3–5 years (Nursery and Reception)

Learning will include the development of the following knowledge, concepts and skills		Learning outcomes in science
Transdisciplinary theme **How the world works** An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principles; the impact of scientific and technological advances on society and on the environment. **Central idea** Living and non- living things interact with and adapt to their environment in different ways. **Big Idea** Habitat **Key concepts** ● Form ● Connection ● Responsibility **Related concepts** ● Adaptation	**Science strand(s)** Living things **Science skills** ● **Observation**: Noticing differences between living and non-living things and identifying elements in various habitats. ● **Collaboration**: Working together to create habitat models or role-play scenarios involving interdependence. ● **Speaking**: Sharing observations about living and non-living things or explaining how animals adapt to their environment.	**The student will be able to:** ● identify living and non-living things in their immediate environment (e.g., plants, animals, water, rocks). ● identify simple examples of interdependence (e.g., birds building nests in trees, fish living in water). ● demonstrate awareness of actions that can harm or help the environment (e.g., littering vs. recycling). ● express ways to care for living things, such as watering plants or feeding animals.

• Growth • Eco- system **Lines of inquiry** • What makes up a habitat • How living and non- living things depend on each other • Our roles in caring for living and non- living things in the environment.		

Learning will include the development of the following knowledge, concepts and skills		Learning outcomes in science
Transdisciplinary theme **Sharing the planet** An inquiry into rights and responsibilities in the struggle to share finite resources with other people and with other living things; communities and the relationships within and between them; access to equal opportunities; peace and conflict resolution. **Central idea** Living things have needs in order to survive.	**Science strand(s)** Living things **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as	**The student will be able to:** • observe and describe the characteristics of living and non-living things • observe the needs of living things that enable them to stay healthy • take responsibility for living things found in his or her environment

Key concepts Form Responsibility Connection **Related concepts** Classification Living and nonliving Survival **Lines of inquiry** • Characteristics of living things • Our needs and the needs of other living things • Our responsibility for the well-being of other living things	necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations)	

Learning will include the development of the following knowledge, concepts and skills		Learning outcomes in science
Transdisciplinary theme **How the world works** An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principles; the impact of scientific and technological	**Science strand(s)** Materials and matter **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their	**The student will be able to:** • use senses to describe observable properties of familiar materials (including solids, liquids, gases) • describe observable changes (including changes of state) that occur in materials

advances on society and on the environment. **Central idea** Weather and seasonal changes affect everyday life. **Key concepts** Function Change Causation **Related concepts** Cycles Patterns Living Things **Lines of inquiry** Types of weather Seasonal Changes How seasonal changes affect living things	observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations)	• recognize that materials can be solid, liquid or gas • be aware of how to change water into a solid, liquid and gas • apply understanding of basic properties of materials in order to match materials to purpose (for example, waterproofing, insulating).

Learning will include the development of the following knowledge, concepts and skills		Learning outcomes in science
Transdisciplinary theme **Sharing the planet** An inquiry into rights and responsibilities in the struggle to share finite resources with other people and with other living things; communities	**Science strand(s)** Living things **Science skills** ● Identifying how resources are used in everyday life (e.g., water for drinking, paper for writing).	**The student will be able to:** ● identify everyday resources they use, such as water, electricity, paper, and food. ● describe how resources are used at home, school, and in

and the relationships within and between them; access to equal opportunities; peace and conflict resolution **Central idea** Being a responsible member of the community involves conserving resources. **Big Idea** Conservation **Key concepts** • Responsibility • Change • Connection **Related concepts** • Interdependence • Conservation Resources **Lines of inquiry** ● Our use of resources ● Actions we can take to conserve the resources we use ● Reasons to reuse, reduce and recycle everyday resources.	● Evaluating their actions and deciding how they can use resources responsibly. ● Explaining how they use resources at home or school and sharing ideas to reduce waste. ● Explaining how they use resources at home or school and sharing ideas to reduce waste.	their community. ● recognize the difference between renewable and non-renewable resources in simple terms. ● demonstrate ways to conserve resources, such as turning off lights, saving water, and recycling paper. ● identify how their actions, such as recycling or picking up litter, contribute to a cleaner environment.

