

Welsh - Progression 3 Stage - Mathematics and Numeracy of a Curriculum For Sustainability Complementing the Welsh Framework



This outline, grounded in the Welsh curriculum, provides a foundation for planning teaching, learning, and experiences that promote sustainability. It is designed to be flexible, allowing teachers to adapt the learning to meet the needs of their specific cohort. Co-creating learning experiences is encouraged, fostering collaboration between educators and learners. This progression pathway aims to support teachers in their planning and implementation of sustainability-focused education.

Overarching Objectives for Progression Step 3:

- Promote the development of independent and collaborative learning.
- Encourage critical thinking and the ability to make connections between subjects.
- Develop a sense of responsibility for personal well-being and the environment.
- Continue fostering creativity, curiosity, and a lifelong love of learning.
- Equip learners with the skills to engage with real-world issues, including global challenges such as climate change and social justice.

The Curriculum of Wales

Expressive Arts	Health and Wellbeing	Humanities (including History, Geography, Religion, Values, and Ethics)	Languages, Literacy, and Communication (including Welsh and International Languages)	Mathematics and Numeracy	Science and Technology
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Expressive Arts Subject Areas: Music, Drama, Art, Dance, Film and Digital Media. Objectives: Develop skills in using a wider variety of materials, techniques, and technologies in creative work. Explore a deeper understanding of how emotions, ideas, and narratives can be expressed through art forms. Collaborate in group performances and artistic projects. Begin to reflect more critically on their own work and that of others.	Health and Well-being Subject Areas: Physical Health, Mental and Emotional Well-being, Relationships, Healthy Eating, Personal Safety, and Self-care. Objectives: Develop an understanding of physical, mental, and emotional well-being and how to maintain balance. Take increasing responsibility for making healthy lifestyle choices. Build self-confidence and resilience to	Humanities Subject Areas: History, Geography, Religious Education, Business Studies, Citizenship, and Social Studies. Objectives: Explore significant historical events, people, and places, locally, nationally, and globally. Understand geographical processes and their impact on people and the environment. Examine different belief systems, values, and cultural practices. Begin to develop an understanding of	Languages, Literacy and Communication Subject Areas: English, Welsh, Modern Foreign Languages, Literature, Oracy, and Digital Communication. Objectives: Refine skills in both Welsh and English, in speaking, listening, reading, and writing. Develop confidence in using language for a range of purposes, including debate, persuasion, and creative expression. Explore and analyse a wider variety of texts, both written and spoken, including contemporary and classical works. Begin to learn a	Mathematics and Numeracy Subject Areas: Number, Geometry, Algebra, Measurement, Data Handling, and Problem Solving. Objectives: Continue to develop fluency in number and calculation, including mental arithmetic. Understand more complex mathematical relationships, such as ratios, proportions, and percentages. Use geometry to explore properties of shapes, patterns, and space. Solve increasingly complex mathematical	Science and Technology Subject Areas: Biology, Chemistry, Physics, Computer Science, Design and Technology, Engineering. Objectives: Explore scientific phenomena and develop an understanding of the scientific method (observation, experimentation, analysis). Understand the role of science and technology in solving real-world problems, including sustainability and health.
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Make connections between their own experiences and those portrayed in different artistic forms.	cope with challenges and change. Learn how to manage relationships, both in person and online, with a focus on positive communication and respect. Understand the importance of personal safety, including digital well-being. Reflect on and respond to the emotions of themselves and others.	ethics, rights, and responsibilities in different societies. Understand economic activities and basic business concepts. Investigate the impact of human actions on the environment and learn about sustainability and global citizenship.	modern foreign language and understand its cultural context. Use digital platforms to communicate effectively and safely. Engage in critical discussions about the media and its influence.	problems in a variety of contexts. Begin to understand algebraic concepts and simple equations. Analyse data to draw conclusions and make predictions. Apply mathematical reasoning in real-world scenarios, such as financial literacy or environmental issues.	Develop computational thinking, coding, and digital literacy skills. Investigate the properties and uses of materials and energy. Design, create, and evaluate solutions to technical challenges, such as building structures or simple machines. Study living organisms, ecosystems, and the environment, and understand the importance of biodiversity. Begin to understand the role of engineering and technological innovation in society.
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The Sustainability Curriculum Headings

Understanding Sustainability (SUS1)	Environmental Awareness (SUS2)	Environmental Stewardship (SUS3)	Waste Management (SUS4)	Energy Conservation (SUS5)	Biodiversity and Ecosystems (SUS6)
Climate Change and Adaptation (SUS7)	Food and Agriculture (SUS8)	Water Conservation (SUS9)	Sustainable Transport and Urban Planning (SUS10)	Citizenship / Global Responsibility and Sustainable Development (SUS11)	Outdoor Learning and Connection to Nature (SUS12)

The Sustainability Curriculum Model linked to the Curriculum of Wales - For Mathematics and Numeracy Progression Step 3

Understanding
Sustainability

(SUS1)

Mathematics and Numeracy

Number

- **Objective:** Develop fluency in using mental arithmetic, including addition, subtraction, multiplication, and division, to solve problems related to resource management, such as calculating energy consumption or reducing waste in everyday life.
- **Sustainability Link:** Use mental arithmetic to track and calculate reductions in carbon footprints from sustainable practices (e.g., measuring water and energy savings through subtraction or multiplication).

