



Eco-Schools Curricular Maps - Fourth Level

The series of 'Outcome Maps' in this document suggest how Fourth Level outcomes within Curriculum for Excellence (CfE) may be delivered through experiences arising from the Seven Elements and Ten Topics of the Eco-Schools Scotland Programme.

Eco-Schools Scotland commissioned experienced teachers to select outcomes they felt appropriate for each topic.

Please note:

- The selected outcomes for each Map are advisory teachers may reject or add outcomes which they consider more appropriate to the context in which they plan to teach.
- Eco-Schools 'Outcome Maps' are for guidance purposes only, are not exhaustive and should not be viewed as limiting.
- The first map illustrates how closely the Seven Elements of the Eco-Schools Programme match core outcomes from CfE
- Each subsequent topic map is accompanied by a header which suggests possible 'lead curricular areas'. Again these are open to debate and amendment by teachers.
- While similar in format not all Maps are identical topics such as Health and Wellbeing are so
 closely related to Eco-Schools topics that almost all outcomes are relevant.
- Each outcome is normally quoted in full along with its relevant CfE code.
- Following piloting with teachers we have added a commentary in italics to some outcomes to
 explain their inclusion within an outcome map or suggest a possible teaching context. Linking
 'arrows' on some topic maps highlight the opportunities for interdisciplinary learning across
 curricular areas.





Seven Elements - Fourth Level



Eco-Committee

Health and Wellbeing

- Representing my class, school and/or wider community encourages my selfworth and confidence and allows me to contribute to and participate in society. HWB 4-12a
- Through contributing my views, time and talents, I play a part in bringing about positive change in my school and wider community. HWB 4-13a

Literacy

- When I engage with others I can make a relevant contribution, ensure that everyone has an opportunity
 to contribute and encourage them to take account of others' points of view or alternative solutions. I can
 respond in ways appropriate to my role, exploring and expanding on contributions to reflect on, clarify
 or adapt thinking. LIT 4-02a
- I can communicate in a clear, expressive manner when engaging with others within and beyond my
 place of learning, and can independently select and organise appropriate resources as required. LIT 410a



Environmental Review

Literacy

As I listen or watch, I can make notes and organise these to develop thinking, help retain and recall
information, explore issues and create new texts, using my own words as appropriate. LIT 4-05a



Action Plan

Literacy

 I can use notes and other types of writing to generate and develop ideas, retain and recall information, explore problems, make decisions, or create original text. I can make appropriate and responsible use of sources and acknowledge these appropriately. LIT 4-25a



Measuring

Literacy

I can persuade, argue, evaluate, explore issues or express and justify opinions within a convincing line
of thought, using relevant supporting detail and/or evidence. LIT 4-29a



Health and Wellbeing

• Based on my interests, skills, strengths and preferences, I am supported to make suitable, realistic and informed choices, set manageable goals and plan for my further transitions. HWB 4-19a

Sciences

- I can monitor the environment by collecting and analysing samples. I can interpret the results to inform
 others about levels of pollution and express a considered opinion on how science can help to protect
 our environment. SCN 4-18a
- Having selected scientific themes of topical interest, I can critically analyse the issues, and use relevant ation to develop an informed argument. SCN 4-20b

Community

Technologies

• I can examine a range of materials, processes or designs in my local community to consider their nmental, social and economic impact. TCH 4-06a

Eco-Code

Expressive Arts

 I can use my chosen vocal and/or instrumental skills to improvise and compose, showing developing style and sophistication. EXA 4-17a





Litter & Waste Topic: Fourth Level



Social studies (People, place and environment)

- I can discuss the sustainability of key natural resources and analyse the possible implications for human activity. SOC 4-08a Sustainability of primary industries currently and in future. Can complement science lessons
- I can develop my understanding of the interaction between humans and the environment by describing
 and assessing the impact of human activity on an area. SOC 4-10a This outcome can serve as a focus
 for experiences related to the minimisation of litter 'waste in the wrong place' and could link with
 chemistry lessons on carbon compounds and packaging-related litter.

Health and Wellbeing (Food and Health)

• I have examined and evaluated food packaging and can understand the legal requirements for manufacturers. HWB 4-36a Studies into minimising wasteful packaging can support the Litter topic by demonstrating that unnecessary packaging often ends up as litter. Consider requirements for recycling labels.

