Literacy Outcomes for GAIA 20:30

Reduce Environmental Pollution

An environmentally literate person is defined as someone who, both individually and together with others, makes informed decisions concerning the environment; is willing to act on these decisions to improve the well-being of other individuals, societies, and the global environment; and participates in civic life. Those who are environmentally literate possess, to varying degrees:

- knowledge and understanding of a wide range of environmental concepts, problems, and issues;
- a set of cognitive and affective dispositions;
- a set of cognitive skills and abilities; and
- appropriate behavioural strategies to apply such knowledge and understanding to make sound and effective decisions in a range of environmental contexts.

Recognising the pressing environmental threats of climate change, biodiversity loss and environmental pollution, which are intrinsically linked with one another and to the future of our planet, FEE, with 40 years of impactful experience in the field of ESD, has prioritised these themes in its Strategic Plan, GAIA 20:30. To support actions in these three areas, there is a need to use

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evidence-based education to drive impactful action. In the context of school education, it will be through designing projects and engaging students in Project-Based Learning through our Eco-Schools, Learning about Forests and Young Reporters for the Environment programmes. These initiatives will need the support of lesson plans to give basic competencies to prepare the student's actions in the form of research, acting and reflecting on and analysing their results.

This document lists Learning Outcomes to help understand the change we want to see in students' abilities. The list of Learning Outcomes presented in Table 2 are suitable for students from age 14 and above but are generic enough to be adapted for lower age groups. Table 1 illustrates a few adaptation of Learning Outcomes for Age Groups.

Table 1- Adaptation of Learning Outcomes for Age Groups.

Learning Outcome	**Age Group**			
The learner is able to	**Less than 6 years old**	**6 to 9 years old**	**10 to 12 years old**	**13 to 15 years old**
Identify pollution issues	Points out desirable and undesirable aspects in a picture.	Share the instances where pollution is visible – at home, community, or in school.	Identify different types of pollution and why it is of concern	Identify different types of pollution and their impact on the natural environment and human health.
Demonstrate inclination to prolong the life of products through e.g. re-use, repair, refurbish.	Cares for the toys and other stuff.	Asks parents to get his/her things repaired.	Demonstrate inclination to prolong the life of products through e.g., re-use, repair, refurbish	Demonstrate inclination by learning skills to prolong the life of products through e.g. re-use, repair, refurbish
Buy or consume products and services more sustainably	Is conscious of not wasting food etc.	Identify some eco symbols and segregates waste. Does not waste food.	Looks at labels before buying and is conscious of the importance of reducing waste.	Chooses to buy when it is a need and is able to identify principles of sustainability to make decisions.

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Define and give examples of ways to make products and services circular.	Knows how to sort waste correctly into bins	Distinguishes between recyclable and non-recyclable waste.	Identifies the 'Rs' to make the system circular.	Can identify sources of waste and suggest ways to reduce the same.

Table 2 – List of Learning Outcomes for GAIA Pollution Goals.

Sub Goal	**Knowledge**	**Disposition**	**Environmentally responsible behaviour**
	The learner is able to	**The learner is able to**	**The learner is able to**
Promote responsible production and consumption	• List the basic human needs. • Explain sustainable consumption. • Describe the causes and effects of various types of pollution and overconsumption. • Identify natural resources. • List the factors affecting the environment – overexploitation of resources, population growth, industrialization, and use of synthetic materials. • List the drivers for overconsumption • Explain the impacts of over-consumption (biodiversity loss, pollution and climate change , etc.). • Recognize the unequal distribution and consumption of	• Argue for ensuring sustainable consumption for all. • Withstand peer pressure to buy things you don't need. • Show inclination to prolong the life of products through e.g. re-use, repair, re-furbish etc. • Inclination to buy second-hand products. • Show concern about the availability of natural resources	• Ask relevant questions about environmental pollution and resource utilization. • Reflect on your own consumption behaviour in light of media and social pressure. • Reflect on overconsumption and human well-being. • Reflect on the rate by which social media changes norms of consumer behaviour and attitude. • Influence peers by sharing ideas/thoughts about pollution and over-consumption issues. • Join a group or volunteer on environmental projects such as waste prevention projects. • Reduce consumption that is not necessary.