Geometry

- **Objective:** Explore geometric shapes and their properties, using operations like symmetry, rotation, and scaling, to understand the spatial organisation of sustainable communities, such as eco-friendly housing designs.
- **Sustainability Link:** Use geometric principles to design energy-efficient spaces or explore the geometry of renewable

energy structures, such as solar panels and wind turbines, by applying scaling or ratio operations.

Algebra

- **Objective:** Begin to understand and apply simple algebraic concepts and equations, such as solving for unknowns in sustainability-related problems, using operations like addition, subtraction, multiplication, and division.
- **Sustainability Link:** Use algebra to understand patterns in energy consumption or environmental data, such as calculating the impact of different waste reduction strategies through solving simple equations.

Measurement

- **Objective:** Apply measurement skills to collect data on environmental variables, such as temperature, rainfall, or pollution levels, and perform operations such as addition, subtraction, multiplication, and division to analyse these measurements.
- **Sustainability Link:** Measure and analyse quantities related to sustainability, such as the carbon footprint of different activities, and use mathematical operations to compare and propose solutions for sustainability.

Data Handling

- **Objective:** Analyse data sets, performing operations such as addition, subtraction, multiplication, and division, to draw conclusions and make predictions based on sustainability trends (e.g., predicting the effects of recycling rates on waste reduction).
- **Sustainability Link:** Interpret data related to environmental sustainability, such as water usage or recycling rates, and use mathematical operations to make predictions or propose improvements to sustainability practices.

Problem Solving

- **Objective:** Solve increasingly complex mathematical problems, applying operations like addition, subtraction, multiplication, and division, in diverse contexts, including real-world sustainability challenges such as climate change or resource conservation.
- **Sustainability Link:** Use problem-solving skills and mathematical operations to tackle sustainability issues, such as calculating the most efficient energy-saving strategies or determining the cost-effectiveness of sustainable practices.

Environmental Awareness

(SUS2)

Mathematics and Numeracy

Number

- **Objective:** Develop fluency in mental arithmetic, including addition, subtraction, multiplication, and division, to solve problems related to environmental awareness, such as calculating the impact of waste reduction or energy savings.
- **Environmental Awareness Link:** Use mental arithmetic to estimate or calculate reductions in energy consumption or waste production, using operations like multiplication and division to track improvements in sustainable practices.

Geometry

- **Objective:** Use geometric concepts and operations like symmetry, scaling, and rotation to explore the relationship between shapes, patterns, and environmental spaces, such as green spaces or eco-friendly building designs.
- **Environmental Awareness Link:** Apply geometric operations to explore the design of energy-efficient homes or urban green spaces. Use ratio or scaling to understand the allocation of space for sustainable farming or renewable energy installations, like solar panels or wind turbines.

Algebra

- **Objective:** Begin to understand and apply algebraic concepts, such as solving simple equations and understanding relationships like ratios and proportions, in the context of environmental problems.
- **Environmental Awareness Link:** Use algebraic methods to solve for unknowns in sustainability-related scenarios, such

as calculating the effects of reducing energy use by a certain percentage or determining the proportion of resources saved by recycling materials.

Measurement

- **Objective:** Apply measurement skills to collect and interpret environmental data, such as air quality, water usage, or waste production, using operations like addition, subtraction, multiplication, and division to analyse these measurements.
- **Environmental Awareness Link:** Measure and analyse environmental variables, such as the carbon footprint of different activities, and use mathematical operations to evaluate the success of sustainable practices like water conservation or the reduction of single-use plastics.

Data Handling

- **Objective:** Analyse and interpret data, performing operations such as addition, subtraction, multiplication, and division, to draw conclusions and make predictions based on environmental trends, such as climate data or recycling rates.
- **Environmental Awareness Link:** Use data analysis to track environmental progress, such as monitoring recycling rates, carbon emissions, or energy usage. Apply mathematical operations to forecast trends and suggest actions for environmental improvement.