Technologies (Technological developments in society and business)

 I can analyse products taking into consideration sustainability, scientific and technological developments. TCH 4-05a Consider structure and components of ICT equipment, recycling requirements of the WEEE directive and inherent dangers of some component materials

Numeracy and Mathematics (Information handling)

- I can select appropriately from a wide range of tables, charts, diagrams and graphs when displaying discrete, continuous or grouped data, clearly communicating the significant features of the data. MTH 4
 -21a
- I can evaluate and interpret raw and graphical data using a variety of methods, comment on relationships I observe within the data and communicate my findings to others. MNU 4-20a Litter surveys of school grounds and the local community provide real-life data for graphical display and analysis

Numeracy and Mathematics (Number, money and measure)

Through investigating real life problems involving the surface area of simple 3D shapes, I can explore
ways to make the most efficient use of materials and carry out the necessary calculations to solve
related problems. MTH 4-11b Pupils may investigate the mathematics of food packaging and suggest
ways of minimising the amount of packaging required for a particular product.

Sciences (Materials)

- I have explored how different materials can be derived from crude oil and their uses. I can explain the importance of carbon compounds in our lives. SCN 4-17a Pupils may examine the decomposition rates of plastics and other carbon compounds and how these contribute to problems of waste storage (landfill) and the permanence of some forms of litter.
- I can monitor the environment by collecting and analysing samples. I can interpret the results to inform
 others about levels of pollution and express a considered opinion on how science can help to protect
 our environment. SCN 4-18a Surveys and analysis of litter within the school grounds or local
 community can lead to an awareness of local pollution levels and elicit suggested approaches to
 minimising the problem from pupils.





Litter & Waste Topic: Fourth Level



 I understand how animal and plant species depend on each other and how living things are adapted for survival. I can predict the impact of population growth and natural hazards on biodiversity. SCN 4-01a
 Litter can be one of the biggest dangers to wildlife and domestic animals. An examination of this kind of impact from litter may influence pupil behaviour.

Sciences (Topical Science)

• I have researched new developments in science and can explain how their current or future applications might impact on modern life. SCN 4-20a The use of enzymes for decomposition of plastics





School Grounds Topic: Fourth Level



Social studies (People, place and environment)

- Having investigated processes which form and shape landscapes, I can explain their impact on selected landscapes in Scotland, Europe and beyond. SOC 3-07a
- I can identify the possible consequences of an environmental issue and make informed suggestions about ways to manage the impact. SOC 3-08a

Social Studies (People in society, economy and business)

• When participating in an enterprise activity, I can explore ethical issues relating to business practice and gain an understanding of how businesses help to satisfy needs. SOC 3-20a Fair Trade principles

Health and Wellbeing (Mental, emotional, social and physical wellbeing)

• Through contributing my views, time and talents, I play a part in bringing about positive change in my school and wider community. **HWB 3-13a**

Health and Wellbeing (Physical education, physical activity and sport)

I am experiencing enjoyment and achievement on a daily basis by taking part in different kinds of
energetic physical activities of my choosing, including sport and opportunities for outdoor learning,
available at my place of learning and in the wider community. HWB 3-25a Membership of Afterschool clubs, drama, sports etc.

Technologies (Craft, design, engineering and graphics)

- I can create solutions in 3D and 2D and can justify the construction/graphic methods and the design features. TCH 3-09a helping to create outdoor seating, play equipment and illustrate
- I can explore the properties and performance of materials before justifying the most appropriate material for a task. TCH 3-10a helping to create outdoor seating, play equipment and illustrate
- I can apply a range of graphic techniques and standards when producing images using sketching, drawing and software. TCH 3-11a helping to create outdoor seating, play equipment and illustrate

Expressive Arts (Art and Design)

- I have experimented with a range of media and technologies to create images and objects, using my understanding of their properties. EXA 3-02a
- I can use and combine the visual elements and concepts to convey ideas, thoughts and feelings in expressive and design work. **EXA 3-03a** Posters, diagrams, models
- While working through a design process in response to a design brief, I can develop and communicate imaginative design solutions. EXA 3-06a

Expressive Arts (Music)

 I can use my voice, musical instruments or music technology to improvise or compose with melody, rhythm, harmony, timbre and structure. EXA 3-17a

Numeracy and Mathematics (Number, money and measure)

 I can solve practical problems by applying my knowledge of measure, choosing the appropriate units and degree of accuracy for the task and using a formula to calculate area or volume when required.
 MNU 3-11a planning gardens





School Grounds Topic: Fourth Level



Numeracy and Mathematics (Shape, position and movement)

Having investigated a range of methods, I can accurately draw 2D shapes using appropriate
mathematical instruments and methods. MTH 3-16a planning school gardens, raised flower beds etc.

