



Year 7

Science Revision Guide

Name: _____

How to use this booklet

This booklet contains lots of information to help you to revise for PC1 Science. You will find the key points you need to learn and some practice questions/tasks for each unit. You should attempt the practice questions and then check your answers with the key information provided. You should keep attempting the practice questions at regular intervals until you can regularly remember all answers.

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Biology Unit 1: Cells

Key points to learn:

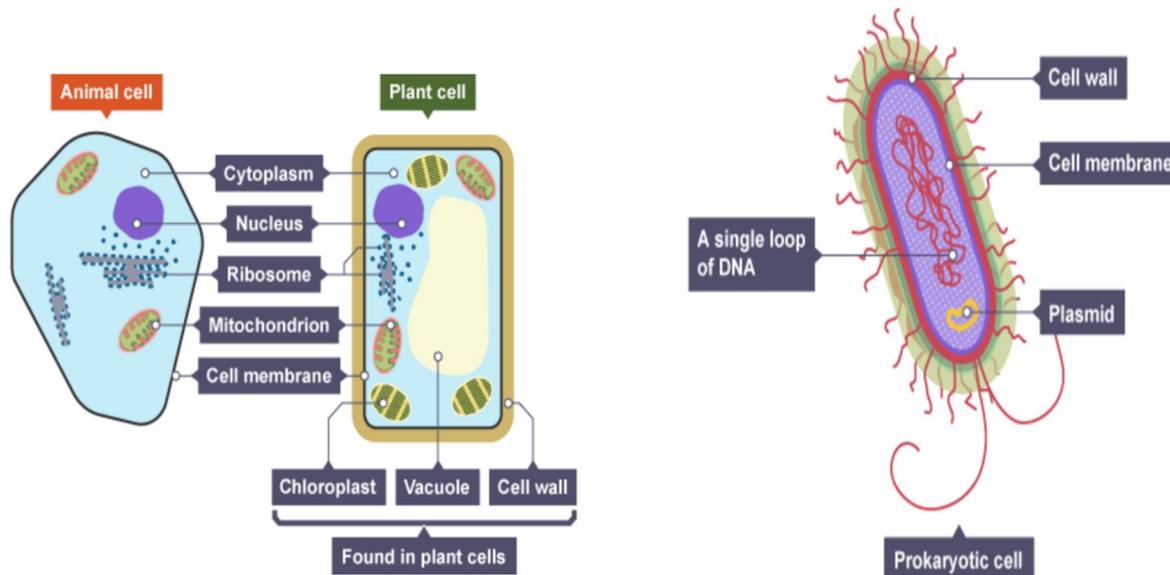
1. How to label an animal cell.
2. How to label a plant cell.
3. How to label a prokaryotic (bacterial) cell.
4. The function of each sub-cellular structure.
5. The different parts of a microscope.
6. How to use a microscope.
7. How to calculate magnification.
8. The differences between plant and animal cells.
9. The differences between prokaryotic and eukaryotic cells.

Practice Tasks/Questions

1. Draw and label an animal cell.
2. Draw and label a plant cell.
3. Write down the functions of the nucleus, cell membrane, cytoplasm, ribosomes, mitochondria, vacuole, cell wall and chloroplast.
4. Write down the 3 sub-cellular structures found in plant cells but not found in animal cells.
5. Prokaryotic cells have a nucleus – True or false?
6. Complete the equation for magnification:
Image size = Actual size x _____
7. When would you change the objective lens to a higher magnification when using a microscope?
8. When would you rotate the focussing wheel when using a microscope?

Biology Unit 1: Cells

Key information to learn:



Sub-cellular structure	Function
Nucleus	Controls the activities of the cell
Cell membrane	Controls what goes in and out of the cell
Cytoplasm	Where most chemical reactions take place
Ribosomes	Where proteins are made
Mitochondria	Where aerobic respiration takes place
Vacuole	Stores cell sap
Cell Wall	Give cells structure and support
Chloroplast	Where photosynthesis takes place



Microscope key points

- If the image is too small, change the objective lens to a higher magnification.
- If an image is blurry, rotate the focussing knob until the image is in focus.
- If an image is too dark, adjust the mirror to add light to the sample.
- Image size = Actual Size x Magnification

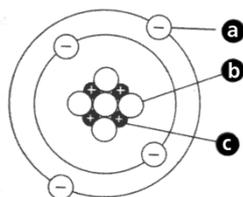
Chemistry Unit 1: Atomic Structure

Key points to learn:

1. What an element is.
2. What a compound is.
3. What a mixture is.
4. What an atom is.
5. What parts an atom contains.
6. What the symbols of the periodic table represent.
7. What the different parts of the periodic table are.
8. How do groups such as group one react.

