

LEARN AT CHESTER ZOO

PLAN AN EXPERIMENT

WHICH PLANTS NEED MORE WATER?

EDUCATORS GUIDE

We all know that climate change makes looking after our resources vitally important. Saving water is such an important thing to do! In our daily lives we can save water by checking the taps are turned off properly and by not taking too long in the shower.

Have you thought about your school's use of water? What about the planting? Which plants do you see growing around the school? How much water do they need? Can you choose plants which need less water?

Why not get your school's gardening club involved in this activity? The experiments can be done in groups or as a whole class. There are plenty of ways to adapt this activity to make it suit your class.

Curriculum links

KS 2 Science -

- Working scientifically
- Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant
- Investigate the way in which water is transported within plants

KS Mathematics -

- Measuring volume/capacity

KS 3 Science -

- Working Scientifically
- Adaptations of leaves for photosynthesis

Before this activity you will need to make the bottle plant pots as described in Round Three. [How to make a bottle plant pot](#)



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Selecting your plants

The plants you use very much depends on which season you are in, so planning ahead is important.

With this task you can encourage the children to work in groups and then compare results or you might like to do this experiment together as a class with three or four plants. There is lots of opportunity to make this task your own and adapt it to your pupils.

The first thing you need to do is select which plants you would like to compare. Here are some suggestions, the opportunities are endless!

Food plants

Cucumber	Thyme
Sweetcorn	Courgettes
Sweet peas	Strawberry
Basil	

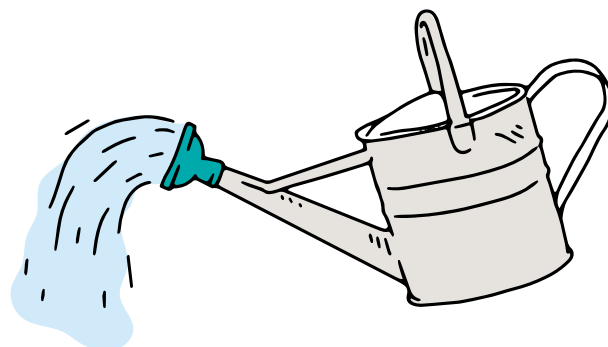
Ornamental plants

Pansy
Marigolds
Begonia
Spider plant

Planning the experiment

Begin with a discussion on the needs of plants. Water is essential to all plants but some require more water than others. Can your pupils think of plants that grow in areas which have little water? Examples could include Cacti and some Mediterranean herbs. Explain that you are going to plan an experiment to find out which plants take up the most water. Key questions could include,

- Which plant do you think will need the most water and why?
- How can we measure how much water the plants take up?
- Will this information help us to reduce the amount of water used in school?



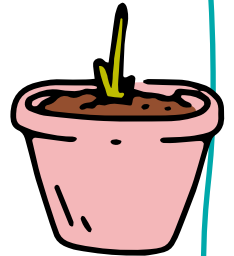
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Setting up the Experiment: Stage One

Begin with a comparison of two types of plants. The aim is to measure the amount of water taken up by each plant and compare.

How to set it up

- 1 Fill up two identical bottle plant pots with equal amounts of compost, (see "[How to make a bottle plant pot](#)")
- 2 Carefully plant one of each of your plants into each pot
- 3 Add 100 ml of water to the bottom reservoir (check the string can reach the reservoir of water)
- 4 Place the plants onto a window sill and check the water levels regularly
- 5 Record when each plant has taken up all the water.



Stage Two

For the next step, introduce the idea of variables. You may like to start by asking the pupils why they needed to measure the compost in stage one and how this could have affected the amount of water taken up.

Things to consider are...

- size of the pots
- the amount and type of compost used in each plant pot
- the position of each pot to ensure they get the same heat and light.

Challenge your class to plan a second experiment changing one of these variables. Remind them to think about how they will display the results.

Top tips!

Do you want to include details of how sunny and warm the weather was each day? Why not use a light sensor to see how much light the plants are getting. Does this change the uptake of water?

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Concluding and next steps

Here are a few useful questions for your class...

- Did everyone get the same result?
- Did the plants take up more water on sunnier days?
- Do you think others could repeat this experiment and get the same results?
- What does this mean when it comes to selecting plants for the garden? Would you have to do less watering?

Finally, what other tips can your pupils find for saving water in the garden? Does the school have a way of collecting rainwater for the garden? If not, where could you install one? Can the class research the most effective ways of watering plants and create a leaflet for gardeners?

Here are a couple of examples.

Remember, you can experiment with lots of different plants to measure their water uptake.

Sweetcorn



Courgette

