

### Teaching notes:

This investigation involves children monitoring and observing sunflowers as they grow over a period of time. It offers excellent opportunities for children to observe the changes that occur as the sunflower matures into an adult plant. Also, with children conducting some measuring, good links with Mathematics are obtained and children have the opportunity to conduct a comparative investigation into one of the factors that may affect plant growth.

### Learning outcomes

During this investigation children will have opportunities to:

- ask their own questions about what they notice
- carry out simple comparative tests
- observe changes over time
- use simple and scientific language to communicate ideas in a variety of different ways
- structure and function of living things
- describe the main changes as seeds and bulbs grow into mature plant
- name and locate parts of flowering plants, including trees.

### Starting the investigation:

Resource required:

- A selection of seeds
- Card, paper, post-its or other methods of recording observations (e.g. video)
- Sunflower seeds
- Plant pots (5 if doing as a whole class. More if groups working separately)
- Soil/compost
- Display board to visually display the sunflowers progress. (Optional)

### Looking closely at seeds

Show children a wide selection of seeds on their table. Invite children on pieces of card, paper, post its or by using video, voice recordings etc., to note down any observations they can make about the seeds e.g. they are different colours, some seeds are flat, some seeds are bumpy, this seed can roll etc.. Children could use microscopes or even hand lenses to look very carefully at the seeds.

### Sorting seeds

Following on from the observation activity, children could then be asked to sort or group the seeds in a variety of different ways. The children will realise that all of the things they have observed about the seeds can actually be used as a classification tool. So seeds could be sorted by size, colour, texture, shape, ability to roll, float or sink etc. Children could be extended to think about whether all the seeds fit into one group or two or if there is an overlap between two groups (Links to Mathematics with the use of Venn or even Carroll diagrams). Children could take photos of the different ways they have sorted the seeds and then feed back to the rest of the class.

### Generating questions

This activity allows children to begin to think about generating their own questions. Ask children to look at the observations they have made and how they have sorted the seeds:

*‘What questions do we have about the seeds based on what we’ve seen so far?’*

Use the ‘Question stem cards’ as prompts to develop different types of questions

The question stem cards can also be used as an extension task where children are challenged to develop questions using the appropriate question stem e.g.

*‘Do all seeds grow at the same rate?’*

Alternatively play a simple game where the cards are cut out and turned over. Each child takes it in turns to turn over a card and use the ‘stem’ to create a relevant question.

### ‘Do sunflowers grow taller if they are put into bigger pots?’

Allow children some time to discuss what they think may happen. There is a good opportunity here for assessment of children’s ability to make predictions. Children could write their predictions down on leaf-shaped pieces of card to put round the border of a display.

If you are doing this as a class, show children how the experiment will be set up.

1. Take 5 pots, ranging from a very small pot up to a very large pot.
2. Fill each pot with soil.
3. Place a sunflower seed lightly into the soil, not too deep but enough to be covered
4. Water and place in a sunny area either outside or on a classroom window sill.



5. Each week, measure the progress of the sunflowers. This could be done by physically measuring the sunflowers or by taking photos and keeping a photographic diary.
6. After a set time frame (6–8 weeks) children can look at the results and analyse these to find an answer to the original question.

The experiment allows children to observe changes over time. Results can be displayed visually on a display board, or in a photographic diary, children could write a weekly diary about what they observe happening as the sunflower matures. The children could label and identify the parts of the sunflower and even begin to observe what may happen as the sunflowers die and begin to seed. This links in to learning about lifecycles of living things, in this case plants.

### Further investigations:

Spin-off investigations could revolve around investigating the conditions required for seeds to germinate, so children understand that soil and sunlight are not key factors for this to happen.

Name: ..... Date: .....



Look closely at the selection of seeds you have been given.

Make notes about their appearance including : size shape, colour and texture



Carefully draw each seed here or attach a photograph	Make notes about the size, colour, shape and texture of each seed



Question stem cards:

Use these cards to prompt questions about your investigation.

What happens  
when ...

Do ...

Does ...

Is ...

Are ...

How ...

Can ...

What ...

Why ...

When ...

Name: ..... Date: .....







### My sunflower observation diary.

At the beginning of each week carefully draw a picture of the plant.

Label any of the parts of the plant that are visible: stem, leaves, buds flowers, seeds.

Makes notes of any changes and record how much the plant has grown.

Week	 Drawing of plant	 Observations
Week 1		
Week 2		
Week 3		

Week	 Drawing of plant	 Observations
Week 4		
Week 5		
Week 6		
Week 7		
Week 8		