Practice Tasks/Questions

1. Define an element.
2. Define a compound.
3. Define a mixture.
4. Label the image of an atom.

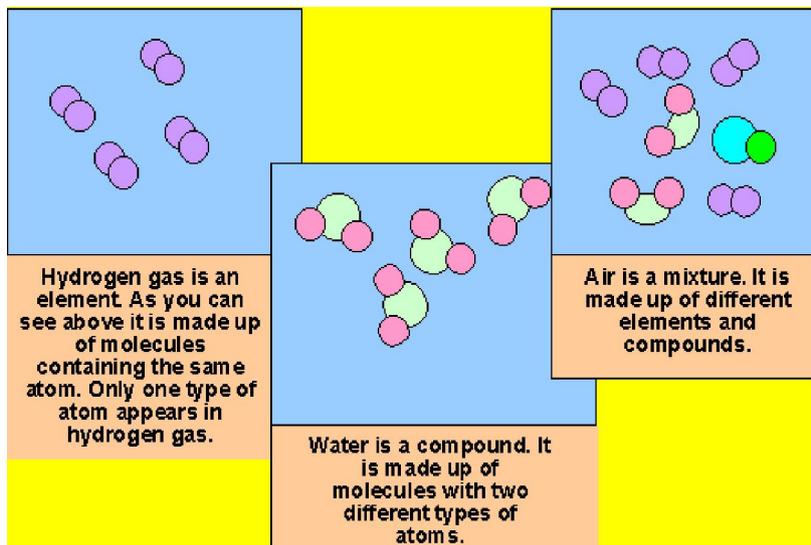


5. Find the symbol for the following element.
O = N = C = H = Cl =
6. What does a column on the periodic table represent?
7. What does a row on the periodic table represent?
8. What are the elements above the stepped line called?
9. How do the group 1 metals react with water?

Useful links: <https://www.youtube.com/watch?v=DZ6Ap8Zyb9w>
<https://www.youtube.com/watch?v=cpBb2bgFO6I>
<https://www.youtube.com/watch?v=0RRVV4Diomg>

Chemistry Unit 1: Atomic Structure

Key information to learn:

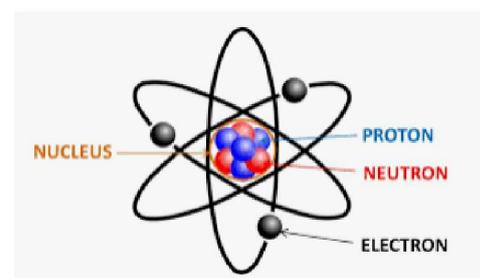


Hydrogen gas is an element. As you can see above it is made up of molecules containing the same atom. Only one type of atom appears in hydrogen gas.

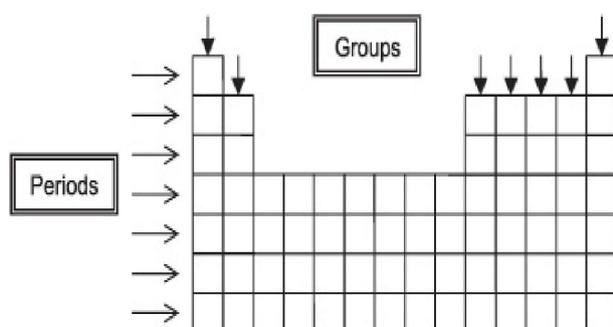
Water is a compound. It is made up of molecules with two different types of atoms.

Air is a mixture. It is made up of different elements and compounds.

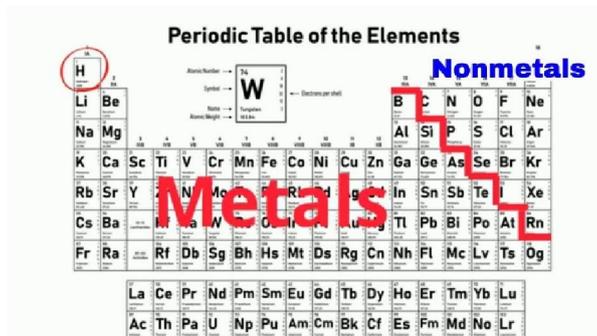
An atom is the smallest part of a chemical element.



