



Class Activity: June

Compost time lapse photography

Pupils use time lapse photography to record the rapid decomposition of a newly established compost bin over a two week period.

Group	Whole class (lower KS2)
Space needed	You need outdoor space to set up a new 'dalek' compost bin. The ground should be level with enough space to lift off the bin, photograph the contents, and replace the bin. There should be a stable place where the camera can be positioned to photograph the contents of the bin repeatedly from exactly the same viewpoint.
Timing	This activity needs warm ambient temperatures, so is best done during the summer. Allow 1 hour to build the initial bin contents and 15 minutes every day (or as often as possible) for two weeks to take the photographs.
You will need	<ul style="list-style-type: none"> • An empty 'dalek' type plastic compost bin • A camera • A large quantity of organic matter (see details below) • A probe thermometer • A computer connected to an interactive whiteboard to view the photos • Compost photo sequence sheet (see following page) • Antibacterial soap
Health and safety	<p>Pupils should be supervised by an adult at all times. Safe lifting and handling practices should be observed when handling bulky materials.</p> <p>Pupils should keep their hands away from their faces while working with compost, and should wash their hands thoroughly using antibacterial soap at the end of the activity. Any cuts on pupils' hands should be covered when working with compost. It may be appropriate for children with skin conditions, such as eczema, to wear gloves.</p>
Preparation	<ol style="list-style-type: none"> 1. Stockpile your 'browns' in the weeks before the activity. See 'The Compost Mix' sheet at the front of this handbook for more details. 2. Prepare the area for the compost bin. 3. Plan ahead, so that on the day you set up your compost bin you have plenty of fresh 'greens'. (Do not stockpile these – they must be fresh.)
Introduction	<p>What do pupils know about composting? Remind / explain that it is important to get a mixture of 'greens' and 'browns'. Refer to 'The Compost Mix' sheet for more details.</p> <p>Explain that you are going to set up a new compost bin and, instead of filling it with materials over weeks or months, you are going to fill it to the top in one go.</p> <p>If you get the mix of 'greens' and 'browns' right, and the weather is warm, the composting micro-organisms will multiply rapidly and the materials will begin to compost. To record this amazing process you are going to return to the bin every day and take its photograph. Show pupils the 'compost photo sequence sheet' and discuss what changes they can see.</p>

<p>Main session</p>	<ol style="list-style-type: none"> 1. Place the empty 'dalek' on the ground and fill it with alternating layers of 'green' and 'brown' materials, ensuring you have a roughly 50:50 mix. This may be carried out by the whole class, space permitting. 2. Once the bin is full, remove the plastic 'dalek' and take a photograph. Use a fixed point to ensure that every photograph is taken from exactly the same place. Replace the 'dalek' over the materials. 3. Take the temperature of the materials using a probe thermometer and record the result. 4. Visit the composter each day, remove the 'dalek' and take a photograph from the same spot. Take the temperature of both the air and the compost using the probe thermometer and record your results. (You will need to push the thermometer into the compost pile, not just the surface.) Divide the class into smaller groups and send them out on a rotational basis, accompanied by an adult. 5. After about five days the contents of the bin should have shrunk down noticeably and you will notice its temperature start to fall. Turn the heap to add air, and use a watering can to add water if the materials are beginning to dry out. This will kick start the composting process and you will see the temperature rise again. <p>Take a photograph and record the temperature of the air and compost, every day for two weeks.</p>
<p>Plenary</p>	<p>Download your photographs and display them as a slide show to demonstrate the materials in the compost bin rapidly decomposing. Display the temperatures underneath each photograph so the children can see a correlation.</p> <p>Use the temperature readings to plot a time graph showing air and compost temperatures. The air temperatures are likely to fluctuate, whilst the heap will show a steady increase, showing that the warming is not due to the weather but the actions of the micro-organisms.</p> <p>If you observed a temperature drop which increased after watering and turning the heap, explain how micro-organisms are living creatures that need water and oxygen to survive, just like humans do!</p> <p>Discuss how to share your photography (and temperature recordings) with the rest of the school in assembly, on your school website, or on your Eco notice board.</p>
<p>Curriculum links</p>	<p>Mathematics Statistics: Y4 (<i>time graphs</i>) Measurement: Y2 (<i>temperature</i>)</p>
<p>Extension or simplification</p>	<p>If you do not have a 'dalek' composter, you can make a heap directly onto the ground, but the results may not be as fast or dramatic.</p>
<p>Resources</p>	<p>To see a short film using time lapse photography of a compost bin search "Nicky Scott Compost" on You Tube or use the link below: www.youtube.com/watch?v=cYHHhLi0b3Y</p>



