclusion of CT, as we believe computational skills are essential skills for children to acquire for their future studies and careers. We would like to see this highlighted also in the primary mathematics curriculum.

Our suggestion is that computational thinking would be included in a more prominent way, at least to a similar extent as it was in the NCCA’s previous (2017) mathematics draft specification. The importance of computational thinking and coding was highlighted several times in the previous draft document “*Primary Mathematics Curriculum DRAFT SPECIFICATION JUNIOR INFANTS TO SECOND CLASS*” (2017). We illustrate this with the following examples from the 2017 document:

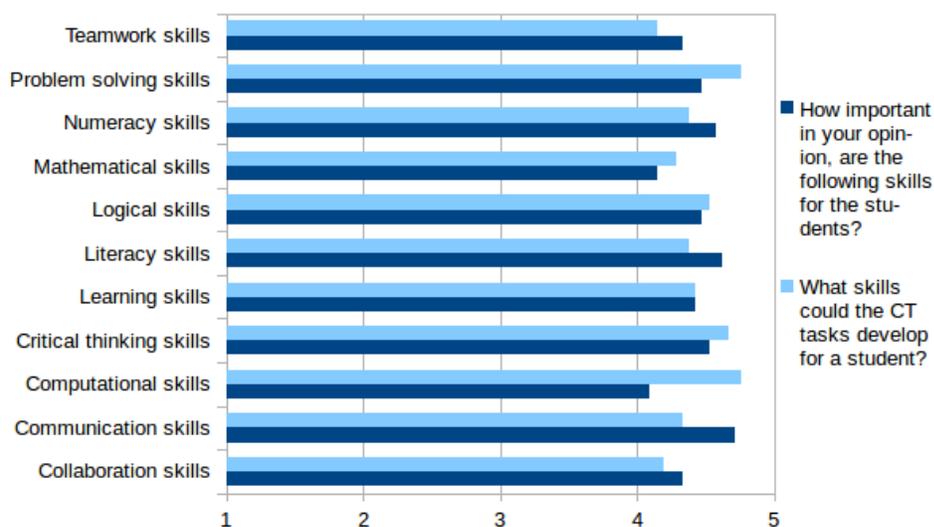
- a whole section on page 12: “How does the new Primary Mathematics Curriculum support computational, creative and flexible thinking skills and coding?”
- page 29 Element 4: Applying and Problem Solving
- Appendix I, page 71: “*In July 2016, the Minister wrote to the NCCA requesting that, in the context of the Council’s work on primary mathematics, particular consideration would be given to ensuring that every child has an opportunity to develop the computational, and flexible and creative thinking skills that are the basis of computer science and coding.*” and “*In light of the audit findings and findings more generally about overload and competing priorities in the current curriculum, the Council recommended that the how, where and when decisions about coding as an integral part of the primary curriculum should be made during, and as part of, the wider review of the primary curriculum in 2017 and 2018, since this review will determine decisions about the purpose, structure, stages, time allocations, and content of a redeveloped curriculum. In the meantime, we can embed the basis of coding—computational thinking, and flexible and creative thinking skills—in the new curriculum specification for mathematics currently under development.*”

It is important to note that computational thinking is a wider problem-solving skill set that is distinct from coding. While the skills developed are an aid to coding, they can be taught in a school setting without need of extensive training for teachers. The tasks are unplugged, meaning that they can be delivered in the classroom without computer equipment that schools are often lacking.

Computational thinking activities allow all learners to participate.

Including computational thinking in the primary mathematics curriculum would make the transition from primary to secondary school easier. Although all of our CT materials target key CT and computer science (CS) concepts, they also teach other curriculum-relevant skills as shown through feedback from teachers who have been working with us in our CT workshops. In teachers’ opinions, solving CT tasks improve the following skills in students: teamwork, collaboration,

communication, mathematical, numeracy, literacy, learning, logical, critical thinking, problem solving, and computational skills. These are the skills that received a rating from “very” to “extremely” to the question of how much a particular skill could be developed by students using CT tasks (scale: 1-not at all, 2-slightly, 3-moderately, 4-very, 5-extremely). All these skills were also considered “very” to “extremely” important skills for the students to have, in teachers’ opinions.



The draft curriculum should further promote the development of computational thinking skills, strengthening the link to the Framework for Junior Cycle key skills of Managing Information and Thinking and Being Numerate. In addition, computational thinking also links with the Aistear’s focus on play, tactile problem solving, and the Aistear theme of Exploring and Thinking.

For Ireland to continue improving its attainment levels in international assessments such as PISA and TIMSS, recognising the importance of problem solving and computational thinking in the Primary Curriculum Framework is essential. The mathematics component of the PISA tests now explicitly incorporates computational thinking, and PISA national representatives are currently discussing including computational thinking as a separate line item for country ranking.

