Literacy Outcomes for GAIA 20:30

Protect Global Biodiversity

An environmentally literate person[1] 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:

- a 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
- the 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 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. These initiatives will need the support of lesson plans to give basic competencies to prepare the students' actions in the form of research, taking action 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 you will see 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 illustrate a few:

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**
• **Knowledge** - Explain the importance of rich coastal biodiversity and its role in sustainable coastal management	- Based on a child's experience of going to a beach, they can talk about what they remember seeing using pictures. Teachers can help draw a comparison between places based on the children's experiences.	- Talk about places where they saw more sea creatures and greenery. They can present using pictures. Through probing questions teachers can help children identify interrelationships.	- Link places to the type of plants and animals they saw. Provide reasons based on observation of activities happening around those places.	- Explain the concept of biodiversity (particularly the link between species and habitats) and how it helps in reducing coastal erosion, more fisheries, mitigate disasters & their impacts, keep water clean etc.
• **Disposition** - Promote the protection of biodiversity in the marine and littoral zone	- Talk about the importance of not harming/disturbing any organism. - Talk about using bins to dispose waste when they are at a beach.	- Talk about not littering on the beaches and disturbing wildlife. - Participate in clean-up drives.	- Talk about keeping beaches clean and convince others to do the same. - Participate in clean-up drives.	- Talk about keeping beaches clean and convince others to do the same. - Show interest in clean-up drives and other campaigns. - Explain the threats of waste on ecosystems and suggest ways how peers can

				mitigate these threats.
• **Environmentally responsible behaviours** - Organise activities to increase awareness of local communities about sustainable coastal zone practices	- Talk to their parents about picking waste they see and not harming plants/animals.	- Talk to their parents about picking waste they see and not harming plants/animals.	- Raise issues they see, like litter, and ask parents/friends to join in not littering and litter pickups.	- Organise clean-up drives. - Write petitions or conduct community signup drives to resolve issues causing harm to biodiversity or causing pollution.

Please note that this document is Work in Progress and if you have any suggestions on learning outcomes that you feel should be there, please share it with Dr Pramod Kumar Sharma, Senior Director of Education (Email – pramod@fee.global)

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

Sub Goal	**Knowledge**	**Disposition**	**Environmentally responsible behaviour**
	The learner is able to	The learner is able to	The learner is able to
Promote sustainable management of the coastal zone	• Explain the importance of rich coastal biodiversity and its role in sustainable coastal management • Compare coastal areas with high and low biodiversity • Investigate and identify threats to biodiversity in coastal zones • List the impacts of human activity in the littoral and	• Use scientific data to drive actions to restore and protect coastal biodiversity • Promote the protection of biodiversity in the marine and littoral zones • Promote the engagement in activities organised by local communities for	• Participate/Support initiatives that protect the local marine biodiversity, e.g. sustainable tourism, clean up drives • Organise activities to increase awareness of local communities about sustainable coastal zone practices • Design plans for the protection of biodiversity from, for

	marine zones (fisheries, large scale fish farming, oil spills, industrial discharge, etc.) • Explain the short term and the long term impact of human activities on marine/coastal ecosystems • Identify the impacts of biodiversity loss on local communities (including tourism) whose livelihood depends on coastal activities • List the impacts of Climate Change on coastal zones • Identify the most commonly found local coastal biodiversity • List protected areas and species in the coastal zone of the country • Justify the actions being taken to protect/manage coastal zones • Critically evaluate urbanisation practices	restoration/sustainable use of marine and littoral zones. Appreciate and support projects that increase the resilience of coastalareas to Climate Change (e.g. mangrove forests, coral reefs, etc.) • Take responsibility for actions that are harmful to the coastal ecosystem	example, large-scale farming, tourism, etc. • Demonstrate actions for the protection of coastal ecosystems • Suggest better coastal management techniques to the local stakeholders • Adopt practices to reduce threats to coastal ecosystems, e.g. avoid using single-use plastic, responsible seafood consumption, reduce carbon footprint • Participate in and organise actions to reduce pressure on coastal ecosystems
Preserve existing and create new forests/ Natural areas	• Explain the characteristics of a healthy forest ecosystem • Explain species migration • Explain the interdependence between humans and forests	• Support forest conservation activities • Support actions to protect the indigenous flora and fauna	• Create awareness for the protection of forests, green areas and natural habitats • Promote tree seedling storage/exchange and tree

	• List endangered forest species • Identify the connections between forest ecosystems (green corridors) • Differentiate between native and alien species • Link forests/ natural areas with human, wildlife, and ecosystem prosperity • Explain what green infrastructure is (GI) and the role it can play in protecting from the effects of Climate Change, especially in the urban environment • Explain how to grow a seed/plant/tree • Describe the impacts of forest depletion • Relate the importance of green spaces to human wellbeing	• Support actions against illegal use of wildlife • Promote the importance of creating new natural areas and/or green corridors. • Advocate the necessity to adopt strategies to protect the green areas with decision-makers	planting among schools and communities • Generate action regarding the preservation of forests, green areas and natural habitats • Suggest solutions based on the Green Infrastructure model • Participate in conservation action projects • Adopt/Create green spaces at home • Protest against damage to green community spaces • Raise and take care of a plant/animal
Combat pollinator and insect loss	• Identify local pollinators • Explain the consequences of loss of pollinators • Identify threats to pollinators and insects • List ways of protecting local pollinators (e.g. no use of pesticides)	• Support campaigns that promote the importance of pollinators • Appreciate the role of pollinators and insects • Inspire the engagement of the local communities and	• Increase awareness about pollinator loss in local communities • Create pollinator-friendly and native gardens or natural areas • Suggest ways for 're-wilding' areas both in and outside human habitats

	• List the impacts of pollinator loss on natural habitats and ecosystem services • Explain what a pollinator-friendly area looks like • List native species that attract pollinators • List local practices/initiatives that support pollinators	authorities about making pollinator-friendly areas	• Suggest mitigation measures to combating pollinator and insect loss • Practice sustainable consumption, e.g. organic or pesticide-free food
Raise awareness and take action to remove invasive alien species	• Explain the difference between indigenous and alien species • List the impacts of the introduction of alien species in the local ecosystem • List the endemic and alien species of their community • Explain how alien species are introduced in ecosystems • Explain how alien species become invasive species • Link the human actions that lead to the introduction of alien species to other geographical areas • Recognise the impacts of the invasive alien species on the ecosystems and their services including economic activities (e.g. fisheries)	• Support actions that protect the community's native flora and fauna • Respect laws relating to the transport and trade of biodiversity • Discuss actions to limit alien species with decision-makers and local authorities	• Organise and/or support efforts to eliminate invasive species from natural areas • Organise and/or support the rehabilitation of natural areas and help the native species to thrive • Consume sustainably, locally and with respect for the natural world • Protect natural habitats, such as forests and coral reefs, from alien species • Avoid and lobby against the rearing of exotic pets

	• Identify strategies to eliminate alien species		

[1] Hollweg, K. S., Taylor, J. R., Bybee, R. W., Marcinkowski, T. J., McBeth, W. C., & Zoido, P. (2011). Developing a framework for assessing environmental literacy. Washington, DC: North American Association for Environmental Education. Available at http://www.naaee.net.