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a place for excellence

Y10 Information Evening

September 2026

Programme

Supporting your son/daughter at home	Mr Martland
Timeline for the Year	Mr Gibb
Starting GCSEs	Mr John
Achievement Support	Mr Priest
Pastoral Support	Mr Smalley

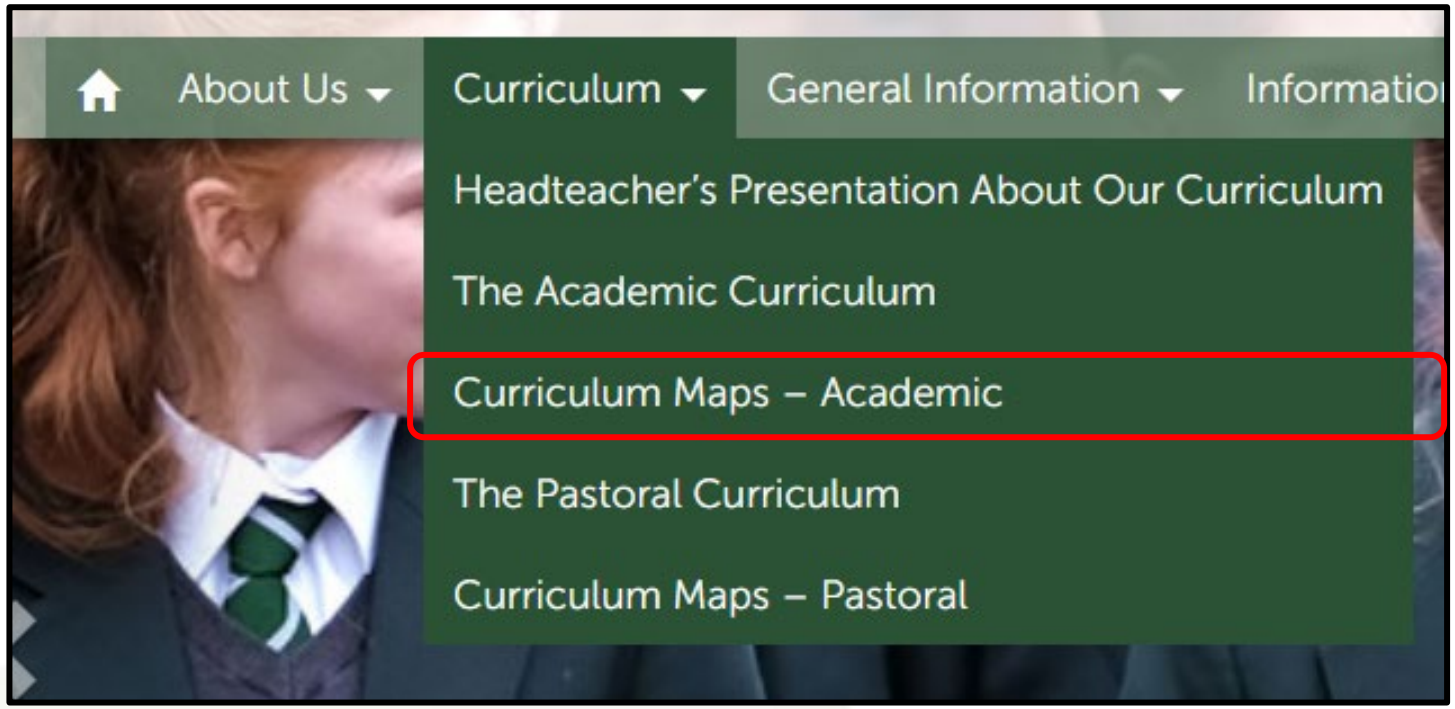
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The Y10 Curriculum

What content do we cover in each subject?

