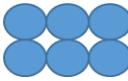

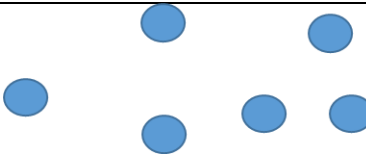
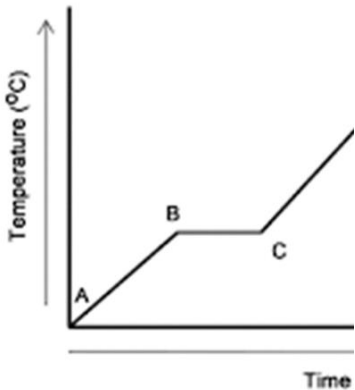


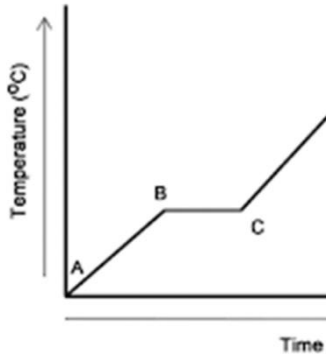
Year 8 : Heating and cooling Fact Sheet

The particle model (from Year 7)	
1. Draw 6 particles in a solid	
2. Draw 6 particles in a liquid	
3. Draw 6 particles in a gas	
4. Describe how the particles in a solid move	Vibrate on the spot
5. Describe how the particles in a liquid move	They can move from place to place
6. Describe how the particles in a gas move	Very fast and randomly
7. Explain why solids and liquids cannot be compressed but gases can	<ul style="list-style-type: none"> • There are no spaces between the particles in solids and liquids • There are spaces between the particles in gases
Changing state (from Year 7)	
8. What is it called when a solid changes into a liquid?	Melting
9. What is it called when a liquid changes into a solid?	Freezing
10. How do you make a solid melt?	Heat it
11. How do you make a liquid turn into a solid?	Cool it down
12. What happens to the particles when a solid melts?	<ul style="list-style-type: none"> • They get more energy • So move more and move further apart
13. What happens to the particles when a liquid freezes?	<ul style="list-style-type: none"> • They have less energy • So move less • And move closer together
14. What is it called when a liquid changes into a gas?	Evaporation

15. What is it called when a gas changes into a liquid?	Condensation
16. How do you make a liquid evaporate?	Heat it
17. How do you make a gas turn into a liquid?	Cool it down
18. What happens to the particles when a liquid evaporates?	<ul style="list-style-type: none"> • They get more energy • So move more and move further apart
19. What happens to the particles when a gas condenses?	<ul style="list-style-type: none"> • They have less energy • So move less and move closer together
Energy and temperature	
20. What are the units for temperature?	°C (we say 'degrees C' or 'degrees Celsius')
21. What are the units for energy?	Joules (J)
22. What does increasing the thermal energy of a substance do to the particles?	<ul style="list-style-type: none"> • Makes them move faster • Because they have more kinetic energy
Heating curves	
<p>23. The graph shows a solid being heated. What is happening to the solid:</p> <p>a) Between points A and B?</p> <p>b) Between points B and C?</p> 	<p>a) It is getting hotter</p> <p>b) It is melting/ changing into a liquid</p>

24. The graph shows a liquid being heated.
What is happening to the liquid:

- a) Between points A and B?
- b) Between points B and C?



- c) It is getting hotter
- d) It is evaporating/ changing into a gas

25. Describe what happens to the temperature of a substance as it melts or evaporates

It stays the same/ it doesn't change

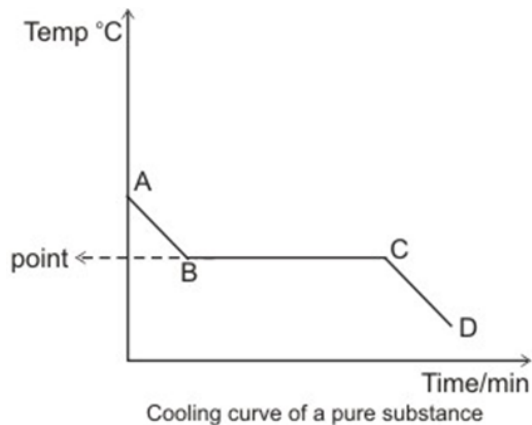
26. Explain why the temperature doesn't change when a substance is melting/ evaporating

All the energy is being used to change state

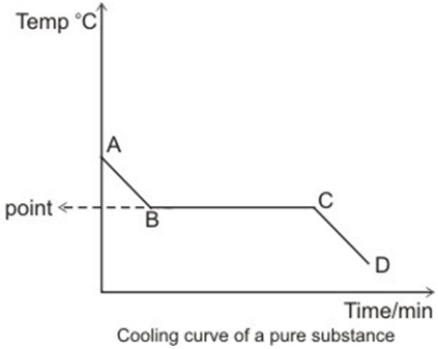
Cooling curves

27. The graph shows a liquid being cooled.
What is happening to the liquid:

- a) Between points A and B
- b) Between points B and C?



- a) It is getting colder
- b) It is freezing/ turning into a solid

<p>28. The graph shows a gas being cooled. What is happening to the gas: c) Between points A and B d) Between points B and C?</p>  <p>The graph shows a cooling curve with temperature on the y-axis and time on the x-axis. The curve starts at point A, goes down to point B, stays horizontal from B to C, and then goes down to point D. A dashed line from point B to the y-axis is labeled 'point'.</p> <p style="text-align: center;">Cooling curve of a pure substance</p>	<p>c) It is getting colder</p> <p>d) It is condensing/ turning into a liquid</p>
<p>29. Describe what happens to the temperature of a substance as it freezes or condenses</p>	<p>It stays the same/ it doesn't change</p>
<p>Conduction</p>	
<p>30. What do we call a material which will let heat pass through it?</p>	<p>Conductor</p>
<p>31. Name a material which is a good conductor of heat</p>	<p>Any metal</p>
<p>32. Why are metals good conductors of heat?</p>	<p>They have free electrons (very tiny particles that can move through the metal)</p>
<p>Radiation</p>	
<p>33. Name a method of heat transfer that is a wave</p>	<p>Radiation</p>
<p>34. Which surfaces are good absorbers of radiation?</p>	<p>Black and not shiny</p>
<p>35. Which surfaces are bad absorbers of radiation?</p>	<p>White and shiny</p>
<p>36. Which surfaces are good at giving out radiation?</p>	<p>Black and not shiny</p>
<p>37. Which surfaces are bad at giving out radiation?</p>	<p>White and shiny</p>
<p>Insulation</p>	
<p>38. What do we call a material which will not let heat pass through it?</p>	<p>Insulator</p>
<p>39. Name a material / substance which is a good insulator</p>	<p>Air, wool, cotton, wood, fur</p>