



# Grow

## Extension Work



## GROW – EXTENSION WORK HAIRY HEADS

This activity will help with discussions about conditions for plant growth and encourage children to monitor the growth of their plants.

Start this on a Monday.

Give each child a plastic minicup (25ml) and a permanent pen. Ask them to draw a face on the cup. It could look happy, surprised or even look like a monster. Ask them to add a small ball of cotton wool to the cup then use a pipette to add enough water to wet the cotton wool but not water log it. If there is too much water, just suck some out with the pipette.

Give each pupil a small amount of seeds. You could use spring onion seeds to compare the seedlings to the plants in the experiment, or alternatively use edible cress or sprouting seeds. The seeds will soak up the water to help them grow. We now have the seeds and water, what else do they need to grow? Warmth and light. Where could we put them to give them warmth and light? Would the classroom windowsill be a safe place to leave them? Depending on your classroom it might be too tempting!

Children can follow the growth of their Hairy Heads as they water them every day and then take them home on Friday. Did some grow faster than others? Why could that be? Did they have too much water or not enough? Was it too hot or too cold? Too light or too dark?





## ART & CREATIVE WRITING

In our classroom trial, we discovered that some children really enjoyed snipping and handling something as unusual as an onion. It engaged more senses than paper and wool; something which was a positive experience for some, but not for others.

Some children arranged their left-over onions into patterns and explained what the onion pieces were doing. These patterns could be stuck onto paper or sandwiched between laminating sheets.

One child made a footballer out of his, using masking tape to stick his arms on, then again to bandage his arm when the onion footballer accidentally got cut. He invented a whole story to go with his figure. Does this sensory experience inspire your pupils into story-telling?





## Art & history: Berry tie-dye

Fruit and vegetables have been used to colour fabrics for thousands of years. Historians have discovered prehistoric animal skins and cave paintings dating back to 15,000 B.C.E. that were dyed with plants. They've also discovered examples of early dyed fibres in Egypt dating to around 2000 B.C.E. In the Stone Age, Boudicca and the Iceni tribe used a natural blue plant pigment called woad to colour their faces before going into battle. Further north, a different tribe gained notoriety for painting their bodies with the blue woad dye. The Romans named this Scottish tribe 'Picts', from the Latin 'pictus' meaning 'painted'.



Dye is made from an essential ingredient known as pigment. The pigments in plants are really important. The green pigment, chlorophyll, in the leaves helps to catch the sun's energy and convert it to chemical energy. This is then stored and used as food for the plant. Colours in flowers attract insects and other animals that pollinate and help plants reproduce. Some plants have colourful fruits that attract animals to eat them, spreading the plant's seeds as they do so.

Many colourful plants can be turned into colourful dyes. Things like beetroot, spinach, squashes and berries all make good dyes. Have a go at using plant pigments to make tie-dye patterns. Please note, it's best to collect your plant material when it is at its most colourful – the colour from plant based dyes is not as intense as the colour of commercial dyes. When using natural dyes, it pays to be patient - the longer you let the fabric soak in the dye, the more colourful your final piece will be.

## Health & safety

The BBC deems this activity safe if following some basic precautions. It is your responsibility as a school to carry out your own risk assessment and we recommend you consider the risks and mitigations we have described in this activity pack, as well as any risks which may be relevant to your specific class environment.



1. You will need:

- Elastic bands
- A cotton t-shirt or cloth
- 3 cups of edible berries (crushed)
- Saucepans
- Water



2. Mix three cups of crushed berries and nine cups of water. Bring this mixture to the boil and simmer for fifteen minutes. Leave to cool. Next, sieve out the fruit, retaining the liquid.



3. To tie dye your fabric, grab sections of the fabric or t-shirt and bind it tightly with rubber bands – the areas of the t-shirt protected by bands or folds will escape being dyed, leaving you with rings or starburst patterns.



4. Place the wet fabric into the dye mixture and leave for 24 hours.



5. Remove the fabric from the dye bath with rubber gloves (you want to dye the cloth, not your hands!). Undo the elastic bands. Rinse the fabric in cold water. Leave the fabric to dry.

**Extension ideas:** Try varying the amount of time you leave the fabric in the dye. Experiment with making a dye from grass, spinach, or onion skins - which work best?



### Question?

Try testing milk, water, lemon juice, cola, orange juice and soapy water to see what happens. Can you place your liquids into groups – acids, neutral or alkali?

## Science: Red cabbage indicator

Do you know which liquids in your kitchen are acidic and which are alkali? There are many strong acids and alkalis in plants. For example, citrus fruits like oranges and lemons have citric acid in them. That's what makes lemons taste sour.

Most liquids contain either an acid or an alkali. Acids and alkalis are opposites—acids have a low pH and alkalis have a high pH. Water is neutral and has a pH of 7 on a scale of 0–14. Scientists can tell if a substance is an acid or an alkali by using an indicator strip. An indicator is a chemical that changes colour if it comes in contact with an acid or a base. Red cabbage juice can be used as an indicator because it contains a water-soluble pigment called anthocyanin that changes colour when it is mixed with an acid or a base. The liquid turns red in acids with a pH less than 7 or bluish-green in bases with a pH greater than 7. If there is no colour change, the liquid that you are testing is probably neutral, neither acidic nor basic.

## Art: Veggie art

Look at this picture by Giuseppe Arcimboldo. It is named after a season, which one do you think it is?

Arrange some fruit and vegetables into a face shape. Use paints or pastels to create your own picture in the style of Giuseppe Arcimboldo.





## Literacy: The great wonky veg debate

Every year households across the UK throw away around ten billion pounds' worth of food. Until recently, supermarkets have refused to sell wonky vegetables saying that customers demand perfect fruit and vegetables. However, in a bid to reduce food waste, supermarkets are now beginning to sell wonky vegetables for reduced prices.

Watch the film: 

[bbc.co.uk/  
newsround/35604270](http://bbc.co.uk/newsround/35604270)

[bbc.co.uk/  
newsround/35601824](http://bbc.co.uk/newsround/35601824)

Which do you prefer - wonky or straight vegetables? Does the shape of the vegetables alter the way vegetables taste? Should supermarkets sell more wonky veg? **Think about who is affected by food waste? Why is food waste an issue? Do vegetables taste the same whether they are wonky or straight? ? You could test this in class.**