Science (Planet Earth)

• I can sample and identify living things from different habitats to compare their biodiversity and can suggest reasons for their distribution. SCN 3-01a Field study and internet to research





Biodiversity Topic: Fourth Level



Sciences (Planet Earth)

- I understand how animal and plant species depend on each other and how living things are adapted for survival. I can predict the impact of population growth and natural hazards on biodiversity. SCN 4-01a
- Through investigating the nitrogen cycle and evaluating results from practical experiments, I can suggest a design for a fertiliser, taking account of its environmental impact. SCN 4-03a
- By contributing to an investigation on different ways of meeting society's energy needs, I can express
 an informed view on the risks and benefits of different energy sources, including those produced from
 plants. SCN 4-04a
- Through exploring the carbon cycle, I can describe the processes involved in maintaining the balance of gases in the air, considering causes and implications of changes in the balance. SCN 4-05b

Sciences (Biological systems)

• I can debate the moral and ethical issues associated with some controversial biological procedures. **SCN 4-13c** *GM crops and cloning*

Sciences (Topical Science)

- I have researched new developments in science and can explain how their current or future applications might impact on modern life. *GM crops, cloning* SCN 4-20a
- Having selected scientific themes of topical interest, I can critically analyse the issues, and use relevant information to develop an informed argument. GM crops, cloning SCN 4-20b

Social Studies (People, place and environment)

- I can discuss the sustainability of key natural resources and analyse the possible implications for human activity. SOC 4-08a
- I can develop my understanding of the interaction between humans and the environment by describing and assessing the impact of human activity on an area. SOC 4-10a
- Having researched the globalisation of trade, I can explain the interdependence of different parts of the world and assess the impacts for providers, consumers and the environment. SOC 4-11a Production of GM crops and dependence upon multinationals for seed
- I can carry out a geographical enquiry to assess the impact and possible outcomes of climate change on a selected region and can propose strategies to slow or reverse the impact. SOC 4-12b

Religious and moral education (Development of beliefs and values)

• I can apply philosophical enquiry to explore questions or ethical issues. RME 4-09e GM crops and cloning, the green revolution and inequalities

Health and Wellbeing Mental, emotional, social and physical wellbeing

 Through contributing my views, time and talents, I play a part in bringing about positive change in my school and wider community. HWB 4-13a Share learning on biodiversity with younger pupils, increase biodiversity in school grounds or the local community

Numeracy and Mathematics (Information handling)

 I can select appropriately from a wide range of tables, charts, diagrams and graphs when displaying discrete, continuous or grouped data, clearly communicating the significant features of the data. MTH 4-21a





Energy Topic: Fourth Level



Social studies (People, place and environment)

- I can identify threats facing the main climate zones, including climate change, and analyse how these threats impact on the way of life. SOC 4-12a
- I can carry out a geographical enquiry to assess the impact and possible outcomes of climate change on a selected region and can propose strategies to slow or reverse the impact. SOC 4-12b

Technologies (Technological developments in society and business)

- I can examine a range of materials, processes or designs in my local community to consider their environmental, social and economic impact. TCH 4-06a
- I can present conclusions about the impact of technologies on the economy, politics and the environment. TCH 4-07a

Numeracy and Mathematics

Within real life contexts, I can use scientific notation to express large or small numbers in a more
efficient way and can understand and work with numbers written in this form. MTH 4-06b The large
volumes of gases in the atmosphere and calculations involving these can offer an opportunity to use
scientific notation in a real-life context

Sciences (Planet Earth)

