

# CONNECTING LEARNING TO THE NATURAL WORLD

NATURE CLASSROOMS

Imagine all of nature as a classroom – a space where teachers and students observe, learn, and wonder together. What creatures and phenomena in nature will you chance upon and witness? What are some of the questions and learnings that could emerge from these experiences?

“Oh! Look how beautiful she is – look at her emerald colour!” a group of primary school teachers exclaimed as they observed the queen of the red weaver ants (*Oecophylla smaragdina*) during a short walk in the outskirts of Bangalore city (see Fig. 1). Twenty minutes of exploring and observing, hand lens and binoculars in tow, brought many delightful creatures and stories into sharper focus for this group (see Fig. 2).

The word ‘nature’ can evoke different images, meanings, and memories for each of us (see Box 1). Thus, as part of our nature learning workshops with school teachers and educators, we often begin conversations by understanding and unpacking this word (see Fig. 3). Going on a nature walk and creating a nature map that reflects the experience of sights, sounds, smells, tastes, textures



Fig. 1. The weaver ant (*Oecophylla smaragdina*) queen that captured the attention of the teachers.

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### Box 3. Reconnecting with nature:

If we want students to experience the wonders, delights, and secrets the natural world has to offer, we must create similar opportunities for teachers and educators. As adults we often forget the simple joy and wonder that things in nature can offer. From following a line of ants in our kitchen, to listening to birdsong outside our window, to watching a butterfly lay her eggs, to a spider stalking

a pesky fly— the natural world is full of fascinating surprises waiting for us to take notice and love.

Creating opportunities for nature walks as well as nature inspired reading, writing, and discussions for teachers will be a great beginning. A few other ideas for teachers and schools:

- **Nature walks:** looking for colours, patterns, shapes, and numbers in nature is a wonderful way to familiarise and re-familiarise oneself

with a school campus or neighbourhood. Documenting observations by taking photographs and nature journaling will encourage curiosity and connection for teachers.

- **Access to nature learning resources, guides, and libraries:** a curated repository of nature stories, tree, insect, spider, and bird guides among other activity ideas and resources will be a great way for teachers to continue to

learn and find answers along with students.

- **Workshops, courses, and peer networks:** participating in workshops and having access to a community of teachers and educators for inspiring ideas and collective solutions to challenges is a great way to sustain nature learning initiatives in schools.

In what other ways can we reignite our love and connection with our immediate surroundings?

## Nature learning as part of EVS

Environment Studies (EVS) is a compulsory subject in primary education across different boards in India, and provides a wonderful opportunity to introduce students to their immediate environment.

However, an underlying narrative in the prescribed EVS curriculum is that 'nature' exists purely as a resource for people. This creates a false dichotomy of people and nature as separate entities. For example, a Grade III lesson on forests discusses the uses of trees for humans and how deforestation would harm human life, but makes no mention of how other plants, insects, and animals interact with trees. Similarly, it is not uncommon for end text questions in EVS chapters to ask students to list the different ways in which animals or plants are "useful" to people. Secondly, the EVS textbook often presents 'nature' as an entity that can be observed only in faraway forests, high mountains, and deep oceans. The fact that our backyards, streets and even buildings and homes are teeming with wonders of the natural world is rarely acknowledged! Lastly, EVS textbooks are often devoid of examples that are relevant to the local and cultural context of students. Since students in many classrooms in India come from diverse landscapes,

geographies, and cultures, this separates the curriculum from their many unique lived experiences and connections with the natural world. For instance, while a child from central India may associate rain with rare relief and a child from the north-east may see it as an everyday experience, the curriculum often does not showcase this diversity or create opportunities for these conversations and reflections.

Since the teaching and learning of this subject also often remains largely confined within the four walls of the classroom, there are few opportunities for teachers and

students to discover and observe their immediate surroundings themselves. Moreover, while nature education material exists in many different forms in India, school teachers often find it challenging to incorporate these resources in a sustained manner in conjunction with the mandated EVS curriculum. This is because many common resources, like anchor charts, YouTube videos, magazine pictures and murals, often have images and information that require thorough fact-checking or are not contextually or culturally relevant (see Fig. 4). If you go looking for nature and wildlife resources at a local bookstore, even

Fig. 4. Existing visual material about the natural world is often not representative of the immediate surroundings of the children they are intended for.



