Name: Date:

25 total marks

Science Assessment Year 4: States of Matter

Solids, Liquids and Gases

1. Sort these items into solid, liquid or gas by drawing lines to the correct state of matter.

A wooden chair	•	• **Solid**
The bubbles in my lemonade	•	
Orange juice	•	• **Liquid**
Tomato ketchup	•	
A piece of chocolate	•	• **Gas**
The helium inside my balloon	•	

3 marks

2. If you put something in a container, how would you tell if it was a liquid?

.....

1 mark

3. Write **true** or ***false*** for these statements:

Statement	**True or False?**
Gases can be squashed	
Solids can change shape on their own	
Gravity keeps liquids at the bottom of a container	
Gases don't weigh anything	

2 marks

Total for this page

4. In solids, liquids or gases the particles behave in different ways. Fill in this table to describe how the particles behave in each one:

State of Matter	How do the particles behave?
Solid	
Liquid	
Gas	

3 marks

Gases

5. Joseph Priestley invented fizzy drinks by adding a gas he called 'heavy air'. What is the name of the gas now?

.....

1 mark

6. This same gas that was called 'heavy air' can be cooled to a solid at -78°C, and it becomes a solid.

a) What is it called when it is a solid?

.....

1 mark

b) What is it used for as a solid?

.....

1 mark

7. How can you investigate if gases have different weights by using a balloon and some weighing scales?

.....

.....

1 mark

Total for this page

Heating and Cooling

8. Fill in this table with **'heat'** or **'cool'** to show how states of matter can change:

Changing State	Heat or Cool?
From a gas to a liquid	
From a liquid to a gas	
From a solid to a gas	
From a liquid to a solid	

2 marks

9. What happens to the particles as you heat them up?

.....

1 mark

10. Match the material to its melting point:

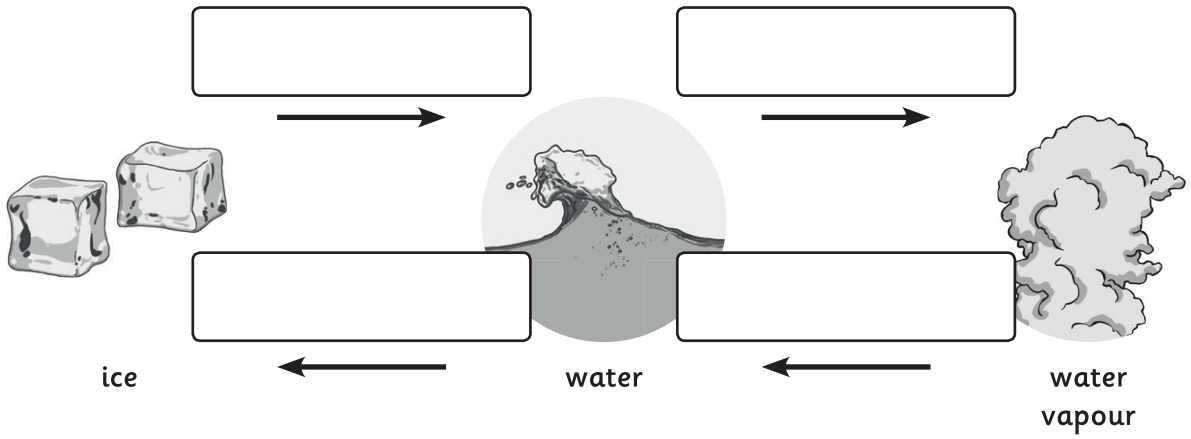
Material		Melting temperature
Ice	•	• 36°C
Gold	•	• -219°C
Chocolate	•	• 0°C
Oxygen	•	• 1060°C

