Particle model of solids, liquids and gases

1 For each substance below, show whether it is a solid, a liquid or a gas by joining it to the correct box.

- ice ● [liquid]
- oxygen ● [solid]
- petrol ● [gas]
- carbon dioxide ●
- copper sulphate solution ●
- oxygen ●
- salt ●

2 Complete these sentences by writing shape or size in each space.
   a Solids keep the same _______________ and _______________.
   b Liquids keep the same _______________ but not the same _______________.
   c Gases do not keep the same _______________ or _______________.

3 Which of these sentences explains why a can collapses when the air is removed from it? Circle the correct letter.
   A There are more air particles outside the can than inside.
   B There are more air particles inside the can than outside.
   C The air particles inside the can aren’t pushing as hard as they were.
   D All the air has been sucked out.

4 Beth says that jelly is a liquid, but Adam says that jelly is a solid.
   a Write down one observation that supports Beth’s argument.
   .......................

   b Write down one observation that supports Adam’s argument.
   .......................

   c Is jelly a solid, a liquid, a gas or a mixture? .......................

5 Geri did some experiments where she tried to squash solids, liquids and gases in syringes. She wrote down these statements. Underline the true statement(s).

   A Gases can be squashed.
   B Liquids can be squashed.
   C Solids cannot be squashed.
Particle model of solids, liquids and gases (continued)

6 A 

b Which diagram shows the arrangement of particles in a liquid? .......... 

c Which diagram shows the arrangement of particles in a gas? .......... 

7 Simon investigated particles by heating a bar and seeing how it fitted in a gauge. Before he heated the bar, it fitted perfectly in the gauge, but when he heated the bar it changed.

Underline the statements that are true.

A The bar expanded. 
B The bar contracted. 
C The bar got longer. 
D The bar got shorter. 
E The bar got thinner. 
F The bar got thicker. 
G The particles in the bar expanded. 
H The particles in the bar contracted. 
I The particles in the bar moved further apart. 
J The particles in the bar moved closer together. 

8 Which of these sentences best explains why diffusion happens when gases mix? Circle the correct letter.

A Both gases are made of particles. 
B Particles move around all the time. 
C Particles are very small. 
D Gas particles are attracted towards each other.
**Particle model of solids, liquids and gases**

(continued)

9. Which of these sentences best explains why gases have a pressure? Circle the correct letter.

A. Gases are made of particles which push against each other.
B. Particles are very small and move around.
C. Particles move and hit the walls of their container.
D. Gas particles are attracted towards each other.

10. Complete the crossword.

**Across**

1. There are no pulling forces between the particles in a .............
3. A ............ is an idea that explains something.
5. When the particles of a gas hit the sides of the container they give a little push. We call this force gas .............
8. The particles in a ............ are close together, but they can move around.

**Down**

2. Everything is made up of tiny particles called ............
4. There are many fewer particles in 1 litre of gas than 1 litre of liquid. Gas is less ............ than liquid.
6. The particles are closely packed in neat rows in a .............
7. In diffusion, the different particles move around and ............ together.