Seeds and Bulbs Growing

Teacher		**Class**	Year 2
Subject	Science	**Topic**	How seeds and bulbs grow
Date		**Room**	
Lesson length	60 minutes	**Country**	United Kingdom

Children learn how seeds and bulbs grow into mature plants. They sort real seeds and bulbs and describe roots and shoots.

Curriculum links

- Observe and describe how seeds and bulbs grow into mature plants [2]

Learning objectives

- Students will observe seeds and bulbs closely and group them by what they notice.
- Students will describe roots growing down and shoots growing up through the soil.
- Students will explain how a seed or bulb grows into a mature plant over time.

Success criteria

- I can say if it is a seed or a bulb and why.
- I can point to roots and a shoot and say what they do.
- I can put growth stages in order from seed or bulb.

What students already know

Show a pea seed and an onion bulb. Ask: What do you notice about colour, size and shape? What do you think each one will grow into?

Key words

seed	a tiny part that can grow into a new green living thing [2]
bulb	a round part under the ground that keeps food for new growth [2][4]
shoot	the young green bit that grows upwards above the soil [2]
roots	thin parts under the soil that hold a green living thing in place [2]
mature plant	a fully grown green living thing that can make flowers [4]

Materials

- trays
- hand lenses
- pea seeds
- sunflower seeds
- onion bulbs
- daffodil bulbs
- sorting hoops labelled seed and bulb
- Slides 1-4, 7-8, 9, 10-12
- Video clip 1 Seeds and Bulbs on slide 8

Before the lesson

- Set out trays with pea seeds, sunflower seeds, onion bulbs and daffodil bulbs plus hand lenses and two sorting hoops.
- Test slide 8 Video clip 1 Seeds and Bulbs (0:00-2:57) with sound and freeze at roots and shoot.
- Print Worksheet page 4 Matching for each pair and check pencils, crayons and paper towels are ready.

- Worksheet page 4 Matching copies
- pencils and crayons

Lesson outline

0–10 min **Starter** 10 min · Whole class

To hook interest and recall what seeds and bulbs look like.

YOU DO

1. Show the mixed tray of baby plants and say the hook about mixing them up.
2. Show Slides 1-2 and reveal the mystery onion bulb with its papery outside.
3. Hold up one pea seed and one onion bulb and ask how they look different.
4. Take a quick vote on which children would plant and record ideas on the board.

STUDENTS DO

1. Look at the tray and mystery bulb and share what they notice.
2. Vote for sunflower seed, pea seed, onion bulb or daffodil bulb and give a reason.

Say: I mixed up all our baby plants. Can you help me sort the seeds from the bulbs? Look closely with your eyes first. Many plants grow from bulbs or seeds. Tell me what you notice about colour, size and shape.

Worked example: Look at this one. It is small, round and hard, so I put it in the seed hoop. Look at this one. It is big, round with papery skin, so I put it in the bulb hoop.

Ask: Is an onion a seed or a bulb? How do you know? (A bulb, because it is big and round with papery layers outside.) · What is different about the pea seed and the onion bulb? (The seed is tiny and hard, the bulb is much bigger and has layers.)

Check understanding: Hands up for seed or bulb for each item. If mixed, hold both up again and point to size and skin together.

Support: Show only the pea seed and onion bulb side by side and name one difference together. **Stretch:** Ask children to think of another way to sort them, such as smooth or rough, and say the rule.

Use: Slides 1-2

10–25 min **Teaching** 15 min · Whole class

To teach key words and show how roots grow down and shoots grow up.

YOU DO

1. Teach seed, bulb, shoot and roots using Slides 3-4 with real pea, sunflower, onion and daffodil examples.
2. Explain that bulbs and seeds come in different shapes and sizes and keep food inside for growth.
3. Show Slide 7 that plants need water, warmth and light to stay healthy and warmth to wake up.
4. Play Video clip 1 on Slide 8, pause at roots then at shoot, and narrate the order.

STUDENTS DO

1. Repeat key words and point to the real seed, bulb, roots and shoot pictures.
2. Watch the video and call out when they see roots going down and shoot coming up.

Say: A seed can grow into a new plant and a bulb keeps food inside to help it grow again. Bulbs and seeds come in different shapes and sizes [2]. First roots grow down, then the shoot pops up through the soil and keeps growing [4]. Plants need water, light and a suitable temperature to grow and stay healthy [4].

Worked example: Watch with me. First: tiny white roots grow down into the soil. Next: a green shoot pushes up through the soil. Last: stem and leaves get bigger into a mature plant. Roots hold it in the ground, the shoot grows above the ground [2].

Ask: Where is the food a new plant uses to start growing? (Inside the seed and inside the bulb, stored for growth.) · What grows first, roots or shoot, and which way does each go? (Roots first down into soil, then shoot up through soil.) · What do plants need to grow and stay healthy? (Water to drink, warmth to wake up, and light to stay healthy.)

Check understanding: All children point down for roots and up for shoot on cue. Reteach with hand actions if directions are mixed.