- By contributing to an investigation on different ways of meeting society's energy needs, I can express
 an informed view on the risks and benefits of different energy sources, including those produced from
 plants. SCN 4-04a
- Through investigation, I can explain the formation and use of fossil fuels and contribute to discussions
 on the responsible use and conservation of finite resources. SCN 4-04b
- Through exploring the carbon cycle, I can describe the processes involved in maintaining the balance
 of gases in the air, considering causes and implications of changes in the balance. SCN 4-05b

Sciences (Forces, electricity and waves)

- I can help to design and carry out investigations into the strength of magnets and electromagnets.
 From investigations, I can compare the properties, uses and commercial applications of electromagnets and supermagnets. SCN 4-08a
- Using a variety of sources, I have explored the latest developments in chemical cells technology and can evaluate their impact on society. SCN 4-10b

Sciences (Materials)

 I have explored how different materials can be derived from crude oil and their uses. I can explain the importance of carbon compounds in our lives. SCN 4-17a

Sciences (Topical Science)

 Having selected scientific themes of topical interest, I can critically analyse the issues, and use relevant information to develop an informed argument. SCN 4-20b

Religious and moral education (World religions selected for study)

 I can apply my developing understanding of morality to consider a range of moral dilemmas in order to find ways which could promote a more just and compassionate society. RME 4-05b Consider climate justice





Transport Topic: Fourth Level



Social studies (People, place, environment)

• I can assess the impact of developments in transport infrastructure in a selected area and can contribute to a discussion on the development of sustainable systems. SOC 4-09b Pupil involvement in a school travel plan or 'safe routes to school' programme

Health and wellbeing (Physical wellbeing)

- I am learning to assess and manage risk, to protect myself and others, and to reduce the potential for harm when possible. **HWB 4-16a** *Road safety training, preparing future drivers*
- I know and can demonstrate how to travel safely. HWB 4-18a School travel plan

Technologies Technological developments in Society and Business

• I can present conclusions about the impact of technologies on the economy, politics and the environment. TCH 4-07a Link to peak oil and the need for more sustainable energy sources e.g. hybrid vehicles, low emission, electrical, hydrogen powered

Numeracy and Mathematics (Number, money and measure)

- I can use the link between time, speed and distance to carry out related calculations. MNU 4-10b
- I can evaluate and interpret raw and graphical data using a variety of methods, comment on relationships I observe within the data and communicate my findings to others. MNU 4-20a Gathering transport and passenger data from surveys can real-life data for delivering this inter-disciplinary outcome.

Sciences (Forces, electricity and waves)

By making accurate measurements of speed and acceleration, I can relate the motion of an object to
the forces acting on it and apply this knowledge to transport safety. SCN 4-07b Road safety lessons
can provide practical experiences for delivering this outcome





Health & Wellbeing Topic: Fourth Level



Health and Wellbeing (Mental, emotional, social and physical wellbeing)

- I am aware of and able to express my feelings and am developing the ability to talk about them.

 HWB 4-01a Membership of an Eco-Committee can allow pupils to develop greater self-expression
- I know that friendship, caring, sharing, fairness, equality and love are important in building positive relationships. As I develop and value relationships, I care and show respect for myself and others.

 HWB 4-05a A shared concern for a 'neutral' topic such as the environment can help shyer teenagers develop personal relationships against a non-threatening background.
- I understand that people can feel alone and can be misunderstood and left out by others. I am learning how to give appropriate support. HWB 4-08a
- I recognise that each individual has a unique blend of abilities and needs. I contribute to making my school community one which values individuals equally and is a welcoming place for all. HWB 4-10a Anti-bullying programmes, paired reading/maths, 'buddy' programmes etc are all evidence of a school seeking to develop the concept of a 'Sustainable Community'
- I am developing my understanding of the human body and can use this knowledge to maintain and improve my wellbeing and health. **HWB 4-15a**

Health and Wellbeing (Physical education, physical activity and sport)

• I have investigated factors which can influence participation in physical activity and food choices, and the impact of activity on population health in the Scottish and wider contexts. I can use this information to discuss policies and inform my own health choices. HWB 4-28a Pupil participation in all forms of physical activity and sport is a vital element of a school's Health and Wellbeing programme. The PE department will provide crucial supporting evidence for a secondary school developing the Eco-Schools Health and Wellbeing topic.

