

The Potato Story

Lesson Plan 3

Growing Potatoes 2



The Potato Story

National Curriculum Links

All lesson plans link to the National Curriculum for Science in England, Wales, Northern Ireland and Scotland. Specific Curriculum Links are as follows:

- Sc 1 Scientific Enquiry
- Sc 2 Life Processes and Living Things
- Science – QCA Unit 3B Helping Plants Grow Well
QCA Unit 5B Lifecycles

Key Learning Objectives

Children will learn that:

- Plants need healthy roots, leaves and stem to grow well.
- Plants need light and water for healthy growth.
- Flowering plants reproduce.
- The lifecycle of flowering plants includes pollination, fertilisation, seed production, seed dispersal and germination.
- Plants can provide food for us and some plants are grown for this.

Differentiation

More able children could plan a 'Growing potatoes' investigation in detail, considering what equipment they will need, what questions they want to find the answer to, how they will make it a fair test, what variables to change and what data needs to be collected.

The IWB multiple-choice game could also be used as an extension for more able children.

Some Useful Websites

<http://www.food.gov.uk/healthiereating/>
<http://www.britishpotatoes.co.uk/>
<http://www.potatoesforschools.org.uk/>
<http://www.yearoffoodandfarming.org.uk>
<http://www.face-online.org.uk>

Lesson Plan and Teachers' Notes

In this Module you will find a number of different activities for Years 3 & 4 and 5 & 6 to support and reinforce the work the children have done up to now.

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Introduction (5 – 10 minutes)

You may want to remind the children of the work covered so far, and in some cases revisit the IWB presentations or activities from the previous modules. It may also be a good idea at this stage to look at the questions the children wrote in the first session to see if any more have been answered.

Activities (30 – 40 minutes)

The activities in this module will cover the following curriculum links and key learning objectives.

The Lifecycle of the Potato

Years 3 & 4 – Learning Objectives: To know the basic stages in the lifecycle of a plant.

Looking at the potato in particular, children have to order the pictures of the plants, in an interactive and fun way. This activity can be done as a whole class on the IWB, individually or printed off as a 'paper activity'.

Match the Word to the Definition

Years 5 & 6 – Learning Objectives: To know the different stages in the lifecycle of a plant and understand what they mean.

Depending on where the children are at in their learning, it may be an idea to show the IWB presentation from Module 1 about the lifecycles of a flowering plant again to refresh their ideas. This activity then asks the children to match different words relating to lifecycles to their meanings. Again, this activity can be done as a whole class on the IWB, individually or printed off as a paper activity.

Growing Your Own Potatoes

All Year Groups - Learning Objectives: To understand that it is important to test ideas using evidence from observation and measurement.

This activity covers lots of points from NC Sc1 – Scientific Enquiry.

Get the children to plan what they want to find out from growing their own potatoes – for example:

- Will too much water harm my plant?
- Are the leaves important to my plant?
- What will happen if I put one plant in a smaller plant pot than the other?

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Encourage the children to make a fair test or comparison by changing one factor and observing or measuring the effect while keeping other factors the same. By growing their own potatoes, the children will be given the opportunity to use simple equipment and materials appropriately. Obviously, it would be great for the children to actually grow a successful batch of potatoes at the end, so some of the plants would have to be grown fully. This will reinforce for the children what a healthy plant needs to grow.

This would also be a good 'real life situation' to collect data in the form of how large or heavy the potatoes have grown and present it in a bar chart or graph.

Check out the website www.potatoesforschools.org.uk for extra tips and suggestions about how to grow your own potatoes in the classroom.

Also, if you did not do it in Module 2, now would be a great time to tell the children about potato growing in the UK.

