



theme: the living world

why won't my seed grow?

In this theme, the environment is used as a starting-point, as this helps children to develop knowledge, understanding and respect for the world around them. The direction taken in the activities resulted from the spontaneous interest shown by the children in their outdoor play.

Before you start ...

Key focus areas

The key focus areas are:

- Language and literacy
- Mathematics
- Science – living things
- Personal, social and emotional development

Essential resources

- A varied collection of seeds (depending on the time of year, you should be able to find acorn, conker, apple, avocado, coconut, cress, sunflower, sycamore, hazel, beech, runner bean, dandelion)
- Sorting hoops (or PE hoops)
- *The Tiny Seed* (Carle, 1997)
- Magnifiers of different sorts, especially large magnifying glasses and flexible magnifiers; an Intel computer microscope can also be used
- Small plant pots, lolly-stick labels, seeds and seed packets, compost, trowel, watering can and other garden tools, and till and price tickets
- Bean seeds and plastic cups
- Seed diaries – these can be cut out in the shape of a bean seed

Planned outcomes

Children should be able to:

- use simple criteria to sort the seed collection
- use their developing observational skills to find seeds in the outdoor play area and to begin to see fine details of seeds
- show understanding of the life-cycle of plants
- begin to develop respect for living things and learn to care for the growing seeds
- communicate ideas to others
- develop new vocabulary connected to growing seeds.



Setting up the learning environment

- Provide story and information books about seeds, including Eric Carle's *The Tiny Seed* (1997).
- Set up the role-play area as a 'Garden centre' for gardening and shopping, with space for counting out seeds for sale.
- Provide a table where the children can grow their seeds.

In addition, the provision of interesting resources in outside play areas can stimulate and develop children's learning, especially those with limited opportunities for outdoor play in their home environment.



Starting-points

All environments provide opportunities for rich exploration: even urban areas with little or no grass and trees will have plants growing in pots and cracks in paving-stones. This theme was initiated by a child's interest in seeds and flowers which the adults then developed into learning about:

- sorting and classifying seeds
- using magnifying equipment to explore and observe closely
- using descriptive language and thinking skills to make predictions
- developing social skills and positive attitudes in growing and caring for seeds and plants
- counting and pricing items in role play.

Our starting-point

During outdoor play, the children began to pick flower and seed heads and use them in their role play, as money and food for a picnic. I noticed that Leanne in particular was looking closely at the seed heads, and gave her a flexible magnifier so that she could look at the finer detail. She went around the play area looking closely at small objects, including plants, flowers and seed heads. I suggested to other children that they might collect the flowers and seed heads so we could all look closely at them. We used the magnifiers to enhance their observations.

Later, I added other seeds to the original collection on a table with some sorting hoops. I asked individual children to choose one seed and to describe it in their own words, introducing and reinforcing the use of relevant vocabulary, such as *seed, round, grow, plant*. I then asked the children to find all the small seeds and put them into a sorting hoop on the table. All the big seeds went into another sorting hoop. Peter held up the coconut and said 'This is not a big seed, it is **very** big.' He was not sure where to put it, but Sara said 'Let's make a "very big" pile',

and with Peter's agreement we put the coconut into another sorting hoop.

During story-time, we read Eric Carle's *The Tiny Seed* and discussed the children's ideas about seeds and growth. Edward said 'You get coconuts at the Fair.' This prompted a diversionary discussion about the Fair. I asked Edward if he knew where the people at the Fair had got the coconut. He shrugged, but Rosie shouted out 'They're at the shops!' After some encouragement, she told us that she had seen some coconuts at the supermarket when she had been shopping with her mother. We talked about this, and other children were unsure whether they had seen any other seeds at the supermarket, so we all agreed to look next time we went shopping.

Productive questions

- How are the seeds different from each other?
- Are any of the seeds the same as each other?
- How can we sort the seeds?
- Can we sort them any other way?
- Do you think all the seeds will grow into plants?
- Do you think the big seeds grow into big plants?
- Where do you think the seeds come from?
- How should we look after the seeds to make them grow?





