Education for Sustainable Development: International Curriculum Audit

Key findings report
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Contents

Executive summary

The National Council for Curriculum and Assessment (NCCA) commissioned this international curriculum audit of Education for Sustainable Development (ESD) in summer 2021 to inform the evolving strategic direction for ESD in the curriculum in Ireland. The desktop review examines how six international jurisdictions integrate the teaching and learning of ESD within their curricula (early childhood, primary and post-primary), and provides insights into how the selected jurisdictions (Australia, Denmark, Japan, New Zealand, Scotland and Sweden) interpret and manage the UNESCO vision for ESD. This vision focuses on Sustainable Development Goal 4 (SDG 4) on Quality Education, and specifically on target 4.7 (UNESCO, 2020, p. 14):

> **By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.**

The desk study, which is based on publicly available information including international steering documents, national strategies or policies for ESD, and curriculum framework or guidance documents, adopted a two-stage methodology. Stage one produced a detailed 'Country Table' for each jurisdiction in response to four key research questions. The stage two analysis of the Tables resulted in this key findings report. It stands alone, but is best informed by the Tables which are available as a separate document.

This executive summary highlights the study's main findings in response to the four research questions.

1. What is the expressed aim or intention for ESD in the ESD strategy or curriculum policy/ framework for early years, primary and secondary education?

2. Where does ESD sit within curriculum frameworks/policy documents and how is it integrated in the curriculum?

3. What ESD content knowledge is integrated in the curriculum framework(s)/policy documents, and what is the emphasis for ESD content knowledge, competencies and skills within these documents?

4. How is ESD in the curriculum encouraged and supported; what are the key enablers supporting ESD in the curriculum?

Aims and intentions for ESD: There are common threads in the key principles underpinning the definitions, visions, aims and priorities for ESD in Australia, Denmark, Japan, New Zealand, Scotland and Sweden. These include the Brundtland principle of sustainable development as development which meets today's needs without jeopardising the ability of future generations to meet theirs (United Nations, 1987). There is also a common focus on ESD incorporating the UN's three key pillars of sustainable development – the environmental, economic and social (the latter including the cultural and political perspective). The principles of local, national and global citizenship and democracy are also core to aims and priorities for ESD across the jurisdictions, as is the focus on ESD being transformative and futures- and action-oriented. This involves developing capacities to recognise and adapt to change and redesign how we live and work, through teaching and learning that empowers young people to take informed action.

Aims and intentions for ESD also commonly incorporate aspects of care, respect, compassion, and responsibility for both the environment and humanity and, in Australia, where ESD is closely linked to the national strategy for nature, there is particular emphasis on equity and social justice. The latter are important principles in Scotland also, which is unique among the jurisdictions in establishing ESD as an entitlement for all learners. In Japan, developing the leadership to build a sustainable society is core to the vision for ESD, while in New Zealand the national strategy emphasises the country's unique perspective as an island and Maori nation in which individuals and communities act as guardians (*kaitiaki*) of the environment.

Incorporation of ESD within the curriculum: Each of the six jurisdictions incorporates ESD in the curriculum in more than one way and across all phases (early years, primary and post-primary). It may be a cross-curriculum theme, priority or subject, intended to be integrated within the teaching and learning of all subjects (Australia, Japan, New Zealand, Scotland, Sweden), and in all six jurisdictions, it is embedded within core content and knowledge requirements or attainment targets for individual subjects/learning areas. ESD may also be taught through interdisciplinary topics or themes (e.g. in Denmark and Japan); incorporated within a whole-school approach to sustainability (Japan, New Zealand, Scotland); be an underpinning curriculum aim or principle (Denmark, New Zealand, Scotland, Sweden); or be incorporated within qualification specifications[1] (Australia, New Zealand, Scotland).

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[1] A qualification specification sets out the key skills, understanding and knowledge that students are expected to have gained by the end of their course. It is sometimes known as a qualification syllabus. Qualification specifications in some jurisdictions (e.g. marine science, earth and environmental science, design and technology) include ESD-related components.

Where ESD is a cross-curriculum theme, priority or subject, it may sit alongside others, including international understanding, information education, and health and welfare in Japan. In Scotland and Australia, where all teachers have responsibility for teaching ESD, it sits alongside literacy, numeracy, health and wellbeing, and digital literacy (Scotland), and Aboriginal and Torres Strait Islander Histories and Cultures, and Asia and Australia's Engagement with Asia (Australia). Its teaching may, however, be 'neglected' in Australia, because of an 'overcrowded curriculum and excessive extra-curricular activities' (UNESCO, 2021c, p.27). This may, in part, explain why refining, realigning and reducing existing curriculum content, and improving the relationship of the cross-curriculum priorities to the content of the individual learning areas, is one of the aims of an ongoing curriculum review.

ESD may also be incorporated within qualification specifications for the individual subjects which students may choose to study to contribute towards their senior secondary leaving certificate in Australia and New Zealand. In Scotland, the Scottish Qualifications Authority and Education Scotland are required to consider the inclusion of ESD-related content when qualifications are reviewed. The aim is to provide a platform to deliver ESD-related topics as a key aspect of learning and teaching practice.

It is a general aim across the jurisdictions to ensure curriculum continuity and progression, e.g. by ensuring a similar organisation and structure across the three curriculum documents for the three separate phases in Sweden, or by explicitly presenting curriculum requirements as a progression of learning as in Curriculum for Excellence in Scotland. Aims for curriculum continuity can also apply specifically to ESD. In Sweden, the fundamental values and aims, tasks, and overall goals for sustainable development (as set out in the three curriculum documents[2]) are similar across the phases, with a view to supporting continuity and progression. Japan looks to ensure continuity in the teaching and learning of ESD, in particular, by recommending the use of the same pedagogies in each phase of education.

ESD content knowledge, skills and competencies: ESD in the curriculum is known differently in Australia, New Zealand and Scotland. It is 'Sustainability' (sometimes 'Education for Sustainability') in Australia, and Environmental Education for Sustainability (EEfS) in the national strategy in New Zealand and in *Te Whāriki* – the early childhood curriculum. In The New Zealand Curriculum (ages 5-18), Education for Sustainability (EfS) is the term used, and in Scotland it is Learning for Sustainability (LfS).

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[2] For the Preschool (Lpfö 18), the Compulsory School, Preschool Class and School-age Educare, and the Upper Secondary School

The terminology used and organisation of the ESD curriculum may differ across the jurisdictions, but curriculum content knowledge, and skills and competencies for ESD are characterised by common threads. These include content focused on human impact on the environment; the interconnection between and interdependence of humankind and the environment, and of Earth's systems and social, economic, ecological, cultural and political systems; and the importance of care, respect and responsibility for the environment. Skills and competencies highlight the development of abilities to respond to, adapt to and design for change and sustainability through the skills of creative thinking, inquiry and application; to recognise rights and responsibilities and limits and boundaries; and to demonstrate informed active participation, social responsibility, and local, national and global citizenship.

Key enablers for ESD in the curriculum: There is no core compulsory curriculum content for ESD across the jurisdictions, other than that which may be required as part of individual subject or qualification specifications. It is consequently a matter for schools to determine how to interpret and incorporate ESD curriculum guidelines and guidance in their day-to-day practice.

Key supporting mechanisms to create conducive conditions for the teaching and learning of ESD include embedding ESD within the professional standards for teachers (Scotland, New Zealand); providing professional development support; embedding whole-school approaches to ESD; supporting participation in official national and international ESD networks, initiatives and programmes; and providing online guidance. The latter can include practice examples, linked online resources, and advice on recommended pedagogies.

Pedagogical recommendations identify the key enablers to effective teaching and learning in ESD as pupil-led inquiry; collaborative tasks, group working, and peer learning; meaningful participation in decision-making about school and community life; inquiry-based, problem-solving approaches; addressing real-life issues based on what has been learned; involving parents and the wider community; and using a local to global progression and/or linking with schools in other countries to explore the interconnected nature of the world. Outside learning/contact with nature can also be important for effective ESD, using education in the environment to support education about and education for the environment.

Australian recommendations on best practice professional development in ESD for teachers include that it involves real-life experiences such as field trips; supports the curriculum framework and is relevant to teaching context; involves networking with other practitioners within and outside the school sector; and includes students where appropriate.

The insights provided by this timely audit into the arrangements for the teaching and learning of ESD in Australia, Denmark, Japan, New Zealand, Scotland and Sweden offer a starting point for NCCA discussion and consideration of a number of key questions to inform the evolving strategic direction for ESD in the curriculum to 2030. These questions and insights will also be of interest to policy makers and curriculum developers elsewhere, responsible for the development of ESD in the curriculum.

Curriculum redevelopment is currently happening across 11 years of the educational continuum (primary and senior cycle) in Ireland. This includes primary curriculum review, senior cycle redevelopment, an updating of the early years curriculum framework, and ongoing support for the implementation of junior cycle. The audit findings can feed directly into this work, and support discussion, debate, and decision-making on how ESD can be better supported as part of children's and young people's learning, and ultimately, their thinking about and actions related to sustainability as citizens who will have a very real impact on shaping the world in the decades ahead of us.

1. Introduction and context

The National Council for Curriculum and Assessment (NCCA) commissioned an international curriculum audit in summer 2021 in the context of the development of the second national strategy for Education for Sustainable Development (ESD) in Ireland to 2030. This will supersede the strategy for 2014-2020 (DES, 2014).

The desktop review aimed to inform the evolving strategic direction for ESD in NCCA's curriculum and assessment work to 2030, by examining how six international jurisdictions integrate teaching and learning within their curricula (early childhood, primary and post-primary). It also sought to provide insights into how the selected jurisdictions (Australia, Denmark, Japan, New Zealand, Scotland and Sweden) interpret and manage the UNESCO vision for ESD (see page 10 below) within the curriculum.

This report provides an analysis and summary of the audit's key findings.

FOUR KEY RESEARCH QUESTIONS

The study focused on four principal research questions:

1. What is the expressed aim or intention for ESD in the ESD strategy or curriculum policy/ framework for early years, primary and secondary education?

2. Where does ESD sit within curriculum frameworks/policy documents and how is it integrated in the curriculum?

3. What ESD content knowledge is integrated in the curriculum framework(s)/policy documents, and what is the emphasis for ESD content knowledge, competencies and skills within these documents?

4. How is ESD in the curriculum encouraged and supported; what are the key enablers supporting ESD in the curriculum?

The detailed research questions and key considerations are reproduced in full in Appendix 1. They aimed to be specific enough to elicit pertinent information on ESD in the curriculum in international jurisdictions and allow comparison across and between them, while also accommodating individual disparities of approach.

SIX JURISDICTIONS

The six jurisdictions selected for inclusion – Australia, Denmark, Japan, New Zealand, Scotland and Sweden – aimed to reflect a variety of approaches to ESD in the curriculum. They were intended, for example, to reflect varying levels of regulation, centralisation, prescription and flexibility and a range of methods supporting implementation. They were also chosen to provide insight into how ESD is incorporated across the phases of education, and into any recent revisions of ESD provision

or innovations. Their selection looked to reflect jurisdictions in which ESD is explicitly incorporated in the curriculum, as a cross-curricular element/requirement or similar, and those in which its inclusion is heavily influenced by the existence of ESD networks or initiatives.

METHODOLOGY

The desk study adopted a two-stage methodology: the stage one information collection resulted in a detailed 'Country Table' for each jurisdiction, responding to the research questions and key considerations. In stage two, analysis of the Country Tables resulted in this key findings report. It stands alone, but is best informed by the detailed tables which are available separately.

All information for the desk study originated from publicly available sources in the English language, published, for example, by national agencies such as education ministries, curriculum/ qualifications organisations, or centres of subject expertise, or by international organisations such as the United Nations and UNESCO. Sources included international steering documents, national strategies or policies for ESD, and curriculum framework or guidance documents. All sources are referenced in full at the end of the report, and in-text url links to key documents are also included throughout the report, where relevant.

Education for Sustainable Development

It was the World Commission on Environment and Development (WCED) in 1987, in its *Our Common Future* report (the 'Brundtland Report') (United Nations, 1987) that developed the guiding principles for sustainable development as it is understood today. These included the principle that sustainable development is development that meets today's needs without jeopardising the ability of future generations to meet theirs. The United Nations (UN) took the concept forward and, following the World Summit on Sustainable Development in 2002, during which the introduction of the concept of Education for Sustainable Development (ESD) was proposed, adopted the Decade of Education for Sustainable Development (UN-DESD) (2005-2014) (UNESCO, 2021a) for the international community. The overall aim of UN-DESD was to integrate the principles, values and practices of sustainable development into all aspects of education and learning. It recognised ESD as a key element of quality education and a crucial enabler for sustainable development, defining it as the educational process of achieving human development, which includes three pillars – economic growth, social development, and environmental protection, in an inclusive, equitable and secure manner.

Today, UNESCO's Roadmap for Education for Sustainable Development (UNESCO, 2020), the global framework for the implementation of the UNESCO strategy for ESD 2020-2030, builds on the Global Action Programme on ESD (GAP 2015-2019) (UNESCO, 2021b), and places emphasis on education's contribution to the achievement of the 17 Sustainable Development Goals (SDGs). These are the 17 goals at the heart of the United Nations 2030 Agenda for Sustainable Development, which were adopted by all UN Member States in 2015. The goals recognise that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth, while tackling climate change and working to preserve the natural environment.

2. Definitions of ESD

The UNESCO Roadmap for Education for Sustainable Development states that Education for Sustainable Development (ESD):

> … empowers learners with knowledge, skills, values and attitudes to take informed decisions and make responsible actions for environmental integrity, economic viability and a just society empowering people of all genders, for present and future generations, while respecting cultural diversity.

> … is a lifelong learning process and an integral part of quality education that enhances cognitive, social and emotional and behavioural dimensions of learning.

> … is holistic and transformational and encompasses learning content and outcomes, pedagogy and the learning environment itself.

> … is recognised as a key enabler of all SDGs and achieves its purpose by transforming society (UNESCO, 2020, p.8.).

Of the six jurisdictions included in this desk research, Australia, Japan, New Zealand, and Scotland include some form of definition of ESD in a strategy document, curriculum document, action plan, or policy statement for ESD. Table 1 summarises these definitions and the documents they originate from.