- **In Great Britain we eat an average of 105 kg of potatoes per person, per year which means that potatoes are in great demand right through the year.**
- **There are 3 main seasons when you can plant potatoes – the main times are January, April and September and it takes about 8 weeks for the potato seed to reach harvesting time – usually around when the plant is flowering.**
- **Not all potatoes are suitable for growing a crop of new potatoes from – you couldn't just use the odd looking potato that has fallen down the back of the cupboard! This is because there is a risk you will be planting a seed that may not be perfectly healthy and you may end up with a disappointing crop. You can need to ensure you get specially grown seed potatoes to grow the tastiest crop.**
- **The main areas for growing potatoes in the UK are East Anglia, Lincolnshire and Yorkshire. There are over 4,000 different varieties of potato!**

Extension Ideas:

VAK (Visual Auditory Kinesthetic) Opportunities

Allowing the children to grow their own potatoes will provide a real life situation for some of the concepts learnt here.

Multiple Choice Quiz

Because the questions get progressively harder, this activity would be appropriate for all year groups as a way of assessing understanding, extending more able children or just having fun!

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Work your way through the 10 questions and learn more about growing potatoes.

Question 1. What part of the apple tree do people eat?

- a) Leaf
- b) Root
- c) Fruit

Question 2. Which of these does a plant need to grow healthy?

- a) Light
- b) Pests
- c) Wind

Question 3. Grass tends to stop growing in winter. Why is this?

- a) It's tired
- b) It's too cold
- c) There's not enough water

Question 4. What part of a potato plant do people eat?

- a) Leaf
- b) Stem
- c) Root

Question 5. What happens to a plant that has too much water?

- a) Its roots are swamped and it will die
- b) Nothing, plants love water
- c) It will grow really big

Question 6. Which of these does a healthy plant not need?

- a) Warmth
- b) Pests
- c) Nutrients

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The Potato Story – Quiz: Plants and Growth

Question 7. If a plant is put in a cupboard, what will happen?

- a) It grows strong and healthy
- b) Its leaves go yellow and it will eventually die
- c) It grows very, very slowly

Question 8. The part of the plant that grows underground is called ...

- a) The leaf
- b) The stem
- c) The root

Question 9. What stage in the lifecycle of a plant comes after the germination?

- a) Dispersal
- b) Pollination
- c) Fertilisation

Question 10. What stage in the lifecycle of a plant comes after the flowering plant?

- a) Producing fruit or seeds
- b) The shoot
- c) The growing plant

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Question 1. What part of the apple tree do people eat?

- a) Leaf
- b) Root
- c) Fruit

Answer: c) Yes, the apple is the fruit of an apple tree.

Question 2. Which of these does a plant need to grow healthy?

- a) Light
- b) Pests
- c) Wind

Answer: a) Yes, a plant needs the right amount of light to grow strong and healthy.

Question 3. Grass tends to stop growing in winter. Why is this?

- a) It's tired
- b) It's too cold
- c) There's not enough water

Answer: b) Yes, plants really need warmth to grow well.

Question 4. What part of a potato plant do people eat?

- a) Leaf
- b) Stem
- c) Root

Answer: c) Yes, although the potato is actually an underground storage organ (called a tuber) that is attached to the root.

Question 5. What happens to a plant that has too much water?

- a) Its roots are swamped and it will die
- b) Nothing, plants love water
- c) It will grow really big

Answer: a) Yes, a plant needs just the right amount of water – too much and it will die.

Question 6. Which of these does a healthy plant not need?

- a) Warmth
- b) Pests
- c) Nutrients

Answer: b) Yes, pests can attack all parts of the plant and if not treated can often kill the plant.

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Question 7. If a plant is put in a cupboard what will happen?

- a) It grows strong and healthy
- b) Its leaves go yellow and it will eventually die
- c) It grows very, very slowly

Answer: b) Yes, the plant needs light to make its own food so without light it will go yellow and die.

Question 8. The part of the plant that grows underground is called ...

- a) The leaf
- b) The stem
- c) The root

Answer: c) Yes, the root grows underground and anchors the plant.

Question 9. What stage in the lifecycle of a plant comes after the germination?

- a) Dispersal
- b) Pollination
- c) Fertilisation

Answer: b) Yes, after a plant has grown, pollination is next in the lifecycle.

Question 10. What stage in the lifecycle of a plant comes after the flowering plant?