Health and Wellbeing (Food and health)

- Having researched food and health policy, and dietary legislation, I can explain how this impacts on individuals, the community and the world of work. HWB 4-30a
- I can apply my knowledge and understanding of nutrition, current healthy eating advice and the
 needs of different groups in the community when planning, choosing, cooking and evaluating dishes.
 HWB 4-31a Having assessed how lifestyle or life stages can impact on people's nutritional needs,
- I can explain how these needs are met. HWB 4-32b As with PE above pupil involvement in nutritional awareness programmes within Home Economics is vital evidence for the development of an Eco-Schools H&W topic.

Health and Wellbeing (Substance misuse)

- I understand the positive effects that some substances can have on the mind and body but I am also aware of the negative and serious physical, mental, emotional, social and legal consequences of the misuse of substances. HWB 4-38a Anti-drug and alcohol awareness programmes in schools are all evidence of support for 'Sustainable Communities'.
- I know how to access information and support for substance-related issues. HWB 4-40b Knowing
 who to turn to and where to get help is an important outcome of the Eco-Schools topic.
- I understand the local, national and international impact of substance misuse. HWB 4-43c Awareness of the role played by substance misuse in damaging local communities is an important element in developing the concept of 'Sustainable Communities'.





Water Topic: Fourth Level



Social Studies (People, place and environment)

- I can discuss the sustainability of key natural resources and analyse the possible implications for human activity. SOC 4-08a Sustainability issues over bottled water, water pollution, America's endangered rivers
- I can explain how the distribution and control of important natural resources affects the international power and influences of states. **SOC 4-11b** *Water conflict*

Health and Wellbeing (Mental, emotional, social and physical wellbeing)

• I am developing my understanding of the human body and can use this knowledge to maintain and improve my wellbeing and health. HWB 4-15a Pupils may learn about the essential need for clean water to keep the body healthy.

Technologies (Technological developments in society and business)

• I can analyse products taking into consideration sustainability, scientific and technological developments. TCH 4-05a Water use in mass production,

Sciences (Planet Earth)

- I have propagated and grown plants using a variety of different methods. I can compare these methods and develop my understanding of their commercial use. SCN 4-02a Large volumes of water required for some crops, contention over water sources for avocados
- By contributing to an investigation on different ways of meeting society's energy needs, I can express
 an informed view on the risks and benefits of different energy sources, including those produced from
 plants. SCN 4-04a Large volumes of water required for plant stock for biofuels, investigate the
 extraction of hydrogen from water as a new power source

Sciences (Materials)

• I can monitor the environment by collecting and analysing samples. I can interpret the results to inform others about levels of pollution and express a considered opinion on how science can help to protect our environment. SCN 4-18a

Sciences (Topical Science)

 I have researched new developments in science and can explain how their current or future applications might impact on modern life. SCN 4-20a Methods of providing fresh water e.g. desalination

Religious and moral education (Christianity)

 I can apply my developing understanding of morality to consider a range of moral dilemmas in order to find ways which could promote a more just and compassionate society. RME 4-02b Lack of justice in water conflict, climate justice, using other peoples water





Food & the Environment: Fourth Level



Social Studies (People, place and environment)

- I can discuss the sustainability of key natural resources and analyse the possible implications for human activity. SOC 4-08a Use of fossil fuels in food production, habitat destruction for agriculture, soil erosion and depletion of soil fertility
- Having evaluated the role of agriculture in the production of food and raw material, I can draw
 reasoned conclusions about the environmental impacts and sustainability. SOC 4-09a Monoculture
 and deforestation. Crops as food versus crops as biofuel.
- I can assess the impact of developments in transport infrastructure in a selected area and can contribute to a discussion on the development of sustainable systems. SOC 4-09b Food supply chain and distribution
- Having researched the globalisation of trade, I can explain the interdependence of different parts of the world and assess the impacts for providers, consumers and the environment. SOC 4-11a Investigate the banana market – volume and methods of production, social justice
- I can carry out a geographical enquiry to assess the impact and possible outcomes of climate change on a selected region and can propose strategies to slow or reverse the impact. SOC 4-12b Development of new crop varieties in Scotland and around the world eg saline resistant crops in Bangladesh

Social Studies (People, past events and societies)

• By studying groups in past societies who experienced inequality, I can explain the reasons for the inequality and evaluate how groups or individuals addressed it. SOC 4-04a Relate to land ownership and access to food, inequality and the Irish potato farm