Table 1: Definitions of ESD. What is Education for Sustainable Development?

Jurisdiction	Source document	Definition
Australia	Overview statement for the Sustainability cross-curriculum priority under the revised Australian Curriculum, to be introduced in 2022 (ACARA, 2021b, p.3)	Sustainability addresses the ongoing capacity of Earth to maintain all life. Sustainable patterns of living seek to meet the needs of the present generation without compromising the ability of future generations to meet their needs. Actions to improve sustainability may be individual or collective endeavours shared across local, national and global communities. They necessitate a balanced approach to the way humans interact with each other and the environment; they should reflect values of care, respect and responsibility, and require individuals and communities to recognise, adapt to, and manage change.
Japan	Ministry of Education, Culture, Sports, Science and Technology (MEXT), Education for Sustainable Development webpage	MEXT defines ESD as 'education that fosters the builders of a sustainable society'. It involves learning and educational activities that develop alternative values and transformative actions to realise a sustainable society, and ensure that humankind is able to secure an abundant life for future generations.
New Zealand	Environmental Education for Sustainability Strategy and Action Plan 2017-2021 (New Zealand Department of Conservation, 2017, p.3)	Defines Environmental Education for Sustainability (EEfS) as more than communicating information about the environment and the ways in which it is currently threatened by human activity. EEfS helps individuals and communities to grow their understanding, skills and motivation to work together to develop solutions, act as guardians/protectors of the environment, and advocate for a healthy environment and society. It empowers individuals and communities to make decisions that are relevant to them and is a holistic approach to creating a nation of innovative and motivated people who think and act sustainably.

As well as developing practical skills and scientific understanding, EEfS incorporates a strong human element, including respecting a diversity of perspectives, reducing inequality and promoting cooperative effort. |

Jurisdiction	Source document	Definition
New Zealand (Cont.)	The guidelines for Environmental Education for Sustainability (EEfS) in *Te Whāriki* (the early childhood curriculum, 0-5)	Define EEfS as going beyond caring for the environment and focusing on the global social, cultural, and economic wellbeing of all people and the planet, and the biodiversity that relies upon it. It encompasses an overlapping matrix of global citizenship, democracy, and the environment.
	The New Zealand Curriculum Online (5-18)	Defines Education for Sustainability (EfS) as about learning to think and act in ways that will safeguard the future wellbeing of people and our planet.
Scotland	How Good is Our School? (Education Scotland, 2015, p.59)	In this, the framework for school self-evaluation, Education Scotland defines Learning for Sustainability (LfS) as an approach to life and learning which enables learners, educators, schools and their wider communities to build a socially-just, sustainable and equitable society. An effective whole school and community approach to LfS is one which weaves together global citizenship, sustainable development education and outdoor learning to create coherent, rewarding and transformative learning experiences.
	Learning for Sustainability Action Plan (Education Scotland, 2019b, p.1)	Defines LfS as a cross-curricular approach to creating coherent, rewarding and transformative learning experiences, and enabling learners, educators, schools and their wider communities to build a socially-just, sustainable and equitable society.

In Sweden, although there is no distinct definition of ESD set out in a policy document or strategy, the concept of sustainable development originates from the guiding principles of the Brundtland report (United Nations, 1987), which define sustainable development as development that meets today's needs without jeopardising the ability of future generations to meet theirs. The Swedish concept of ESD also relates to the United Nations 2030 Agenda for Sustainable Development and its three dimensions of sustainable development – the economic, the social and the environmental.

3. Visions, goals, aims and priorities for ESD

The UNESCO [Roadmap for Education for Sustainable Development](#) (the strategy for ESD 2020-2030) focuses on Sustainable Development Goal 4 (SDG 4) on Quality Education, and specifically on target 4.7:

> **By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.**
>
> **UNESCO, 2020, p. 14**

The Roadmap goal is to build a more just and sustainable world through strengthening ESD and contributing to the achievement of the 17 SDGs. Its objectives are to:

> **Integrate ESD and the 17 SDGs into policies, learning environments, capacity building of educators, the empowerment and mobilisation of young people, and local level action.**
>
> **Promote the integration of sustainable development and the SDGs into education and learning, as well as ensuring the integration of education and learning into all activities that promote sustainable development and the SDGs.**
>
> **UNESCO, 2020, pp.14-15.**

The six jurisdictions included in this study reflect SDG target 4.7 and the goal and objectives of the UNESCO Roadmap in a range of ways in their national strategies and action plans for sustainable development. Table 2 provides a summary of the visions, goals, aims and priorities for ESD as set out in these documents. For purposes of comparison, it includes the objective included in the National Strategy for ESD in Ireland 2014-2020 (DES, 2014). This is in the process of being reviewed as part of work on a second national strategy.

Table 2: Visions, goals, aims and priorities for ESD

Jurisdiction	Source document	Vision, goals and aims
Ireland	National Strategy for ESD (DES, 2014)	Aims to ensure that education contributes to sustainable development by equipping learners with the relevant knowledge (the 'what'), the key dispositions and skills (the 'how') and the values (the 'why') that will motivate and empower them throughout their lives to become informed active citizens who take action for a more sustainable future (p.3).
Australia	Strategy for Nature 2019-2030 (Australia's Nature Hub, 2019)	Incorporates the vision for Australia's nature, now and into the future, to be healthy and resilient to threats, understood, and valued both in its own right and for its essential contribution to health, wellbeing, prosperity and quality of life (p.2). The three national goals of the strategy are 1) connecting all Australians with nature, 2) caring for nature in all its diversity, 3) sharing and building knowledge.
	Overview statement for the Sustainability cross-curriculum priority under the revised Australian Curriculum, to be introduced in 2022 (ACARA, 2021b)	The Sustainability cross-curriculum priority aims to develop the knowledge, skills, values and worldviews necessary for people to act in ways that contribute to a sustainable future. Designing solutions and actions for a sustainable future requires an understanding of the ways environmental, social and economic systems interact, and an ability to make balanced judgements based on present and future impacts. It is futures-oriented, aiming to encourage students to reflect on how they interpret and engage with the world and to support them to take informed action to create a more environmentally and socially just world.
Denmark	Strategy for Education for Sustainable Development (Danish Ministry of Education, 2009)	Aims to ensure that children, young people and adults become aware of the concept of sustainable development and learn how to act competently through knowledge and skills. Set the goal to introduce sustainable development in all relevant curricula in basic education, youth education and teacher training to establish a link between natural and social sciences and humanities (p.3). Aims to ensure that knowledge for ESD is disseminated and utilised in practice at all educational levels in the formal education system, and in non-formal and informal learning environments, and to strengthen the population's understanding, engagement and knowledge regarding the concept of sustainable development that simultaneously incorporates the interrelationship between economic, social, political and cultural elements (p.11).

Jurisdiction	Source document	Vision, goals and aims
Japan	[Third Basic Plan for the Promotion of Education](#) (MEXT, 2018)	Aims to support better opportunities for all people through education, and sets targets to help students develop the skills to achieve their potential and lead the sustainable development of society. Sustainable development runs throughout the plan's five priorities for the period 2018-2023. The plan aims to 'foster diversified abilities to lead the sustainable development of society', and targets to be achieved in the five years from 2018 include to develop individuals who can act globally, and to promote learning for the improvement of people's lives and the sustainable development of society. The Ministry of Education, Culture, Sports, Science and Technology ([MEXT](#)) also sets as a goal that ESD will develop 'the builders of a sustainable society', by including learning and educational activities that will develop alternative values and transformative actions that lead to problem-solving and the realisation of a sustainable society, and develop young people who think globally and act locally to ensure that humankind is able to secure an abundant life for future generations.
	[Guide to Promoting Education for Sustainable Development](#) (MEXT, 2016)	This Ministry guidance states that ESD aims to solve global issues, and that learning in school classrooms aims to support sustainable development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It describes ESD as involving learning and activities based on an approach of thinking globally and acting locally, aiming to develop new values and behaviours that will lead to solutions to the issues facing contemporary society, and, in turn, to the creation of a sustainable society. ESD aims to develop a sense of compassion for the environment, for others, and for society as a whole. It involves enabling learners to go on to build a sustainable society, and it aims to develop the values and competencies to take action needed to do this.

Jurisdiction	Source document	Vision, goals and aims
New Zealand	Environmental Education for Sustainability Strategy and Action Plan 2017-2021 (New Zealand Department of Conservation, 2017)	Has as its vision that 'all New Zealanders value a connection to their environment by actively working together for a sustainable future' (p.7). Aims to ensure that young people are equipped with the understanding, skills and motivation to help address New Zealand's many environmental challenges, and to help all New Zealanders learn how they can take action to address the sustainability challenges they face locally and globally. Identifies education's critical role in Environmental Education for Sustainability (EEfS) as strengthening the ability of individuals and communities to positively influence the environment and society; informing choices, action and innovation to enable individuals to contribute to redesigning how we live and work, and in developing an economy that is based on sustainability and a thriving environment; and enabling growing generations of New Zealanders to understand environmental issues and actively contribute to a healthy, sustainable and positive future for all. Reflects the need to learn how to live smarter to reduce the impact on the environment and ensure the wellbeing of current and future generations. Is based on five guiding principles – growing knowledge skills and understanding; sharing values; taking collective action; thinking for the future; adopting a uniquely New Zealand perspective. Sets out priority actions for government agencies towards the goal that all New Zealanders value a connection to their environment by actively working together towards a sustainable future, and aims to support the delivery of high-quality EEfS across New Zealand. Focuses on three priority areas to guide government efforts from 2017-2027: enabling coordination of EEfS, growing capability and capacity in EEfS delivery, and strengthening pathways in sustainable practice.
Scotland	Learning for Sustainability Action Plan (Education Scotland, 2019b)	Confirms the vision for Learning for Sustainability (LfS) in Scotland[3] as, to ensure, through a strategic national approach to supporting LfS, that all learners have an entitlement to LfS; all practitioners demonstrate LfS in their practice; all schools have a whole-school approach to LfS; and all school buildings, grounds and policies support LfS.

[3] This vision originates from the strategic recommendations from the Learning for Sustainability Report (2012) and is set out in the Vision 2030+ report (Education Scotland, 2016).

Jurisdiction	Source document	Vision, goals and aims
Sweden	Sweden's environmental objectives (Swedish Environmental Protection Agency, 2018)	Establish the overall goal of environmental policy as being to hand over to the next generation a society in which the major environmental problems have been solved, without increasing environmental and health problems outside Sweden's borders. This is the generational goal which serves to guide environmental action in Sweden. It focuses environmental efforts on recovery of ecosystems, conserving biodiversity and the natural and cultural environment, good human health, efficient material cycles free from dangerous substances, sustainable use of natural resources, efficient energy use, and sustainable patterns of consumption.
	Vision for Education for Sustainable Development (Government Offices of Sweden, 2021)	The Swedish Ministry of Education and Research's vision for ESD (set out in a factsheet which reflects the priorities of the United Nations 2030 Agenda) states that, to ensure lifelong learning for sustainable development, and achieve a transition to a sustainable society, ESD must be a fundamental part of formal, informal and non-formal education. Its vision is for ESD to lay the foundation for active participation in civic life by explaining how society's different functions and people's ways of living can adapt to promote sustainable development.

Where jurisdictions don't have a specific national plan or strategy for ESD (Australia, Japan, Sweden), there is more than one top-level framework or guidance document to facilitate the interpretation and application of the vision, aims and priorities for sustainable development at the local/school level. In Australia, for example, the broad national strategy for nature links to education via a curriculum requirement for the inclusion of Sustainability as a cross-curriculum priority (for 5- to 16-year-olds), and a supporting curriculum guidance document. In Japan, the top-level aims and priorities for ESD, as set out in the Basic Plan for the Promotion of Education, are "translated" via the Guide to Promoting ESD for Schools, published to facilitate ESD taking a more thorough 'hold in school classrooms' (MEXT, 2016, p.2).

Common threads and nuances in the definitions, visions, goals, aims and priorities for ESD

Figures 1 and 2 below highlight the common threads (Figure 1) and some of the nuances (Figure 2) of the underpinning principles for ESD in the six jurisdictions, as expressed in the definitions, visions, goals, aims and priorities for ESD.