2 marks

Total for this page

The Water Cycle

11. Label the process happening in each blank box here:



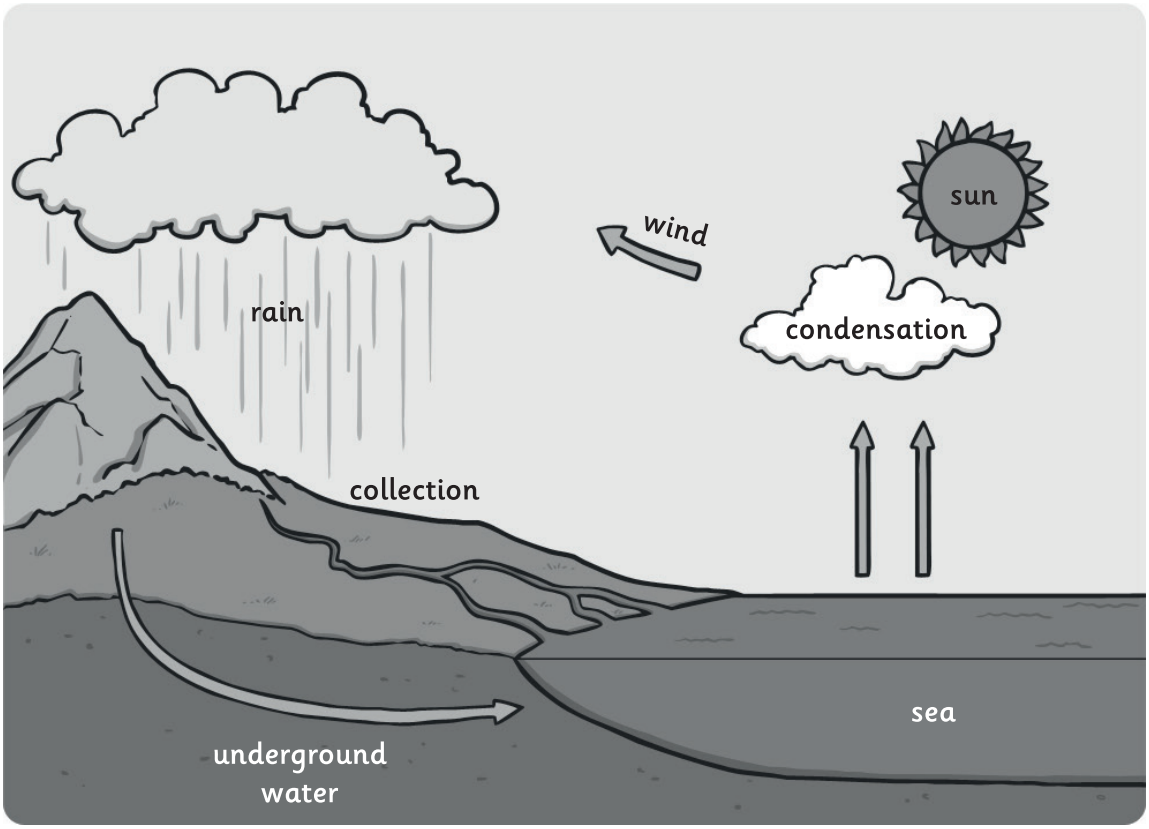
3 marks

12. What process happens to the steam that has turned into water vapour from your kettle at home when it hits the cold kitchen window and turns back to water?

.....

1 mark

Now look at this diagram of the water cycle and answer the questions below:



Total for this page

13. What is the name of the process that happens as the water leaves the sea and goes up into the sky?

.....

1 mark

14. As well as underground water, name one other place the water naturally comes from to go into the sea.

.....

1 mark

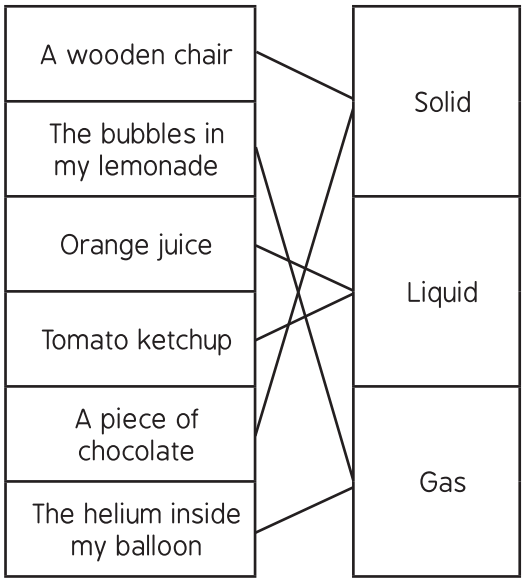
15. What is the scientific name for rain, snow and other forms of water that fall from clouds?

.....

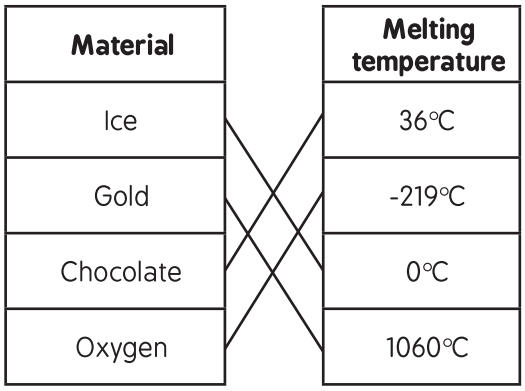
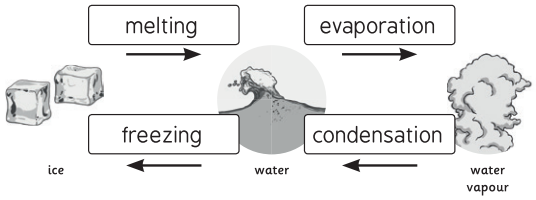
1 mark

