

# Classroom

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*In this section of Resonance, we invite readers to pose questions likely to be raised in a classroom situation. We may suggest strategies for dealing with them, or invite responses, or both. "Classroom" is equally a forum for raising broader issues and sharing personal experiences and viewpoints on matters related to teaching and learning science.*

## School in the Forest

A joint experiment between Centre for Learning and Gurukula Botanical Sanctuary

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What do a school in Bangalore and a forest garden in the Western Ghats have to do with each other? This article is about a rather unusual relationship between the students and teachers from Centre for Learning, Bangalore and the members of Gurukula Botanical Sanctuary in Wayanad, Kerala. Since 1992 the two places have given a great deal of energy to explore jointly the role of nature in education.

The interaction between CFL and GBS started with a visit by CFL's 16 year old students and their biology teacher to GBS for a week. This was just an introductory visit and it was the first time the students had ever experienced the rainforest environment; and for GBS too, it was the first experience of a group of youngsters! The visit inspired CFL teachers to make an annual visit to GBS a compulsory part of the curriculum for their middle group of students (ages 13–16), as they felt that a regular exposure to such an environment would be very valuable for young people. The same group visited GBS for three consecutive years from 93 to 96 for three weeks each time. In

addition there were a few other organized visits too – the senior art students for a 10 day nature drawing session, the nine year olds for some fun filled days that included treasure hunts, walks and swimming, and a mixed age group that was keen on learning horticultural skills. Each visit had its own character. Essentially, teachers and students engaged in their own study programme and the sanctuary provided a beautiful natural environment to learn in, with opportunities to go on long walks, swim in the river, do some practical work in the garden and live a simple, non technological life.

In 1996 we became interested in doing something more intense, to enhance their capacities for understanding and appreciating the natural world. We wondered what features of the sanctuary could be shared with them and in what way. Two stood out:

- The sanctuary is a place where it is possible to experience a way of life closely connected to a much larger community of interdependent living beings – wild and domestic, resident and visitor, plant, animal and human. Living with a direct awareness of other life forms, the forest, weather, and natural resources, creates an understanding of one's own impact on the environment, something that is not so easy to observe in a city.

- Working and functioning in nature demand an alertness of the senses and the ability to look consistently and afresh at what is going on around one. Nature moves in unpredictable ways, never static, always new, presenting infinite variety in form and function, revealing deeper patterns and principles. To engage fully with this invites looking and listening, an agile body and a quiet, alert and non judgemental mind. The sanctuary's work with plant conservation, reforestation and organic farming were seen to be conducive to an educational approach where a primary mode of learning through direct observation (of living things and processes) could be combined with more abstract modes such as communication, the connecting and seeing of patterns and correct intellectual enquiry. This unification of the primary

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and abstract is too often ignored in education and is usually the privilege of the very young (pre-school) or the very advanced!

Was it possible, thus, to create a whole programme around this? Both CFL and GBS were keen to experiment and were so enthusiastic that a whole year was dedicated to this and the entire school, from age 6 to 60 came over to the Sanctuary in small groups for up to three weeks each. From June 96 to March 97, we jointly explored the nature of learning while learning in nature.

While the activities involved depended on the age of the group, there were some features that sustained the whole programme. These were:

### **Practical Participation in the Life of the Sanctuary**

Fetching firewood, helping in the kitchen, cleaning, helping in the many different tasks in the garden (weeding, planting, basic landscaping, raking leaves, making compost heaps etc.) were seen to be essential to a feeling of community responsibility.

*.....working in the garden is important because for me it is like making a minuscule contribution to the Sanctuary's efforts, and that makes me happy....."*

Student (15 years)

### **Physical Exercise**

We started every day with about an hour of physical exercise and the form of this varied with the age group. Yoga, fitness and co-ordination training, swimming in the natural river pool were part of the programme. Experiencing one's body in action is also part of learning about nature and to function most effectively in nature requires a certain fitness and agility.

*".....the exercise plan in the morning was just what we needed. The exercises were sometimes tough but always amusing...."*

Student (16 years)



### Nature Study Activities

These were loosely divided into three broad areas:

***Exploring the Place:*** The physical features of the sanctuary lend themselves to plenty of outdoor pursuits. Getting a sense for the whole place – the terrain, the fields, the forested parts, the hillside, river, garden and orchard were possible through various activities. These included mapping, treasure hunts, adventure games (the ‘Mission’ and ‘Sneaky’ games were two favourites), blindfold trails etc. The 10 year olds did a very detailed study of the 450 metre stretch of river that runs along the sanctuary, and the group spent a few hours there almost everyday. They explored the contours of the river, observed the many different water creatures, drew the plants, looked for animal traces, did ‘solo’ sessions and eventually put together a giant 4 metre map with all their drawings, observations and comments about the river.