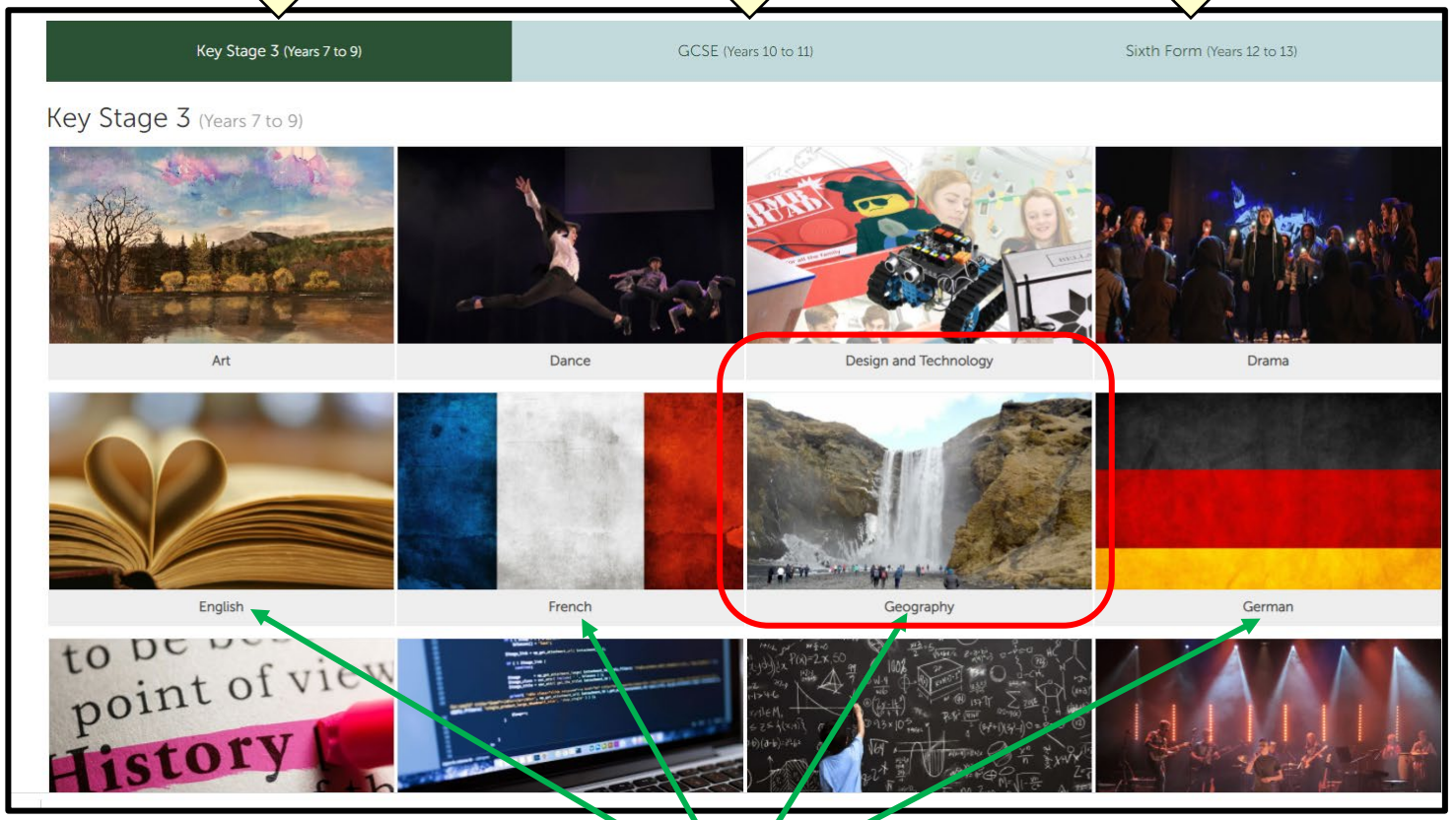
When is this taught? In what order?

How can parents support this process from home?