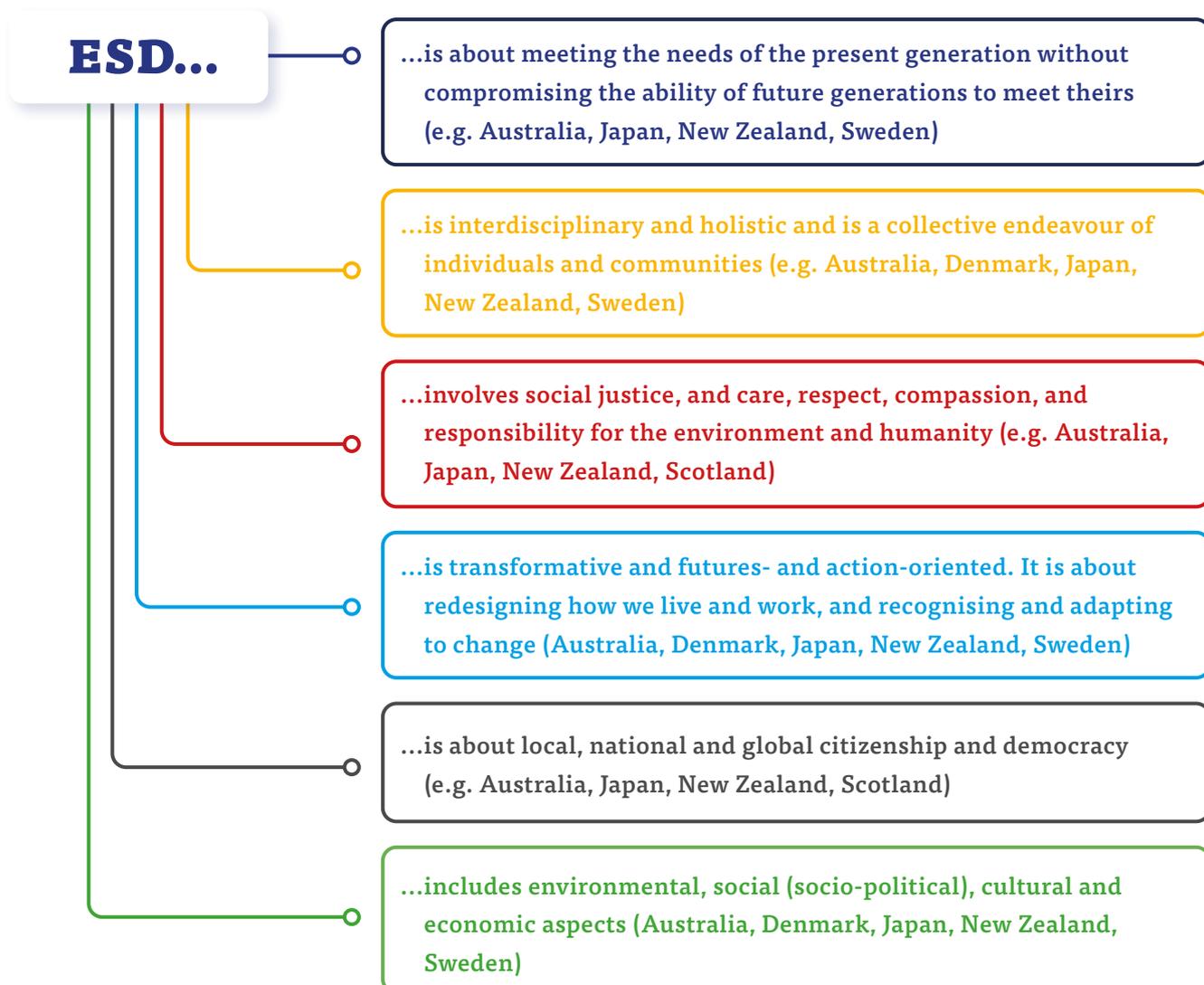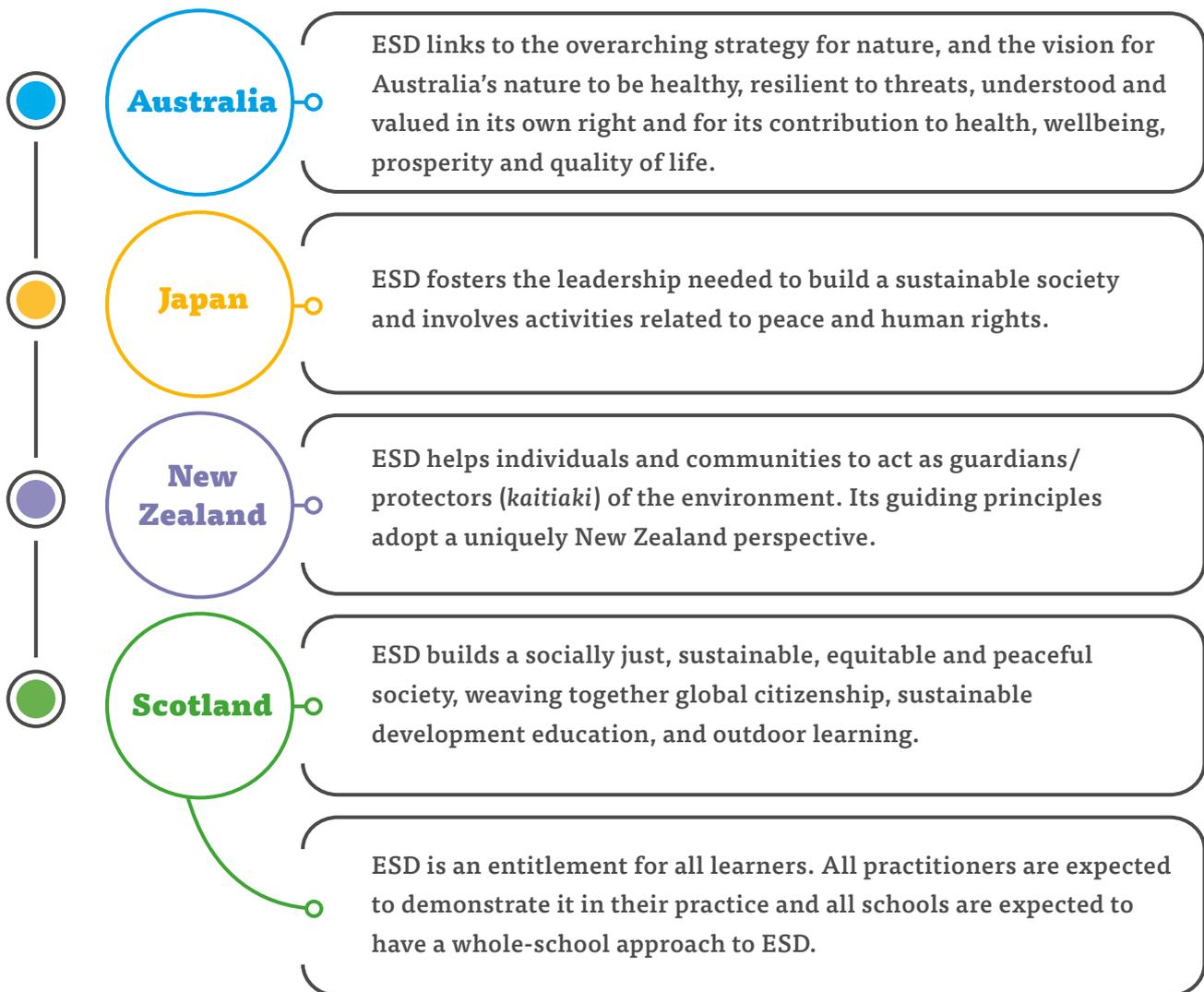**Figure 1: Common threads in the underpinning principles for ESD**

ESD...

...is about meeting the needs of the present generation without compromising the ability of future generations to meet theirs (e.g. Australia, Japan, New Zealand, Sweden)

...is interdisciplinary and holistic and is a collective endeavour of individuals and communities (e.g. Australia, Denmark, Japan, New Zealand, Sweden)

...involves social justice, and care, respect, compassion, and responsibility for the environment and humanity (e.g. Australia, Japan, New Zealand, Scotland)

...is transformative and futures- and action-oriented. It is about redesigning how we live and work, and recognising and adapting to change (Australia, Denmark, Japan, New Zealand, Sweden)

...is about local, national and global citizenship and democracy (e.g. Australia, Japan, New Zealand, Scotland)

...includes environmental, social (socio-political), cultural and economic aspects (Australia, Denmark, Japan, New Zealand, Sweden)

Figure 2: Key nuances in the principles for ESD

Australia
ESD links to the overarching strategy for nature, and the vision for Australia's nature to be healthy, resilient to threats, understood and valued in its own right and for its contribution to health, wellbeing, prosperity and quality of life.

Japan
ESD fosters the leadership needed to build a sustainable society and involves activities related to peace and human rights.

New Zealand
ESD helps individuals and communities to act as guardians/protectors (*kaitiaki*) of the environment. Its guiding principles adopt a uniquely New Zealand perspective.

Scotland
ESD builds a socially just, sustainable, equitable and peaceful society, weaving together global citizenship, sustainable development education, and outdoor learning.

ESD is an entitlement for all learners. All practitioners are expected to demonstrate it in their practice and all schools are expected to have a whole-school approach to ESD.

The Brundtland principle (United Nations, 1987) – of sustainable development as development that meets today's needs without jeopardising the ability of future generations to meet theirs – is a key theme in the definitions, visions, aims and priorities for ESD in Australia, Japan, New Zealand, and Sweden. There is also a focus on ESD incorporating the UN's three key pillars of sustainable development – the economic, social and environmental in Australia, Denmark, Japan, New Zealand and Sweden, and the importance of the cultural perspective within these pillars is a particular feature in Denmark, Japan, New Zealand, and Sweden.

The importance of local, national and global citizenship and democracy is a feature of the visions and principles for ESD in Australia, Japan, New Zealand and Scotland. In Australia, Denmark, Japan, New Zealand and Sweden, there is also a focus on ESD being futures- and action-oriented, so that teaching and learning enables young people to take informed action and achieve the goal set out in the UNESCO Roadmap of their mobilisation and empowerment.

In Australia, where ESD is closely linked to the national strategy for nature, there is particular emphasis on equity and social justice in the aims and priorities for ESD. These are important principles in Scotland also, which is unique among the jurisdictions in establishing ESD as an entitlement for all learners. In Japan, developing the leadership to build a sustainable society is core to the vision for ESD, while in New Zealand the national strategy emphasises the country's unique perspective as an island and Maori nation in which individuals and communities act as guardians (protectors) of the environment (*kaitiaki*).

4. Place of ESD in the curriculum

Across the six jurisdictions, Education for Sustainable Development is included in curriculum frameworks in a variety of ways. It can, for example, be a cross-curriculum theme or priority intended to be integrated in all subjects; a specific requirement within attainment targets, or within core content and knowledge requirements for individual curriculum subjects or qualifications; an interdisciplinary topic or theme; an underpinning curriculum aim or principle; or part of a whole-school approach to sustainability.

Table 3 summarises how ESD is incorporated in the curriculum. The colour-coding/shading differentiates the various types of arrangement and emphasises that there is no one way of incorporating ESD in any of the jurisdictions.

Scotland is the only one of the six jurisdictions to describe ESD as an 'entitlement' for all learners.

Key to shading

Blue	ESD is embedded within individual subject/learning area requirements	
Green	ESD is a cross-curricular theme/priority, intended to be integrated within the teaching of all subjects	
Pink	ESD is incorporated within qualification specifications	
Gold	ESD is an underpinning curriculum aim	
Orange	ESD is taught through interdisciplinary themes	
Purple	ESD is part of a whole-school approach to sustainability	
White	ESD is an entitlement for all learners	

Table 3: Place of ESD in the curriculum

Jurisdiction	Curriculum document/framework	Place of ESD in the curriculum
Australia	Early Years Learning Framework (ages 0-5)	Sustainability is embedded within Outcome 2 of 5 Outcomes: Children are connected with and contribute to their world.
	F-10 Australian Curriculum (Foundation to Year 10 Curriculum, ages 5-16)	Sustainability is 1 of 3 cross-curriculum priorities[4] which are intended to be addressed through each of the 8 individual learning areas[5] of the F-10 Curriculum.
	Senior secondary curriculum (ages 16-18)	Sustainability is integrated within the content descriptions for some of the 15 senior secondary subjects (across English, mathematics, science, history and geography), which have been endorsed as the common base for the development of senior secondary courses.
	Senior secondary qualifications (ages 16-18)	Sustainability may also be incorporated in the specifications (syllabuses) for individual subjects which students may choose to study to contribute towards their senior secondary leaving certificate (e.g. the Queensland Certificate of Education (QCE), the Victorian Certificate of Education (VCE), or the Higher School Certificate, HSC). In Queensland, for example, global climate change is a key component of the senior syllabus for Earth and Environmental Science, which students can study to contribute towards the QCE.

[4] The others are Aboriginal and Torres Strait Islander Histories and Cultures, and Asia and Australia's Engagement with Asia.

[5] English; mathematics; science; humanities and social sciences; the arts; technologies; health and physical education; languages.

Jurisdiction	Curriculum document/ framework	Place of ESD in the curriculum
Denmark[6]	Curriculum framework for ECEC settings (ages 0-6)	ESD is incorporated within theme 5 of 6 curriculum themes in the Strengthened Pedagogical Curriculum for ECEC settings: nature, outdoor life and natural phenomena/science.
	The *Fælles mål* (common objectives) for the individual subjects in compulsory primary and secondary education (ages 6-16), and individual subject/ course requirements in the senior secondary curriculum (ages 16-18/19)	ESD is incorporated within the requirements for individual subjects, including social studies, sciences, nature/technology, and geography in compulsory phase education, and sciences, social studies and geography in the senior secondary phase.
		ESD is an underpinning curriculum aim. Teaching is intended to familiarise pupils with Danish culture and history, give them an understanding of other countries and cultures, and contribute to their understanding of our interaction with nature.
		Pupils are also intended to have the opportunity to develop knowledge and skills through the teaching of interdisciplinary subjects or themes, which may include ESD.
Japan	Course of study for kindergarten[7] (ages 3-6)	The environment is one of 5 interrelated content requirements (health, human relationships, environment, language, expression).
	Courses of study for elementary school (ages 6-12), junior high school (ages 12-15), and senior high school (ages 15-18)	ESD is incorporated within the requirements for individual compulsory subjects (e.g. living environment studies, ages 6-8; science, age 8+; social studies).
		ESD is intended to be integrated within the teaching of all subjects.
		ESD is taught through a cross-disciplinary/thematic approach, e.g. in the period for integrated studies.
		ESD is part of a whole-school approach to sustainability.

[6] The curriculum guidelines are recommendations which are not mandatory for local education authorities, schools or ECEC settings. Most schools do, however, make use of the curriculum guidelines issued by the Ministry in developing their curricula.

[7] The revised (2017) course of study which began to be implemented from 2018 is not yet available in English. It is available in Japanese here: https://www.mext.go.jp/a_menu/shotou/new-cs/1384661.htm

Jurisdiction	Curriculum document/ framework	Place of ESD in the curriculum
New Zealand	*Te Whāriki* – the Early Childhood Curriculum (ages 0-5)	Environmental Education for Sustainability (EEfS) is integral to 1 of 5 interrelated curriculum strands, that of 'Belonging' (*Mana whenua*).
		EEfS is also integral to the 4 principles of *Te Whāriki* (empowerment, holistic development, family and community, relationships).
	The New Zealand Curriculum (ages 5-18)	Education for Sustainability (EfS) is integral to the vision, principles, values, and key competencies underpinning The New Zealand Curriculum.
		EfS is intended to be taught across all subjects/integrated within the teaching of all subjects and taught collaboratively by all teachers.
		It is also a specific requirement of the achievement objectives in some learning areas, e.g. the social sciences, sciences, health and physical education (HPE), and technology. (Other learning areas, e.g. mathematics and statistics, can provide relevant themes and contexts for learning in ESD.)
		EfS is part of a whole-school approach to sustainability.
	National Certificate of Educational Achievement (NCEA) (ages 15-18)	Subjects studied in senior secondary education are also determined by students' pathways towards the NCEA, the upper secondary leaving qualification. There are a range of NCEA achievement standards for EfS.
Scotland	Curriculum for Excellence (CfE) (ages 3-18)	Learning for Sustainability (LfS) is an entitlement for all learners.
		It is also part of a whole-school approach to sustainability.
		LfS is a cross-curricular theme, intended to be developed and integrated throughout learning.
		LfS is integral to the four capacities of Curriculum for Excellence (successful learners, confident individuals, responsible citizens, effective contributors).
		It may also be a requirement within the Experiences and Outcomes[8] for some of the 8 individual curriculum areas (e.g health and wellbeing, science, social studies, technologies).
	National Qualifications (ages 15-18)	In the senior secondary phase, students take National Qualifications in individual subjects. Some incorporate specific requirements for LfS, e.g. qualifications in environmental science, and design and technology.