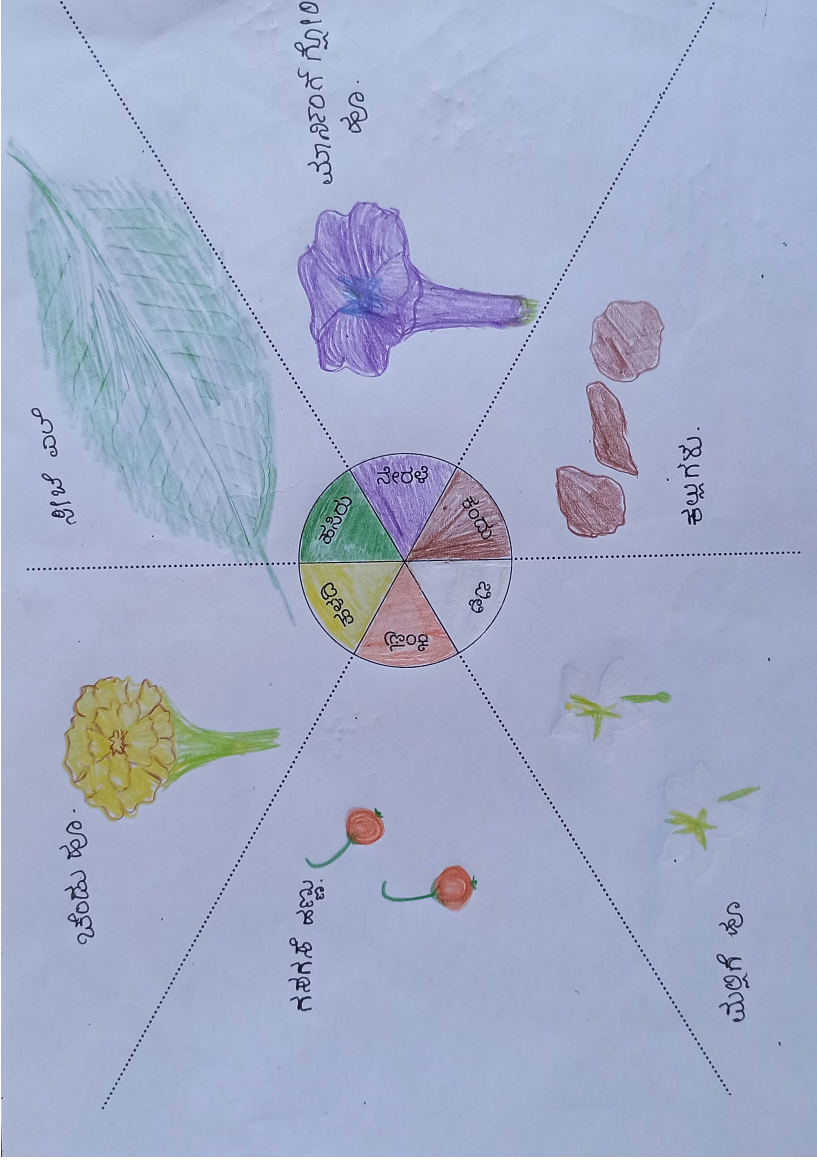
(a) Anchor chart on animals in a bookstore (b) Animal mural in a primary school classroom.

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## Colours in Nature

The natural world holds so many different colours — what colours can you spot in nature? Go on a colour walk near your home or school.

- Begin by filling the colour wheel with the colours mentioned in each section. Next, go on your colour walk!
- Draw and write about what you find on your walk.
- You can collect fallen leaves, seeds or flowers and create a display to show your friends and family. If possible, take a picture of your display to share with others.



Here's an example of a filled out sheet.

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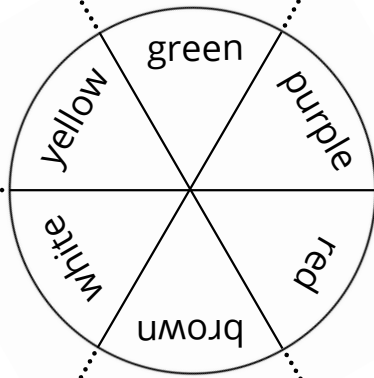


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in a city like Bangalore, you are likely to find posters with examples of only megafauna like tigers, elephants, rhinos and lions. They also often have visuals of animals, like giraffes, zebras and hippopotamuses, that are not found in the wild in India. These animals are likely to be visually familiar to students because of easy access to television, but how many of these creatures can students see around them? How many can they situate within their own lives and landscapes?

## A nature education framework and pedagogy

Enriching and supplementing existing EVS curricula with locally relevant natural history examples, stories, and experiences can help make our and our students' bonds with nature more meaningful and lasting. During school visits over the last few years, we have found that valuing children's lived experiences and using local examples creates opportunities for independent exploration and sustains curiosity

### Box 4. Curiosity and wonder:

One way to encourage wonder and cultivate a culture of inquisitiveness in students is to practise an inquiry-based teaching and learning approach. Making space for student questions not only increases their sense of ownership over their own learning, it is likely to encourage them to be more curious, engaged, and creative. In fact, formulating questions is in itself a creative art that is known to facilitate learning and allow for co-construction of knowledge. Also, if

encouraged by the teacher, wonderment questions can help students develop the ability to hypothesize, predict, and generate multiple explanations for natural phenomena.