SIS Science Scopes and Sequences

5 - 7 years (Year 1 & 2)

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **Who we are** An inquiry into the nature of the self; beliefs and values; personal, physical, mental, social and spiritual health; human relationships including families, friends, communities and cultures; rights and responsibilities; what it means to be human. **Central idea** Making balanced choices about daily routines enables us to have a healthy lifestyle. **Key concepts** • Function • Causation • Reflection Related concepts • Balance • Well-being **Lines of inquiry** • Daily habits and routines	**Science strand(s)** Living things **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their	**The student will be able to:** • recognize that living things, including humans, need certain resources for energy and growth • identify the major food groups and be aware of the role they play in human development.

(hygiene, sleep, play, eating) • Balanced choices • Consequences of choices	limitations)	

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **How the world works** An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principles; the impact of scientific and technological advances on society and on the environment. **Central idea** Light and Sound can be used to perceive and interact with the world. **Key concepts** • Form • Connection . Change **Related concepts**	**Science strand(s)** Light from different sources **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to	**The student will be able to:** ● Know that darkness is the absence of light ● Know that there are many light sources including the sun ● Describe the apparent movement of the sun during the day ● Identify how we use electricity and describe how to be safe with it ● Recognise the components of simple circuits (limited to cells wires and lamps) ● Explore the construction of simple series circuits (limited to cells, wires and lamps) ● Describe the Sun as a source of heat and light

Transfer Energy (light & sound) Manipulation Appreciation **Lines of inquiry** • The sources and properties of light and sound Ways to manipulate the light and sound How light and sound can be used	draw conclusions h. Consider scientific models and applications of these models (including their limitations)	

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **Sharing the planet** An inquiry into rights and responsibilities in the struggle to share finite resources with other people and with other living things; communities and the relationships within and between them; access to equal opportunities; peace and conflict resolution. **Central idea** Animals and plants are essential for sustaining life on earth **Key concepts** • Form	**Science strand(s)** Living things Earth and space **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic	**The student will be able to:** • describe the natural features of local and other environments (for example, underlying geology) • analyse ways in which humans use the natural Environment • identify or generate a question or problem to be explored in relation to human impact on the local environment. ● Know that an environment in which a plant or animal

Function Change **Related concepts** • Global Citizenship Access Limited Conserve **Lines of inquiry** • Characteristics of plants and animals based on their habitat The roles of plants and animals in our lives The growth of animals and plants Dangerous animals	investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations)	naturally lives is its habitat ● Know that different habitats contain different plants and animals ● Compare how animals including humans are similar and different in their external body parts and skin covering ● Identify similarities and differences between local environments in terms of hot, cold, dry, wet, plants, animals.

SIS Science Scopes and Sequences

Transdisciplinary theme **How the world works** An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principles; the impact of scientific and technological advances on society and on the environment. **Central idea** Understanding the properties of air allows people to make practical applications. **Key concepts** • Function • Causation **Related concepts**	**Science strand(s)** Living things Earth and space Materials and matter Forces and energy **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored	**The student will be able to:** • investigate and identify the properties of air • examine how people use air in their everyday lives (for example, transportation, recreation) • reflect on the impact of air on living things • apply their understanding about the properties of air (for example, building a windmill) • explore links between

• Force • Energy **Lines of inquiry** • The evidence of the existence of air • What air can do and how we use it • The relationship between air, light and sound	e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations)	air, light and sound (for example, thunder and lightning).

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **Sharing the planet** An inquiry into rights and responsibilities in the struggle	**Science strand(s)** Living things Earth and space Materials and matter	**The student will be able to:** • reflect on and self-assess his or her personal use of natural resources

to share finite resources with other people and with other living things; communities and the relationships within and between them; access to equal opportunities; peace and conflict resolution. **Central idea** People can establish practices in order to sustain and maintain the Earth's resources. **Key concepts** • Change • Responsibility • Reflection **Related concepts** • Lifestyle • Resources **Lines of inquiry** • Limited nature of the Earth's resources • Personal choices that can help sustain the environment • Reusing and recycling different materials • Reducing waste	**Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations)	• investigate ways that familiar materials can be reused • group materials on the basis of properties for the purpose of recycling • describe how a particular material is recycled • explore the role of living things in recycling energy and matter.