[8] The Experiences and Outcomes (E&Os) are a set of statements on children's learning and progression in each curriculum area across the CfE levels from ages 3 to 15.

Jurisdiction	Curriculum document/framework	Place of ESD in the curriculum
Sweden[9]	Curriculum for the Preschool (ages 0-6) Curriculum for the Compulsory School, Preschool Class and School-age Educare (ages 6-16) Curriculum for the Upper Secondary School (ages 16-19)	ESD is incorporated within the fundamental values and tasks of preschools and schools, and within the overall goals and aims as set out in the curriculum frameworks for the three phases of education.
		In the compulsory preschool class (ages 6-7), ESD is embedded within 2 of 5 areas of core content (nature, technology and society; games, physical activities and outdoor excursions).
		In Years 1-9, ages 7-16, ESD is a core content and knowledge requirement within some individual subjects (e.g. home and consumer studies, sciences, social studies, civics).
		ESD is also intended to be integrated throughout the teaching of all subjects.
		At upper secondary level, ages 16-19, ESD features within the individual subject requirements in some of the 18 national programmes (e.g. social sciences, natural sciences, technology, building and construction, nature management, vehicles and transport) (students are on 1 of the 18 programmes).

In the early years, ESD in Australia, Denmark, Japan and New Zealand is embedded within at least one of the interrelated outcomes, themes, content requirements or strands of the curriculum. In New Zealand, it is also intended as a platform for cross-domain knowledge in maths, literacy and science. This can happen, for example, through activities such as kindergarten children designing and building a robot sculpture from recycled materials, or children beginning to develop a scientific understanding of ways of protecting the Earth's natural resources.

[9] Similar to Denmark, schools have a large degree of freedom to interpret and implement the curriculum.

ESD in curriculum vision, values and aims

Where ESD underpins the fundamental vision, aims, values, principles or key competencies of the curriculum (in Denmark, New Zealand, Scotland and Sweden), this can be in a range of ways. In New Zealand, for example, the vision for The New Zealand Curriculum includes enabling young people to secure a sustainable social, cultural, economic, and environmental future for New Zealand; to be able to relate well to others, connect to the land and environment, and be members of communities; and to participate in a range of life contexts and contribute to the wellbeing of New Zealand – socially, culturally, economically, and environmentally. 'Future focus' is also one of the eight principles of The New Zealand Curriculum, which form the foundations for curriculum decision-making in schools. This calls for schools to deliver a curriculum that explores future-focused issues including sustainability, citizenship, enterprise and education, and encourages students to recognise that they have a stake in the future and a role and responsibility to help shape it.

In Scotland, the four capacities of Curriculum for Excellence (CfE) (3- to 18-year-olds) – successful learners, confident individuals, responsible citizens, and effective contributors – are the capacities that CfE aims to develop in children and young people. ESD is embedded within them. Responsible citizens, for example, have respect for others and commit to participate responsibly in political, economic, social and cultural life; are able to develop knowledge and understanding of the world and Scotland's place in it; understand different beliefs and cultures; make informed choices and decisions; evaluate environmental, scientific and technological issues; and develop informed, ethical views of complex issues. The four capacities also sit within the individual curriculum areas of CfE[10]. The technologies develop responsible citizens, for example, by enabling understanding of the role of technologies in changing and influencing societies, and enabling children and young people to engage with questions relating to the environment, sustainable development and ethics. Social studies develops effective contributors by developing students' investigative, creative and critical thinking; enabling them to gain an understanding of Scotland's contribution to a sustainable global economy; and challenging them to consider how they can contribute to the wellbeing of society as active participants in civic society.

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[10] There are 8: expressive arts, health and wellbeing, languages, mathematics, religious and moral education, science, social studies, and technologies.

ESD as a cross-curriculum priority

ESD (Learning for Sustainability, LfS) is described as a cross-curricular theme or approach in Scotland, alongside literacy, numeracy, health and wellbeing, and digital literacy. These are the cross-curricular themes for which all teachers have responsibility. Themes including enterprise, citizenship, international education, and creativity are also expected to be developed within curriculum contexts in Scotland. In Japan, where cross-curricular subjects include ESD (the environment/environmental education), international understanding, information education, and health and welfare, it is intended, as in New Zealand and Sweden also, that ESD is integrated throughout the teaching of all subjects.

Figure 3 (below) depicts how ESD (Sustainability) sits as a cross-curriculum priority in Australia, where it is one of three such priorities, alongside Aboriginal and Torres Strait Islander Histories and Cultures, and Asia and Australia's Engagement with Asia. Opportunities to develop Sustainability, and the other cross-curriculum priorities, within the individual learning areas of the F-10 Australian Curriculum (ages 5-16) are highlighted in the online curriculum documents. The Sustainability cross-curriculum priority is identified through a leaf icon in the curriculum content descriptions, and in the content elaborations (intended to give teachers ideas about how they might teach the content).

Research suggests, however, that the incorporation of Sustainability as a cross-curriculum priority within individual learning areas of the F-10 Australian Curriculum may have little impact on practice. It appears to rarely be included within the core content areas of English, history, mathematics and science, for example (UNESCO, 2021c, p.22), and is described as 'neglected', in particular because of an 'overcrowded curriculum and excessive extra-curricular activities' (p.27). Decluttering the curriculum, that is improving it by refining, realigning and reducing existing content, is one of the aims of an ongoing review of the F-10 Curriculum. This includes by improving the relationship of the cross-curriculum priorities to the content of the individual learning areas, so that teachers can focus on teaching essential content, e.g. by only including in the curriculum documents authentic illustrations of how the cross-curriculum priorities can support the teaching and learning of learning area content.

Figure 3: Sustainability as a cross-curriculum priority in Australia

Three
Cross-curriculum
Priorities
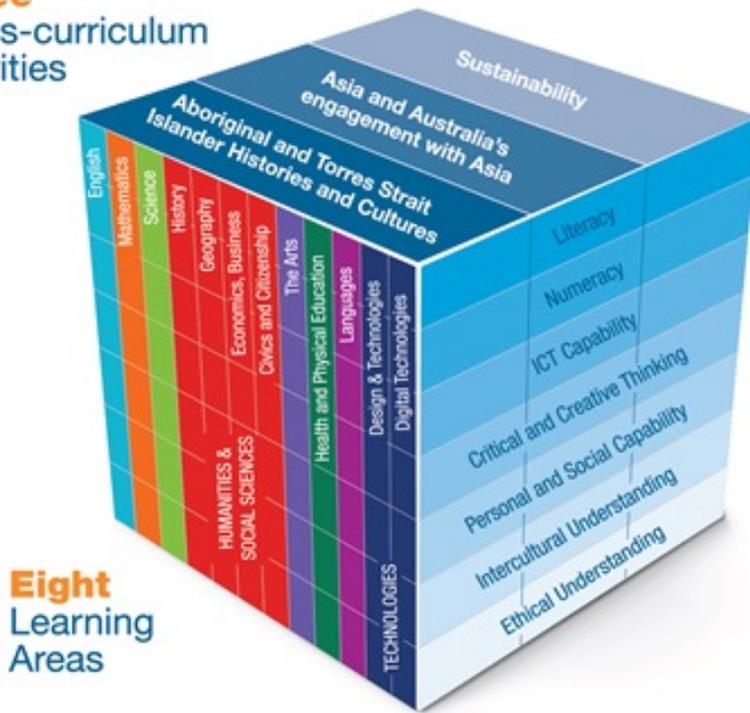
Eight
Learning
Areas

Seven
General
Capabilities

Continuity and progression

It is a general aim in all six jurisdictions included in the audit to ensure continuity and progression throughout learning, e.g. by ensuring a similar organisation and structure across the three curriculum documents for the three separate phases in Sweden, or by explicitly presenting curriculum requirements as a progression of learning, as in the Experiences and Outcomes (E&Os) and the Benchmarks of Curriculum for Excellence in Scotland. There are also examples of intentions to ensure that these general aims for curriculum continuity apply specifically to ESD.

In Sweden, for example, the fundamental values and aims, tasks, and overall goals and guidelines for the preschool, compulsory preschool class, compulsory school, and upper secondary school in relation to sustainable development (as set out in the three curriculum documents[11]) are similar, with a view to supporting continuity and progression.

Japan looks to ensure continuity in the teaching and learning of ESD, in particular, by recommending that the same pedagogies are used in each phase of education. These include active, experiential, student-initiated learning, with a focus on problem-solving to develop a sense of curiosity, a respect for life, a spirit of social responsibility, and an inquisitive mind. In New Zealand also, the importance of pedagogies based on action competence and children and young people taking part in investigative/experiential learning applies throughout the phases of education, as does the focus on the three key aspects of ESD (environmental, socio-cultural/political, economic).

In addition, the New Zealand Ministry of Education has developed a table (*Development of the Key Competencies Through Experiences in Education for Sustainability*), available at the bottom of the webpage here. This shows how the key competencies of The New Zealand Curriculum can be developed through experiences in ESD across the continuum from early childhood (ages 0-5), through Years 1–13 (ages 5-18), to tertiary education. The Ministry has also developed learning objectives for Education for Sustainability, which are intended to indicate the progression in learning that teachers might expect to see across curriculum Levels 7 and 8 (ages 15 to 18). Achievement standards and National Certificate of Educational Achievement (NCEA) qualifications in Education for Sustainability are also intended to provide coherence in linking learning for transition from primary to secondary education and further learning.

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[11] For the Preschool (Lpfö 18), the Compulsory School, Preschool Class and School-age Educare, and the Upper Secondary School

5. Curriculum content, skills and competencies for ESD

Education for Sustainable Development (ESD) is known as such in the curriculum in Denmark, Japan and Sweden. Different terminology is used in Australia, New Zealand and Scotland (Figure 4). In New Zealand, Environmental Education for Sustainability (EEfS) is the term used in the overarching strategy and action plan (New Zealand Department of Conservation, 2017), and in *Te Whāriki* – the early childhood curriculum. Education for Sustainability (EfS) is the term used in The New Zealand Curriculum (for ages 5-18). In Australia, ESD is mostly known as 'Sustainability', although sometimes as 'Education for Sustainability'.

Figure 4: Curriculum descriptors for ESD

Denmark: Education for Sustainable Development (ESD)

Japan: Education for Sustainable Development (ESD)

Sweden: Education for Sustainable Development (ESD)

Australia: Sustainability (Education for Sustainability)

New Zealand: Environmental Education for Sustainability (EEfS)/ Education for Sustainability (EfS)

Scotland: Learning for Sustainability (LfS)

Curriculum content, skills and competencies in the early years

In the early years, curriculum content in the five jurisdictions with an early years curriculum framework (Australia, Denmark, Japan, New Zealand and Sweden) is intended to be integrated so that, from the young child's perspective, it does not appear as fragmented subject areas or themes. As summarised in Table 3 above, ESD is incorporated within the learning outcomes (Australia), themes (Denmark), content requirements (Japan), strands (New Zealand), and fundamental values, tasks and learning goals (Sweden) of the frameworks. There is no separate early years curriculum framework in Scotland, where the curriculum for early learning and childcare is incorporated within Curriculum for Excellence (CfE) (3- to 18-year-olds).

In Australia, the learning outcomes of the Early Years Learning Framework are defined as the skills, knowledge or dispositions that educators can actively promote for 0- to 5-year-olds, and the framework is intended as a guide, providing general goals or outcomes for young children's learning and how they might be attained. The framework is also intended as a scaffold to assist early childhood settings to develop their own, more detailed curriculum. Learning outcome 2: 'children are connected with and contribute to their world' relates to young children beginning to develop a sense of belonging to groups and communities; an understanding of the reciprocal rights and responsibilities necessary for active community participation and of diversity, respect and fairness; and an understanding of social responsibility and respect for the environment.

In Japan, where the course of study for kindergarten[12] includes the environment as one of five inter-related content requirements, knowledge is intended to foster children's ability to relate to the environment with curiosity and inquisition, and to incorporate this into their daily life. In Sweden, the concept of sustainable development was introduced in the revised Curriculum for the Preschool (2018), implemented in 2019, because of its importance for the future. It is included in the underpinning fundamental values of the curriculum for the preschool, in the overarching 'task of the preschool', and in the preschool curriculum goals.

Table 4 summarises the content, skills and competencies for ESD included in the various early years frameworks. Although expressed differently across the individual jurisdictions, it highlights, through colour-coding, some of the similarities in curriculum content in this phase. This includes content relating to **human impact** on the environment; the **interconnection between/ interdependence of** humankind and the environment; and the importance of **care and respect** for the environment. It also highlights commonalities in the skills and competencies in ESD which young children begin to acquire during this phase. These include the ability to notice and respond to **change**; the development of a **curious mind** (more precisely defined in Australia as exploring, inferring, predicting and hypothesising); beginning to recognise **rules and codes/rights and responsibilities/limits and boundaries**; and beginning to understand the importance of **active participation** in society and **social responsibility** and **citizenship**.

In New Zealand, EEfS emphasises sustainability, climate change, critical thinking, identity, community, and the importance of young children beginning to develop an understanding of the Maori principle of guardianship/stewardship, protection and preservation (*kaitiakitanga*), and of the attitudes and dispositions needed to think and act as guardians of the environment. In Sweden, preschool education is specifically intended to be characterised by a positive belief in the future; Denmark expects learning about sustainability during this phase to include an emphasis on recycling (building, reusing and repairing); while in Japan there is a particular focus on developing young children's attachment and awe in relation to the grandeur, beauty and **wonder** of the environment.