Problem Solving

- **Objective:** Solve complex mathematical problems involving addition, subtraction, multiplication, and division in various real-world scenarios, particularly those relating to environmental challenges, such as resource conservation or pollution reduction.
- **Environmental Awareness Link:** Use problem-solving skills to calculate the impact of various sustainable practices, such as how much water or energy can be saved through conservation efforts or how reducing waste affects overall carbon emissions.

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Environmental Stewardship

(SUS3)

Mathematics and Numeracy

Number

- **Objective:** Continue to develop fluency in number and calculation, including mental arithmetic using addition, subtraction, multiplication, and division to solve problems related to environmental stewardship, such as calculating resource conservation or waste management.
- **Environmental Stewardship Link:** Use mental arithmetic to estimate or calculate the impact of resource conservation efforts, such as determining the total amount of water saved by reducing consumption, or the energy saved by using sustainable practices.

Geometry

- **Objective:** Explore geometric concepts such as symmetry, rotation, scaling, and area to understand the design and spatial organisation of sustainable environments, such as green spaces, sustainable buildings, or urban gardens.
- **Environmental Stewardship Link:** Use geometric operations to model sustainable land use, such as calculating the area of a community garden, or determining the scale of a renewable energy project (e.g., wind farms or solar panel installations) based on available space.

Algebra

- **Objective:** Begin to understand algebraic concepts, including solving simple equations and understanding relationships like ratios and proportions, in the context of environmental stewardship issues.
- **Environmental Stewardship Link:** Use algebraic reasoning to solve for unknowns in sustainability-related problems, such as calculating the proportion of waste diverted from landfill through recycling or determining the proportion of energy saved by adopting renewable sources.

Measurement

- **Objective:** Apply measurement skills to collect and interpret environmental data, such as carbon emissions, energy consumption, or water usage, using operations like addition, subtraction, multiplication, and division to analyse the data.

- **Environmental Stewardship Link:** Measure and assess environmental impacts, such as calculating the carbon footprint of different activities, and use mathematical operations to track improvements in resource conservation, such as energy savings through the use of energy-efficient appliances.

Data Handling

- **Objective:** Analyse and interpret data to draw conclusions and make predictions about environmental stewardship, using operations such as addition, subtraction, multiplication, and division to identify trends and patterns.
- **Environmental Stewardship Link:** Use data analysis to evaluate the success of environmental initiatives, such as calculating the reduction in waste or the increase in recycling rates. Apply mathematical operations to predict future trends in resource conservation or waste management.

Problem Solving

- **Objective:** Solve increasingly complex mathematical problems, applying operations such as addition, subtraction, multiplication, and division in a variety of real-world contexts related to environmental stewardship.
- **Environmental Stewardship Link:** Use problem-solving skills to determine the most effective methods for reducing energy consumption, managing waste, or conserving water. For example, calculate the financial savings or environmental benefits of installing energy-efficient technologies or implementing a waste reduction strategy.

Waste Management

(SUS4)

Mathematics and Numeracy

Number

- Objective: Continue to develop fluency in number and calculation, including mental arithmetic with addition, subtraction, multiplication, and division, to solve problems related to waste management, such as calculating the amount of waste recycled or reduced.
- Waste Management Link: Use mental arithmetic to calculate the total volume of waste diverted from landfills by recycling, or determine how much waste can be reduced by adopting more sustainable practices in daily life, using operations such as multiplication or division to calculate totals or averages.

Geometry

- Objective: Use geometric concepts like symmetry, rotation, and area to understand how waste management systems are designed, including the space required for recycling bins, landfills, or composting areas.
- Waste Management Link: Apply geometry to calculate the area needed for different waste management systems, such as determining the space required for waste separation stations or recycling depots, and exploring how to optimise space in recycling centres by using geometric properties.

Algebra

- Objective: Begin to understand algebraic concepts such as solving simple equations and understanding ratios and proportions in the context of waste management.
- Waste Management Link: Use algebraic reasoning to solve for unknowns in waste management scenarios, such as calculating the ratio of recycled materials to total waste or determining the proportion of waste that can be reused versus disposed of in landfills, using basic algebraic operations.

Measurement

- Objective: Apply measurement skills to collect and interpret data on waste, such as the weight or volume of waste materials, and perform operations like addition, subtraction, multiplication, and

division to analyse waste management data.

- Waste Management Link: Measure and calculate quantities of waste produced, recycled, and diverted from landfills, using operations to analyse and compare different waste streams. For example, measure the weight of recyclable materials and calculate the percentage reduction in landfill waste over time.

Data Handling

- Objective: Analyse and interpret waste management data, using addition, subtraction, multiplication, and division, to draw conclusions and make predictions about waste reduction strategies.
- Waste Management Link: Use data analysis to track waste management performance, such as the recycling rates or landfill diversion rates in a community, and apply mathematical operations to predict how much waste can be reduced if specific actions, such as increased recycling or composting, are implemented.