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Humans	**Science strand(s)**	**The student will be able to:**

An inquiry into the exploration of human bodies, senses, and discovering how they are similar and different while learning about what keeps them alive **Central idea** The design of buildings and structures is dependent on the environment and available Materials. **Key concepts** • Connection • Responsibility R**elated concepts** • Structure • Sustainability • Transformation **Lines of inquiry** • Considerations to take into account when building a structure • How building impacts on the environment • Indigenous architecture	Living things Materials and matter Forces and energy **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations).	• investigate how buildings and other structures stand up (for example, piles, buttresses, I-beam girders) • investigate the construction of a building or structure and identify the materials used • critique the impact of a structure on the natural Environment • explain people's responsibility regarding the use of materials from the environment.

7 - 9 years (Year 3 & 4)

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **How the world works** An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principles; the impact of scientific and technological advances on society and on the environment. **Central idea** The design of buildings and structures is dependent on the environment and available materials. **Key concepts** • Connection • Responsibility R**elated concepts** • Structure • Sustainability • Transformation	**Science strand(s)** Plants are living things Materials and matter Forces and energy **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to	**The student will be able to:** • investigate how buildings and other structures stand up (for example, piles, buttresses, I-beam girders) • investigate the construction of a building or structure and identify the materials used • critique the impact of a structure on the natural Environment • explain people's responsibility regarding the use of materials from the environment. •Learners can say that plants need the right conditions to be healthy. •Learners can describe differences between things that are living, that

Lines of inquiry • Considerations to take into account when building a structure • How building impacts on the environment • Indigenous architecture	draw conclusions h. Consider scientific models and applications of these models (including their limitations	were once alive and that have never lived.

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **Sharing the planet** An inquiry into rights and responsibilities in the struggle to share finite resources with other people and with other living things; communities and the relationships within and between them; access to equal opportunities; peace and conflict resolution. **Central idea** Over time, living things need to adapt in order to survive. **Key concepts** • Change • Connection **Related concepts** • Adaptation	**Science strand(s)** Living things **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test	**The student will be able to:** • recognize the ways in which plants and animals have adapted over time • make links between different features of the environment and the specific needs of living things • assess the impact that changes in environmental conditions can have on living things • recognize the importance of the fossil record to inform the concept of evolution.

• Evolution **Lines of inquiry** • Concept of adaptation • Circumstances that lead to adaptation • How plants and animals adapt or respond to environmental conditions	predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations).	

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **How the world works** An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principles; the impact of scientific and technological advances on society and on the Environment. **Central idea** Human survival is connected to understanding the continual changing nature of the Earth.	**Science strand(s)** Earth and space **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as	**The student will be able to:** • identify the long-term and short-term changes on Earth (for example, plate tectonics, erosion, floods, deforestation) • describe how natural phenomena shape the Planet • identify the evidence that the Earth has changed (for example, land formations in local environment) • explore scientific and technological

Key concepts • Causation • Change • Connection **Related concepts** • Erosion • Geology • Tectonic plates • Movement **Lines of inquiry** • How the different components of the Earth are interrelated • How the Earth has changed and is continuing to change • Why the Earth changes • Human response to the Earth's changes	necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations)	developments that help people understand and respond to the changing Earth • reflect on the explanations from a range of sources as to why the Earth changes.

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **Sharing the planet** An inquiry into rights and responsibilities in the struggle to share finite resources with other people and with other living things; communities and the relationships within and between them;	S**cience strand(s)** Living things Earth and space **Science skills** a. Observe carefully in order to gather data b. Use a variety of	**The student will be able to:** • recognize that water exists in the air in different forms • explore the impact of the sun on the availability of water

access to equal opportunities; peace and conflict resolution **Central idea** Water is essential to life, and is a limited resource for many people. **Key concepts** • Function • Responsibility **Related concepts** • Conservation • Equity • Processes **Lines of inquiry** • Sources of water and how water is used • What happens to water after we have used it • Distribution and availability of usable water • Responsibilities regarding water	instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations)	• describe how water sustains life • analyse systems of water storage and usage, both natural and human-made • explain why freshwater is a limited resource • identify water issues and propose solutions for responsible, equitable water use (for example, desalination).