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[12] The revised (2017) course of study which began to be implemented from 2018 is not yet available in English. It is available in Japanese here: https://www.mext.go.jp/a_menu/shotou/new-cs/1384661.htm

Table 4: Curriculum content, skills and competencies in the early years

Australia	Learning Outcome 2 of 5 Children are connected with and contribute to their world	**4 components:** 1. Children develop a sense of belonging to groups and communities and an understanding of the reciprocal rights and responsibilities necessary for **active community participation**. 2. Children respond to diversity with **respect**. 3. Children become aware of fairness. 4. Children become **socially responsible** and show **respect** for the environment.
		Children develop key component 4 by:
		• demonstrating an increasing knowledge of and **respect** for natural and constructed environments • **exploring, infering, predicting and hypothesising** in order to develop an increased understanding of the **interdependence** between land, people, plants and animals • showing growing **appreciation** and **care** for natural and constructed environments • exploring relationships with other living and non-living things and observing, noticing and responding to **change** • developing an awareness of the **impact of human activity** on environments and the **interdependence** of living things.
Denmark	Theme 5 of 6 Nature, outdoor and life science	Knowledge about nature concerns **human impact** on and interaction with nature, e.g. environmental issues and issues related to sustainability and exploiting nature's resources. The learning environment should offer an opportunity for children to consider their own interaction with nature and its resources, and to learn that sustainability is also about building, reusing and repairing using various tools, techniques and materials, either natural or man-made. It is an objective of the curriculum framework for ECEC that the learning environment supports children to gain experience with nature that arouses their **curiosity** and their desire to explore nature; enables them to experience human **connectedness** with nature; and provides them with an early-stage understanding of the importance of sustainable development.

Japan	The environment is 1 of 5 inter-related content requirements	Content knowledge related to the 'environment' aims to support children to develop an interest in and **curiosity** about the things and experiences around them, through a sense of familiarity with their surrounding environment and contact with nature; to initiate interaction with their surrounding environment and to enjoy making and **discovering new things** and incorporating them into their lives; and to enrich their understanding of the nature of things. It includes experiences that enable young children to:

- lead a life close to nature and become aware of its grandeur, beauty and **wonder**

- become aware of **changes** in nature and in people's lives in accordance with the seasons

- acknowledge the importance of life, and appreciate and **respect** it by becoming familiar with animals and plants living in the surrounding area

- treat their surroundings with **care**.

Teachers are encouraged to place importance on teaching and learning processes that enable children to learn to think for themselves, develop **curiosity** about their surroundings, recognise **rules and codes**, and **generate new ideas**; and to incorporate teaching and learning experiences that enable children to deepen their relationship with nature and develop a sense of **attachment and awe**, a respect for life, a spirit of **social responsibility**, and an **inquisitive mind**.

New Zealand	Strand 2 of 5 Belonging / *Mana whenua*	The goals for Belonging are that children and their families experience an environment where links with the family and the wider world are affirmed and extended; they know that they have a place; they feel comfortable with routines, customs and regular events; and they know the **limits and boundaries** of acceptable behaviour. The outcomes for Belonging are that young children become increasingly capable of:

- making **connections** between people, places and things in their world

- taking part in **caring** for this place

- understanding how things work here and adapting to **change**

- showing **respect** for **values/principles, rules and the rights of others**.

New Zealand **(Continued)**		EEfS content in *Te Whāriki* is also intended to enable young children to begin to develop the skills of: • **action competence** – through problem-solving and taking action with a shared vision for improvement of the environment • identity – an environmental or ecological identity to determine how they orientate themselves to the world around them • a sense of **agency** – an understanding that they can make a **positive difference** and their ideas and opinions count • **curiosity** and a sense of **wonder** – enabled by the complexity within issues of environmental sustainability • **citizenship**. It is also intended to enable them to begin to develop an understanding of *kaitiakitanga* (guardianship/stewardship, protection and preservation), and of the attitudes and dispositions needed to think and act as guardians/protectors of the environment.
Sweden	Concept of sustainable development in the fundamental values, the task of the preschool, and the preschool curriculum goals	The task of the preschool is to provide education that is characterised by a positive belief in the future; gives children the opportunity to acquire an ecological and **caring** approach to their surrounding environment and to nature and society; and gives them the opportunity to develop knowledge about how **the different choices that people make can contribute to sustainable development** – not only economic, but also social and environmental. Under the preschool curriculum goals, the curriculum should enable children to develop: • a growing responsibility for and **interest** in sustainable development and **active participation** in society • an understanding of relationships in nature and different **cycles in nature**, and how **people, nature and society affect each other** • an understanding of how different **choices people make in everyday life can contribute to sustainable development**.

Curriculum content, skills and competencies in the primary and secondary curriculum

Curriculum content for ESD in primary and secondary education is set out in a variety of ways across the six jurisdictions.

In Denmark, Scotland and Sweden, there are no broad content requirements for ESD across the curriculum. In Denmark, it is, instead, incorporated in the content requirements and purpose statements for some individual subject areas of the curriculum from age 6-16, and in some of the content requirements for some individual subjects under the four national programmes for 16-to 19-year-olds. In Scotland and Sweden, ESD is embedded in the broad curriculum aims (e.g. in the four capacities in Scotland and in the overall goals and guidelines, and the task of schools in Sweden), and also within content requirements in individual curriculum areas. In Sweden, content is linked to globalisation and internationalisation, along with democracy, gender, health, identity, cultural diversity, and lifestyle issues.

In Australia, the Sustainability cross-curriculum priority aims to support the curriculum to be relevant, contemporary and engaging, and ensure that it reflects regional, national and global contexts. It is currently set out as three concepts: systems, worldviews, and futures. These will change to four concepts: systems, worldview, design, and futures in 2022, when the revised cross-curriculum priority is introduced following the current review of the F-10 Australian Curriculum (ages 5-16). A set of 'organising ideas' under each concept further defines curriculum content. These are intended as a guide for the integration of Sustainability into all learning areas, and as a scaffold for developing knowledge and building connections between Sustainability and learning content.

In Japan, the basic philosophy of ESD is the development of knowledge, values and behaviours for integrated environmental, economic and societal development; and of a sense of attachment and awe, respect for life, a spirit of social responsibility and an inquisitive mind. The individual dimensions of ESD in the curriculum include the environment; international understanding; cultural diversity; world heritage sites and local cultural properties; peace; human rights; gender equality; welfare; sustainable production and consumption; climate change; biodiversity; oceans; disaster risk reduction; and energy. ESD is intended to be taught in an interdisciplinary, holistic way, integrating this range of related fields of study, and through activities and individual dimensions that address issues related to the environment, peace, and human rights, and that include environmental, economic, societal, and cultural perspectives.

In New Zealand, also, Education for Sustainability (EfS) in The New Zealand Curriculum (ages 5-18) is intended to be integrated throughout learning. It includes three key aspects – economic, socio-cultural-political, and environmental (intended to enable children and young people to explore the relationships between people and their environment), supported by four key concepts/big ideas (sustainability, equity/fairness, interdependence, responsibility for action). These are the big ideas and understandings that it is intended, through their incorporation in the local school curriculum, will remain with students long after they have left school.

Table 5 summarises organisation and provides more detail on how this curriculum content is set out in Australia, Japan and New Zealand. Table 6 summarises the skills and competencies for ESD which the curricula across the six jurisdictions aim to develop.

Table 5: Curriculum content in Australia, Japan and New Zealand

Jurisdiction	Content set out as:	Content includes:
Australia	Sustainability: a cross-curriculum priority including 3 key concepts: • Systems • Worldviews • Futures	Systems explores the interdependent and dynamic nature of systems that support all life on Earth and collective wellbeing. It includes the organising ideas: • The biosphere is a dynamic system providing conditions that sustain life on Earth. • All life forms, including human life, are connected through ecosystems on which they depend for their wellbeing and survival. • Sustainable patterns of living rely on the interdependence of healthy social, economic and ecological systems. Worldviews enables a diversity of views on ecosystems, values and social justice and includes the organising ideas: • Worldviews that recognise the dependence of living things on healthy ecosystems, and value diversity and social justice, are essential for achieving sustainability. • Worldviews are formed by experiences at personal, local, national and global levels, and are linked to individual and community actions for sustainability. Futures aims to build capacities to think and act in ways that will create a more sustainable future. It includes the organising ideas: • The sustainability of ecological, social and economic systems is achieved through informed individual and community action that values local and global equity and fairness across generations into the future. • Actions for a more sustainable future reflect values of care, respect and responsibility, and require us to explore and understand environments. • Designing action for sustainability requires an evaluation of past practices, the assessment of scientific and technological developments, and balanced judgements based on projected future economic, social and environmental impacts. • Sustainable futures result from actions designed to preserve and/or restore the quality and uniqueness of environments.

Jurisdiction	Content set out as:	Content includes:
Australia (Cont.)	4 key concepts (from 2022): • Systems • Worldview • Design • Futures	Systems explores the interdependence of Earth's systems (the geosphere, biosphere, hydrosphere and atmosphere) that support all life on Earth, and social and economic systems. It includes the organising ideas: • All life forms, including human life, are connected through Earth's systems on which they depend for their wellbeing and survival. • Sustainable patterns of living require the responsible use of resources, maintenance of clean air, water and soils, and preservation or restoration of healthy environments. • Changes in social and economic systems influence the sustainability of Earth's systems. Worldview is the role of worldviews (sets of attitudes, values and beliefs) in shaping individual and community ideas about how the world works and our role in the world. It includes the organising ideas: • Worldviews that recognise the interdependence of Earth's systems, and value diversity, equity and social justice, are essential for achieving sustainability. • Worldviews are formed by experiences at personal, local, national and global levels, and shape individual and community actions for sustainability. Design is the role of innovation and creativity in sustainably designed solutions, including products, environments and services, that aim to reduce present and future impacts and to preserve or restore environmental, social and economic systems. It includes the organising ideas: • Sustainably designed products, environments and services aim to minimise the impact on, and preserve or restore the quality and diversity of environmental, social and economic systems. • Creative and innovative design is integral to the identification of new ways of sustainable living. • Sustainable design requires an awareness of place, past practices, research and technological developments, and balanced judgements based on projected environmental, social and economic impacts.

Jurisdiction	Content set out as:	Content includes:
Australia (Cont.)		Futures includes ways of thinking and acting that seek to empower young people to design action that will lead to an equitable, sustainable and inclusive future. It includes the organising ideas: • Sustainable futures are achieved through informed individual and community action that values local, national and global equity and fairness across generations into the future. • Community action for sustainable futures requires individuals with shared beliefs and values to collaborate, seek information, identify solutions, influence others and reflect on and evaluate past actions as they work towards a desired change.
Japan	Education for Sustainability is an integrated cross-curriculum requirement including a range of individual dimensions	The individual dimensions include: • the environment • cultural diversity • international understanding • world heritage sites and cultural properties • peace • human rights • gender equality • welfare • sustainable production and consumption • climate change • biodiversity • oceans • disaster risk reduction • energy.
New Zealand	Education for Sustainability includes 3 key aspects: • Economic • Socio-cultural-political • Environmental	• Economic aspect: environmental law, sustainable land use, sustainable industrial development, sustainable enterprise education, resource management, energy consumption and conservation, sustainable tourism, green consumerism, fair distribution of resources, fair trade. • Socio-cultural-political aspect: equity and fairness, cultural perspectives, total wellbeing, peace education, personal and social responsibility for action, fights of indigenous cultures. • Environmental aspect: environmental literacy, climate change, ecological life support systems, research and investigation, knowledge and understanding of biodiversity, interdependence, knowledge about the environment, introduced species.

Jurisdiction	Content set out as:	Content includes:
New Zealand (Cont.)	4 key concepts/big ideas: • Sustainability • Equity/fairness • Interdependence • Responsibility for action	• Sustainability: the ability of individuals, groups, communities and societies to adopt ways of thinking and behaving that allow them to meet their needs and aspirations without compromising the ability of future generations of all living things to meet theirs. • Equity/fairness: includes respect for all life, social justice, intergenerational equity, and the fair management of finite resources. • Interdependence: the interconnectedness of people and environments which can be understood through considering ecosystems/biodiversity, community, cultural diversity, democracy, globalisation and fair trade. • Responsibility for action: the personal and social actions required to live sustainably, which include guardianship (*kaitiakitanga*), taking action, informed decision-making, citizenship, thoughtful consumerism, enterprise and entrepreneurship, resilience, and regeneration.

Table 6: Skills and competencies in ESD

Jurisdiction	Curriculum organisation	Skills and competencies
Australia	Through the key concepts and organising ideas for Sustainability as a cross-curriculum priority (ages 5-16), students develop the knowledge, skills, values and worldviews to:	• understand ecological and human systems, and the ways social, economic and environmental systems interact to support and maintain human life, and appreciate their interdependence • develop the worldviews to act to create a more socially and ecologically just world • appreciate and respect the diversity of views and values that influence sustainable development • understand the role of innovation and creativity in designing solutions which preserve or restore environmental, social and economic systems • think and act in ways that will lead to an equitable, sustainable, inclusive and socially and ecologically just future, and participate critically and act creatively in determining more sustainable ways of living • make balanced judgements based on present and future impacts.
Denmark	Through the study of ESD in some individual curriculum subjects, students (ages 6-18/19) acquire knowledge and skills to:	• become confident in their decision-making and actions in relation to sustainable development and human interaction with nature, locally and globally • develop an understanding of our culture and worldview • understand the interaction between humankind and nature in their own and foreign countries • take a reflective view of society and its development • develop an understanding of how people are affected by and can influence society and the ability to relate to basic democratic values and the 'rules of the game' in order to participate in society.

