Year 7 Biology
Autumn 2 Level Ladder

All students are expected to master at least the Level 4 content by the end of the half term.

Check Arbor or ask your child what their current working and target level is in science

Topics: Cells

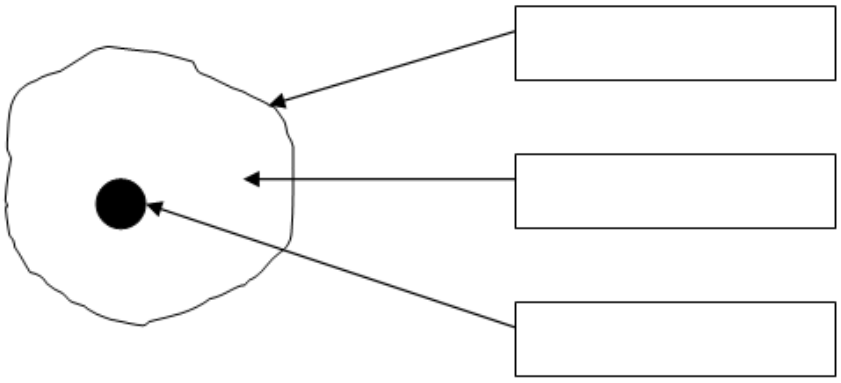
EG:

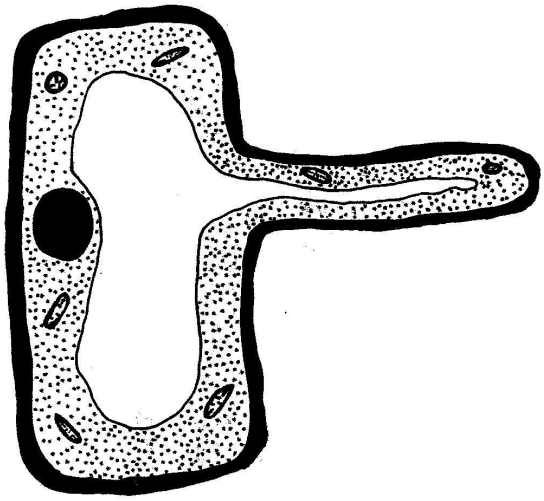
4A - mastered all of the Level 4 content

4B - mastered some of the Level 4 content

4C - mastered all of the Level 3 content and beginning to master some Level 4 content

Level	Sample tasks
3	1. This is a basic drawing of an animal cell. **Label** the different parts.

	 2. **Name** two other organelles in the cytoplasm.
4	1. **Describe** the functions of the following parts of a cell in one sentence: a) cell membrane b) nucleus c) cytoplasm d) ribosome e) mitochondria 2. **Describe** an example of diffusion in a cell.
5	**Explain** what respiration is and why cells need to do it. **Explain** respiration using a word equation. **Explain** one way how this specialised cell is adapted to its function.

	
6	1. **Suggest** differences between anaerobic and aerobic respiration. 2. **Use** the concept of surface area to explain how the shape of a red blood cell is adapted to its function. 3. **Link** cell structure to explain more advanced adaptations, such as the cell wall adaptation in the root hair cell above.
7	1. **Form links** between different topics studied, **applying** your knowledge of diffusion to explain how it occurs across a cell membrane. 2. Compare diffusion and active transport, and **suggest** reasons for their differences.

Year 7 Physics
Autumn 2 Level Ladder

All students are expected to master at least the Level 4 content by the end of the half term.

Check Arbor or ask your child what their current working and target level is in science

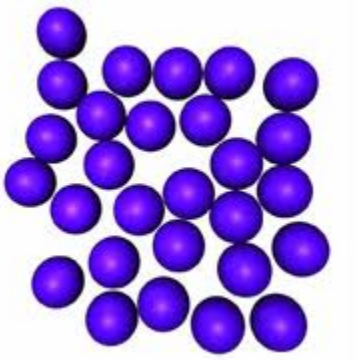
Topics: States of matter

EG:

4A - mastered all of the Level 4 content

4B - mastered some of the Level 4 content

4C - mastered all of the Level 3 content and beginning to master some Level 4 content

Level	Sample tasks
3	1. This is a drawing of a liquid using particle theory.  a) **draw** a solid b) **draw** a gas. 2. **Say** what the following words mean in science: a) melting point b) condensation c)freezing d)melting e)boiling
4	1. **Describe** how heat affects change of state. 2. **Describe** how water changes state at different temperatures.
5	1. **Compare** melting and dissolving, using concept of energy. 2. **Explain** why things melt when we heat them up.

<table>
<tr><td></td><td>3. Use melting/boiling point data to suggest the state of bromine and iodine at room temperature.
<table>
<tr><th>Halogen</th><th>Melting Point (˚C)</th><th>Boiling Point (˚C)</th></tr>
<tr><td>Fluorine</td><td>-220</td><td>-188</td></tr>
<tr><td>Chlorine</td><td>-101</td><td>-35</td></tr>
<tr><td>Bromine</td><td>-7.2</td><td>58.8</td></tr>
<tr><td>Iodine</td><td>114</td><td>184</td></tr>
<tr><td>Astatine</td><td>302</td><td>337</td></tr>
</table></td></tr>
<tr><td>6</td><td>1. Suggest why diffusion does not happen in solids.