Health and Wellbeing (Food and Health)

- Having explored a range of issues which may affect food choice, I can discuss how this could impact
 on the individual's health. HWB 4-34a Pupils may explore parallels between a healthy diet and a
 sustainable one.
- I have examined and evaluated food packaging and can understand the legal requirements for manufacturers. HWB 4-36a Pupils may investigate information to help assess the sustainability of a product or the regulations concerning labelling of products containing GM ingredients
- By investigating different influences on the consumer, I can discuss how consumers can be influenced by external sources. **HWB 4-37a** Awareness of marketing techniques, target audiences and food advertising campaigns products and retailers. What 'environmentally friendly' messages are there. How accurate are they?

Technologies (Food and textile technology)

- I can explore the properties and functionality of ingredients, textiles and equipment to establish their suitability for a task at home or in the world of work. TCH 4-04a
- I can confidently apply preparation techniques and processes to make food and textile items using specialist skills, materials, equipment in my place of learning, at home or in the world of work. TCH 4-04b
- Showing creativity and innovation I can design, plan and produce increasingly complex food or textile items which satisfy the needs of the user, at home or in the world of work. TCH 4-04c





Food & the Environment: Fourth Level



Literacy (Writing)

 I can justify my choice and use of layout and presentation in terms of the intended impact on my reader. LIT 4-24a Pupils might create a marketing strategy for a sustainable food product

Expressive Arts (Drama)

Having had opportunities to lead negotiation and decision making, I can work on my own and with
others to devise, rehearse and refine dramas and scripts. EXA 4-14a Documentary style presentation
of food stories in the news/past news events

Sciences (Materials)

I have explored how different materials can be derived from crude oil and their uses. I can explain the
importance of carbon compounds in our lives. SCN 4-17a Crude oil as a source of materials for
fertilisers, pesticides, transport, packaging

Sciences (Topical Science)

• I have researched new developments in science and can explain how their current or future applications might impact on modern life. SCN 4-20a GM crops

Sciences (Biological systems)

- Through evaluation of a range of data, I can compare sexual and asexual reproduction and explain their importance for survival of species. SCN 4-14b Consider the Irish potato famine
- I can use my understanding of how characteristics are inherited to solve simple genetic problems and relate this to my understanding of DNA, genes and chromosomes. SCN 4-14c Plant and livestock breeding, GM crops

Sciences (Planet Earth)

- I understand how animal and plant species depend on each other and how living things are adapted
 for survival. I can predict the impact of population growth and natural hazards on biodiversity. SCN 401a Ecosystem services for food production e.g. bees as pollinators, decomposers in nutrient cycles
 etc
- I have propagated and grown plants using a variety of different methods. I can compare these
 methods and develop my understanding of their commercial use. SCN 4-02a
- Through investigating the nitrogen cycle and evaluating results from practical experiments, I can suggest a design for a fertiliser, taking account of its environmental impact. SCN 4-03a Make and use a fertiliser





Global Citizenship Topic: Fourth Level



Social Studies (People, place and environment)

- I can discuss the sustainability of key natural resources and analyse the possible implications for human activity. SOC 4-08a
- Having evaluated the role of agriculture in the production of food and raw material, I can draw reasoned conclusions about the environmental impacts and sustainability. SOC 4-09a Fair trade studies
- I can develop my understanding of the interaction between humans and the environment by describing and assessing the impact of human activity on an area. SOC 4-10
- Having researched the globalisation of trade, I can explain the interdependence of different parts of
 the world and assess the impacts for providers, consumers and the environment. SOC 4-11a Pupils
 may examine the interdependent nature of trade, countries' reliance on each other's produce and the
 nature of multinational corporations. A study of, and involvement in, Fair Trade would be appropriate.
- I can carry out a geographical enquiry to assess the impact and possible outcomes of climate change on a selected region and can propose strategies to slow or reverse the impact. SOC 4-12b

Religious and moral education (Christianity)

 Values and issues I can apply my developing understanding of morality to consider a range of moral dilemmas in order to find ways which could promote a more just and compassionate society. RME 4-02b

Religious and moral education (Development of beliefs and values)

• I can apply philosophical enquiry to explore questions or ethical issues. RME 4-09e