

Year 5 Science LESSON 8:

Tuesday 30th June 2020 / Friday
3rd July 2020



Do all plants reproduce by
producing seeds?

LO: To describe how plants can reproduce asexually, by creating new plants from different parts of the parent plant rather than by producing seeds

Success Criteria

- ✓ I can describe ways that plants are able to reproduce other than by producing seeds
- ✓ I can suggest why it is useful for plants to reproduce asexually
- ✓ I can produce a step-by-step 'How to' guide for a propagation method of my choice

Questions to think about...

- Why is it useful for plants to reproduce without producing seeds?
- What needs to take place for seeds to be produced?
- Can you think why this could sometimes be a problem?

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Video: Propagating plants



- See link on blog and website
- What different methods of plant reproduction did we hear about?
- Has anybody propagated plants by taking cuttings, planted bulbs or grown potatoes themselves?
- Think about your experiences of gardening at home or with a relative, or in other classes at school or gardening club.

Sort the plants under the headings

Cuttings – artificial

Above ground – natural

Below ground – natural



onion set



African violet



begonia



geranium



fuchsia plant



lily



daffodil



bramble bush



begonia



cactus



rose bush



potato



iris



strawberry plant



cactus

Sort the plants under the sub headings

Cuttings – artificial

Above ground – natural

Below ground – natural

Leaf

Stem

Mini plant
buds

Bulbs and
corms

Rhizomes

Root

Runners

Tubers



daffodil



bramble bush



begonia



cactus



onion set



fuchsia plant



African violet



rose bush



potato



iris



strawberry plant



cactus



lily



geranium



begonia

Cuttings – artificial

Leaf



begonia



cactus



African violet

Stem



geranium



cactus

Root



bramble bush



begonia



uchsia plant

ANSWERS

Above ground – natural

Mini plant buds

Runners



strawberry plant

Below ground – natural

Bulbs and corms



daffodil

Rhizomes



iris



onion set



lily

Tubers



potato

How do plants reproduce without seeds?

Plants may reproduce themselves:

Below ground - rhizomes, tubers, bulbs and corms. These are underground growths on the root or stem of a plant and contain stores of food to provide for the growing young plant.

Above ground - the parent plant produces runners and new plants sprout along its length. These plants are 'clones' of the parent.

From stem, root or leaf cuttings - when pieces of plant matter are placed in soil or water, new plants, complete with root systems, are produced.

What is the benefit of these ways of plants reproducing?

Reproducing other than by producing seeds saves a plant energy, although the process of seed production and dispersal ensures more genetic diversity within the population.

How does it work?

Propagation methods are frequently used to reproduce plants artificially, such as by taking stem, root or leaf cuttings.

Many plants produce 'runners' that spread naturally, with roots being produced at points where a stem bends downward and comes into contact with the earth, such as blackberries.

Some plants also create new individual plants underground in this way, producing lateral roots that bud and form new individual plants, such as buttercups.

Challenges

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Mild

Use a writing frame to identify and plan six steps that explain how to grow potatoes in a container. Use secondary sources of information provided about how to grow potatoes from tubers (in pots or containers) (thompson-morgan.com/how-to-grow-potatoes-in-bags). Select key information to record, into instructions of six steps only. You can use diagrams or drawings to help explain each step if you wish. *How will you decide which information is the most important to include?*



Spicy

Select information to include in a guide about propagating plants by taking stem cuttings. Look at a variety of different secondary sources. Produce a step-by-step 'How to' guide to the process, using the planner (spicy recording sheet) as a possible structure. You may choose to present your instructions in a different way if you wish, but should be limited to one side of A4 paper for your guide. *How will you decide which information is the most important to include?*

Challenges

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Hot

Research information and make notes to produce a 'How to' guide. Sometimes parts of plants in the natural world - perhaps a branch, stem or leaf - touch the soil. This encourages that part of the plant to grow its own roots and become a separate plant. *How might a commercial grower of plants use this knowledge to create replica plants?* Think about layering of runners to produce new strawberry plants and the taking of leaf cuttings, such as begonia and violets. Research key information, making notes that you can then use to produce a step-by-step 'How to' guide for others to use.