Problem Solving

- Objective: Solve increasingly complex mathematical problems, applying addition, subtraction, multiplication, and division, in real-world contexts related to waste management.
- Waste Management Link: Use problem-solving skills to calculate the effectiveness of different waste management strategies, such as determining how much energy or money can be saved by reducing waste, recycling more, or adopting composting techniques. Solve problems like calculating the cost-effectiveness of recycling programmes or predicting the environmental impact of waste reduction initiatives.

Mathematics and Numeracy

Number

- **Objective:** Continue to develop fluency in number and calculation, including mental arithmetic using addition, subtraction, multiplication, and division to solve problems related to energy conservation, such as calculating energy savings from using energy-efficient appliances or reducing energy consumption.
- **Energy Conservation Link:** Use mental arithmetic to estimate or calculate the total energy saved by turning off lights or using energy-efficient appliances. For example, calculate the cost savings from using low-energy light bulbs through simple multiplication or division.

Geometry

- **Objective:** Use geometric concepts such as symmetry, area, and volume to explore the design and space optimisation of energy-efficient homes or renewable energy installations, like solar panels and wind turbines.
- **Energy Conservation Link:** Apply geometry to calculate the area required for solar panel installations or wind turbines. Use geometric principles to explore how to maximise the energy efficiency of spaces, such as determining the optimal placement of solar panels on rooftops to capture the most sunlight.

Algebra

- **Objective:** Begin to understand and apply algebraic concepts, including solving simple equations and understanding ratios and proportions in the context of energy conservation.
- **Energy Conservation Link:** Use algebraic reasoning to solve for unknowns in energy conservation scenarios, such as calculating the proportion of energy saved through the use of energy-efficient appliances, or determining how much energy can be saved by reducing heating or cooling in a building based on a given percentage.

Measurement

- **Objective:** Apply measurement skills to collect and interpret data on energy use, such as electricity consumption, and

perform operations like addition, subtraction, multiplication, and division to analyse energy data.

- **Energy Conservation Link:** Measure energy consumption and calculate the potential savings from reducing usage. For example, measure the wattage of an appliance and calculate how much energy is used over time, using multiplication and division to determine savings when using more efficient appliances.

Data Handling

- **Objective:** Analyse and interpret energy data, using addition, subtraction, multiplication, and division, to draw conclusions and make predictions about energy usage and conservation.
- **Energy Conservation Link:** Use data analysis to track energy consumption over time, calculate the percentage of energy saved through specific conservation measures (e.g., using LED bulbs), and predict future savings if similar practices are continued.

Problem Solving

- **Objective:** Solve increasingly complex mathematical problems involving addition, subtraction, multiplication, and division in the context of energy conservation.
- **Energy Conservation Link:** Use problem-solving skills to determine the most effective energy-saving strategies, such as calculating the return on investment (ROI) for energy-efficient appliances or determining how much energy can be saved by reducing heating or cooling in different seasons. Solve real-world problems like calculating the total savings over a year from using energy-saving measures across a school or home.

Biodiversity and Ecosystems (SUS6)

Mathematics and Numeracy

Number

- **Objective:** Continue to develop fluency in number and calculation, including mental arithmetic with addition,

subtraction, multiplication, and division, to solve problems related to biodiversity and ecosystems, such as calculating species populations or resource use.

- **Biodiversity and Ecosystems Link:** Use mental arithmetic to estimate or calculate the number of species in a given area, or track the amount of resources (e.g., food, water) used by different species in an ecosystem, through operations like addition and multiplication.

Geometry

- **Objective:** Use geometric concepts such as symmetry, area, and space to explore the layout of ecosystems, including habitats, and understand how space is allocated within ecosystems for biodiversity.
- **Biodiversity and Ecosystems Link:** Apply geometry to calculate the area of ecosystems or habitats, such as forests or wetlands, and analyse how these spaces support biodiversity. Use geometric principles to measure and compare different habitats and their suitability for different species, exploring how area impacts biodiversity.

Algebra

- **Objective:** Begin to understand algebraic concepts such as simple equations, ratios, and proportions in the context of biodiversity and ecosystem dynamics.
- **Biodiversity and Ecosystems Link:** Use algebra to solve for unknowns in biodiversity-related scenarios, such as calculating the ratio of plant species to animal species in an ecosystem, or determining the proportion of different species in a given population. Solve simple equations related to species population growth or resource availability.

Measurement

- **Objective:** Apply measurement skills to collect and interpret data related to biodiversity, such as the number of species in a specific area or the resources available to an ecosystem, using operations like addition, subtraction, multiplication, and division to analyse the data.
- **Biodiversity and Ecosystems Link:** Measure and calculate the diversity of species in a particular habitat, using operations to determine population sizes, species density, or the total area of habitats required to sustain different species. Use multiplication or division to determine ratios or averages of species populations.