SIS Science Scopes and Sequences

9 - 12 years (Year 5 & 6)

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
T**ransdisciplinary theme** **How the world works** An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principles; the impact of scientific and technological advances on society and on the Environment. **Central idea** Energy from the Sun drives life processes, sustains ecosystems, and shapes our understanding of Earth's place in the universe. **Key concepts** • Form • Change • Connection **Related concepts** • Conservation • Transformation	**Science strand(s)** Living things Earth and space Forces and energy **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications	**The student will be able to:** • identify and describe different forms of energy • demonstrate how energy can be stored and transformed from one form to another (for example, storage of fat, batteries as a store of energy) • explain the impact of diet in providing the body with sources of potential energy • assess renewable and sustainable energy sources (for example, wind, solar, water) • examine ways in which the local community could be improved in relation to the conservation of energy.

Lines of inquiry • The characteristics and functions of energy, light, and life processes in ecosystems. • How energy transformations (e.g., light to chemical energy in plants) drive life processes. •The interconnectedness of plants, animals, and the environment within ecosystems. *How energy can be transformed from one form to the another (Year 6)	of these models (including their limitations)	

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **Sharing the planet** An inquiry into rights and responsibilities in the struggle to share finite resources with other people and with other living things; communities and the relationships within and between them; access to equal opportunities; peace and conflict resolution. **Central idea** Biodiversity relies on maintaining the balanced relations of organisms within ecosystems.	**Science strand(s)** Living things **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored	**The student will be able to:** • **Understanding Ecosystem Components**: Students will describe the roles of different organisms (producers, consumers, decomposers) and their contributions to the balance of ecosystems. • **Exploring Interdependence**: Students will explain how organisms within an ecosystem rely on each other for survival, identifying key interrelationships like food

Key concepts •Connection Causation responsibility R**elated concepts** •systems, interdependence, biodiversity **Lines of inquiry** •The role of organisms in maintaining ecosystem balance • The impact of environmental changes on biodiversity • Human responsibility in preserving biodiversity	e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations)	chains and food webs. ● **Investigating Environmental Impacts**: Students will analyze the effects of environmental changes (e.g., pollution, climate change) on the balance and biodiversity of ecosystems. ● **Recognizing the Importance of Biodiversity**: Students will explain why biodiversity is essential to the health and stability of ecosystems and how it supports life on Earth. ● **Promoting Conservation**: Students will identify ways in which humans can help preserve biodiversity and protect ecosystems, demonstrating responsibility for the environment. ● **Using Scientific Inquiry**: Students will conduct experiments or investigations to observe and understand the relationships within ecosystems, such as how changes in one species affect the whole system. ● **Identifying Local Ecosystems**: Students will explore local ecosystems, identify the organisms within them, and describe their

		interactions and contributions to the ecosystem's health.

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
T**ransdisciplinary theme** **Where we are in place and time** An inquiry into orientation in place and time; personal histories; homes and journeys; the discoveries, explorations and migrations of humankind; the relationships between and the interconnectedness of individuals and civilizations, from local and global perspectives. **Central idea** Past civilizations shape present day systems and technologies. **Key concepts** • Causation • Change • Perspective **Related concepts** • Continuity • Progress • Technology	**Science strand(s)** Forces and energy **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models	T**he student will be able to:** • investigate which simple machines were developed by past civilizations (for example, lever, ramp, pulley, screw, wheel) • explore the principle of using gears to provide more work for less energy • analyse why and how we still use simple machines.

Lines of inquiry • Aspects of past civilizations that have survived • Reasons these systems and technologies developed • Why modern societies continue to use adaptations of these systems and technologies • Implications for the future	and applications of these models (including their limitations)	

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **How the world works** An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principles; the impact of scientific and technological advances on society and on the environment. **Central idea** The fact that materials can undergo permanent or temporary changes poses challenges and provides benefits for society and the Environment.	**Science strand(s)** Living things Materials and matter **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations,	**The student will be able to:** • identify the difference between physical and chemical changes • investigate the ways materials can be changed (for example, metal, sand) • assess the benefits and challenges of changing materials to suit people's needs and wants (for example, plastic) • recognize and report on the environmental impact of some manufacturing processes.