For instance, when students find a chewed-up leaf, teachers can approach this by asking – are all leaves chewed up by the same creature? Did one animal do this or many? What kind of mouthparts would they have to do this – a straw like in a butterfly, or with teeth like ours?

about the natural world (see Box 4). A child's observations and serendipitous encounters in nature can make EVS classrooms a fascinating space where questions and new learning is encouraged (see Box 5). With this in mind, we create age-appropriate resources across various topics that are part of the EVS curricula, and that link and build on each other.

One of these resources is a Nature Learning Framework that has

emerged through conversations and consultations with educators, ecologists, and our own experience as trained naturalists and teacher practitioners (see Fig. 5). This resource provides a starting framework for teachers and educators who want to include nature learning as part of their education interventions. It typically progresses from more concrete, experiential activities (for young children) to introduce them to nature that is immediately



Nature Learning Framework		
 <b>Age Group</b> <b>4-6 years</b> <b>(UKG + Std. 1)</b>  <b>6-8 years</b> <b>(Std. 1-3)</b>  <b>9-10 years</b> <b>(Std. 4 + 5)</b>  Nov 2019 Working model	<b>Goals</b> To develop and create opportunities for children to experience: wonder, love, curiosity, and fun in nature	<b>Approach</b> Using play, stories, songs, pictures, enactments, art/craft and immersion/exposure in nature and local experiences
	To provide opportunities for nature learning and engagement, develop/facilitate observation skills and encourage emotional bonds, asking simple questions and making comparisons between different phenomena in nature	Using experiential/sensorial activities, fascinating facts, stories, teacher-led demos and experiments, class discussions, sharing personal anecdotes in/about nature
	To help students make connections, develop skills of compare/contrast reasoning, asking and answering simple "why" questions, deeper learning about nature and engage with family/community and cultural experiences	Using AV material, fascinating facts/processes (Did You Know), conversations and discussions, independent and group projects, local case studies, stories, interviews, local action
This framework is a guide to shifting the focus of environmental education from a largely human-centred approach to one that highlights that humans are a part of nature and the larger ecosystem. Effective nature learning is transacted through age appropriate learning goals and moves from the familiar to the unfamiliar; from local to global.		
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Fig. 5. A Nature Learning Framework serves as a guide for designing age-appropriate nature learning experiences.

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### Box 5. Learning from observations of nearby nature:

Like in any classroom, nature learning sessions can be filled with delightful experiences. This could include unexpected and unplanned visits by different creatures, like insects, spiders, reptiles, and birds, to the classroom or school grounds. A flowering or fruiting tree abuzz with activity during a nature walk can create excitement and lead to rich discussions. Serendipitous encounters need to be valued in everyday lessons because they hold

immense potential for observation and learning.

In one such instance, a cryptically coloured dragonfly flew in, and settled on one wall of a small Kannada medium government school in peri-urban Bangalore that has almost no outdoor space. The colouration and patterns of the dragonfly were beautifully camouflaged against the school's compound wall. When we drew the students' attention towards this camouflaged insect, their

responses were filled with delight at noticing a creature that was hiding in plain sight! This encounter was not part of our lesson, but was a great opportunity to talk, with even very young students, about dragonflies, other flying insects, as well as the idea of camouflage in nature. Some students observed and drew the dragonfly, some created a story or a poem, and some had interesting questions about dragonflies. There was so much that the

students already knew and had observed. Rich discussions and several anecdotes followed – dragonflies in their hometowns and villages, swarms during the monsoons and around rain puddles. A brief encounter with a dragonfly on the school wall had so much to offer – a chance to listen to and value past experiences and observations, while simultaneously creating opportunities for new learning.

accessible to offering a more abstract, conceptual understanding of ecology and interconnectedness in nature (see **Activity Sheet: Colours of Nature**). We also highlight a variety of age-appropriate tools that can be used to introduce the natural world, like walks, stories, experiments, and interviews depending on the age group and space available. One example of this is a poster series on common plants, like the Giant Milkweed, Neem, and

Singapore Cherry, and the various creatures that visit them (see **Poster: Giant Milkweed**).

We also recognise the need for an approach to teaching and learning about the natural world that puts students at the center of learning. Our Nature Learning Pedagogy has been developed through our own classroom observations and field experiences and, most importantly, through conversations and ideas generated with experienced

teachers and nature educators (see Fig. 6). Its key features are that it values students' existing knowledge and lived experiences, and gives them the agency to actively ask and answer personally relevant questions while discovering more about phenomena and concepts in nature.

Our Nature Learning Framework and Nature Learning Pedagogy are living documents, open for review and modifications and incorporate suggestions and lived experiences.