Data Handling

- **Objective:** Analyse and interpret biodiversity data, using operations such as addition, subtraction, multiplication, and division, to draw conclusions and make predictions about ecosystem health and species conservation.

- **Biodiversity and Ecosystems Link:** Use data analysis to evaluate the health of ecosystems based on species diversity, pollution levels, or resource availability. Apply mathematical operations to predict the effects of changes to an ecosystem, such as the impact of deforestation on species populations.

Problem Solving

- **Objective:** Solve increasingly complex mathematical problems, applying addition, subtraction, multiplication, and division in various real-world contexts related to biodiversity and ecosystems.
- **Biodiversity and Ecosystems Link:** Use problem-solving skills to calculate how changes in biodiversity (such as species decline or habitat loss) affect ecosystems. Solve problems like determining how many species could be supported by a habitat of a given size or calculating the impact of environmental changes (e.g., temperature rise) on species distribution and ecosystem health.

Climate Change and Adaptation

(SUS7)

Mathematics and Numeracy

Number

- **Objective:** Continue to develop fluency in number and calculation, including mental arithmetic with addition, subtraction, multiplication, and division, to solve problems related to climate change and adaptation, such as calculating carbon emissions reductions or energy savings from climate adaptation measures.
- **Climate Change and Adaptation Link:** Use mental arithmetic to calculate the impact of specific climate adaptation strategies, such as how much CO₂ is saved by using renewable energy sources or by reducing

energy consumption through insulation or energy-efficient appliances.

Geometry

- Objective: Use geometric concepts such as area, volume, and space to explore the physical dimensions and spatial layout of climate adaptation strategies, such as the installation of green roofs, flood barriers, or sustainable urban spaces.
- Climate Change and Adaptation Link: Apply geometry to calculate the area of green spaces, floodplain zones, or urban areas required to mitigate the effects of climate change. Use geometric principles to explore how different adaptations (e.g., green roofs or permeable surfaces) can help manage urban heat islands or flooding.

Algebra

- Objective: Begin to understand and apply algebraic concepts such as ratios, proportions, and simple equations in the context of climate change and adaptation.
- Climate Change and Adaptation Link: Use algebra to model and solve problems related to the effects of climate change, such as calculating the proportion of the population affected by sea-level rise, or determining the ratio of renewable energy to total energy consumption in climate adaptation plans. Solve simple equations to predict future climate scenarios, such as temperature changes based on CO₂ emission levels.

Measurement

- Objective: Apply measurement skills to collect and interpret data on climate-related variables, such as temperature, rainfall, or energy usage, and perform operations like addition, subtraction, multiplication, and division to analyse and interpret this data.
- Climate Change and Adaptation Link: Measure and calculate variables related to climate change, such as global temperature rise, changes in precipitation patterns, or the impact of climate adaptation measures like flood control. Use multiplication or division to assess the effectiveness of climate adaptation strategies, such as determining the total reduction in greenhouse gas emissions from a set of adaptation actions.

Data Handling

- Objective: Analyse and interpret climate data, using operations such as addition, subtraction, multiplication, and division, to draw conclusions and make predictions about climate change and its potential impacts.
- Climate Change and Adaptation Link: Use data analysis to evaluate the effectiveness of climate adaptation measures, such as the reduction in energy consumption or the increase in green spaces in cities. Apply mathematical operations to predict the future impact of climate change, such as forecasting the increase in extreme weather events or sea-level rise based on current trends.

Problem Solving

- Objective: Solve increasingly complex mathematical problems, applying addition, subtraction, multiplication, and division in various real-world contexts related to climate change and adaptation.
- Climate Change and Adaptation Link: Use problem-solving skills to calculate the impact of climate change and to devise strategies for adaptation, such as determining how much area must be allocated for flood defences or how much renewable energy can replace fossil fuels in a particular region. Solve problems related to resource allocation for adaptation strategies or calculating the financial costs of climate resilience actions.

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Food and Agriculture

(SUS8)

Mathematics and Numeracy

Number

- **Objective:** Continue to develop fluency in number and calculation, including mental arithmetic with addition, subtraction, multiplication, and division, to solve problems related to food, agriculture, aquaculture, and agroforestry, such as calculating crop yields, fish harvests, or resource use.
- **Food, Agriculture, Aquaculture, and Agroforestry Link:** Use mental arithmetic to estimate or calculate the amount of food produced per hectare, the growth rate of fish in aquaculture systems, or the quantity of resources (e.g., water, fertiliser) required for farming or forestry. Apply operations such as multiplication to calculate crop yields or the cost of production.

