

## KEEPING AN ICE CUBE ALIVE

**Worksheet**  
Adrian Tennant



## Exercise 1

## Grammar, speaking and writing

**Complete the sentences making predictions about what you think will happen.**

- The ice cubes wrapped in \_\_\_\_\_ will melt the *fastest/slowest*.
- If you wrap the ice cubes in \_\_\_\_\_ they will \_\_\_\_\_.
- I think the ice cubes wrapped in \_\_\_\_\_ will \_\_\_\_\_.
- The ice cubes wrapped in \_\_\_\_\_ should melt *quickly/slowly*.
- The ice cubes wrapped in \_\_\_\_\_ shouldn't melt *at all/very much*.
- The ice cubes wrapped in \_\_\_\_\_ might \_\_\_\_\_.
- I don't think the ice cubes wrapped in \_\_\_\_\_ will \_\_\_\_\_.
- It's possible that \_\_\_\_\_.

## Exercise 2

## Grammar, speaking and writing

**a) Complete the chart with your results from the experiment.**

Box	Insulator used	Prediction	Result/Weight left
1			
2			
3			
4			
5			

**b) Now speak to three or four other people and record their results in the chart.**

**c) Which were the best and worst insulating materials?**

## Exercise 3

## Grammar &amp; speaking

a) Complete the sentences with the question words in the box.

how	what	what	where	when	why
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1. What happens if you use *cotton wool/sand/dry cloths* to insulate the ice cubes?
2. \_\_\_\_\_ long does it take the ice cubes to melt completely if they aren't insulated?
3. \_\_\_\_\_ don't the ice cubes melt so quickly if they are insulated in wet cloths?
4. \_\_\_\_\_ is the best insulating material?
5. \_\_\_\_\_ is it useful to know how to insulate things?
6. \_\_\_\_\_ do you need to keep things cold?

b) Work with a partner and discuss the questions. Use the results from your experiment to help you.

## Exercise 4

## Writing &amp; vocabulary

Complete the text about a good insulator using the words in the box.

cold	insulator	keeps	restricts	warm
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A good (1) \_\_\_\_\_ is something that (2) \_\_\_\_\_ the flow of energy – it (3) \_\_\_\_\_ warm things (4) \_\_\_\_\_ or cold things (5) \_\_\_\_\_ – depending on the circumstances.

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### Learning objectives

Pupils learn how effective (or ineffective) different materials are as insulators.

### Content summary

Pupils conduct a simple experiment to see how different materials act as insulators.

### Skills

Reading; speaking; writing.

### Grammar

Question words: *What, Why, How* etc

Modals of prediction and deduction: *will, should, might*

Comparative and superlative adjectives: *best, worst, slowest, fastest*, etc.

Adverbs: *quickly, slowly*, etc.

### Vocabulary

Words and simple phrases connected to the experiment: *insulator, insulate/insulating, melt, weigh/weight, temperature, restrict, flow, wrap*

### Time needed

60–90 minutes

### Age group

7–11

### Materials needed

- Enough boxes (or plastic bags) of the same size for each pupil or group of pupils, a variety of possible insulating materials such as tissues, feathers, plastic beads, bubble wrap, newspaper, sand, dry washing up cloths, wet washing up cloths, etc.
- One set of weighing scales (more if possible).
- Lots and lots of ice cubes.

### Practicalities

You will need a lot of ice cubes so have bags of ice cubes either kept in a cool box or in the freezer at school.

If you don't have enough boxes of the same size, pupils can insulate plastic bags instead.

As the ice cubes melt there will be a lot of water everywhere so it would be a good idea to have plenty of cloths to mop up all the water.

### Procedure

1. Tell pupils they are going to conduct an experiment using ice cubes to find out which materials are the best/worst insulators.
2. Introduce/pre-teach the following vocabulary that pupils will need to understand: *insulator, insulate/insulating, melt, weigh/weight, temperature, restrict, flow, wrap/wrapped*.
3. Hand out the experiment sheet and have pupils read out the instructions in class.
4. Before the pupils start the experiment, hand out the worksheet and ask the pupils to discuss and complete exercise 1.
5. Get the pupils to follow the instructions and work in pairs or small groups to carry out the experiment.
6. Next, get the pupils to complete the chart with the information from their experiment.
7. Monitor and help where necessary.
8. Next, ask the pupils to walk around and find three or four other pupils who used different materials to insulate their boxes/plastic bags. Get them to exchange information and complete their charts.
9. Then, put the pupils in groups and get them to discuss question c) in exercise 2 before completing exercises 3 and 4 together.
10. Finally, check the answers as a class.

### Links to everyday life

Ask the pupils to think of things in their everyday life that need to be kept hot or cold, e.g. coffee, ice cream, themselves, etc. and what containers are used to do this, e.g. thermos flasks, cool boxes, fleece clothes, etc.

**Keeping an ice cube alive**  
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Answers will depend on what happens during the experiment or on the ideas/predictions that the pupils make.

**Exercise 3**

1. What
2. How
3. Why
4. What
5. When/Where
6. Where/When

**Exercise 4**

1. insulator
2. restricts
3. keeps
4. warm
5. cold