For real: ice in a bag, and solid or liquid?

Name: Class: Date:

Do each test on the screen first. Then do it here with real things, and see if they do the same.

PART 1 Ice in a sealed bag

Aim: To find out what changes, and what stays the same, when ice melts.

You need: 4 ice cubes, a plastic bag that seals, kitchen scales, a cloth, a tray and a freezer.



Take care. Check that the bag is sealed. Do not eat the ice. Wipe up any water on the floor.

1. Seal the ice cubes in the bag. Wipe the bag dry with the cloth. Weigh it and write the number in the table.
2. Predict what the scales will read when all the ice has melted. Circle your prediction.
3. Leave the bag on the tray. Every 30 minutes, draw or write what is in the bag.
4. When all the ice has melted, wipe the bag dry and weigh it again.
5. Put the bag in a freezer until the next day. Then wipe it dry and weigh it once more.

I predict that when the ice has melted the scales will read: more | the same | less

When	What is in the bag? Draw or write.	The scales read
At the start		
After 30 minutes		
After 1 hour		
After 1 hour 30 minutes		
When all the ice has melted		
The next day, from the freezer		

1. What made the ice melt?

2. Did the weight change when the ice melted? Why do you think that is?

Answers (turn the page round). Part 1: heat moved into the ice from the warmer room, and the ice melted; the scales should read the same each time, because no water gets into or out of a sealed bag; real scales can be a gram or two out. **Part 2:** the stone, the sand and the rice are solids, and the water, the honey and the cooking oil are liquids; a solid holds its shape (in sand and rice, each grain does), and grains of a solid make a heap; a liquid flows, takes the shape of the cup and spreads out flat. **Part 3:** the shape changed; it is still ice, and it is the same water.

PART 2 Solid or liquid?

You need: Clear plastic cups, plates, a magnifying glass, a tray and a cloth, and the things in the table. Add two things of your own, and ask your teacher first.

> **Take care.** Do not taste anything. Tell your teacher if you have a food allergy. Wipe up spills straight away. Keep sand away from your eyes.

Test each thing. Put it in a cup and tip the cup a little. Pour some onto a plate. Look at it with the magnifying glass. Then decide.

Thing	In the cup: does it hold its shape?	On the plate: a heap, or flat?	Up close: can you see grains?	Solid or liquid?
A stone				
Water				
Honey				
Sand				
Rice				
Cooking oil				

1. How can you tell a solid from a liquid?

PART 3 Melt it and make a new shape

You need: Ice cubes, a plastic cup, an ice tray or a small tub with a different shape, and a freezer.

1. Draw an ice cube in the first box. Let the ice cubes melt in the cup. Do not eat the ice.
2. Pour the water into the new shape. Freeze it until the next day.
3. Draw the new piece of ice in the second box.

The ice before	The ice the next day

2. What changed? What stayed the same?