Challenges and responses

Teacher-directed challenges

This setting provided opportunities for:

- sorting and classifying seeds using different criteria
- investigating planting and growing seeds
- developing descriptive language and predictions
- working together to care for the plants.

The next day, I showed the children some seeds I had bought from the shops. They included herbs (basil, lavender, rocket), flowers (sunflower, poppy), beans and cress. We looked at the packets and the seeds inside, and talked about what would happen if we sowed the seeds. I added other seeds to the collection (acorn, conker) and some fruit (lemon, avocado and apple), and we looked at these and discussed if they would grow too. I reminded the children that not all seeds are safe for us to eat.

Set challenges

For the 'Garden centre' we encouraged the children to:

- collect seeds from home and bring them in to add to the collection
- choose some seeds of their own to grow
- grow bean seeds in plastic cups with blotting paper, and observe them growing
- write their names on 'lolly-stick' labels to

identify their seeds/plants

- remember to water their seeds/plants every day
- [some children] keep a diary illustrated with pictures of their seed(s) growing. They were also challenged to consider:
 - which seeds would grow into big plants and which into small plants
 - what their seeds needed in order to grow
 - what would happen if they did not take care of their growing seeds.

Child-initiated responses to the setting

During the sorting activity, several children sorted the collection of seeds according to observable criteria (texture, pattern, shape) and used good descriptive language when talking about the seeds. One child, Sara, used more sophisticated sorting criteria by suggesting a 'very big' pile in addition to the 'small' and 'big' seed piles. Many children used magnifying equipment (hand lenses and the Intel microscope) safely and effectively for close observation.

After they had planted their seeds, many of the children showed a positive attitude towards living things by caring for their growing plants. Some children showed prior knowledge of the conditions needed for plants to grow well (water and sunlight), although they were not aware that seeds need different conditions to germinate. Some children made decisions about which seeds to grow.

Language

Key vocabulary

seed grow plant root shoot water dry wet leaf soil petal flower pot seed heads (names of fruits and other seeds used, e.g. beans, acorns) big small tiny sunlight shade winter spring summer autumn

Encouraging children to use the language

We have to **water** them
They like the **sunshine**
Look at the **tiny shoots**

Language across the curriculum

Mathematics - comparative language of order and size
first second tiny smaller bigger very big

History - sense of past and present events

will grow have grown



Children's voices

Leanne: 'Look at these!' [seed heads]

Suzanne: 'This one's ten pence.'

Sara: 'I haven't got ten pence.'

Suzanne: 'OK. Five pence then.'

Afsan: 'That one's mine - I know 'cos I planted it and it's going to be a sunflower.'

Suzanne: 'You can buy it if you like. It's five pence - but you can't take it home yet 'cos it's my turn to water the seeds today.'

Afsan: 'All right - I'll just take it for a bit.'

Zoe: 'If we look after them they will grow big and strong.'

Dale: 'We got to water them!'

Suzanne: 'My Nana says they like the sunshine. She puts her tomato seeds on the window-sill.'

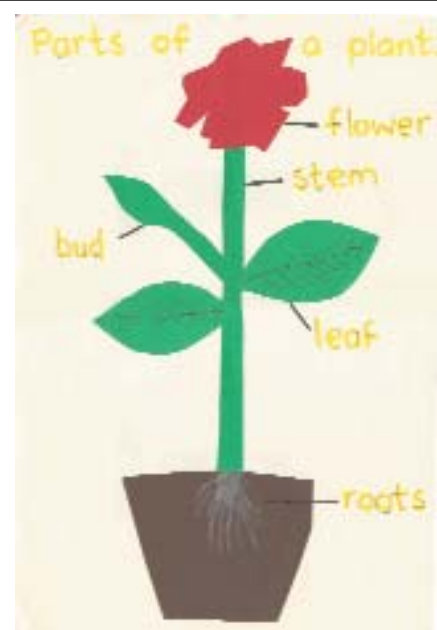
Teacher reflections

'Leanne instigated the work on seeds. During outdoor play-time she began to look carefully at the seed heads as she collected them. We provided magnifying glasses and encouraged the children to use them to look at the seeds. Leanne noticed small details in the seed heads and began to compare different seeds.'

