

## Identify items for composting

**Subject(s):** English and Environment, Science and Technology

**Grade(s):** 1–6

**Key Stage:** 1, 2, 3

**Learning intention(s):**

Students will investigate what materials decompose by identifying organic (natural) and inorganic (man-made) materials. They will observe how bacteria and fungi (decomposers) break down organic materials and how these materials change over time.

**Mapping to curriculum:**

**English Key Stage 1**

- Write and create representations of a range of information texts for a variety of purposes using words or sentences, text features and multimodal elements.
- Write and create representations of a wide range of information texts for a variety of purposes using sentences, text features and multimodal elements.
- Write and create representations of a wide range of information texts for a variety of purposes and audiences using sentences, text features and multimodal elements.

**English Key Stage 2**

- Create a variety of informational texts and representations for a range or purposes and audiences

**Science Key Stage 1, Grade 1**

- SIS102 Participate in guided investigations
- SIS103 Use non-standard measurements to collect data and make simple statements/generalisations based on the information
- SSIS104 Talk about observations and share ideas in a variety of ways
- ST101 Recognise that science involves being curious, making observations, and asking questions about familiar objects and events

**Science Key Stage 1, Grade 2**

- MM201 Classify objects according to their use and material type
- MM202 Investigate that materials can be changed by different means
- SIS201 Ask questions and make predictions about familiar objects and events
- SIS202 Follow instructions to carry out guided investigations
- SIS203 Use non-standard/standard measurements to collect data, represent them and interpret data to find patterns
- SIS2024 Talk about the findings and share them in a variety of ways
- ST201 Recognise that science involves making observations, asking questions about events and describing them
- ST203 Discuss ideas and present the design idea, select materials to make a product

**Science Key Stage 1, Grade 3**

- SIS301 Formulate questions with guidance in familiar context that can be investigated and make and make predictions
- SIS302 Plan and carry out investigation with guidance, considering the safe use of equipment and materials
- SIS303 Use standard measurements to collect, record data using tables/bar chart to interpret them to find trends and patterns
- SIS304 Reflect on the procedure and discuss measures taken to make it a fair test
- SIS301 Recognise that science involves making predictions, identifying and describing patterns
- ST303 Discuss ideas and present the design idea, select materials to make a product and evaluate the product

#### **Science Key Stage 1, Grade 4**

- Formulating ideas and implementing designs.
- Follow scientific methods to make informed decisions
- Observational skills and communicates their observations in various means and methods.
- Conducts simple investigations with guidance.
- Take care of themselves, others and respects others viewpoints.

#### **Science Key Stage 1, Grade 5**

- Implements designs and communicating of findings
- Applies the knowledge gained to make informed decisions
- Makes observations to provide supporting evidence
- Conducts simple investigations
- Take care of themselves, others and respects others viewpoints.

#### **Science Key Stage 1, Grade 6**

- Implements designs and communicating of findings
- Applies the knowledge gained to make informed decisions
- Makes observations to provide supporting evidence
- Conducts simple investigations
- Take care of themselves, others and respects others viewpoints.

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## **Lesson Instructions**

### **Who can do this activity**

- Grades 1 to 2: Students will set up and observe the decomposition process with guidance.
- Grades 3 to 6: Students will work in pairs to conduct the investigation and engage in more advanced discussions and reporting.

### **Time required**

- Set-up and starting the activity: About 1 hour
- Observations: Over 4 weeks or more
- Final observations and discussion: About 1 hour
- Optional: Extra time for writing a scientific report or completing the extension activity.