Geometry

- **Objective:** Use geometric concepts such as area, volume, and shapes to explore the layout and space optimisation of agricultural and aquaculture systems, as well as agroforestry practices.
- **Food, Agriculture, Aquaculture, and Agroforestry Link:** Apply geometry to calculate the area needed for agricultural fields, fish farms, or agroforestry systems. Use geometric principles to design efficient layouts for planting trees or crops in agroforestry, or to measure the volume of water needed for irrigation in farming or aquaculture systems.

Algebra

- **Objective:** Begin to understand and apply algebraic concepts, including solving simple equations, ratios, and proportions, in the context of food production, agriculture, aquaculture, and agroforestry.
- **Food, Agriculture, Aquaculture, and Agroforestry Link:** Use algebra to solve for unknowns in scenarios such as calculating the number of crops that can be grown based on available resources (e.g., space, water, or nutrients). Solve equations to predict fish growth in aquaculture or determine the proportion of land used for different crops or agroforestry practices.

Measurement

- **Objective:** Apply measurement skills to collect and interpret data on food, agriculture, aquaculture, and agroforestry systems, such as crop growth, fish weight, or water use, and perform operations like addition, subtraction, multiplication, and division to analyse the data.
- **Food, Agriculture, Aquaculture, and Agroforestry Link:** Measure and calculate data such as the weight of crops, the growth of fish, or the water usage in agricultural systems. Use multiplication or division to determine the average yield

per unit area, the ratio of water used to produce a certain amount of food, or the volume of resources required for agroforestry practices.

Data Handling

- **Objective:** Analyse and interpret data related to food, agriculture, aquaculture, and agroforestry, using operations such as addition, subtraction, multiplication, and division, to draw conclusions and make predictions.
- **Food, Agriculture, Aquaculture, and Agroforestry Link:** Use data analysis to evaluate the success of agricultural or aquaculture practices, such as measuring growth rates of crops or fish over time. Apply mathematical operations to predict future yields, calculate the impact of environmental changes (e.g., weather patterns) on food production, or analyse the effectiveness of resource conservation strategies in agroforestry systems.

Problem Solving

- **Objective:** Solve increasingly complex mathematical problems, applying addition, subtraction, multiplication, and division, in various real-world contexts related to food, agriculture, aquaculture, and agroforestry.
- **Food, Agriculture, Aquaculture, and Agroforestry Link:** Use problem-solving skills to calculate the most efficient agricultural or aquaculture practices, such as determining how much land is needed for a certain number of crops or fish, or how much fertiliser or water is required for optimal crop production. Solve problems like calculating the cost-benefit ratio of sustainable farming or aquaculture practices or determining the environmental impact of different agroforestry approaches.

Water Conservation

(SUS9)

Mathematics and Numeracy

Number

- Objective: Continue to develop fluency in number and calculation, including mental arithmetic using addition, subtraction, multiplication, and division, to solve problems related to water conservation, such as calculating water savings from different conservation measures.
- Water Conservation Link: Use mental arithmetic to estimate or calculate water savings from using water-efficient appliances, rainwater harvesting, or reducing water waste. Apply multiplication and division to determine the total amount of water saved over time by adopting conservation strategies.

Geometry

- Objective: Use geometric concepts such as area, volume, and space to explore the spatial layout and design of water conservation systems, such as rainwater collection systems or efficient irrigation methods.
- Water Conservation Link: Apply geometry to calculate the volume of water stored in rainwater harvesting tanks, or the area of land covered by irrigation systems. Use geometric principles to understand how space is used efficiently in water conservation strategies and calculate how to optimise space for water-saving solutions.

Algebra

- Objective: Begin to understand and apply algebraic concepts such as simple equations, ratios, and proportions in the context of water conservation.
- Water Conservation Link: Use algebra to solve for unknowns in water conservation scenarios, such as calculating the proportion of water saved through specific actions like installing low-flow taps or reducing water consumption by a given percentage. Solve equations related to water usage and conservation strategies, such as calculating how much water can be saved in a household based on daily usage.

Measurement

- Objective: Apply measurement skills to collect and interpret data on water usage and conservation, using operations like addition, subtraction, multiplication, and division to analyse the data.
- Water Conservation Link: Measure and calculate water usage, waste, or savings in different contexts, such as

household consumption, irrigation systems, or water treatment facilities. Use multiplication or division to analyse the efficiency of water-saving strategies, such as calculating the reduction in water use after implementing a rainwater collection system.

Data Handling

- Objective: Analyse and interpret data related to water conservation, using operations such as addition, subtraction, multiplication, and division, to draw conclusions and make predictions.
- Water Conservation Link: Use data analysis to evaluate water-saving measures, such as measuring the reduction in water usage over time or comparing water usage before and after implementing conservation techniques. Apply mathematical operations to predict future water consumption based on trends or forecast the savings from adopting new water-saving technologies.

