

Y4 States of Matter

KS2 Y4 Science · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Is sand a solid or a liquid?

Step 1 · Look at one grain with a magnifying glass

It has its own shape and doesn't change

Step 2 · Pour sand into a pile

It makes a heap; water would spread out flat

Answer: Sand is a solid. It pours only because it is made of lots of tiny solid grains.

Check: Flour, sugar and salt are the same — powders are solids.

2. Now try one with the steps

Pour 200 ml of water from a tall glass into a wide bowl. What changes and what stays the same?

Step 1 · Does the shape change?

Step 2 · Does the amount change?

Answer:

3. Practice

Have a go at each one. There is space underneath to work it out.

1. Name the THREE states of matter.

2. Which state keeps its own shape?

3. Which state takes the shape of its container but keeps the same amount?

4. Which state spreads out to fill any container?

5. Is orange juice a solid, liquid or gas?

6. Is a coin a solid, liquid or gas?

7. Name ONE gas.

8. Which state can be squashed into a smaller space most easily?

9. Sand can be poured. Why is it still a solid?

10. Is honey a solid or a liquid? Give a reason.

11. A fizzy drink weighs 530 g when closed and 524 g after the gas escapes. How many grams of gas escaped?

12. What does question 11 show about gases?

13. 300 ml of milk is poured from a jug into a bowl. How many millilitres are in the bowl?

14. Sort into solids, liquids and gases: steel spoon, cooking oil, helium, salt, lemonade, oxygen.

4. Before you hand it in

Anything that pours is a liquid, so sand and flour are liquids.

Look at one grain: if it keeps its shape, it's a solid.

Gases weigh nothing.

Weigh a fizzy drink before and after the gas escapes: it gets lighter.

Things that bend or squash, like a sponge or jelly, can't be solids.

Ask: does it keep its own shape without a container? Then it's a solid.

The white cloud from a kettle is a gas called steam.

Water vapour = invisible gas. The visible 'steam' cloud = tiny water droplets.