

The scientist in me

Through scientists' eyes

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Students will be taken on a field trip to nearby nature reserve called the Pantana. It is a stretch of coast where an underground river meets the Adriatic Sea. This is a fragile eco system. The aim is to make students become aware of delicate ecosystems which may lead them to take conservation actions in the future such as carry reusable water bottles and bags or participate in beach clean-ups, generally maintain a cleaner and healthier environment.

Students will be able to

- identify different components of an ecosystem, understand the importance of a scientific approach
- understand the importance of scientific collaboration among different types of scientists
- collect and comment on data found on the site

Different fields of science focus on different aspects of an ecosystem. Scientists collect and analyse data, they also try to interpret their findings and establish the origins and connections as well as possible causes and outcomes of their findings.

An ecosystem is an interaction of the biotic components such as people, plants, animals and microorganisms and abiotic components such as soil, water and air. In short, it is an interaction between living things and non-living things.

An ecosystem can be as large as an ocean, or as small as a small bay or cove.

To study an ecosystem, we need to look at its all aspects. We can say that there are as many fields of science as aspects of an ecosystem.

When scientists work together, they have a chance to share their data and ideas, in this way their view of the ecosystem is more accurate.

In the case of our ecosystem, the Pantana, the following scientists can do their work:

A botanist – a scientist who studies plants

An ornithologist - a person who studies birds

A zoologist -a person who scientifically studies animals

An oceanographer - a person who studies the sea

A marine biologist – a person who studies plants and animals

A microbiologist – a person who studies microscopic plants and animals

A malacologist – studies molluscs shells, clams

A meteorologist – weather and climate

An ecologist – the way living things interact with their environment

A geographer – studies physical, cultural and biological features of the Earth's surface

A geologist – the history of the Earth and the materials of which it's made

Procedure:

1. The teacher tells the class they will be conducting an ecosystem investigation at a field site (in this case Pantana). They will play the role of a scientist, they can choose which one they want to be.

They will observe nature, collect information, write notes, ask questions, try to find the answers, analyse the findings and share them with their classmates.

2 Assign a card to each pair of students. Review the goals and what is expected of them. Go through the guidelines and their tasks.

Guidelines:

1. Read the card carefully

Walk around the site, take notes.

Think of the questions and write down your answers.

Give safety reminders as well.

2. Students work in pairs and explore the field site keeping in mind their role of a scientist.
3. Students gather upon the completion of their task. A representative of each pair/group presents their work to the others. Their work can be presented on a larger piece of paper with coloured pencils
4. At the end, groups can discuss their work, talk about things they have noticed which may have a negative impact. How can this be prevented? How can we preserve this site?

CARDS:

A botanist – a scientist who studies plants

Are there any plants at the location?

Name the plants and describe their location? Do they bear any fruits?

Do animals and people eat them?

Are there any plants on the nearby fields?

Why are they planted there?

What is your opinion on them?

An ornithologist - a person who studies birds

Are there any birds in the ecosystem? Name them! What about their number? Have you seen more of one kind and less of the other?
What do they feed on?
Are the migratory birds? Is this an important stop on their migratory route?

A zoologist -a person who scientifically studies animals

Are there any animals in the ecosystem?
What kind of animals are there? Make a list.
How do these animals interact with other animals and biotic components?
What about their interaction with abiotic components?
Can you see any physical and behavioural adaptations? Can you describe them.

An oceanographer - a person who studies the sea

Describe the location. Name the biotic and abiotic components.
Are they constant. Are there any changes in their features?

A marine biologist – a person who studies plants and animals

Take a walk along the coast of the ecosystem, have you spotted any fish, shells, plants? Name them and make a list. Group them as well.
How do they interact with each other?

A malacologist – studies molluscs shells, clams

Are there any shells and molluscs? Make a list of them? Where did you find them? What about the water quality and depth? Do people take them out? Has their number decreased because of that. Make notes and illustrate your work.

An anthropologist – studies peoples and cultures

Have people had influenced this ecosystem? If yes, in what way? Have the changes been good or bad? Explain! What can we do to make sure that the future activities on this site remain positive?

A meteorologist – weather and climate

An ecologist – the way living things interact with their environment

Name the biotic components of the ecosystem.

How are they organized?

How do they interact?

How do these components interact with abiotic components?

A geologist – the history of the Earth and the physical structure of the Earth

Describe the site, the soil and the rocks. Is there water? What type of water is there? How important is it for the biotic component of the ecosystem?

Describe the soil and the rocks? (look for sand)

Has the water shaped the ecosystem? How?

Can there be found evidence of major geological events like earthquakes, volcanic eruptions, mountain/hill building, erosion and other?