3-5 years

pri-sci-net

inquire
investigate
evaluate
connect

Science Content:
Life Sciences

Target Concepts/Skills:
Plants are green. Plants make their own food. They do not move from where they are green because they do not have to chase and capture food.

Target Age group:
3-5 years old

Duration of activity:
Total of 3 hours, moving Plants activity require observations over a few days

Summary:
This activity involves young children looking more closely at plants. Initially, the teacher starts talking about plants and their colour. The teacher asks if plants are always the same green and how they can find out. Children are then involved in looking at a number of real plants either in pots or outside, and looking at their colour of green. The investigation can also include looking at the different shapes and sizes of plants.
The second activity asks whether plants move. This involves an investigation where children plant a plant, mark its position with a lollipop stick and note its position over a number of days to determine whether plants actually move or not. The children use their observations to draw conclusions on whether they think that plants move.

Objective and learning outcomes:
By the end of the activity children would be able to:
- Identify a plant through a few defining features;
- State that plants are green;
- Argue that plants cannot move from place to place like animals;
- Realize that there is a variety of forms of plants and not all produce flowers, fruits and seed

Resources:
- Pictures of various types of plants;
- Videos of plants (make sure to include both flowering and non-flowering plants e.g. mosses, liverworths, algae, ferns etc.
- Live plants in pots and in garden;
- Pictures of outside settings e.g. gardens
- Opportunity to take children outside;
- Different coloured papers in greens, green crayons, paint charts of greens, green items, card, socks, ribbon, mug, colouring pencils;
- Specifically for activity 2:
- Lollipop sticks or similar, scissors and, if sticky papers not available to make flags, coloured paper and glue, boxes or trays;
- Seedlings/small plants (grass plants or rape and cress seeds for example)
- Paper to draw a map of the position of soil and plants in the seed tray or digital cameras to photograph;
- Interactive board to write hypothesis;
- Crayons, pencils, rulers.

Plants: What is a plant?

Are plants always green?

Do plants move around?

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CAPACITIES

Plants: What is a plant?
Are plants always green?
Do plants move around?

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1. Engage (Forming hypotheses)

Focus the children onto the topic of plants, how do they know something is a plant? What are the characteristics?

To orientate the children look at pictures of the countryside, gardens, look outside at the area around the class if there are plants to see Ask the children how can they recognize and identify these objects/ things/ organisms are plants?

Challenge the children to say what colour all the plants share. Ask the children what the colours are of things they can see. Can they name all the colours? What words do they use?

2. Inquiry

Children need to know what is meant by 'green'. Before they consider whether an item is or is not a plant. . Question the children.

Challenge them to answer whether green is green always the same colour of green?

How can they find out?
Listen to their ideas, provide different green coloured items, crayons paper and pain cards if passable

Ask them to point to items outside and in pictures, trees, bushes, flowering plants, ground cover, and say what they are and what color they have in them. Have variety of plants growing in pots in the classroom. Try to have some moss and a fern too. Ask the children what is similar and what is different between the various plants. How can they tell? Ask the children to point to the plants in pots or plants on the pictures; ask them why the item being pointed out is in their opinion a plant.

How do they know it is a plant?
Probably they will say flowers, trees grass.
Tell them that these are members of the plant group

Ask '*Is the green of plants always the same colour*?' How can the children find out? Let them explain what something has to have to be a plant.
How they can find out if plants are all the same green colour.

3. Evaluation

What is the answer of the children to the challenges?
Do the children think green is only one colour or are there shades of it? How can they show you that?
Invite to explain what something has to have to be a member of the plant group. What do the plants in the room, the plants outside all have?

How have they found out? Have they any observations to share- perhaps digital photographs of different plants that they can discuss or arrange some pot plants in a row and point out similarities and difference as. What words can each child use in his/her communication?

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Activity 2 Do Plants move from Place to place?

1. Engage

Do plants move from place to place like animals?
Have a plant in a large plant pot in school. Plant a small plant in soil at one end of a box or seed tray which is lined with polythene. If possible have plants growing in the ground outside the classroom.

Ask the children to describe where the plant is.
Ask them if the plant stays in the same place or does it move around?

2. Inquiry

Listen to children's ideas and any questions they may generate.
What do they think? How can they explain their answer?
Listen to their ideas and suggest, if they do not, that you could mark where the plants are in the tray with a flag and so the same for the plants outside in a garden or the tree in a lawn. Design and make coloured flags and put them on twigs or lollipop sticks (or even pencils) have each child mark they chose, plant by planting their flag in the ground next to the plants stem.
When are they going to check their flag and the plant? How many time should they check, just once or several days? If they don't suggest this ask if the plant may have a rest if it does move and not move for a day or two? Can they draw a picture or help you fill in a plant movement chart or map? What questions do the children generate themselves?

3. Evaluation

What happens?
What do the children find has happened?
Has each plant they chose to observe moved from the marker flag?
If not why not?
How do the children explain what they have found out?
Remind them of how they get their food, do they stay in the same pace and all the people around them stay in the same place when they have food?

Can they draw the progression of what has happened? Where were the plants at the start? Where were they after a few days?
What is the conclusion that the children reach? How do they explain it? What words do they use?
How will they explain that plants do not move around to someone else?

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Notes on activity

Before beginning this activity the children need to have the knowledge of what is meant by green.

They also need to be able to recognize a model from a real specimen and recognize that artificial flowers, models and pictures are representations of plants, not the real living item as are their drawings

People are blindness to plants. Organisms that move attract people's attention. In everyday speech the word 'plant' in English is used in everyday language by most people to mean flowering plants. Children will talk about flowers, they may mention trees as something different. Often children use the word 'grass' as an alternative to lawn and do not realize that a lawn is composed of many individual grass plants, which are in fact flowering plants, but in cultivated areas the grass is seldom seen flowering. Children can prove it for themselves by looking carefully at a patch of grass. Parts of plants do move because of wind or other forces or being carried by animals or water but these actions do not count as moving from place to place. Seed and fruit dispersal is only one part of a seed making plants move and so is not the whole plant moving by itself. The activity suggested requires planning and manipulative skills. Everyday adults also refer to a category of plants as weeds; these are plants growing where human beings do not want them.

These activities may help children to understand that there are a variety of plants and some have flowers and produce fruits and seeds but others, like mosses and ferns do not, yet they are all plants. Mushrooms and other fungi are not plants; they are not green and do not make their own food nor capture it in any other way. The shared feature of all plants is that they are green; this green colour is due to having a chemical called chlorophyll. This chemical captures the energy of the sun in sunlight, which is then used to build up chemicals for the plant, which is its food. Plants also require some minerals and nitrogen to make essential chemicals. These are obtained through the roots of the plant from the substrate in which they growing, usually soil. Plants have attachment (roots), which anchors them to the soil, and the main groups of plants have a definite structure. In the case of flowering plants it is roots, stems leave and flowers. The stem parts are above ground and the roots are below ground.

In activity one encourage the children to look at the plants on display and say what is the same and what is different. In all the activities listen to the ideas of the children, ask from where they obtained the idea and note which questions they raise. What do they find out from this close observation? How can they work out if the plants are all the same green colour ?

Activity 2

The fundamental difference between plants and animals is that plants do not move from place to place as do animals, hence they make their food. This is done through the process of photosynthesis, which captures the energy from the sun and make carbohydrates, which they can combine with minerals, and nitrogen that they obtain from the soil to make proteins to build the plant cells. That plants do not move around is obvious but it is still an important concept to establish with children through observations.

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