We have found that unplugged computational thinking activities our team has offered to teachers have been a very successfully taken up in primary and secondary schools, supporting teachers in facilitating Cognitively Challenging Tasks in the classroom in the ways suggested on page 32 of the draft curriculum. Examples of our materials include a computational thinking obstacle course which encourages collaboration and activity based problem solving, a computational thinking workbook (<https://pact.cs.nuim.ie/pages/workbooks.html>) for primary school students, as well as seasonal tasks which link to key dates and activities in the school calendar.

Specific locations where it would be appropriate to mention computational thinking

The current draft primary mathematics curriculum specification refers to problem solving in several places that are effectively computational thinking, but do not refer to computational thinking. These places would be specific opportunities to clarify what is proposed by using the term “computational thinking” that is already in widespread use. For example:

- *Procedural Fluency p. 14: "The curriculum aims to provide children with opportunities to create their own informal strategies and to integrate new concepts and maths procedures as they build on these strategies. It aims to support children to justify the use of commonly used mathematical procedures and informal strategies, and through this, to strengthen their understanding and skills."*

The field of computational thinking defines and explains many of these specific strategies, and could be mentioned as an example to allow teachers to understand exactly what specific strategies are being referred to here.

- *Procedural Fluency p. 14: "Children should be encouraged to apply procedures accurately, efficiently and flexibly; to transfer procedures to different problems and contexts; to build or modify procedures from other procedures; and to recognise when one strategy or procedure is more appropriate to apply than another."*

The procedures referred to here is a broader set than the long division, long multiplication, etc., textbook procedures, however, it is not made clear. In fact, this paragraph contains several descriptions of concepts central to computational thinking, and formalised in computational thinking, without referring to computational thinking. For example, the specification could refer to algorithms as an example of the procedures referred to here. Further, the computational thinking concept of generalisation is exactly the concept of transferring procedures to different problems and contexts. It does not have any other name in the field of mathematics/computer science, so its correct name could be used here.

- *Applying and Problem Solving p. 17: "Children should investigate, develop, select, apply, interpret, model and compare a variety of problem-solving situations and strategies as they explore mathematics and deepen their mathematical understanding. They should apply their mathematical knowledge and skills in flexible, efficient and creative ways to solve problems, conduct investigations and develop their computational thinking."*

It is positive that computational thinking is mentioned in this paragraph, but the paragraph is ambiguous. For example, what exactly is meant by "variety of problem-solving situations and strategies" -- we know what this means in the field of computational thinking, so the authors should state they mean computational thinking strategies, or else give examples from mathematics that are not computational thinking.

- p. 32: The section "*Suggestions for the provision of Cognitively Challenging Tasks*" has several suggestions that would be facilitated with unplugged computational thinking puzzles and activities, if the authors wished to include concrete examples for teachers.
- p. 34: The section "*Suggestions for promoting Maths Talk*" could include a mention of unplugged computational thinking puzzles. The maths talk mentioned here is a standard feature of teams of pupils tackling computational thinking puzzles (e.g. Bebras tasks) and ending with a whole-class discussion of the strategies used.

Section 2

Rationale and Aims [see pages 9 – 14]

The rationale for the *Draft Primary Mathematics Curriculum* addresses the importance of mathematics in children’s lives, while the over-arching aim of the draft curriculum is the development of mathematical proficiency.

Please give your overall feedback in relation to the Rationale and Aims.

We are very pleased to see aspects of computational thinking included in the Aims section of the draft in the *Adaptive Reasoning* in page 13 (e.g. logical thought, reflection, explanation, and justification) and the *Strategic Competence* in page 14 (*solving problems in variety of ways, first understanding the problem or situation and its key features, and then framing or representing the problem*). However, it would be good to also use the actual term *computational thinking skills* in the description.

The section below was included in the Introduction of the “*Primary Mathematics Curriculum DRAFT SPECIFICATION JUNIOR INFANTS TO SECOND CLASS*” (2017).

We would like to see an equivalent section in the new Draft Primary Mathematics Curriculum because it highlights the importance of computational thinking:

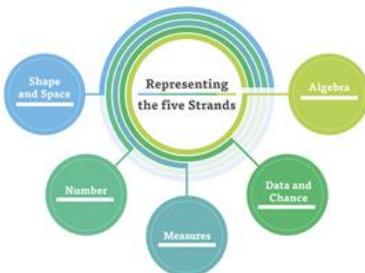
“How does the new Primary Mathematics Curriculum support computational, creative and flexible thinking skills and coding?”

There has been much public interest in the question of the place of coding in the primary curriculum and of the relationship between the wide range of coding initiatives currently in primary schools and the curriculum, particularly the mathematics curriculum. Following a request from the Minister in July 2016, NCCA undertook to clarify, tease out and explain, through its planned development of a new mathematics curriculum, the relationship between coding and mathematics at this level of children’s education.