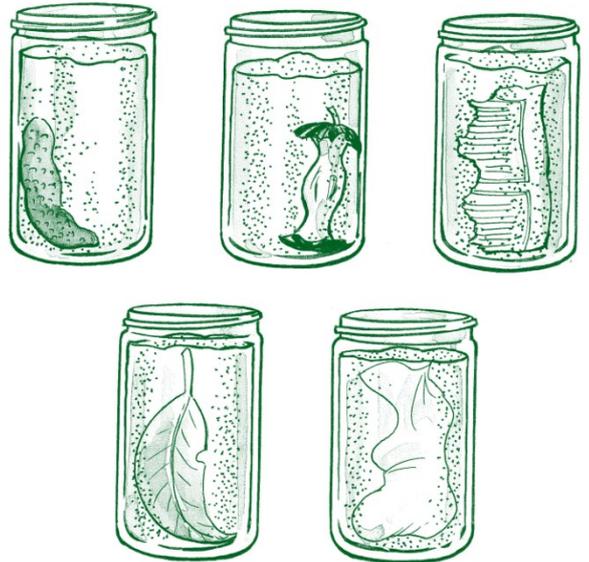
### **Materials required**

- 5 clear jars with wide openings
- Organic items: examples include orange peel, apple core, tea bag, cardboard, newspaper or a leaf
- Inorganic items: examples include a piece of plastic, glass or brick
- Soil (or finished compost, if available)
- Spray bottle for watering

## Activity 1: for Grades 1 to 2

### Investigation Instructions

1. **Set the scene:** Start by discussing the differences between organic and inorganic materials.
2. Select 2-3 pieces of organic material and 2-3 pieces of inorganic material.
3. Fill jars with soil or compost, placing each material against the side for observation.
4. Lightly spray the soil to keep it damp, not soggy.
5. Record initial observations with photos or drawings.
6. Observe changes weekly for four weeks, keeping the soil moist.



Source: [https://www.wasteauthority.wa.gov.au/images/resources/forms/Compost\\_Activity\\_Guide\\_2020.pdf](https://www.wasteauthority.wa.gov.au/images/resources/forms/Compost_Activity_Guide_2020.pdf)

### Predictions

1. Ask students to predict what will happen to each material after four weeks in the jar.
2. Observations
3. Observe jars weekly.
4. Record changes (or lack of changes), using the observation worksheet.
5. Compare final observations to the initial ones.

At the beginning of the experiment



At the end of the experiment (4 – 6 weeks later)



Source: [https://www.wasteauthority.wa.gov.au/images/resources/forms/Compost\\_Activity\\_Guide\\_2020.pdf](https://www.wasteauthority.wa.gov.au/images/resources/forms/Compost_Activity_Guide_2020.pdf)

### Discussion

1. Which items changed? How?
2. Were predictions correct?
3. What caused changes?
4. Why did some items not change?
5. Group items into organic (decomposed) and inorganic (did not decompose).
6. Identify compostable and recyclable materials.

### Application question

Composting is a good way to reduce most organic waste going to landfill – name several items of waste from your lunch, or someone else's lunch, that you could compost.

## Activity 2: for Grades 3 to 6

In pairs, students will conduct the investigation outlined above (Activity for Grades 1 to 2).

### Investigation Instructions

1. Provide the list of materials and equipment.
2. Ask students to design their investigation to test which materials decompose.
3. Discuss their designs and suggest improvements.
4. Identify hazards and establish safety rules.
5. Students will set up the investigation as planned or based on the Grades 1 to 2 instructions.

### Predictions

- Students predict which set of jars will show more decomposition over four weeks and why.

### Observations

- Over four weeks, observe and record changes in both sets of jars weekly, using the observation worksheet. See the example provided below.

### Discussion Questions

1. Were your predictions correct?
2. Which items do you think are organic? Why?
3. Suggest possible reasons for why some materials decomposed while others didn't.
4. Do you think the changes are reversible?

### Application Questions

1. Composting is a good way to reduce most organic waste going to landfill. Name five items from your lunch that could be composted.
2. What happens to inorganic materials in landfill, like metal, plastic, and glass?
3. Discuss alternatives to landfill for inorganic materials (reduce, reuse, recycle).

### Scientific Reporting

- Students will use their observations to write a scientific report summarising their findings and answering the discussion questions.

# Observation Worksheet

Name \_\_\_\_\_

Record changes (or lack of changes) in all jars weekly. You can also include illustrations to show what the material in your jars looks like.

Week	<b>Jar 1</b> Material: Organic or Inorganic (circle)	<b>Jar 2</b> Material: Organic or Inorganic (circle)	<b>Jar 3</b> Material: Organic or Inorganic (circle)	<b>Jar 4</b> Material: Organic or Inorganic (circle)	<b>Jar 5</b> Material: Organic or Inorganic (circle)
1					
2					

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3					
4					