PRIMARY SCIENCE GUIDELINES
(LEVEL 4)
Year 1 and Year 2

Science within an Emergent Curriculum

Focus in the Early Years should be on stimulating children's innate curiosity and providing different learning opportunities for children to engage in meaningful learning experiences. Questions children ask are often related to science concepts and can be naturally linked to their sense of wonder about the world around them. In this context, Science very often lends itself to be the cornerstone of the Emergent Curriculum such that other subject areas are integrated in a cross-curricular and holistic approach.

Science in the Early Years should be based on exploration, solving problems and trying out new ideas through hands-on activities/investigations. Scientific exploration can also help children develop language, communication and problem-solving skills as well as promote independent and collaborative learning. In this context, the Early Years learning space should provide opportunities conducive to the child's holistic development and scientific literacy.

LEARNING OPPORTUNITIES
Children should be encouraged to:

Plants and Animals:

- Explore and observe a variety of living things.
- Distinguish between different living and non-living things.
- Explore the local environment through fieldwork activities and outdoor learning.
- Explore different types of seeds, leaves and plants including flowering and non-flowering plants.
- Grow flowering and non-flowering plants.
- Recognise different body parts and their function (refer to our five senses as means to help us experience the world).
- Observe different animals (including fish, amphibians, reptiles, birds, mammals and insects/minibeasts) and their characteristics e.g. land and/or underwater, type of habitat (farm/wild), size, wings, legs, body covering (fur/feathers/scales), movement, feeding, reproduction (live birth or hatch from an egg), breathing (nose/lungs/gills) etc.

Health and Wellbeing:

- Talk about different types of food and discuss healthy and unhealthy food habits.
- Be engaged in practical examples of things they should do to keep their body fit and healthy, including physical wellbeing e.g. drinking water and engaging in physical exercise and self-care skills e.g. preparing a healthy lunch.
- Explore and observe how things change e.g. through simple cooking activities, growing activities, natural and man-made processes etc.
- Use practices of good hygiene e.g. when handling food, covering mouth when coughing or sneezing, washing hands etc.

Energy:

- Explore energy and how things function e.g. humans require energy from food, plants get energy from the sun, some vehicles require energy from fuel, appliances require electrical energy to function etc.
- Find out how electricity gets to homes and buildings e.g. through wires from the power station.
- Explore and find out which objects are battery powered and which objects are supplied with electricity from the mains.

- Understand and know about electrical safety measures and relate these to everyday life experiences.

Planet Earth and its Resources:

- Understand that Planet Earth is made up of land, water and air.
- Understand that the Earth, moon and sun are separate bodies.
- Identify various weather conditions experienced in Malta and relate these to their everyday life experiences.
- Observe weather changes over a period of time, throughout the year and relate to everyday life experiences.
- Understand that planet Earth supports life and therefore we must take care of Earth's resources.
- Promote environmental sustainability by participating in energy and other resource-saving strategies e.g. switching off lights, turning off taps, clean energy such as solar panels etc.
- Identify practical ways of reducing, reusing, recycling and repairing waste as well as refusing items and rethinking everyday practices to safeguard planet Earth.

Play and Construction Activities:

- Handle scissors safely to cut freely, along straight and curved lines.
- Explore properties of different materials e.g. texture, flexibility, elasticity, hardness, waterproof, strength, transparency etc. through simple experimentation.
- Engage in building activities and use knowledge on different materials during such activities e.g. building bridges, towers, walls, ramps to test which cars, balls, marbles or blocks go down fastest.
- Explore and use everyday materials as construction resources. Such materials may include building blocks, lollipop sticks, cards, cups, bottle caps, pasta, pipe cleaners etc.
- Explore and observe how a magnet reacts to different magnetic poles and different materials.
- Explore musical instruments and different objects that create sound.
- Explore light (e.g. using torches or light sources to create and observe shadows and plastic mirrors to observe reflection) and different colours in the environment.
- Explore water in all its forms.

THE INQUIRY PROCESS IN THE EARLY YEARS		
The inquiry process	**When children are engaged in the inquiry process, they:**	**When educators are facilitating and supporting the inquiry process, they:**
Initial Engagement noticing, wondering, playing	• ask questions about the environment around them	• observe and listen
Exploration exploring, observing, questioning	• explore the environment around them and observe the results of their explorations • use their senses to make observations and generate questions • form a prediction from initial observations	• act as facilitators to guide children with thoughtful, open-ended questions • encourage children to observe and talk among themselves and with other including adults and professionals
Investigation planning, data handling, recording observations, reflecting	• gather, compare, sort, classify, order, interpret, describe observable characteristics and properties, notice patterns and draw conclusions • use a variety of simple tools and materials to investigate e.g. magnifying glass, pipettes, syringes, plastic mirrors, magnets, torches, gardening equipment etc. • use a variety of non-standard units to measure and record observations e.g. streamers, blocks, paper clips, photos,	• provide a rich variety of resources and materials • strategically question and observe children to clarify, expand, or discover children's thinking • model how to plan, gather data, observe and reflect

	smileys, colouring, verbal communication etc.	
Assess, Evaluate and Communicate sharing findings, discussing ideas, applying findings and knowledge to everyday life situations	• work individually and in groups, share and discuss ideas and listen to other ideas • make connections to everyday life situations	• listen to the children to help them make connections between prior knowledge and new discoveries and apply their findings and new acquired knowledge to everyday life situations

Adapted from The Full-Day Early Learning – Kindergarten Program. Draft Version (2010-2011), Ministry of Education, Ontario Canada.