Essentially, primary mathematics lays some of the foundations of coding through its emphasis on computational, creative and flexible thinking skills. Mathematical experiences and activities designed to develop these skills involve children solving complex problems, in which they are encouraged to break the problem down into steps, analyse the parts of the problem, prioritise relevant information and drawing on existing understandings, reason their ideas and evaluate their solution.

Curriculum structure - Strands, Learning Outcome Labels, Elements and Learning Outcomes [see pages 15 – 24]

The *Draft Primary Mathematics Curriculum* is structured according to five Strands: Algebra; Data and Chance; Measures; Number; Shape and Space. Attached to these Strands are 15 Learning Outcome Labels, which contain Learning Outcomes for each stage.



Mathematical processes are categorised into four Elements: Understanding and Connecting; Communicating; Reasoning; Applying and Problem solving.

Our feedback from teachers indicates that the inclusion of computational thinking in the primary mathematics curriculum will develop the four elements of the Primary Mathematics Curriculum: Understanding and Connecting; Communicating; Reasoning; Applying and Problem solving. This has been highlighted in our previous work where skills such as teamwork, collaboration, communication, mathematical, numeracy, literacy, learning, logical, critical thinking, problem solving, and computational skills were identified as those developed by our CT materials (see section I of this document).



Please give your overall feedback in relation to the curriculum components mentioned above. Please quote full text of any learning outcome you wish to draw attention to.

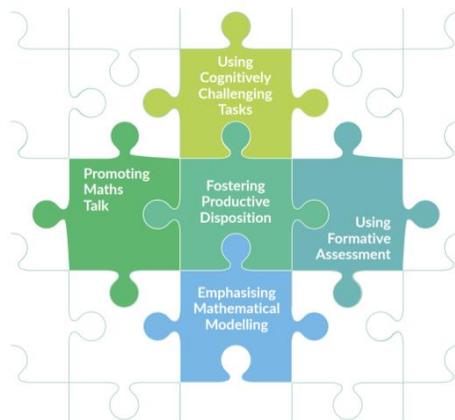
We are very pleased to see computational thinking mentioned as part of one of the four elements in *Curriculum Elements* (Element 4: *Applying and Problem Solving*, page 17).

However, the importance of computational thinking is not mentioned as it had been in previous NCCA documents concerning mathematics “Primary Mathematics Curriculum Draft Specification Junior Infants to Second Class” (2017) and “Primary Curriculum Framework” (available for consultation until February 2022).

Our feedback from teachers indicates that the inclusion of computational thinking in the primary mathematics curriculum will develop the four elements of the Primary Mathematics Curriculum: Understanding and Connecting; Communicating; Reasoning; Applying and Problem solving. This has been highlighted in our previous work where skills such as teamwork, collaboration, communication, mathematical, numeracy, literacy, learning, logical, critical thinking, problem solving, and computational skills were identified as those developed by our CT materials (see section I of this document).

The Primary Mathematics Curriculum in Practice [see pages 25 – 37]

The *Draft Primary Mathematics Curriculum* proposes five key pedagogical approaches which underpin and embody a new vision for children’s learning in terms of teachers’ everyday practice.



Please give your overall feedback in relation to these key pedagogical approaches.

We are supportive of the five key pedagogical practices, especially the section of *Using Cognitively Challenging Tasks* (page 31). Computational thinking tasks are a good example of this type of cognitively challenging task.

We suggest following added bullet point to the list of “*Through engaging with and experiencing Cognitively Challenging Tasks, children*” on page 31.

- will build their computational thinking skills

The sections on *Fostering Productive Disposition*, *Promoting Maths Talk*, and *Emphasising Mathematical Modelling* reflect our views of what is important from a computational thinking perspective.

Primary Mathematics Toolkit

The Primary Mathematics Toolkit will contain four components: Mathematical Concepts, Progression Continua, Support Materials and Examples of Children’s Learning. For consultation, the *Draft Overview of the Primary Mathematics Toolkit* contains Mathematical Concepts, Progression Continua and 11 Support Materials.

Please give your overall feedback in relation to the supports outlined and suggestions on additional supports.

We are ideally placed to provide support materials for Cognitively Challenging Tasks. We have a workbook already designed and printed, along with supporting teacher materials, for 3rd- 6th class. Professional printed copies (20,000 copies, funded by Science Foundation Ireland’s Discover Programme grant no. 18/DP/5887) are currently being distributed (free) to partner primary schools nationwide. We also have a computational thinking workbook for 1st – 2nd class in preparation. The workbook is available electronically (for free) at <https://pact.cs.nuim.ie/pages/workbooks.html>.

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