



# Y9 Chemistry

## C1 Atomic Structure

### Science homework booklet

### Core questions

#### How to use:

- 1 - **Copy** the answers once into your **knowledge organiser** to help you to learn them.
- 2 - Fold the page in **half** so that you can only see the questions, and write the answers out **again from memory**.
- 3 - Show your knowledge organiser to your teacher on the specified due date. You should show them **TWO neat** sets of answers to each question.

That's it!

Teacher's name: \_\_\_\_\_

**Due Date:** \_\_\_\_\_

No.	Question	Answer
1	Name the three basic states of matter	Solid, liquid, gas
2	What physical property determines the state of a substance?	Strength of forces between particles
3	What three things affect the strength of the forces between particles?	Material, temperature, pressure
4	What does the state symbol (s) represent?	Solid
5	What does the state symbol (l) represent?	Liquid
6	What does the state symbol (g) represent?	Gas
7	What does the state symbol (aq) represent?	Aqueous
8	What does aqueous mean?	Dissolved in water

**Due Date:** \_\_\_\_\_

9	Name the process of a solid turning into a liquid	Melting
10	Name the process of a liquid turning into a solid	Freezing
11	Name the process of a liquid turning into a gas	Boiling
12	Name the process of a gas turning into a liquid	Condensing
13	Name the process of a solid turning into a gas	Subliming
14	What is meant by the term "melting point"	temperature when a solid starts to melt
15	How is the strength of the forces between particles and the melting and boiling point of a substance related?	The stronger the forces the higher the melting/boiling point
16	When will a substance be a solid?	Temperatures below its melting point
17	When will a substance be a gas?	Temperatures above its boiling point
18	When will a substance be in its liquid form?	Temperatures between the melting and boiling points
19	What are the limitations of the particle model?	In the model there are no forces, particles are represented as spheres, the spheres are solid
20	How does the particle theory model describe particles	Small, solid, inelastic spheres

**Due Date:** \_\_\_\_\_

21	Define atom	The smallest part of an element that can still be recognised as that element
22	What are the three sub-atomic particles that make up an atom?	Protons, neutrons and electrons
23	What is the relative mass of a proton?	1
24	What is the relative mass of an electron?	Very small
25	What is the relative mass of a neutron?	1
26	What is the relative charge of a proton?	+1
27	What is the relative charge of an electron?	-1
28	What is the relative charge of a neutron?	0 (neutral)
29	Why is the overall charge of an atom zero?	An atom has the same number of protons and electrons
30	What is 'atomic number'?	The number of protons in an atom
31	What is 'atomic mass number'?	The number of protons and neutrons added together

**Due Date:** \_\_\_\_\_

32	What is an isotope?	Atoms with the same atomic number but a different mass number
33	Why do isotopes have a different mass number?	Different number of neutrons
34	What is the relative atomic mass of an element?	The average value that takes account of the abundance of the isotopes of the element
35	Define element	A substance made of only one type of atom
36	Define compound	A substance made of two or more different atoms chemically bonded together
37	Define molecule	A substance made of more than one atom chemically bonded together (can be atoms of the same type!)
38	Define mixture	A substance made of more than one thing <b>not</b> chemically bonded together
39	Approximately how many elements are there?	100

**Due Date:** \_\_\_\_\_

40	How are elements represented on the periodic table?	Chemical symbols
41	How are chemical symbols written?	The first letter is always upper case. The second letter always lower case
42	What name is given to an element when it reacts with oxygen	oxide
43	Which two elements will always be present in a sulfate?	Sulfur and oxygen
44	How does the name of a compound of only two elements end?	"ide"
45	What does a compound with a name ending in "ate" always contain?	oxygen

**Due Date:** \_\_\_\_\_

46	Name four methods of separating mixtures	Crystallisation, filtration, distillation and chromatography
47	What is filtration used to separate?	An insoluble solid from a liquid
48	What is meant by the term filtrate?	A liquid which has passed through a filter
49	What is meant by the term residue?	A solid which has not passed through a filter
50	What is evaporation?	Evaporation is the change of state from a liquid to a gas
51	What is evaporation used to separate?	A soluble solid from a liquid it is dissolved in
52	How is evaporation used to separate a solution?	heated until the liquid evaporates leaving behind a solid
53	What is crystallisation?	The formation of a soluble solid after a solution has evaporated
54	How do you crystallise a solution?	Heat until <b>half</b> the liquid has evaporated then leave to cool

**Due Date:** \_\_\_\_\_

55	What is simple distillation used for?	To separate and collect the liquid from a solution
56	What is fractional distillation used for?	To separate liquids with different boiling points
57	What are to two changes of state involved with distillation?	Evaporation and condensation
58	How is distillation used to separate a mixture of liquids?	the liquid with the lowest boiling point evaporates then condenses first
59	How does a condenser work?	It cools down the gas
60	What is chromatography used for?	To separate mixtures of different chemicals
61	What name is given to the liquid used in chromatography?	Solvent
62	What name is given to the pattern of separation at the end of chromatography?	Chromatogram