The periodic Table



Periodic Table of the Elements



Group 1

1
3 Li Lithium
11 Na Sodium
19 K Potassium
37 Rb Rubidium
55 Cs Cesium
87 Fr Francium

ALKALI METALS

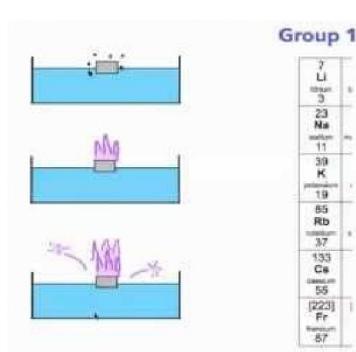
GROUP 1

PROPERTIES:

- All metals
- 1 electron in outer shell
- Very reactive; most reactive metals

REACTIVITY

The reactivity increases as you go down group one.



7
3 Li
23 Na
11
39 K
19
85 Rb
37
133 Cs
55
(223) Fr
87

Group 1 with water

Physics Unit 1: Particles

Key points to learn:

1. The particle model diagram (how particles are arranged) for a solid, liquid and gas.
2. How particles behave in a solid, in a liquid and in a gas.
3. The names of each of the changes of state. (i.e. what do we call it when a solid changes to a liquid?)
4. The temperature that water freezes and boils at.
5. What causes pressure in gasses.
6. How pressure can be increased in a gas.
7. The definition of density.
8. How to calculate density.

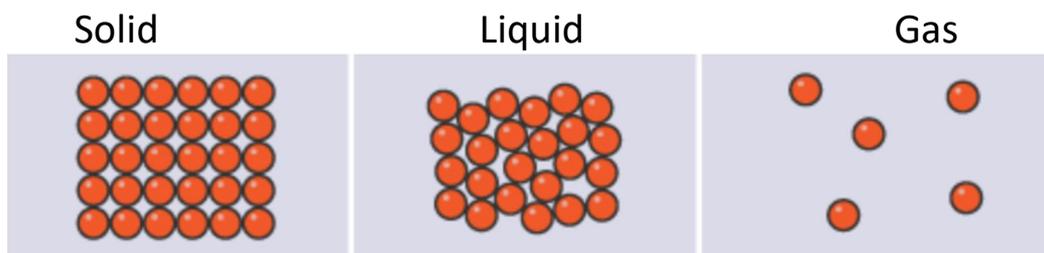
Practice Tasks/Questions

1. Draw the particle diagram for a solid, liquid and gas.
2. In which state(s) of matter do the particles vibrate?
3. In which state(s) of matter can the particles flow?
4. What do we call it when liquid turns to gas?
5. What do we call it when solid turns to liquid?
6. What causes pressure in gases?
7. Will increasing temperature increase or decrease the pressure of a gas?
8. Define density.
9. The mass of a block is 10 g. Its volume is 2 cm³. Calculate the density of the block

Physics Unit 1: Particles

Key information to learn:

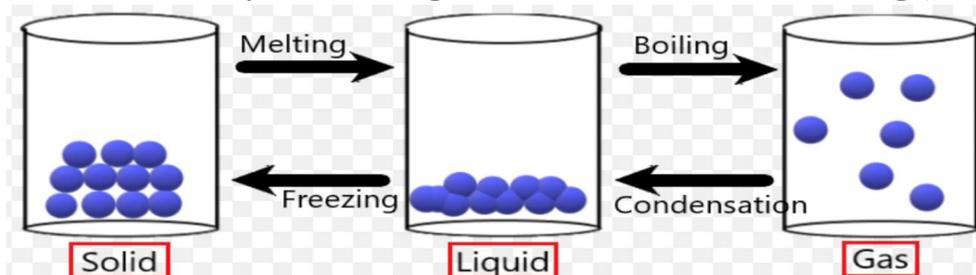
- The particle model for a solid, liquid and gas is shown below. You need to be able to draw these.



- The table below summaries how particles behave in each of the states of matter.

State	Solid	Liquid	Gas
Closeness of particles	Very close	Close	Far apart
Arrangement of particles	Regular pattern	Randomly arranged	Randomly arranged
Movement of particles	Vibrate around a fixed position	Move around each other	Move quickly in all directions
Energy of particles	Low energy	Greater energy	Highest energy

- The diagram below shows the names of the changes of state. (i.e., it shows a liquid turning to a solid is called freezing.)



- Pressure in gases is caused when particles collide (hit) the walls of the container that they are in.
- Pressure can be increased by increasing temperature or the number of particles in the container.
- Density is a measure of how much 'stuff' or mass there is for a certain amount of space or volume.

- The equation for calculating density is given by

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