'In playing with the till in the 'Garden centre', the children showed an awareness of the value of the different coins. Afsan also identified her seeds by name, and Suzanne showed a sense of responsibility in turn taking and caring for living things.'

'As they labelled the pots containing their seeds Zoe, Dale and Suzanne showed knowledge and understanding of what would happen to the seeds when planted and of the care needed to enable the seeds to grow. Suzanne drew on knowledge gained through her family's caring for plants in deciding where to place her seeds to encourage them to grow.'





Further activities

Create a seed and plant corner as a hands-on display that the children can revisit at will.

Flower pictures

Work with the children to make pictures of a flower using different types of seeds or seed heads.

Place a flowering plant in the centre of the table and ask the children to draw, paint or produce collages of them. Talk about the parts of the plants and label them on the children's pictures.

Counting seeds

Count the seeds in the sorted piles – which is the biggest number? Which the smallest? Squeeze different types of citrus fruits (and extract seeds from other types of fruits) to extract the pips and count them. Why might some fruits have more seeds than

others?



Rooting cuttings

Science: Take cuttings from a spider plant, put them in water and allow the roots to grow. Talk about the colour and shape of the roots.

Instruction manual

Language and literacy: Use a writing frame or drawing sequences to create instructions on how to plant and grow seeds. Encourage the children to look at their bean diaries when doing this activity.

Sound makers

Provide a variety of containers and demonstrate how the children can use different seeds to make sound-makers for music and rhythm. Which seeds make the best sounds? How does the sound change if you use fewer bigger seeds or more smaller ones?

The Tiny Seed

Use movement and musical instruments to dramatise the story of *The Tiny Seed* (Carle, 1997) – put on a performance for parents.

Assessment for learning

It can be useful to assess aspects of children's learning under the separate headings of knowledge and understanding (including the ability to apply knowledge in a new context), skills and attitudes. Children in this project showed a knowledge and understanding of: 'features of living things' and 'descriptive vocabulary'. In relation to skills they demonstrated an ability to:

- observe similarities, differences and patterns in the seeds
- explore, using all the senses in their observations
- sort according to observable criteria
- communicate and interact with others.

Their attitudes included: 'learning to care and show concern for living things' and developing 'self-confidence in exploring the meanings and sounds of new words'.

References and further resources

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- Hughes, S. (1997) *Rhymes for Annie Rose*. Red Fox Picture Books.
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- Intel Microscope (2001) IntelPlay QX3. ANDNes/Science Corporation.
- Matusiak, C. (1996) *Bright Ideas for Early Years: Seasonal activities: spring & summer/autumn & winter*. Scholastic Publications.
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Aims

- Talk activities through
- Identify features of living things.

Teacher comments

Leanne showed knowledge of living things in the environment by collecting seed heads and explaining to the adult what she had collected and where they had come from. She examined the seed heads closely and observed small details.



Aims

- Sort objects and talk about sorting
- Look closely at similarities, differences, patterns and change.

Teacher comments

Peter sorted the seeds according to given criteria ('big' and 'small') and identified a new criterion ('very big') to sort by. He was able to observe similarities in the seed collection. As he was sorting the seeds, Peter talked about the seeds and used appropriate language.



Aims

- Identify features of living things
- Initiate communication with others
- Be aware of the needs of others.

Teacher comments

Suzanne showed understanding of the needs of growing seeds. She told the teacher about her grandmother putting growing tomato plants on sunny window-sills. She planted a runner-bean seed and some cress seeds, and put them on a sunny window-sill; each day when she arrived in school she checked that they had enough water.

