HOW DOES YOUR GARDEN GROW?

LESSON 9: WHAT DO BEES DO?

Key vocabulary:
bee, nectar, pollen, pollination, reproduce, sepal, petal, carpal, stamen (anther, filament, stigma, style, ovary for Challenge 3)

Resources:
Props for pollination role play: cut out petal, sepal and antennae card shapes attached to cardboard headbands, containers for the pollen grains, such as a plastic bottles or yoghurt pots for the stamen, small circular objects or spheres to act as pollen grains, such as ping pong balls, Styrofoam balls, Velcro dots, milk bottle lids, woolly hats for the stigma, video camera (optional)

Key information:
Establish that bees visit flowers to collect nectar to take back to the hive. The bees transfer some of the pollen from one flower to another as they feed. Some plants rely on the wind to blow the pollen from flower to flower but many need insects to do this. The transfer of pollen leads to seed formation. This is a method of plant reproduction.

LESSON SUMMARY:

In this lesson children model the process of insect pollination. By the end of this lesson they will know that pollen needs to be transferred from flower to flower and that bees play a vital role in that process.

National curriculum links:

Explore the part bees play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal

Working scientifically links:

Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions

Learning intention:

To describe and model the process of insect pollination

Success criteria:

- I can describe how pollen is transferred between flowers.
- I can explain what the different parts of the flower do.
- I can explain why bees and pollination are important.

Scientific enquiry type:

Modelling

EXPLORE:

Watch the video clip of bees pollinating flowers (Video 1) or look at the images on slide 1 of Bees and other insects at work (Slideshow 1).

Ask: *What do you think the bees are doing? Why do they visit the flowers? Why are the petals brightly coloured? Why do they need to attract insects?* Encourage children to think about how the answers to these questions link with what they saw when they looked closely at the flower parts in Lesson 8.

Show the animation of insect pollination (Animation 1) and discuss.

Ask: *What does the bee do? Why does the bee visit the flowers? Where is the pollen produced? What happens to it? What happens after the pollen is transferred to another flower? What would happen if no pollen was transferred?*

ENQUIRE:

Tell the children that their challenge is to model the process of insect pollination through role play. Organise children into different roles: at least three children per flower to be either petals or sepals and at least three to act as stamens, holding the containers of 'pollen grain'. For each flower, there will need to be one child acting as the stigma. The rest of the children can be the bees wearing the antennae headbands. The children arrange themselves into flowers and the children representing bees fly from flower to flower. When they land on a flower some of the pollen is transferred to their legs and body (via the Velcro dots). When they visit the next flower some of this pollen sticks to the carpal. The flower has been pollinated.

Through questioning, ensure that the children direct the role play as far as possible.

Ask: *How will you represent the flower? Where will you need to stand? Do the petals go inside or outside the sepals? Where is the pollen produced? Which part of the flower collects the pollen? What will happen when the pollen has been transferred to the stigma/carpal? Why are bees so important?* Children may wish to add to the role play, e.g. by finding a way to represent the nectar.

If possible, video the role play. This can be used later or played back to support any groups that need a reminder during the challenge activity.

Following the role play, children then work individually or in pairs to write a voiceover to help someone watching the role play to understand what it shows. These challenges are differentiated by the amount of support and guidance given to the children.

Challenge 1 Children write a voiceover.

Children write a voiceover using Online resource sheet 1 to support with sequencing, sentence starters and vocabulary. As a minimum the voiceover should describe what is happening at each point. Ask them to think about the following questions: What is the bee doing? Where is the pollen? Where does the bee go next?

Challenge 2 Children write a voiceover.

Children write a voiceover using Resource sheet 1 to support them with sequencing and vocabulary. The voiceover is to include some explanation of what is happening. Children should think about: What is the job of the petals? Why does the bee visit the flower? How does the bee transfer the pollen?

Challenge 3 Children use a writing frame.

Children use Resource sheet 2. They will include more detailed explanation and may name the parts of the carpal. Key vocabulary to be included is provided. Encourage children to think about the following questions: How does the flower attract the bees? How is the bee suited to pollinating flowers? What will happen after pollination? What would happen if there were no bees? Why is pollination important?

REFLECT AND REVIEW:

Share some of the scripts. You could repeat the role play with the voiceovers, if there is time, or children could read them whilst watching the video. Do they describe what is happening? Do they explain the process and why it is important?

EVIDENCE OF LEARNING:

Review children's scripts.

Can the children recognise and represent the different elements in the role play? Can they describe where they go and what they do? Can they sequence the events in the role play? Can they explain the part the different parts of the flower and the bee play in pollination? Do they understand the importance of pollination and its role in the life cycle of a plant?

CROSS CURRICULAR OPPORTUNITIES:

Computing – using digital devices to present information. As an additional activity, linked to computing, children could record their voiceover and add it to the video clip.