### Fostering ecological identities

We believe that learning about and forging connections with nature is as essential for young students as early literacy or numeracy. This belief stems from growing evidence that meaningful connections with and awareness of the immediate natural world are often essential ingredients for our physical and emotional health and wellbeing.

As educator Ann Pelo says, engaging with nearby nature is instrumental in a conscious cultivation of 'ecological identities' in young students. Intimate awareness of one's ecological identity and connection to nearby nature is sure to shape and determine the

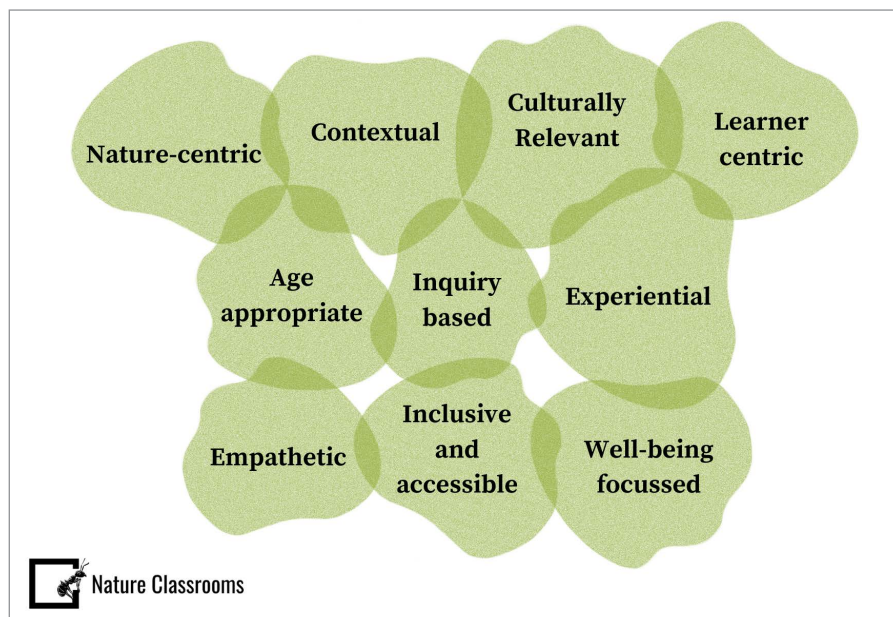


Fig. 6. Nature Learning Pedagogy: what to keep in mind while designing nature learning experiences.

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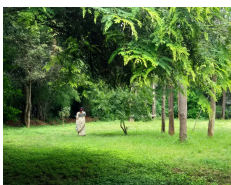
relationship young people share with the earth. A deep love and connection for a place and its various inhabitants can motivate us to treasure and take action on behalf of it.

Therefore, through early immersive experiences in nature, by sharing and telling stories, and through opportunities to explore and develop a fascination for nature, we hope that as

educators we can foster love, wonder, empathy and curiosity in all students. In time, it is these deep emotional connections that will translate to how all of us treat, respect, and nurture it.

## Key takeaways

- The current EVS curriculum in the country presents nature as a distant entity that functions purely as a "resource" for people and is taught largely within the confines of the classroom.
- Enriching and supplementing existing EVS curricula with locally relevant natural history examples, stories, and lived experiences can help make our students' bonds with nature more meaningful and lasting.
- Offering students opportunities for independent exploration and serendipitous encounters in nature can make EVS classrooms a fascinating space where open-ended, inquiry-based questions and co-learning is encouraged.
- Nature Classrooms' Nature Learning Framework serves as a guide for designing age-appropriate nature learning experiences. It progresses from experiential activities that make nature immediately accessible for young students, and builds up to those that offer a more abstract, conceptual understanding of ecology and the interconnectedness in nature.
- Nature Classrooms' Nature Learning Pedagogy provides scope and opportunities for learners to develop wonder, love, curiosity, and a deep connection to nature.
- The framework and pedagogy are dynamic and collaborative, and based on classroom observations, conversations with ecologists, in-service teachers and experienced educators.



### Notes:

1. This article is accompanied by an Activity Sheet on Colours in Nature that can be used to document observations from a nature walk. It is also accompanied by a Poster on Giant Milkweed and the many creatures that visit it.
2. Source of the image used in the background of the article title: 'A teacher creating a nature map'. Credits: Roshni Ravi. License: CC-BY-SA 4.0.

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**Nature Classrooms** at Nature Conservation Foundation (NCF), Bangalore, develops nature learning resources that correspond to existing primary school Environmental Studies (EVS) curricula and conducts capacity building workshops for school teachers. To see more of their work, visit: [www.natureclassrooms.org](http://www.natureclassrooms.org) and <https://www.ncf-india.org/education-and-public-engagement/a-nature-learning-framework-for-schools>.