Jurisdiction	Curriculum organisation	Skills and competencies
Japan	ESD as an integrated cross-curriculum requirement (ages 6-18) develops knowledge, skills and behaviours for integrated environmental, economic and social development, enabling students to:	• develop sustainable development-related values, such as respect for people, respect for diversity, inclusivity, equal opportunity and respect for the environment • understand the context of problems and phenomena, through systematic thinking, taking a multifaceted holistic perspective • develop alternative thinking and critical skills; data and information analysis skills; communication skills and leadership • develop the qualities of creative thinking, inquiry and application to understand the relationship between themselves, people around them, society and nature • appreciate their locality, think about their role and actions and act safely and appropriately • appreciate the relationship between themselves and nature, and become aware of beauty in nature and cherish it • develop a broad perspective on the creation of sustainable societies • develop skills to reflect on local, national and global efforts and international cooperation to create sustainable societies.
New Zealand	Through content focused on the 3 key aspects of Education for Sustainability and the 4 key concepts, students (aged 5-18) develop the skills and competencies to:	• explore and understand the relationships between people and their environment • show leadership and contribute to decisions and actions for a sustainable future • connect thinking and actions to lead to a sustainable environmental, social, cultural and economic future • think critically and creatively about issues and solutions and develop their action competence and critical thinking in relation to how people affect the environment • plan, implement, evaluate and analyse actions for a sustainable future • view the world from different perspectives, particularly those that are relevant to New Zealand • be confident in their sense of responsibility for the wellbeing of their country and the planet • negotiate complexity and deal with change and uncertainty.

Jurisdiction	Curriculum organisation	Skills and competencies
Scotland	Learning for Sustainability in the 4 capacities of Curriculum for Excellence (ages 3-18) and within individual curriculum areas looks to develop skills and competencies to:	• gain an understanding of Scotland's contribution to a sustainable, global economy • participate responsibly in political, economic, social and cultural life • develop knowledge and understanding of the world and Scotland's place in it • respect others and understand how their actions and decisions are affected by and affect others • understand different beliefs and cultures, form their own beliefs and view of the world and broaden their understanding of the world • develop the confidence to communicate their own stance on social, political, historical and environmental issues, to express opinions and make decisions on social, moral, ethical, economic and environmental issues • develop investigative, creative and critical thinking and make informed choices and decisions leading to informed action • become more practised at considering whether technological design solutions work, if they are appropriate, and their impact on society and the environment • evaluate environmental, scientific and technological issues and develop informed, ethical views of complex issues.

Jurisdiction	Curriculum organisation	Skills and competencies
Sweden	ESD as included in the overarching tasks for schools, in the fundamental goals and aims of the curriculum, and in core content and knowledge requirements for some curriculum subjects, aims to develop skills and competencies to:	• understand how people, society and nature interact and the consequences of this on nature and people's living conditions • develop knowledge about how we can influence the future in the direction of a more acceptable living environment for all people • develop their ability to analyse how natural processes and human activities form and change living environments in different parts of the world • assess solutions to different environmental and development issues based on considerations concerning ethics and sustainable development • develop their ability to examine information, communicate and take a view on issues concerning natural resource use and ecological sustainability, applying informed reasoning to issues such as distribution of populations, migration, vegetation and climate change and their impact on people, society and the environment in different parts of the world • reason about different ecological, economic and social sustainability issues and produce informed proposals for solutions taking consequences for people, society and nature into account • understand how actions in their everyday life can affect the environment and provide proposals that can contribute to sustainable development • understand the impact of people on nature, locally and globally, and opportunities for consumers and citizens of society to contribute to sustainable development.

Common threads and nuances in ESD curriculum content, skills and competencies

While Tables 4 to 6 demonstrate that the organisation of ESD curriculum content and the terminology used to express knowledge content, skills and competencies may differ across the jurisdictions, there are common threads in content and in the skills and competencies for ESD across the phases of education and the jurisdictions. These are summarised in Figure 5.

Figure 5: Common threads in ESD curriculum content, skills and competencies

Curriculum content

- The impact of human development on the environment

- The interconnection of all life forms and ecosystems

- The interdependence of humankind and the environment, and of Earth's systems and social, economic, ecological, cultural and political systems

- The importance of care, respect and responsibility for the environment

Skills and competencies

Common threads relate to the ability to:

- Develop a curious mind and respond to, adapt to and design for change and sustainability

- Recognise rules and roles, rights and responsibilities, and limits and boundaries

- Demonstrate active participation, social responsibility, a local, national and global perspective and citizenship

- Develop attachment, awe, wonder and appreciation for the environment

In Australia and New Zealand, developing an understanding of fairness and equity in relation to ESD is also a particular feature of primary and secondary curriculum content, skills and competencies.

Broadening and developing the individual/personal and local perspective on ESD to acquire a national and global perspective, and an understanding of international cooperation for sustainability and worldviews is a common thread in curriculum content, skills and competencies across the jurisdictions. In Education for Sustainability (EfS) in New Zealand, this view of the world is explicitly focused on New Zealand. In EfS, students develop the skills to 'view the world from different perspectives, particularly those that are directly relevant to New Zealand' (New Zealand Ministry of Education, 2010). This links to the fifth of the five guiding principles of the Environmental Education for Sustainability Strategy and Action Plan 2017-2021 (New Zealand Department of Conservation, 2017), which is 'adopting a uniquely New Zealand perspective'. This is the principle that developing knowledge and understanding of sustainability starts from real-life contexts, such as exploring local or national environmental issues, or the impacts of climate change on New Zealand as an island nation.

Moving on from the development of a curious mind in the early years, ESD in the primary and secondary curriculum aims to enable children and young people to develop the skills of creative thinking, inquiry and application. This involves thinking creatively and innovatively about issues of sustainability and solutions to them, and taking informed action – in a socially, ethically and environmentally responsible way (Australia, Japan, New Zealand, Scotland). In Australia, there is a particular focus on developing the ability to design innovative solutions which will be key to new ways of sustainable living. In Scotland, Learning for Sustainability (LfS) aims to enable students to evaluate environmental, scientific and technological issues and develop informed, ethical views of complex issues/wicked problems (defined as problems that are large, complex and interconnected, such as climate change, poverty and food insecurity).

6. Key enablers for the teaching and learning of ESD

Across the jurisdictions, there is no core curriculum content for ESD which is compulsory, other than that which may be specifically required as part of individual subject or qualification specifications (or syllabuses). It is a matter for schools to determine how to interpret and incorporate curriculum guidelines and ESD guidance.

Learning for Sustainability (LfS) is a curriculum entitlement in Scotland, however, and all practitioners demonstrating LfS in their practice is part of Scotland's vision for LfS. As such, it is embedded within the Teacher Professional Standards. This is one of the key enablers to supporting the incorporation of LfS in Curriculum for Excellence in Scotland. New Zealand also supports the teaching and learning of ESD in schools by embedding it within the Code of Professional Responsibility and the Standards for the Teaching Profession. The Code sets out the obligations, responsibilities and behaviour expected of teachers; the Standards describe the expectations of effective teaching practice and provide a framework for professional learning and development.

The Swedish Government requires the National Agency for Education (*Skolverket*) to provide support to schools in integrating ESD into teaching, by providing resources enabling teachers to link the United Nations Agenda 2030 sustainable development global goals, and the national environmental goals for Sweden to their teaching. The resources are available in the form of professional development modules on the Agency's Learning Portal.

Table 7 summarises the range of key enablers supporting the inclusion of ESD in the curriculum across the six jurisdictions. They include official (e.g. Ministry/Department of Education-provided), although not obligatory, online curriculum support and guidance, which can include practice examples, linked online resources, and advice on recommended pedagogies. In Japan, New Zealand and Scotland, there are specific ESD-focused practice guidance documents in addition. Jurisdictions also provide professional development support for teachers; make recommendations relating to whole-school approaches to ESD; or support participation in a range of ESD networks, initiatives and programmes.

Official regional, local and international networks and initiatives can be a key feature in supporting the teaching and learning of ESD in the six jurisdictions, including international initiatives established or endorsed by UNESCO and the United Nations.

All of the jurisdictions participate in international initiatives, such as through hosting United Nations University-accredited Regional Centres of Expertise (RCEs) for ESD in the Global RCE Network; participating in the worldwide Eco-Schools programme; or being a part of the UNESCO Associated Schools Project Network (ASPNet).

Networks, programmes or communities of practice established by independent educational organisations or interest groups, some focused on particular aspects of ESD (e.g. Predator Free New Zealand), are also a feature across the jurisdictions. These programmes, networks, communities of practice, or resources are not covered below.

Table 7: Support for ESD in the curriculum

Official online curriculum support, guidance and resources for ESD	
Australia (0-5) Early Years Learning Framework	Provides examples for teachers of how to facilitate children becoming socially responsible and showing respect for the environment e.g. through providing access to a range of natural materials in their environment; finding ways of enabling children to care for and learn from the land; and embedding sustainability in daily routines and practices. Recommends a focus on 'intentional teaching' pedagogy[13] in an active, play-based learning environment.
Australia (5-16) F-10 Australian Curriculum	Opportunities for teachers to develop Sustainability (and the other cross-curriculum priorities) within the individual learning areas are highlighted in the content descriptions and content elaborations of the online curriculum documents. For Sustainability, they are tagged with a leaf icon. The content descriptions link to teaching resources on the Education Services Australia (ESA) Scootle website (a national digital learning repository of learning items aligned to core areas of the Australian Curriculum). The online curriculum also includes Curriculum Connections; resources are intended to allow teachers to draw connections across the curriculum on various conceptual themes, including outdoor learning.
New Zealand (5-18)	The curriculum documents and accompanying guidance, such as the 'teaching ideas and tips' and 'resources' sections of The New Zealand Curriculum Online Education for Sustainability (EfS) webpages, provide examples for teachers on incorporating EfS in the curriculum and links to resources. They also recommend associated pedagogies. The senior secondary EfS 'resources' webpages, part of the senior secondary EfS teaching and learning guide, also provide access to a plethora of resourcing ideas/ideas for teaching and learning. The guide also includes a rationale for teaching EfS, key concepts, a pedagogy section, and sections on learning objectives, connections, and learning programme design.

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[13] The Early Years Learning Framework defines intentional teaching as modelling and demonstrating, open questioning, speculating, explaining, engaging in shared thinking and problem-solving to extend children's thinking and learning (Australian Government Department of Education, Skills and Employment (2009), p.18).

Official online curriculum support, guidance and resources for ESD	
Scotland (3-18)	Education Scotland provides a plethora of online resources to support the teaching and learning of Learning for Sustainability as a cross-curriculum approach.
Sweden (6-18/19)	The Government requires the Swedish National Agency for Education to provide support to schools in integrating ESD into teaching, by providing resources explaining how the United Nations Agenda 2030 sustainable development global goals, and the national environmental goals for Sweden, link to school governing documents. The aim is to enable school staff to improve their knowledge of Agenda 2030 and the national environmental goals, so that they are able to integrate the three dimensions of ESD - economic, social and ecological - in their teaching. The resources are available in the form of professional development modules on the Agency's Learning Portal. The online curriculum guidance for sustainable development[14] for preschool teachers provides examples of how they can work with sustainability in teaching, together with the children in their class.
Specific ESD-related guidance	
Japan	The Ministry of Education, Culture, Sports, Science and Technology (MEXT) published the Guide to Promoting ESD in 2016. This aims to 'achieve full implementation of ESD in the classroom', and is targeted at boards of education responsible for planning and implementing ESD training, and at senior teachers and leaders responsible for managing schools.w Its focus is on communicating the importance of ESD, and providing examples of practical ways of implementing it in schools to teachers who are not familiar with ESD or its pedagogies. It explains the background and need for ESD, includes practice examples, and provides a case study on teaching the '3Rs' of reduce, reuse and recycle in a primary school, and advice on professional learning activities for teachers.
New Zealand (5-18)	In designing their curriculum for Education for Sustainability (EfS), schools are expected to consider the Guidelines for Environmental Education, originally developed in 1999, and the four mechanisms that facilitate learning in the social sciences - connection (with students' own experiences), alignment, community, and interest. The Guidelines state that a balanced environmental education programme addresses education *in* the environment, education *about* the environment and education *for* the environment.

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[14] The guidance also includes suggestions for health and wellbeing.

Scotland (3-18)	Opening up Great Learning – Learning for Sustainability is a good practice guide for LfS, which aims to demonstrate how schools and early learning and childcare settings can meet national LfS recommendations. It highlights key aspects of good practice, such as allowing children and young people to lead their learning; encouraging learning by doing to stimulate full engagement; and connecting to communities and involving parents. The guide also gives examples of professional learning activities for teachers.

Teacher professional standards

New Zealand	Sustainability is embedded as part of Professional Responsibility Commitment 4 in the Code of Professional Responsibility and Standards for the Teaching Profession in New Zealand. This is teachers' commitment to society and states: *I will respect my trusted role in society and the influence I have in shaping futures by promoting and protecting the principles of human rights, sustainability and social justice; […] fostering learners to be active participants in community life and engaged in issues important to the wellbeing of society (p.12).* The Code sets out the obligations, responsibilities and behaviour expected of teachers; the Standards describe the expectations of effective teaching practice and provide a framework for professional learning and development.
Scotland	It is part of Scotland's vision for Learning for Sustainability (LfS) that all practitioners demonstrate LfS in their practice. Consequently, it is embedded throughout the revised suite of Professional Standards for Scotland's teachers (General Teaching Council Scotland, 2021). While it was already one of the key values underpinning the previous Professional Standards (General Teaching Council Scotland, 2012), its importance has been strengthened, with the aim of supporting teachers to actively embrace and promote principles and practices of sustainability in all aspects of their work. The Professional Standards are supported by a Professional Guide to LfS (see 'Professional development support' below).

Professional development support

Australia	Online 'illustrations of practice' professional development resources, from the Australian Institute for Teaching and School Leadership, include Sustainability examples, e.g. investigating compost, energy efficiency.
Denmark	Professional development is voluntary for teachers, but may include ESD-related development support provided by environmental education organisations, teacher training institutions and teachers' professional organisations. The networks and initiatives which are an important focus of ESD in Denmark (see the subheading below) also provide professional development support.