Total for this page

Answer Sheet: Science Assessment Year 4:
States of Matter

question	answer	marks	notes
1. Sort these items into Solid, liquid or gas by drawing lines to the correct state of matter.			
		3	0 marks for 0-1 correct 1 mark for 2-3 correct 2 marks for 4-5 correct 3 marks for all 6 correct
2. If you put something in a container, how would you tell if it was a liquid?			
	• It becomes the same shape as the container • It sinks to the bottom of the container and takes its shape • It fills the container from the bottom	1	
3. Write **true** or **false** for these statements.			
	Statement / True or False? Gases can be squashed — **True** Solids can change shape on their own — **False** Gravity keeps liquids at the bottom of a container — **True** Gases don't weigh anything — **False**	2	0 marks for 0-1 correct 1 mark for 2-3 correct 2 marks for 4 correct

<table>
<tr><th>question</th><th>answer</th><th>marks</th><th>notes</th></tr>
<tr><td colspan="4">4. In solids, liquids and gasses the particles behave in different ways. Fill in this table to describe how the particles behave in each one:</td></tr>
<tr><td></td><td>
<table>
<tr><td>State of Matter</td><td>How do the particles behave?</td></tr>
<tr><td>Solid</td><td>• Particles close together
• Particles very still
• Still and close together</td></tr>
<tr><td>Liquid</td><td>• Particles moving more than the solid
• Particles moving a little way from each other but still quite close
• Moving and spacing more than a solid</td></tr>
<tr><td>Gas</td><td>• Particles moving a lot (more than solids and liquids)
• Particles moving quickly
• Particles spreading out far from each other
• Particles filling the space available</td></tr>
</table>
</td><td>3</td><td>1 mark for a correct solid description.
1 mark for a correct liquid description.
1 mark for a correct gas description.</td></tr>
<tr><td colspan="4">5. Joseph Priestley invented fizzy drinks by adding a gas he called ‘heavy air’. What is the name of the gas now?</td></tr>
<tr><td></td><td>Carbon Dioxide / CO_2</td><td>1</td><td>Accept errors in spelling where the intention is clear.</td></tr>
<tr><td colspan="4">6. This same gas that was called ‘heavy air’ can be cooled to a solid at -78°C, and it becomes a solid.</td></tr>
<tr><td>a</td><td>Dry Ice / cardice</td><td>1</td><td></td></tr>
<tr><td>b</td><td>Cooling things down
Fog/smoke machines</td><td>1</td><td>Do not accept fire extinguisher as the CO_2 is not solid.</td></tr>
<tr><td colspan="4">7. How can you investigate if gases have different weights by using a balloon and some weighing scales?</td></tr>
<tr><td></td><td>A description that involves filling the balloons with different gases and weighing them.</td><td>1</td><td>In feedback/lessons ensure that the details of this contain the same amount of gas in each balloon and weighing an empty balloon as a control.a</td></tr>
<tr><td colspan="4">8. Fill in this table with ‘heat’ or ‘cool’ to show how states of matter can change.</td></tr>
<tr><td></td><td>
<table>
<tr><td>Changing State</td><td>Heat or Cool?</td></tr>
<tr><td>From a gas to a liquid</td><td>cool</td></tr>
<tr><td>From a liquid to a gas</td><td>heat</td></tr>
<tr><td>From a solid to a gas</td><td>heat</td></tr>
<tr><td>From a liquid to a solid</td><td>cool</td></tr>
</table>
</td><td>2</td><td>0 marks for 0-1 correct
1 mark for 2-3 correct
2 marks for 4 correct</td></tr>
</table>

question	answer	marks	notes
9. What happens to the particles as you heat them up?			
	• Move faster • Move around more • Move more • Get further apart • Spread out more	1	In lessons / feedback reiterate that all of these things happen.
10. Match the material to its melting point.			
		2	0 marks for 0-1 correct 1 mark for 2-3 correct 2 marks for 4 correct In lessons / feedback point out that this can be done without knowing the numbers but working it out from our knowledge of these materials at room temperature. We know chocolate can melt in our hands, gold is a solid, even in a hot bath and oxygen is a gas at room temperature.
11. Label the process happening in each blank box.			
		3	0 marks for 0-1 correct 1 mark for 2 correct 2 marks for 3 correct 3 marks for 4 correct Accept errors in spelling where the intention is clear.
12. What process happens to the steam that has turned into water vapour from your kettle at home when it hits the cold kitchen window and turns back to water?			
	Condensation	1	Accept errors in spelling where the intention is clear.
13. What is the name of the process that happens as the water leaves the sea and goes up into the sky?			
	Evaporation	1	Accept errors in spelling where the intention is clear.
14. As well as underground water, name one other place the water naturally comes from to go into the sea.			
	Ground run-off Rivers Streams Rains straight into the sea	1	
15. What is the scientific name for rain, snow and other forms of water that fall from clouds?			
	Precipitation	1	Accept errors in spelling where the intention is clear.
		total 25	