- a) Producing fruit or seeds
- b) The shoot
- c) The growing plant

Answer: a) Yes, after a plant has flowered, it will start to produce fruit or seeds.

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Draw a line between the boxes to match the word to the definition

Reproduction

The changes in life of a living thing

Pollination

Send out in many directions

Dispersal

To begin to develop shoots

Nutrition

To produce new life of the same species

Germination

The process in life of getting food or energy

Lifecycle

To sprinkle with pollen to fertilise a flower

Activity Sheet 1: Potato-ing the line!

The Potato Story

Learning Objective

To know the different stages in the lifecycle of a plant and understand what they mean.

Reproduction – produce new life of the same species.

Dispersal – send out in many directions.

Germination – begin to develop new shoots.

Lifecycle – the changes in life of a living thing.

Nutrition – the process of getting food or energy.

Pollination – sprinkle with pollen to fertilise a flower.

Activity Sheet 1: Potato-ing the line! (Answer Sheet)

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Activity Sheet – Growing Your Own Potatoes

Which potato should I grow?

There are many different types of potato that can be grown and harvested at different times of the year. Depending on when you grow your potato, your local garden centre will be able to advise you on which potatoes to grow.

Where should I grow my potatoes?

You can grow your potatoes inside or outside. The choice is yours!

What will my plant need?

Remember that all plants need light, water, nutrients and warmth to grow really well.

Keep these things in mind as you are deciding what question you will ask and what your test will be – which factors you will change and which you will keep the same.

Space

The more space a plant has the better it grows because then the roots can spread out further to find water and nutrients (food – usually obtained from the soil). If you are growing your potatoes in a bucket, bear this in mind.

Light

Plants need light to grow. Try to find a sunny spot and if growing in a bucket remember to keep turning the plant so that it will grow straight.

Water

All plants need water to grow – but not too much! If you over-water your potato plant, it could turn mouldy. The soil should be damp, so water every 3 or 4 days – a bit more in hotter weather.

Nutrients (Food)

All plants need food to grow and this is usually taken from the soil, which has the right amount of nutrients for your plant. If you do want to add any plant food, make sure you ask an adult and read the instructions carefully.

Warmth

Try not to let your plant get too warm – don't put it next to a radiator or heater. The best temperature for growing plants is 10 – 15 degrees C.

Good luck with your potato growing!

Check out the website www.potatoesforschools.org.uk for extra tips and suggestions about how to grow your own potatoes in the classroom.

Remember that if you grow a healthy plant, you may get as many as 15 or 20 potatoes from just one seed potato!

Remember:

Make sure you wear gloves when handling your potato and wash your hands well afterwards.

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Firstly, decide on which potato you are going to grow – there are many different types and they can vary in size, shape, colour, cooking and eating qualities. For example, did you know that waxy potatoes ('earlies' / new potatoes) are best boiled for salads, or hot with mint, whilst floury potatoes (second earlies and maincrop) are excellent for chipping, baking, mashing and roasting?

Potatoes are grouped by their season of harvest ie; earlies, second earlies and maincrop, so the time of year you are growing your potato will help you decide which ones you want to grow.

So, you have decided on which variety of potato you would like to grow and have the seed potatoes. What next?

Step 1: 'Chitting' – this is where you allow the potato sprouts to harden. Put your seed potatoes in an open egg box with the sprouts facing up, then put them on a window sill for about 2 weeks.

Step 2: Prepare the area you will be growing your potatoes in – if you are using a bucket, make a drainage hole in the bottom and add compost. If you are planting into the ground, dig in some compost and clear away any large stones or weeds.

Step 3: Now for the planting! The seed potatoes need to be about 15cm deep, with the sprouts facing up. Cover over with compost.

Step 4: Take care to keep the ground around your potato plant moist, but remember that over watering will kill the plant.

Harvesting

Flowering is usually a good sign that your potato has reached the stage when the tubers can be eaten. Take care when digging the potatoes out of the ground and leave them to dry off before storing them in a cool, dry place.

Well done! You have hopefully grown a wonderful batch of healthy potatoes! Next time, try a different variety and decide which is your favourite!