Japan	Local boards of education are required to provide in-service teacher training, with around 75 per cent of schools receiving teacher training related to environmental education for new teachers, and between 22-30 per cent for mid-career teachers, depending on the education level (UNESCO, 2021c).
Scotland	The General Teaching Council for Scotland has produced a short Professional Guide to LfS. This is intended to help teachers understand their responsibility to embed LfS within their practice, as part of a whole-setting approach, and the ways in which it inspires and motivates learners to address the challenges of learning to live within the environmental limits of the planet, and to build a just, equitable and peaceful society.
Sweden	Teachers' involvement in continuing professional development is not an official professional duty, but there is a central agreement that they can each access up to 104 hours of CPD each school year. Needs are determined locally, so may include ESD. Professional development in ESD is supported through higher education, such as this online Masters' programme; through collaborative research and development projects, research seminars, conferences, workshops, forums, and training courses provided by SWEDESD (the Swedish International Centre of Education for Sustainable Development for teachers and others dealing with wicked problems); and through the *Skolverket* learning portal, which includes professional development modules for ESD for use from Year 1 of compulsory *grundskola* (age 7) to the upper secondary phase.
Whole-school approaches	
Australia	In the state of Victoria, the ResourceSmart Schools programme supports schools to embed sustainability in everything they do, e.g. to operate more sustainably by saving on electricity, water and waste bills, and by reducing their greenhouse gas emissions to minimise their impact on the environment. It also supports schools to embed sustainability into all curriculum learning areas.
Japan	MEXT's Guide to Promoting ESD (2016) recommends a whole-school approach to the teaching of ESD, which involves including ESD principles within the school goals and positioning ESD within special activities, including class activities, student council initiatives, school events, and other events managed by the school. The Guide also suggests that school principals can play a key role, demonstrating leadership by incorporating ESD in the school management strategy as a whole-school initiative, in which all teachers are engaged and the principal plays a central role.

New Zealand	The [framework for developing whole-school approaches to sustainability](#) (Teaching and Learning Research Initiative, 2009) recommends whole-school approaches to ESD, bringing together the school's learning programmes; the ways members of the school community work with one another; sustainable practices and policies in the school; and the way the school and its grounds are cared for. The framework is based on 'four Ps' that work together to create a sustainable school and support the teaching and learning of ESD. In a sustainable school, people work collaboratively and ensure that students are involved in sharing decisions; *programmes* focus on learning about the interaction between people and the environment and developing attitudes and behaviours for a more sustainable future; sustainable *practices* are part of a school culture instigated by students and staff to make a more resilient community for the future; and a *place* is created where students and their community work together willingly to reduce their impact on the planet.
Scotland	It is part of Scotland's vision for Learning for Sustainability (LfS) that all schools have a whole-school approach to LfS, and that all school buildings, grounds and policies support it. Schools and local authorities are consequently expected to take a whole-school approach to sustainability, which includes local authorities ensuring that improvements to the school estate meet the highest standards of sustainable and environmental design. It also includes buildings and grounds supporting LfS pedagogy and practice, by including the provision of thoughtfully-developed greenspace to support learning and facilitate daily contact with nature and natural play. Learners are also expected to be fully involved in the process of improving the sustainability of their campus.

Networks and initiatives

Australia	The Commonwealth Scientific and Industrial Research Organisation, a national government agency, runs the [Sustainable Futures](#) programme to support teachers working with students in Years 3 to 10 (ages 8-16). Teachers register to receive free access to digital teaching resources to support the teaching of sustainability and the environment.
	There are five (of 179 global) United Nations University-accredited **Regional Centres of Expertise** (RCEs) for ESD in Australia. Under the [Global RCE Network](#), RCEs bring together institutions at the regional/local level to jointly promote ESD and build platforms to share information and experiences and to promote dialogue among regional/local stakeholders through partnerships for sustainable development.
	Australia also participates in the international **Eco-Schools** programme.

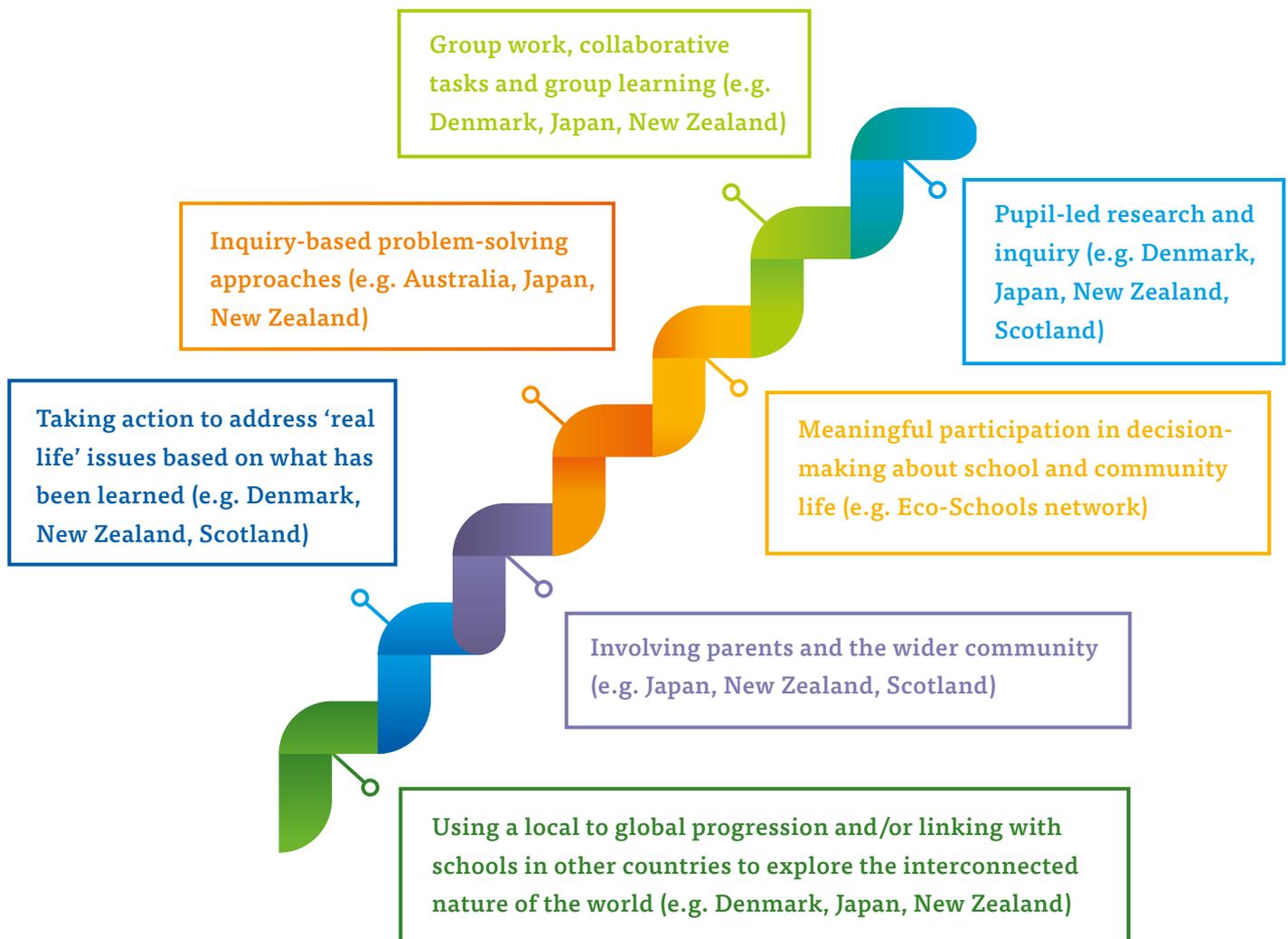|	
Denmark	**The Eco-Schools Programme** – a worldwide sustainable schools programme with a common international structure, run by the Foundation for Environmental Education (FEE) based in Copenhagen, is a key initiative in Denmark, supporting schools to take action on climate change and environmental issues to attain the 'Green Flag' award. There are 250 Eco-Schools in Denmark, located in 72 municipalities (70 per cent of all Danish municipalities), and many participating schools have been part of the programme for 10 years or more.
	The Danish UNESCO-ASP network (**ASPNet**) is also important. It is part of the international UNESCO Associated Schools Project (ASP) network of around 11,500 schools and educational institutions in 180+ countries. Danish UNESCO-ASP network schools have a whole-school focus on preparing young people for global citizenship and sustainable development.[15]
	In the early years, 'Green Sprouts' is the Danish Outdoor Council's 'Green Quality Mark' for childminders, nurseries and kindergartens (0- to 6-year-olds). This focuses on outdoor life, nature and the environment and a green and healthy everyday culture. A range of professional development courses are available through the initiative.
	Denmark is a partner organisation in the European-Commission-funded Education for Global Responsibility initiative for 13- to 21-year-olds. The initiative includes an additional curriculum (and linked resources) oriented towards the UN Sustainable Development Goals, but intended to be compatible with national curricula.
	There is also a UN University-accredited **Regional Centre of Expertise** (RCE) for ESD in Denmark.
Japan	The UNESCO Associated Schools Project Network (**ASPNet**) is an important policy initiative in Japan to encourage schools and teachers to introduce ESD, with just over 1000 UNESCO Associated Schools in the country in February 2018. The MEXT Guide to Promoting ESD recommends collaboration with ASPNet schools nationally and in other countries; the latter to understand the necessity of international cooperation for a sustainable future. The Guide also states that, for ASPNet schools in Japan to successfully develop as a base for the promotion of ESD, they need to clarify the qualities and abilities they wish to foster through ESD; formulate a curriculum with a particular emphasis on a learning process which encourages students to find and resolve problems by themselves or through cooperation with others; and determine relevant ESD content to be taught through a cross-curricular teaching plan focused on the period for integrated studies.
	There are eight (of 179 global) United Nations University-accredited **Regional Centres of Expertise** (RCEs) for ESD in Japan.

[15] Note: of the countries included in this study, there are also smaller numbers of ASPNet schools in Australia, New Zealand, and Sweden. It is a key initiative in Japan.

New Zealand	The Enviroschools network is an important, Ministry for the Environment-supported, nationwide environmental action based programme in New Zealand, involving between a third to a half of all schools (UNESCO, 2021c). In the programme, young people design and lead sustainability projects in their schools and communities.
	There are also two (of 179 global) United Nations University-accredited **Regional Centres of Expertise** (RCEs) for ESD in New Zealand.
Scotland	Around 98 per cent of local authority schools in Scotland are registered with the international Eco-Schools programme, run locally in Scotland by Keep Scotland Beautiful.
	Learning for Sustainability Scotland is the UN University-accredited **Regional Centre of Expertise** (RCE) for ESD in Scotland. It offers professional learning opportunities for teachers and educators to enhance their practice by incorporating LfS into their educational settings. This includes, for example, an online professional learning course on 'Making Connections through Learning for Sustainability', which aims to help teachers in early learning and childcare (ELC) settings, schools and colleges to plan and implement Learning for Equity and Sustainability in their practice.
Sweden	There are four (of 179 global) UN University-accredited **Regional Centres of Expertise** (RCEs) for ESD in Sweden. Schools in Sweden also participate in the **Eco-Schools** international programme.

Recommended pedagogies and best practice

As Table 7 highlights, there is a range of support for providing conducive conditions for the teaching and learning of ESD, including that which recommends supporting pedagogies. Common threads in these best practice pedagogical recommendations reflect those identified in research on effective ESD pedagogies from Learning for Sustainability Scotland (2016). They are highlighted in Figure 6.

Figure 6: Supporting ESD pedagogies

Group work, collaborative tasks and group learning (e.g. Denmark, Japan, New Zealand)

Inquiry-based problem-solving approaches (e.g. Australia, Japan, New Zealand)

Pupil-led research and inquiry (e.g. Denmark, Japan, New Zealand, Scotland)

Taking action to address 'real life' issues based on what has been learned (e.g. Denmark, New Zealand, Scotland)

Meaningful participation in decision-making about school and community life (e.g. Eco-Schools network)

Involving parents and the wider community (e.g. Japan, New Zealand, Scotland)

Using a local to global progression and/or linking with schools in other countries to explore the interconnected nature of the world (e.g. Denmark, Japan, New Zealand)

In Denmark, the Ministry of Children and Education Learning Portal highlights pedagogy based on research on ecoliteracy (Elf *et al.*, 2021). This suggests that knowledge and understanding of ecological systems, biodiversity and sustainability is best developed when it is based on a local issue, which the student perceives as real and relevant. Their understanding can then be scaled up. Teaching is also based on the student perspective and uses group processes and active learning as a cornerstone in the learning process. This pedagogy reflects that recommended in New Zealand (highlighted in Table 7) which proposes that the ESD curriculum is designed on the basis of connection, alignment, community and interest.

In Japan, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) Guide to Promoting ESD (2016) also advocates that teaching starts from the local context, e.g. through selecting study topics that are relevant to the school and community. It also recommends collaborating with the local community, universities and businesses; teaching and learning approaches that involve pupils taking the initiative and carrying out group and other cooperative activities, facilitated by teachers; and using experience-based and problem-solving activities.

ESD pedagogies based on cooperative, experiential, problem-based and inquiry-based learning approaches are key in New Zealand. The aim is to enable children and young people to develop action competence, making use of global, national and local contexts for learning that are relevant to students' interests and concerns. The Environmental Education for Sustainability Strategy and Action Plan 2017-2021 (New Zealand Department of Conservation, 2017) also includes a collaborative community education model, which involves kindergartens, schools and community partners working together to achieve a shared conservation and education vision. The key principles of the model are authentic teaching and learning contexts; collaboration across year levels, between schools and with the wider community; student-led learning; a vertical approach involving a continuous, cross-curricular learning journey, as students move from kindergarten through to secondary school; and professional development and support for teachers.

The Learning for Sustainability Scotland research (2016) also highlights outside learning/contact with nature as important for effective teaching and learning in ESD. This, too, is reflected in the pedagogical approaches recommended in the jurisdictions. The Guidelines for Environmental Education, in New Zealand, for example, originally developed in 1999, but to which schools are recommended to continue to have regard, state that a balanced environmental education programme addresses education *in* the environment, education about the environment and education for the environment.

The Outdoor Learning Curriculum Connection in Australia (intended to support teachers in drawing connections across the curriculum) aims to offer opportunities for students to gain unique and specific benefits from outdoor learning, and to develop skills and understandings while valuing a positive relationship with natural environments and promoting the sustainable use of these environments. The online guidance shows how content from the F-10 Australian Curriculum learning areas of health and physical education, humanities and social sciences, geography, and science, and from the general capabilities[16] and cross-curriculum priorities can be organised and delivered through learning in the outdoors. It also includes links to relevant student work samples which illustrate student learning in relation to achievement standards.