Support: Give word cards with pictures for seed, bulb, roots and shoot to hold up at each step. **Stretch:** Ask children to say why stored food helps before leaves can catch light.

Use: Slides 3-4, 7-8, Video clip 1 (0:00-2:57)

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25–50 min **Main activity** 25 min · Pairs

To observe closely and sort real seeds and bulbs while describing them.

YOU DO

1. Show Slide 9 task, model using a hand lens and thinking aloud about colour, size and shape.
2. Give each pair a tray, hand lens and two hoops and remind them not to eat and to wash hands after.
3. Move around, ask why each item is seed or bulb and prompt careful observation [1].
4. Stop the class halfway to share good sorting reasons and fix errors.

STUDENTS DO

1. Use hand lenses to look at pea and sunflower seeds and onion and daffodil bulbs and place them in hoops.
2. Draw each one, say colour, size and shape, and explain seed or bulb choice to a partner.

Say: Look at real seeds and bulbs with a hand lens. Work in pairs. Sort into seed or bulb. Draw each one and say its colour, size and shape. You have ten minutes to sort, then we draw and share. Be gentle and do not put anything in your mouth.

Worked example: I pick this up. It is small, flat, grey with white stripes. It is a sunflower seed, so it goes in the seed hoop. I pick this up. It is big, brown and papery with layers. It is an onion bulb, so it goes in the bulb hoop.

Ask: How did you know this one was a seed or a bulb? (Seed is tiny and hard, bulb is bigger and round with layers that store food.) · What is similar and what is different about your two seeds? (Both tiny with food inside, but different colour, size and shape.)

Check understanding: Pairs hold up one item and say seed or bulb with one reason. If unsure, compare it again to the modelled examples.

Support: Give students only two very different items first, then add the others one at a time. **Stretch:** Ask students to sort the same set a different way, such as by size or colour, and explain the new rule.

Use: Slide 9

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50–60 min **Plenary** 10 min · Whole class

To order growth stages and check seed, bulb, roots and shoot understanding.

YOU DO

1. Show Slide 10 steps and retell roots down, shoot through soil, leaves and stem bigger.
2. Lead Slide 11 think, pair, share on how a bulb is different from a seed.
3. Give out Worksheet page 4 Matching for pairs to draw lines to the right meaning.
4. Run Slide 12 Quick quiz on roots, bulb and shoot and collect worksheets.

STUDENTS DO

1. Retell the four steps in order and discuss bulb and seed differences in pairs.
2. Complete Worksheet page 4 Matching and answer the quiz questions together.

Say: Roots grow down. Shoot comes through soil. Leaves and stem get bigger. Then we have a mature plant that makes flowers [4]. Now with your partner, say how a bulb is different from a seed. Then match each word to its meaning.

Worked example: My order is: bulb, roots grow down, shoot comes through soil, mature plant with flowers. A bulb is different because it is bigger, round and has layers that store food for growth [2][4].

Ask: How is a bulb different from a seed? (Bulb is bigger, round with layers and stores food underground; seed is tiny.) · What grows down first and what grows up through soil? (Roots grow down first, then shoot grows up.)

Check understanding: Use quiz answers and matching lines to spot gaps. Reteach any mixed roots and shoot with down and up actions.

Support: Give the four step pictures in order to point to while retelling, plus word bank for matching. **Stretch:** Ask children to add what the plant needs at each step, such as water or light, in a sentence.

Use: Slides 10-12, Worksheet page 4

Common mistakes

Mistake	How to spot it	How to fix it
Thinking a bulb like an onion is a seed because both are planted.	Child puts onion or daffodil bulb in seed hoop.	Compare layers and size together and recall a bulb stores food underground and is found underground [2].
Mixing up which way roots and shoot grow.	Child draws or points shoot going down.	Act it out: roots fingers down, shoot hand up, and repeat roots hold in ground, shoot grows above ground [2].
Thinking seeds need light to start growing.	Child says dark cupboard seed cannot start.	Remind them seeds and bulbs do not need light to germinate but need warmth, light is for healthy growth after [4].

Support

- Start sorting with only two very different items, with picture word cards and sentence starters.
- Pre-draw observation boxes for drawings and give colour, size and shape word bank.

Stretch

- Sort the same set a new way by size or colour and explain the rule.
- Write first, next and last sentences to predict what roots and shoot will do next.

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For the LSE or teaching assistant

Stay with the sorting table: hand out two items at a time, model hand lens use, prompt colour-size-shape language and check seed or bulb reasons.

Safety

- Check for seed, bulb and pollen allergies before handling.
- Do not eat seeds or bulbs; wash hands after handling and wipe tables.

Check for understanding

Question	Answer
Is an onion a seed or a bulb?	A bulb.
What grows down first into the soil?	Roots.
Put in order: shoot through soil, roots grow, mature plant.	Roots grow, shoot through soil, mature plant.

Homework

Look for seeds inside a fruit at home and draw where the seeds sit.

Sources

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