2. Suggest how energy and forces of attraction are involved when a change of state happens.

3. Use key terms such as collision, concentration, random and Brownian motion to explain diffusion.</td></tr>
<tr><td>7</td><td>1. Form links between different topics studied, applying your knowledge of diffusion to explain how it occurs across a cell membrane.

2. Compare diffusion and active transport, and suggest reasons for their differences.</td></tr>
</table>

Year 7 Chemistry
Autumn 2 Level Ladder

All students are expected to master at least the Level 4 content by the end of the half term.

Check Arbor or ask your child what their current working and target level is in science

Topics: Separation techniques

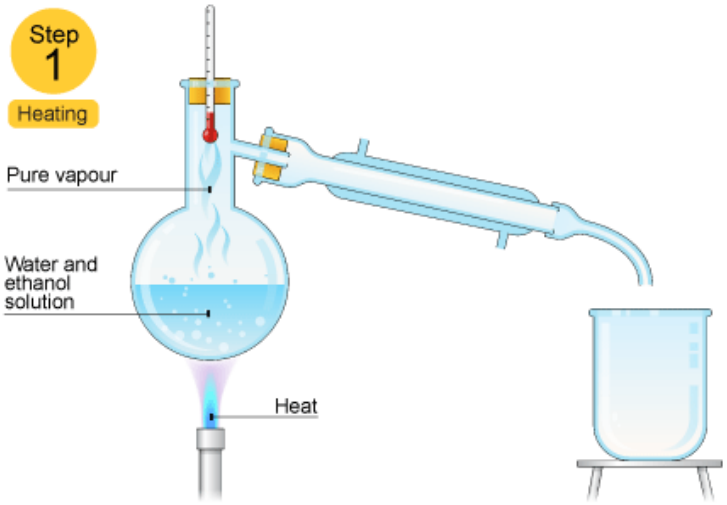
EG:

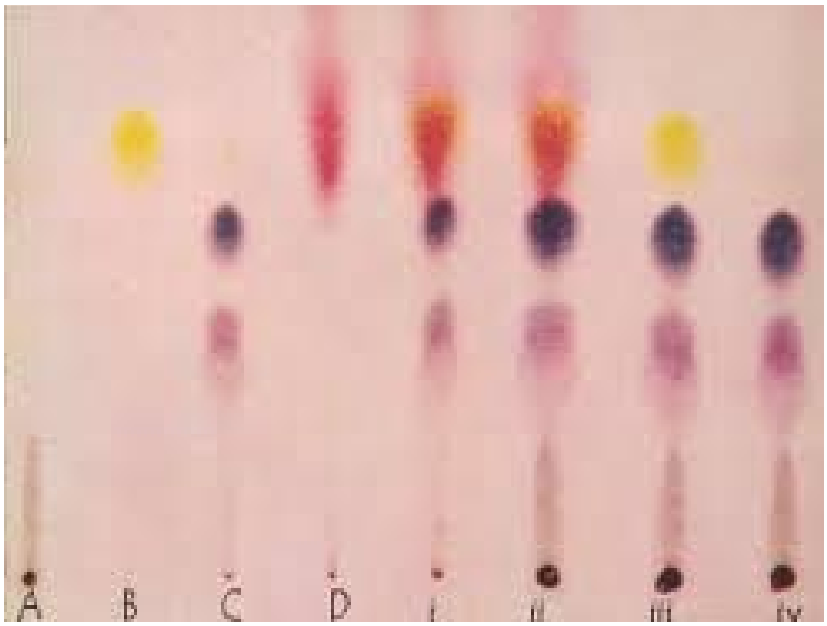
4A - mastered all of the Level 4 content

4B - mastered some of the Level 4 content

4C - mastered all of the Level 3 content and beginning to master some Level 4 content

Level	Sample tasks
3	1. **Say** what the following words mean in science: a) dissolve b) solvent c) solute d) solution e) insoluble f) soluble
4	1. **Describe** what happens when something dissolves.

	2. **Describe** what boiling point means. 3. Describe what happens in the picture below . 
5	1. **Explain** how distillation separates substances, giving an example of two substances that can be separated by distillation. 2. Interpret the chromatogram below, explaining, for example, whether D is a mixture of colours of a single colour.

	
6	1. **Explain** how chromatography works, **using** the concept of solubility. 2. **Explain** how distillation works, **using** the concept of boiling point and condensation.
7	1. **Use** your knowledge of particle theory to **suggest** other ways to increase solubility, **using** concepts such as surface area.

In science in year 7, students study the sciences as three separate subjects.

Each week students will have one physics lesson, one chemistry lesson and one biology lesson.

Students will be assessed on their understanding of each science.

Students will be given one level for science (rather than three separate ones) each half term. This will be the average across the three sciences.