Key concepts • Form • Function • Responsibility **Related concepts** • Measurement • Transformation **Lines of inquiry** • Nature of chemical and physical energy • Practical applications and implications of change in materials • Ethical dilemmas associated with manufacturing processes and by-products	manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations)	

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **Sharing the planet** An inquiry into rights and responsibilities in the struggle to share finite resources with other people and with other living things; communities and the relationships within and between them; access to equal opportunities; peace and conflict resolution.	**Science strand(s)** Living things **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences	**The student will be able to:** • describe the interactions of living things within and between ecosystems • examine interactions between living things and non-living parts of the environment • recognize that solar energy sustains

Central idea Biodiversity relies on maintaining the interdependent balance of organisms within Systems. **Key concepts** • Connection • Responsibility **Related concepts** • Balance • Biodiversity • Interdependence **Lines of inquiry** • Interdependence within ecosystems, biomes and environments • Ways in which organisms are interconnected in nature • How human interaction with the environment can affect the balance of systems	d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations)	ecosystems through a transformation of energy • investigate the conservation of energy in ecosystems • analyse the effects of changing a link in a food web • explain how human activities can have positive or adverse effects on local and other environments (for example, waste disposal, agriculture, industry).

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **Where we are in place and time** An inquiry into orientation in place and time; personal histories; homes and journeys; the discoveries, explorations	**Science strand(s)** Earth and space S**cience skills** a. Observe carefully in order to gather data b. Use a variety of	**The student will be able to**: ● Identify and categorize different causes of migration (e.g., economic, political, environmental, and social).

and migrations of humankind; the relationships between and the interconnectedness of individuals and civilizations, from local and global perspectives. **Central idea** Human migration affects communities, cultures and individuals **Key concepts** ● causation, ● change, ● responsibility **Related concepts** history, migration, diversity, citizenship, prejudice, identity **Lines of inquiry** ● Common causes of migration throughout history ● Ways humans adapt to new cultures and behaviors ● The rights and responsibilities of migrants and refugees	instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations)	● Analyze historical events and explain the role of migration in shaping societies and regions. ● Timelines and maps to trace patterns of migration and their impact over time. ● Compare and contrast historical and contemporary reasons for migration.

SIS Science Scopes and Sequences

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **How the world works** An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principles; the impact of scientific and technological advances on society and on the Environment. **Central idea** Reproduction of living things contributes to the continuation of the species. **Key concepts** • Change • Connection **Related concepts** • Cycles • Growth **Lines of inquiry** • Reproduction as part of a life cycle • Reproductive processes • Genetics and hereditary factors	**Science strand(s)** Living things **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their limitations)	**The student will be able to:** • recognize that plants and animals go through predictable life cycles • identify the structures of plants and animals that are responsible for reproduction • analyse similarities and differences in the ways that different living things reproduce • be aware of the role of genetics in determining physical characteristics.

SIS Science Scopes and Sequences

Learning will include the development of the following knowledge, concepts and skills		Learning out comes in science
Transdisciplinary theme **How we organize ourselves** An inquiry into the interconnectedness of human made systems and communities; the structure and function of organizations; societal decision making; economic activities and their impact on humankind and the environment. **Central idea** Technology impacts on the world of work and leisure. **Key concepts** • Change • Connection • Responsibility **Related concepts** • Communication • Systems • Ethics **Lines of inquiry** • Technology and inventions of the home, workplace and leisure activities • Circumstances that lead to the development of important inventions and	**Science strand(s)** Living things Earth and space Forces and energy **Science skills** a. Observe carefully in order to gather data b. Use a variety of instruments and tools to measure data accurately c. Use scientific vocabulary to explain their observations and experiences d. Identify or generate a question or problem to be explored e. Plan and carry out systematic investigations, manipulating variables as necessary f. Make and test predictions g. Interpret and evaluate data gathered in order to draw conclusions h. Consider scientific models and applications of these models (including their	**The student will be able to:** • analyse the way in which technology supports the functioning of workplaces (for example, schools) • investigate technology developments • examine the impact of particular technologies on sustainability • suggest areas for future technological advances.

their impact • How technology supports/ impacts sustainability	limitations).	