Problem Solving

- Objective: Solve increasingly complex mathematical problems, applying addition, subtraction, multiplication, and division, in various real-world contexts related to water conservation.
- Water Conservation Link: Use problem-solving skills to determine the most effective water-saving strategies, such as calculating how much water can be saved by reducing outdoor water use or by installing water-efficient appliances. Solve problems like calculating the cost-effectiveness of water conservation measures or determining the financial savings from reducing water consumption in households or businesses.

Sustainable Transport and Urban Planning

(SUS10)

Mathematics and Numeracy

Number

- Objective: Continue to develop fluency in number and calculation, including mental arithmetic using addition, subtraction, multiplication, and division, to solve problems related to sustainable transport and urban planning, such as calculating travel distances, time savings, or fuel consumption reductions.
- Sustainable Transport and Urban Planning Link: Use mental arithmetic to calculate the total distance travelled by sustainable transport options (e.g., walking, cycling, public transport) or estimate the time saved by optimising routes for reduced traffic. Apply multiplication or division to determine fuel savings or reductions in carbon emissions from using public transport or cycling instead of driving.

Geometry

- Objective: Use geometric concepts such as area, volume, shapes, and patterns to explore the design and layout of urban spaces, including sustainable transport infrastructure such as cycle lanes, pedestrian walkways, and public transport hubs.
- Sustainable Transport and Urban Planning Link: Apply geometric principles to calculate the area required for cycle lanes or the volume of space needed for public transport stations. Use geometric patterns to design optimal layouts for green spaces, pedestrian areas, and sustainable transport routes within urban environments. For example, calculate the area needed for urban parks or public transport terminals in relation to the population size.

Algebra

- Objective: Begin to understand and apply algebraic concepts such as ratios, proportions, and simple equations in the context of sustainable transport and urban planning.
- Sustainable Transport and Urban Planning Link: Use algebra to solve for unknowns in transport planning scenarios, such as calculating the number of bikes or buses needed based on population size or travel demand. Solve simple equations to determine the proportion of a city's population that can use sustainable

transport based on the number of available bikes, buses, or walking routes.

Measurement

- Objective: Apply measurement skills to collect and interpret data related to transport and urban planning, such as distances, times, and space usage, using operations like addition, subtraction, multiplication, and division to analyse this data.
- Sustainable Transport and Urban Planning Link: Measure distances and calculate travel times for different modes of transport, such as walking, cycling, or using public transport. Use measurement to assess the efficiency of different transport routes, comparing the time taken or distance travelled using different modes of transport. For example, calculate the amount of space required for cycle lanes or the number of people served by a bus route.

Data Handling

- Objective: Analyse and interpret data, using operations such as addition, subtraction, multiplication, and division, to draw conclusions and make predictions about the efficiency of sustainable transport systems or urban planning strategies.
- Sustainable Transport and Urban Planning Link: Use data analysis to evaluate the impact of urban planning strategies, such as the increase in the use of public transport or cycling, and calculate reductions in traffic congestion. Apply mathematical operations to predict future travel patterns, such as estimating the future number of cyclists or public transport users based on current trends.

Problem Solving

- Objective: Solve increasingly complex mathematical problems, applying addition, subtraction, multiplication, and division, in real-world contexts related to sustainable transport and urban planning.
- Sustainable Transport and Urban Planning Link: Use problem-solving skills to optimise sustainable transport routes or design urban infrastructure that supports sustainable mobility. Solve problems such as calculating the most efficient allocation of space for bike lanes, pedestrian paths, or green areas, or determining how much public transport capacity is needed to meet the growing demand in a city

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Citizenship / Global Responsibility and Sustainable Development (SUS11)

Mathematics and Numeracy

Number

- Objective: Continue to develop fluency in number and calculation, including mental arithmetic using addition, subtraction, multiplication, and division, to solve problems related to Citizenship and the SDGs, such as calculating the allocation of resources for global goals or measuring the impact of sustainable practices.
- Citizenship and SDGs Link: Use mental arithmetic to estimate or calculate the allocation of resources for initiatives related to the SDGs, such as calculating the funds required to provide clean water or access to education. Apply operations to assess the impact of sustainable practices, such as calculating reductions in waste or energy consumption from sustainability programmes.

Geometry

- Objective: Use geometric concepts such as area, volume, and spatial awareness to explore the design of sustainable infrastructure, such as renewable energy systems, clean water projects, or green cities, in alignment with global goals.
- Citizenship and SDGs Link: Apply geometry to calculate the space required for sustainable infrastructure, such as determining the area needed for solar panels, wind farms, or green spaces in urban areas. Use geometric principles to optimise land use for SDGs like affordable housing or sustainable cities, considering the needs of a growing population.