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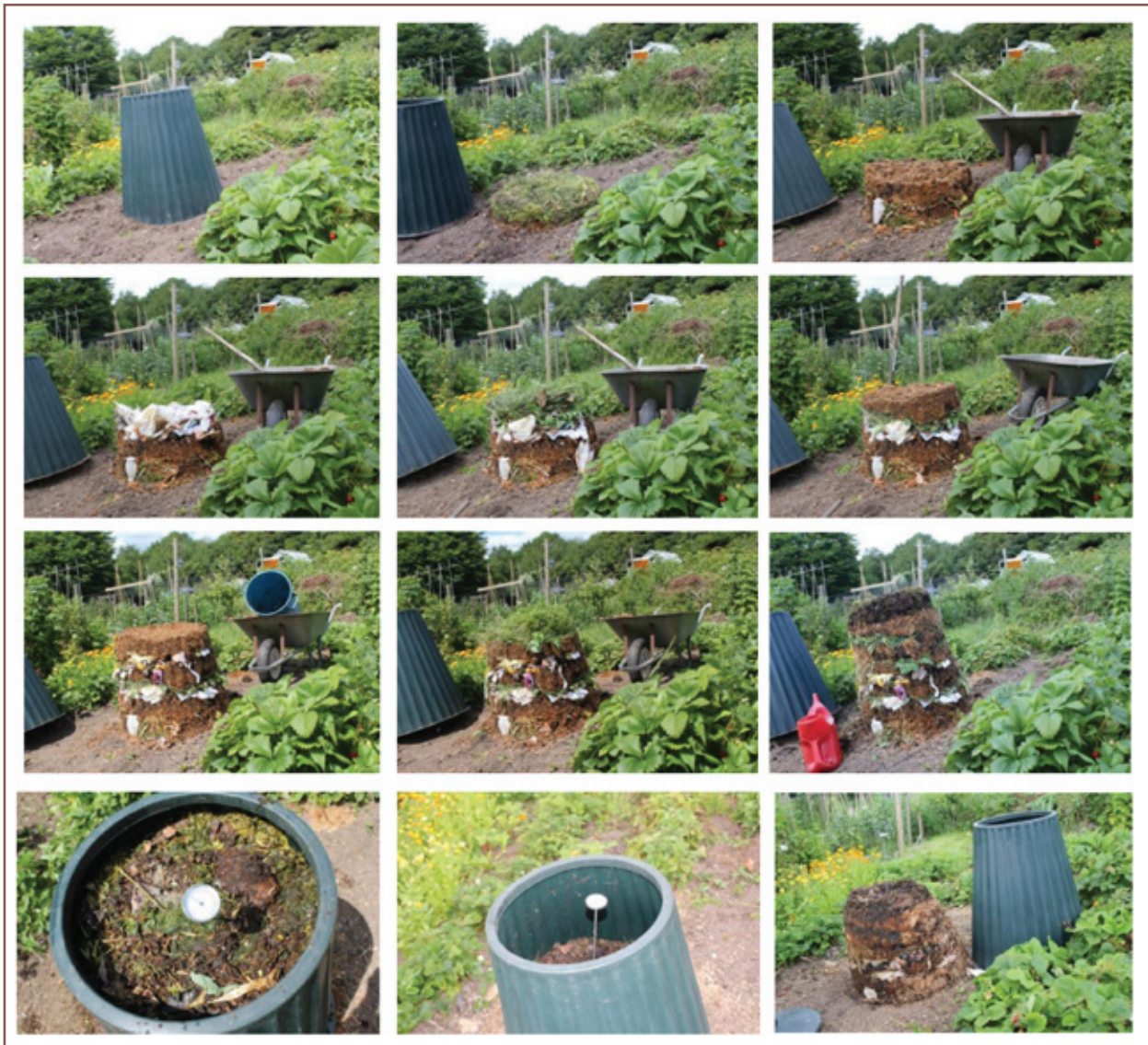


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Compost time lapse photography sheet

The first 10 photographs below show a 'dalek' compost bin being filled using layers of 'greens' and 'browns'. Photo 10 shows its starting temperature being taken using a probe thermometer.

The last two photographs were taken a week later and show the contents of the bin reaching 50 degrees Celcius and beginning to shrink.



This sequence was made in mid June 2010 when the outdoor temperature was 20 degrees Celsius. The temperature of the compost increased by 10 degrees each day until it reached 50 degrees Celsius. If the heap had been bigger, or the bin had been well insulated, the temperature could have gone even higher.



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