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	resources among countries, regions and social classes. • Recognize that some of the Earth's natural resources are limited. • Discuss barriers to the enforcement of environmental laws to reduce pollution or regulate consumption. • Assess and identify factors that create an imbalance in nature. • Illustrate the interconnectedness between environmental, cultural, social and economic issues. • Analyse the effect of human activities and population growth on areas like agriculture, energy, housing, industrial development and other areas of consumption and social activities. • Differentiate between renewable and non-renewable resources. • Identify 'green washing' practices.	for future generations to meet their needs.	• Buy or consume products and services more sustainably.
Promote the circular economy model	• Explain the concept of circular economy and Product Life Cycle.	• Demonstrate commitment towards a circular economy.	• Ask relevant questions about the sustainability of a product or service.

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	• Explain waste hierarchy as a strategy supporting the circular economy. • Explain in general waste handling strategies in the context of supporting the Circular Economy. • Define and give examples of ways to make products and services circular. • Conduct a Life Cycle Assessment (LCA) of common products.	• Value principles of circularity to eliminate waste to the extent possible.	• Design a product or service based on the principles of circular economy. • Display creativity in avoiding waste production. • Influence family members to adopt a circular economy mindset.
Reduce litter and waste	• Rank waste management strategies according to effectiveness in reducing waste. • Explain the main waste management strategies and concepts (e.g. composting, landfill, , waste-sorting). • Identify materials and items that can be recycled. • Define and give examples of pollution, • Ask relevant questions about environmental pollution and resources utilization. • Recognize that the Earth's natural resources are limited.	• Reflect on own littering and waste-handling behaviour. • Show concern/s regarding the effects of pollution on all life forms. • Show respect towards people that handle waste. • Show responsibility for handling waste. • Advocate for no-littering.	• Segregate waste. • Influence others by sharing constructive ideas/thoughts about pollution and waste handling. • Collaborate as a group on environmental projects such as waste prevention and recycling projects. • Participate/organize in clean-up campaigns.

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	• Compare the breakdown rate of organic vs synthetic materials. • Associate pollution and waste with packaging and consumption of goods. • List the factors contributing to marine waste. • Explain and give examples of hazardous waste. • Describe the causes and effects of various types of pollution (waste by type, energy, noise, heat, etc.) and ways of mitigation. • Explain the accumulation of waste in the food chain. • Explain the concept of ecological footprint. • Classify types of waste – solid liquid and gaseous. • Recognize the flows of waste among countries, regions and ecosystems. • Identify the relationship between waste, ecosystem health and people.		
Increase knowledge and take action to	• Define and give examples of invisible pollution (noise, nitrogen, CO_2, Ozone, , heat, micro-plastics, chemicals etc.)	• Reflect on own polluting behaviour.	• Ask relevant questions about cycles in nature

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reduce invisible pollutants	• Explain element cycling in nature (nitrogen, carbon, water, etc.) • Identify factors causing an imbalance in element cycling • Describe the causes and effects of various types of invisible pollution (with a focus on climate change and eutrophication) and ways of mitigation (e.g. minimized traffic, changes in food consumption). • Relate pollution to human well-being. • Recognize the causes of ozone depletion and its effects on living organisms. • Recognize the flows of waste among countries, regions and ecosystems. • Explain bio-magnification. • Recognize the pollution caused by packaging and storage • Find and understand agreements on the mitigation of air pollution. • Relate human health to the environment (e.g. cancer and exposure to pollution).	• Display empathy for humans, plants and animals suffering from pollution • Show commitment to using non-polluting products	• Advocate to promote legislation on invisible pollution. • Raise awareness regarding the impacts of invisible pollution and solutions. • Sharing ideas/thoughts to mitigate invisible pollution. • Participate in environmental campaigns targeting the reduction of invisible pollution through a change in household consumption, e.g. Meatless Monday, changes in cleaning practices).

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