Australian research also identifies some of the features of best practice professional development and support in ESD for practising teachers. These include professional development support that develops skills, knowledge and capacity to deliver effective EfS; involves practical activities and hands-on real-life experiences such as field trips; supports the curriculum framework; involves networking with other practitioners both within and outside the school sector; includes students in professional development activities where appropriate, such as field trips; and is relevant to their teaching context.

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[16] The seven general capabilities are literacy; numeracy; ICT capability/digital literacy; critical and creative thinking; personal and social capability; ethical understanding; and intercultural understanding. Like the cross-curriculum priorities, they are addressed through the content of the learning areas.

7. Recent reforms

Of the six jurisdictions, developments/reform relating to the incorporation of Education for Sustainable Development in the curriculum have been a feature in Sweden, Scotland and Australia in recent years.

Developments in Sweden and Scotland since 2019 have aimed to increase the emphasis on the importance of ESD as a key aspect of teaching and learning.

In Sweden, the emphasis has been on the initial phase of education, where the concept of sustainable development was introduced in the revised Curriculum for the Preschool (2018) (0- to 6-year-olds), implemented in 2019, because of its importance for the future.

In Scotland, there has been some focus at the other end of the age spectrum, where the 2019 Learning for Sustainability Action Plan (Education Scotland, 2019b) commits the Scottish Qualifications Authority and Education Scotland to ensure consideration of the inclusion of LfS-related content when qualifications are reviewed. This reflects Recommendation 14 of the Vision 2030+ Report (Education Scotland, 2016), setting out the vision for LfS for 2030, which commits to put mechanisms in place to ensure that all future reviews of qualifications will support LfS; provide practitioners and learners with encouragement and time to adopt LfS pedagogies and approaches, including outdoor learning; and provide appropriate accreditation to recognise the LfS achievements of young people and prepare them for the world of work. The intention is to provide the teaching community with a platform to deliver LfS topics as a key aspect of learning and teaching practice, either through specific assessable subject content, contexts, or opportunities for personalisation and choice in coursework topics.

An ongoing review of the F-10 Australian Curriculum (ages 5-16) aims to 'declutter' the curriculum by refining, realigning and reducing content. This includes by improving the relationship of the cross-curriculum priorities to the content of the individual learning areas, so that teachers can focus on teaching essential content, e.g. by only including in the curriculum documents authentic illustrations of how the cross-curriculum priorities can support the teaching and learning of learning area content. The review also aims to improve the organising ideas for the cross-curriculum priorities (see Table 5 above) with reference to current research. Specific revisions to be introduced for the Sustainability cross-curriculum priority when the refreshed curriculum is introduced in 2022 include:

- broader references to environmental sustainability to include all Earth's systems, not just the biosphere
- a focus on the interdependence of sustainability of environmental, social and economic systems
- an expansion of the focus on sustainable design of products, environments and services

- broader actions for sustainability to include the mitigation of human impacts and restoration of environments, in addition to preservation

- clearer support to explore how individuals and communities can take action and effect positive change.

These revisions reflect evolving understanding of the concepts that underpin sustainability and the features of effective sustainability education. They also aim to position the Sustainability cross-curriculum priority in Australia with closer reference to the United Nations Sustainable Development Goals and the Alice Springs (Mparntwe) Education Declaration (2019). The latter has two principal goals:

1. The Australian education system promotes excellence and equity.

2. All young Australians become confident and creative individuals, successful lifelong learners, and active and informed members of the community.

8. Concluding considerations

This international curriculum audit of Education for Sustainable Development is timely in a number of ways.

It is set in an international context in which UNESCO continues its sustained efforts to drive forward ESD in support of the achievement of the goals of the United Nations 2030 Agenda for Sustainable Development. It is doing this through its roadmap for the implementation of ESD by 2030, published in 2020, and through a range of initiatives, such as the joint initiative on the Global Teacher Forum on Climate Action, which encourages teachers to collaborate on climate education across borders and cultures, and to develop an action plan to implement leading insight in classrooms, education systems and policies.

It is a context in which the Intergovernmental Panel on Climate Change's August 2021 report (IPCC, 2021) has warned that climate change is widespread, rapid and intensifying, although a sustained reduction in emissions could limit it. It is also a context in which jurisdictions are concerned to use schools as the place to start on work to implement the significant behaviour change required to enable them to meet their commitments to reduce carbon consumption. This is a key impetus for a current legislative proposal in England, for example, to make climate change and sustainable citizenship a compulsory subject in all schools.

Most pertinently for NCCA, however, the commissioning of this international curriculum audit is timely in the context of the development of the second national strategy for Education for Sustainable Development in Ireland to 2030, to supersede the current strategy (2014-2020) (DES, 2014). The audit's insights into the arrangements for the teaching and learning of ESD in Australia, Denmark, Japan, New Zealand, Scotland and Sweden will inform NCCA's evolving strategic direction for ESD in the curriculum to 2030. Its content will also be of interest to policy makers and curriculum developers elsewhere, responsible for the development of ESD in the curriculum.

Curriculum redevelopment is currently happening across 11 years of the educational continuum (primary and senior cycle) in Ireland. This includes primary curriculum review, senior cycle redevelopment, an updating of the early years curriculum framework, and ongoing support for the implementation of junior cycle. The audit findings can feed directly into this work and support discussion, debate and decision-making on how ESD can be better supported as part of children's/ young people's learning and, ultimately, their thinking about and actions related to sustainability, as citizens who will have a very real impact on shaping the world in the decades ahead of us.

The desk study has examined the key considerations at play in the six jurisdictions, including the definitions, visions, aims, priorities and principles for the teaching and learning of ESD; how the jurisdictions interpret and incorporate these priorities for ESD in the curriculum; the content they include; the skills and competencies that teaching and learning about ESD aims to instill; how jurisdictions aim to support and enable the teaching and learning of ESD; and the impetus for and

features of recent changes or innovations. Its cross-sectoral (cross-phase) focus also enables NCCA to appreciate how ESD is incorporated from early childhood to post-primary education.

The audit enables insight into how aspects of UN Sustainable Development Goal target 4.7 for ESD are interpreted across the jurisdictions. It demonstrates their focus on the Brundtland principle of sustainable development as development that meets today's needs without jeopardising the ability of future generations to meet theirs (United Nations, 1987). It also highlights the importance, across the jurisdictions, of UNESCO's three interlinked aspects of ESD – economic growth; social development, including political and cultural development; and environmental development. It also demonstrates how the jurisdictions look to link issues of local relevance to the national and international picture.

In examining the characteristics of ESD in other jurisdictions, the audit has highlighted a number of questions which NCCA might consider as its strategic direction for ESD in the curriculum evolves and develops.

Looking at the evidence from Australia, Denmark, Japan, New Zealand, Scotland and Sweden:

- How might the key aims, priorities and principles for ESD curriculum policy in early childhood settings and schools in Ireland be articulated across all phases of education?

- How do the content, skills and competencies considered key for ESD in the curriculum in Ireland compare with what we now know from other jurisdictions, and what can we learn from this?

- Are there elements of ESD that should be offered to all pupils/students as part of their programme of study? If so, how might we best incorporate these requirements in curriculum documents?

- How might we ensure that any requirements for ESD don't result in perceptions that the curriculum is overcrowded and requirements excessive?

- To what degree should ESD be a cross-curriculum priority across all phases of education?

- What supporting mechanisms might we consider most useful to create conducive conditions for the teaching and learning of ESD, and to enable the incorporation of ESD in the curriculum across the phases of education?

- What key aspects of existing pedagogies most successfully facilitate the teaching and learning of ESD and is there scope to develop these? Should NCCA play a more prominent role in advising on pedagogies and exemplifying these in order to support settings'/schools' work on ESD?

- How in the future might we better support teacher professional development in the area of Global Citizenship Education (GCED) so that teachers are able to provide all learners with knowledge and skills in sustainable development, sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and culture's contribution to sustainable development?

- Might we incorporate our ambitions for ESD in the curriculum documentation in Ireland – by sector and subject – in a more useful/useable way?

- Is there scope/a need to further develop learning in the outdoors in support of ESD in the curriculum across phases and subjects?

The desk study evidence provides a starting point for the discussion and consideration of such questions.

In reflecting on these and other questions in relation to the evidence from this desk study and the Irish context, it is important to also consider the context in the six study jurisdictions. Each is unique, even though ESD has an international focus, and even though, as the study has identified, there are some important common threads in how the six jurisdictions provide opportunities for the teaching and learning of ESD. The detailed Country Tables, which provide the basis for this key findings report, reflect this all-important context and detail and the nuances of each system.

Appendix 1: Research questions

Research question	Key considerations
Given the broad definition of ESD as set out in SDG target 4.7, what is the expressed aim or intention for ESD (including climate change education) in the ESD strategy, or curriculum policy/framework for early years, primary and secondary education?	• How is SDG target 4.7 interpreted, e.g. through a national strategy or vision for ESD; how is this reflected in curriculum policy/frameworks? • What are the stated overarching aims for ESD? • What are the stated priorities for ESD in the curriculum; does this vary by phase?
Where does ESD (including climate change education) sit within curriculum frameworks/policy documents? How is ESD (including climate change education) integrated in the curriculum?	• Are there recommendations for how ESD is incorporated in the curriculum and do these vary by phase? • How is SDG target 4.7 and/or the national ESD strategy expressed, interpreted and incorporated in curriculum policy/ the curriculum frameworks, e.g.: through the values and principles of the overarching curriculum framework/policy; as a cross-curricular subject requirement; as a stand-alone curriculum/ curriculum modules; as attainment targets within specific curriculum subject areas; as examination requirements?
What ESD content knowledge (including for climate change education) is integrated in the curriculum framework(s)/ policy documents? What is the emphasis for ESD in the curriculum framework(s)/policy documents?	• What content knowledge, values, and competencies and skills for ESD are included in/emphasised in the curriculum framework(s)/policy documents? • Is any particular curriculum content prescribed? • What content knowledge occupies a greater/lesser proportion of curriculum space? • What justification, if any, is provided for including particular content knowledge in the curriculum? • Does any of this vary by phase? • How are continuity and progression supported, if at all, across curricula and phases?
How is ESD in the curriculum (including climate change education) encouraged and supported/what are the key enablers supporting ESD in the curriculum?	• Are particular types of learning experiences or pedagogies recommended to help promote ESD/climate change education in the curriculum and do these vary by phase? • How is teacher professional development supported? What teacher professional learning initiatives are in place? • Are there any requirements for teacher professional development in ESD, e.g. as part of teacher competencies?

Glossary of terms and abbreviations

CfE	Curriculum for Excellence	The Scottish Curriculum – it covers the age range 3 to 18 and aims to help children and young people gain the knowledge, skills and attributes needed for life in the 21st century.
CPD	Continuing professional development	
DES	Department of Education and Skills: Ireland	
ECEC	Early childhood education and care (Denmark)	
EEfS	Environmental Education for Sustainability (New Zealand) (as described in the overarching strategy and action plan for ESD in New Zealand and as included in *Te Whāriki* – the early childhood curriculum).	
EfS	Education for Sustainability (New Zealand) (as included in The New Zealand Curriculum). The term is also used in Australia.	
ELC	Early learning and childcare (Scotland)	
ESD	Education for Sustainable Development	The term used in the definition of Sustainable Development Goal (SDG) target 4.7 (UNESCO, 2020). It is also the term used in the curriculum in Denmark, Japan, and Sweden.
E&Os	Experiences and Outcomes, Scotland	The Experiences and Outcomes are a set of statements on children's learning and progression in each curriculum area, across the CfE Levels from ages 3 to 15.
HPE	Health and physical education	One of eight learning areas of The New Zealand Curriculum for ages 5-18.
HSC	Higher school certificate	The senior secondary leaving certificate in New South Wales (Australia).
	grundskola	The (all-through) compulsory school for 7- to 16-year-olds in Sweden.
	kaitiaki	New Zealand: guardians/protectors of the environment (see below).
	kaitiakitanga	The principle of guardianship/ stewardship, protection and preservation in Environmental Education for Sustainability/Education for Sustainability in New Zealand. It forms part of the EEfS/EfS curriculum from the early years onwards.

LfS	Learning for Sustainability (Scotland)	Defined as an approach to life and learning intended to enable learners, educators, schools and their wider communities to build a socially-just, sustainable and equitable society. It weaves together global citizenship, sustainable development education and outdoor learning, with the aim of creating coherent, rewarding and transformative learning experiences.
	Mana whenua	Belonging: one of the five strands in *Te Whāriki* – the Early Childhood Curriculum Framework in New Zealand.
MEXT	Ministry of Education, Culture, Sports, Science and Technology (Japan)	
NCCA	National Council for Curriculum and Assessment (Ireland)	
NCEA	National Certificate of Educational Achievement	The senior secondary qualification for young people in New Zealand. A credit-based qualification, available at Levels 1, 2 and 3 of the New Zealand Qualifications Framework, intended for all students regardless of their future route. Recognises a range of courses, qualifications and pathways – academic and vocational.
QCE	Queensland Certificate of Education	The senior secondary leaving certificate in Queensland (Australia).
	Skolverket	The Swedish National Agency for Education, responsible for curriculum and assessment, and development and improvement work in schools and preschools.
SDGs	Sustainable Development Goals	The 17 Sustainable Development Goals, adopted by all United Nations Member States in 2015, which are at the heart of a shared blueprint for peace and prosperity for people and the planet. SDG 4 is Quality Education and SDG target 4.7 relates to all learners acquiring the knowledge and skills needed to promote sustainable development by 2030.
SQA	Scottish Qualifications Authority	The national awarding and accreditation body for Scotland.
	Te Whāriki	The Early Childhood Curriculum Framework for children aged 0-5 in early childhood education provision in New Zealand.
LfS	The New Zealand Curriculum Framework	The curriculum framework for pupils in English-medium schools in Years 1-13, ages 5-18.

UN	United Nations	
VCE	Victorian Certificate of Education	The senior secondary leaving certificate in Victoria (Australia).
WCED	World Commission on Environment and Development	Published the Brundtland report, in 1987, which established the guiding principles for sustainable development.
	Wicked problems	Problems that are large, complex and interconnected, such as climate change, poverty and food insecurity.

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