***Observing Processes :*** The older students undertook projects that involved long hours of patient observation. We emphasized ‘processes’ rather than quantitative data, which would require that they put together a comprehensive picture of the life of an organism. The students chose to study either certain organisms or a small area, and maintained this for two weeks. The only guidelines that they were given were:

***Left : Leisure.***

***Right : Observation.***



- Sustain observation as long as possible and as often as possible. Find out the best way to use time.
- Everything observed is significant. Start with the fact that you know nothing about that particular subject.
- Detail and precision are very important.
- Avoid other sources of information. For this period you are a pioneering naturalist!
- Come together everyday for sharing observations and raising questions and to be challenged.
- Keep notes but not at the expense of looking!

The results were varied and colourful and in the form of stories, essays and logbooks.

*Discovering Biodiversity:* To enhance the children's appreciation of the diversity of life, given the vast numbers of species found in the garden we undertook different activities. These were directed primarily to recognizing features of organisms, noticing distinctions and similarities and engaging the children's innate curiosity for the small wonders of nature. *Ant Hunts*, where the task was to spend a couple of hours looking for as many different ants as possible, to observe each one, describe it carefully and then ascribe an imaginative name, were enjoyed by all. The 12 year olds found over twenty species in an hour and the names given were inventive! We leave it to the entomologists to confirm *Witch Ant* and the *Jitterers* as distinct species!

Some of the other activities were: 'Collections' where each child took up a collection for the whole stay thorns, grasses, mushrooms, animal remains (a rather smelly affair!), seeds etc.; Birdwatching; Scavenger Hunts around certain tasks (e.g. "how many legs does a damselfly have?"); and E.T. on planet Earth "where the kids were asked to imagine themselves to be aliens from another planet who had landed on earth, whose task was to send reports back home with descriptions of the different kinds of life forms they saw". The task was to differentiate between basic morphologies and body plans and also to group them into some kind of a scheme. We were curious to see if in young



children the same kind of taxonomic scheme would emerge - the results were varied to say the least and reminiscent of Greeks and Science Fiction!

*"....I liked the ant study a lot. I wish I can do lots more projects like that...."*

*"....The E.T. project was the first thing I had found confusing and a lot of fun...."*

Students (age 13)

Thus, we spent a year looking at nature from the iridescent sheen of a damselfly's wings to the awesome beauty of the rainforest in the monsoon. We studied nature in her minute details, like the joints in a spider leg and up to vaster aspects while exploring the forest habitat or gazing at the night sky, and working in the garden, and playing. It has been a rich sensorial experience and has involved faculties of reflection, abstraction and communication as well. The programme's value is best expressed in the words of the children and teachers themselves, in the fact that they are returning for more of the same, and that other schools have expressed their wish to come!

*".... I like Wynad. But the nights are verrrry dark. Next time I will come with my father and my mother and my sister and my dog...."*

Student (Age 7)

*"....one thing I really did learn was to observe creatures and plants carefully....I did not know there was so much to see in a butterfly, spider, ant and damselfly...."*

Student (age 13)

*"....I think Wayanad has made me more responsible for nature...."*

Student (age 16)

*"...when I first came to the sanctuary I liked it. After that I heard stories about snakes and got scared...then I thought if I don't learn to face my fear I will stay scared....then I had fun...."*

Student (age 12)

*"....one thing I'd say I WOULD LOVE TO COME BACK..."*

Student (age 13)





**Top Left: Shifting cowdung.**

**Top Right : Ketakis scouting the rainforest.**

**Bottom Left : Playing the sneaky game.**

**Bottom Right : The school.**

*"....it was interesting for me to watch the students asking questions and trying to find order in nature. To give them this opportunity to have fun in the forest, whether they took it or not was a very needed thing...."*

Teacher

*"....As for me, contrary to what some people may have felt (including me), I felt wonderfully at ease and complete or replete there. The wonders of the rainforest, the rich diversity of plants, the buzzing, crawling, hurrying insects, the bursts of butterflies, the huge spiders all evoked amazement and awe. Not as a spectacle but as a glorious affirmation of life...."*

Teacher

*"....Please do consider making last year's experience a long term one..."*

Parent