Algebra

- Objective: Begin to understand and apply algebraic concepts, including ratios, proportions, and simple equations, in the context of Citizenship and SDGs.

- Citizenship and SDGs Link: Use algebra to solve problems related to resource distribution for the SDGs, such as calculating the ratio of people receiving clean energy to those without access. Solve equations to determine the proportion of resources allocated for different global goals, such as the amount of funding needed for health programmes or poverty reduction.

Measurement

- Objective: Apply measurement skills to collect and interpret data on sustainable development and global goal indicators, using operations like addition, subtraction, multiplication, and division to analyse this data.
- Citizenship and SDGs Link: Measure data related to SDGs, such as calculating the number of people with access to clean water or the area of land used for sustainable agriculture. Use measurement and operations to assess progress towards achieving the SDGs, such as calculating the percentage reduction in global poverty or the increase in renewable energy production.

Data Handling

- Objective: Analyse and interpret data, using operations such as addition, subtraction, multiplication, and division, to draw conclusions and make predictions about progress towards the SDGs and global goals.
- Citizenship and SDGs Link: Use data analysis to track the progress of various global goals, such as analysing the impact of education programmes on literacy rates or assessing the success of clean energy projects. Apply mathematical operations to predict future trends or measure improvements in global sustainability, such as the expected reduction in carbon emissions or increase in global life expectancy.

Problem Solving

- Objective: Solve increasingly complex mathematical problems, applying addition, subtraction, multiplication, and division, in a variety of real-world contexts related to Citizenship, the SDGs, and global goals.
- Citizenship and SDGs Link: Use problem-solving skills to address challenges related to the SDGs, such as calculating the resources required to achieve zero hunger or ensuring equitable access to education and healthcare. Solve problems like determining how to allocate financial resources to meet global goals or predicting the outcomes of policies aimed at improving environmental sustainability or social equity.

Outdoor Learning and Connection to Nature (SUS12)

Mathematics and Numeracy

Number

- Objective: Continue to develop fluency in number and calculation, including mental arithmetic with addition, subtraction, multiplication, and division, to solve problems related to outdoor learning and experiencing nature.
- Outdoor Learning Link: Use mental arithmetic to estimate or calculate the number of trees planted during an outdoor activity or the distance walked during nature exploration. Apply multiplication and division to calculate the total area of land covered by different plants, or to estimate how many hours spent outdoors contribute to physical or environmental benefits.

Geometry

- Objective: Use geometric concepts such as area, volume, symmetry, and shapes to explore patterns in nature, such as the arrangement of trees in a forest, or the design of green spaces in urban environments.
- Outdoor Learning Link: Apply geometry to calculate the area of a park or forest, or measure the volume of trees or plants in an outdoor space. Use geometric principles to understand the natural patterns in plants, flowers, or animals, such as symmetry in leaves or the spacing between tree trunks in a forest.

Algebra

- Objective: Begin to understand and apply algebraic concepts such as simple equations, ratios, and proportions in the context of outdoor learning and nature experiences.
- Outdoor Learning Link: Use algebra to calculate the rate at which plants grow over time, or to determine the proportion of different types of plants in an outdoor space. Solve simple equations related to nature, such as calculating the amount of water required for plants based on their growth rate, or determining how many

plants can fit in a given area using ratios.

Measurement

- Objective: Apply measurement skills to collect and interpret data from outdoor environments, using operations like addition, subtraction, multiplication, and division to analyse the data.
- Outdoor Learning Link: Measure the height of trees, the area of a garden, or the distance between landmarks in a rural or urban outdoor setting. Use measurement to record the growth of plants over time, calculate the temperature or rainfall in different areas, or assess how much space different animals or plants occupy in an environment.

Data Handling

- Objective: Analyse and interpret data related to outdoor environments, such as temperature, rainfall, plant growth, or animal populations, using operations such as addition, subtraction, multiplication, and division to draw conclusions.
- Outdoor Learning Link: Collect and analyse data from nature-related activities, such as comparing the growth of plants in different environments (urban vs rural) or tracking seasonal changes in temperature or animal movements. Use data to predict patterns, such as plant growth rates or the impact of environmental changes on local ecosystems.

Problem Solving

- Objective: Solve increasingly complex mathematical problems, applying addition, subtraction, multiplication, and division, in various real-world contexts related to outdoor learning and nature experiences.
- Outdoor Learning Link: Use problem-solving skills to determine the best way to plant trees or create green spaces in urban or rural areas. Solve problems like calculating how much water is needed for a garden, estimating how many plants will fit in a space based on their growth patterns, or calculating the environmental impact of certain outdoor activities (e.g., walking vs driving).