Reflect and Review

What have we learned this lesson?

What type of reproduction methods are these? Asexual or sexual?

Do these take place artificially? Naturally? Or both?

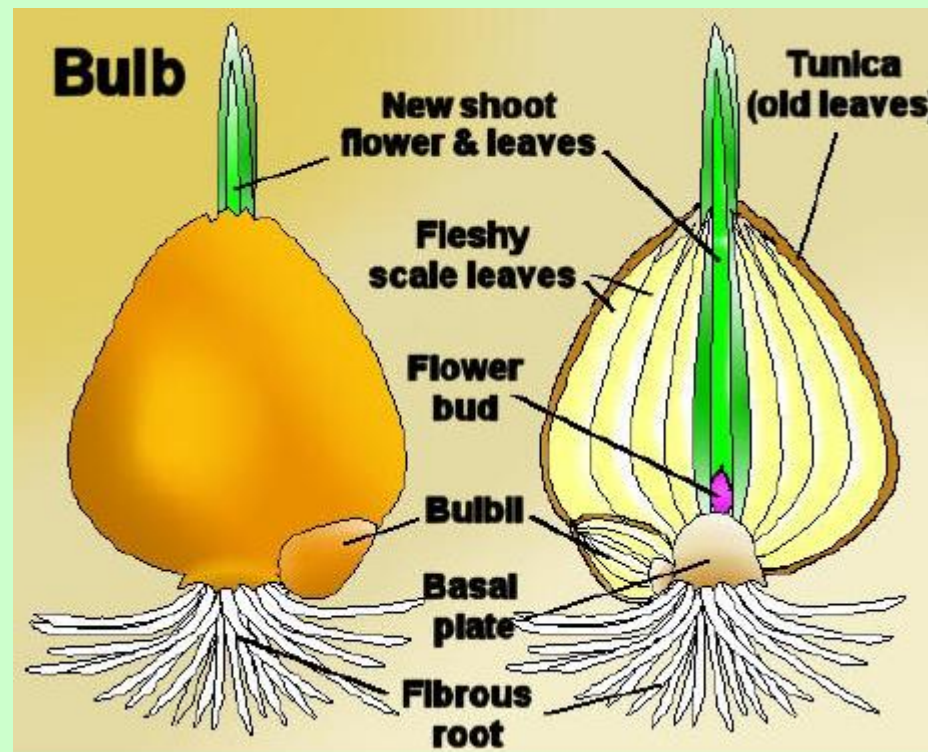
What are the benefits?

Reflect and Review

The methods we have found out about during this lesson are asexual forms of plant reproduction that can sometimes take place naturally, but are more often used artificially - especially by crop producers - to produce large numbers of plants quickly.

What is a bulb?

A bulb is a rounded underground storage organ, consisting of a short stem surrounded by fleshy scale leaves or leaf bases, which lies dormant over winter



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Examples of bulbs



What happens inside a bulb?

A bulb is an underground stem, usually globular, containing a complete embryonic plant inside, with tiny flowers, stems, leaves, and roots. The contents of the bulb are often enclosed in protective, fleshy scales emerging from the top which are held together by a small basal plate. The scales are modified leaves that contain enough nutrients to sustain the plant through dormancy and early growth. The fleshy leaves are storage organ that store food and water; they may be loose and open. In many bulbs, a paper-thin tunic protects the scales. Fibrous roots emerging from the bulb's basal plate. Examples include the tulip, narcissus, and onion.

Bulbs contain everything that the plant needs to allow it to grow.

For this reason bulbs are very successful where the soil is poor, as they need no additional nutrients.

How should we plant bulbs? Does anybody know already?

See if you can find out.