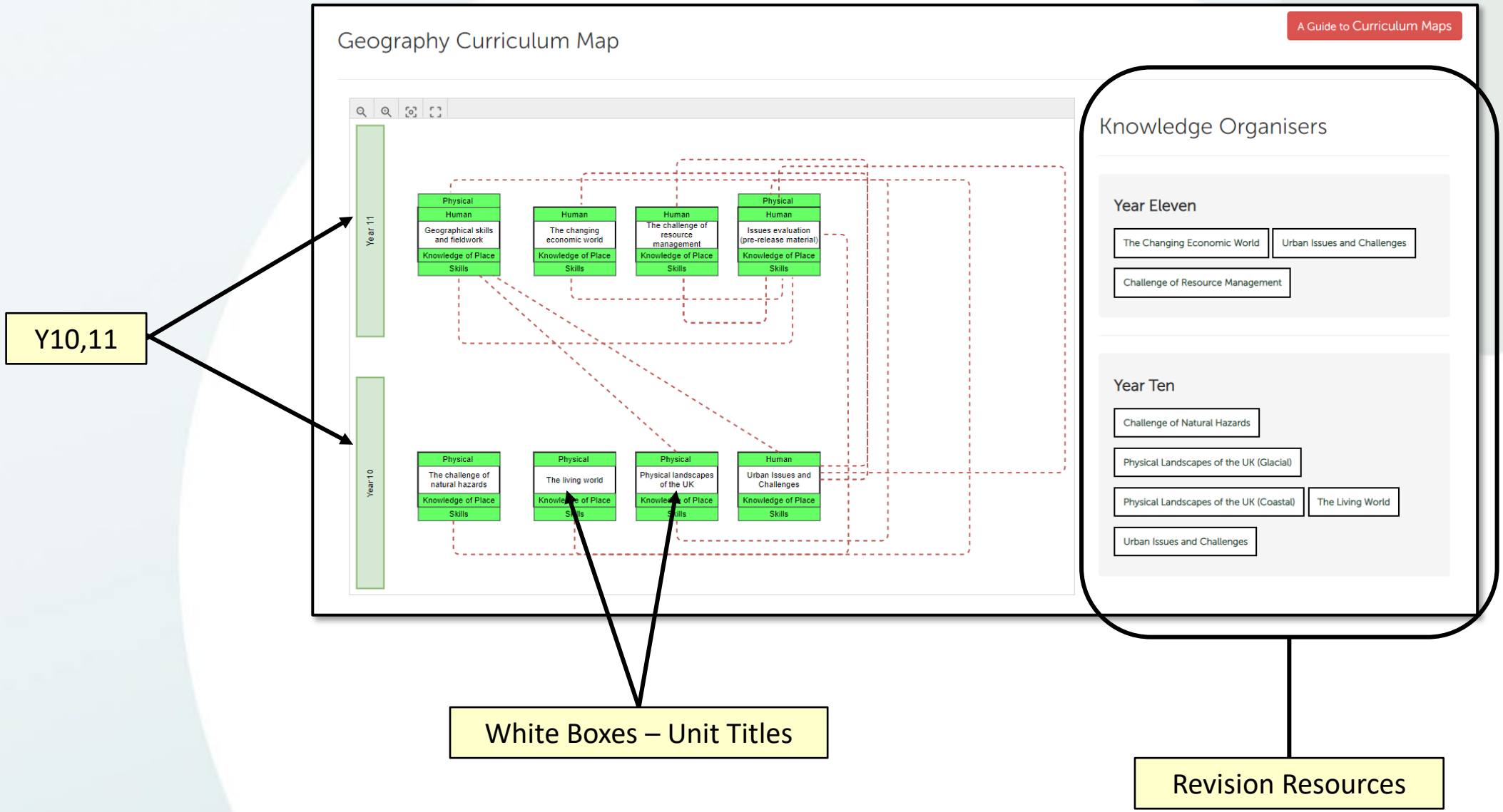
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Choose Key Stage



Choose Subject

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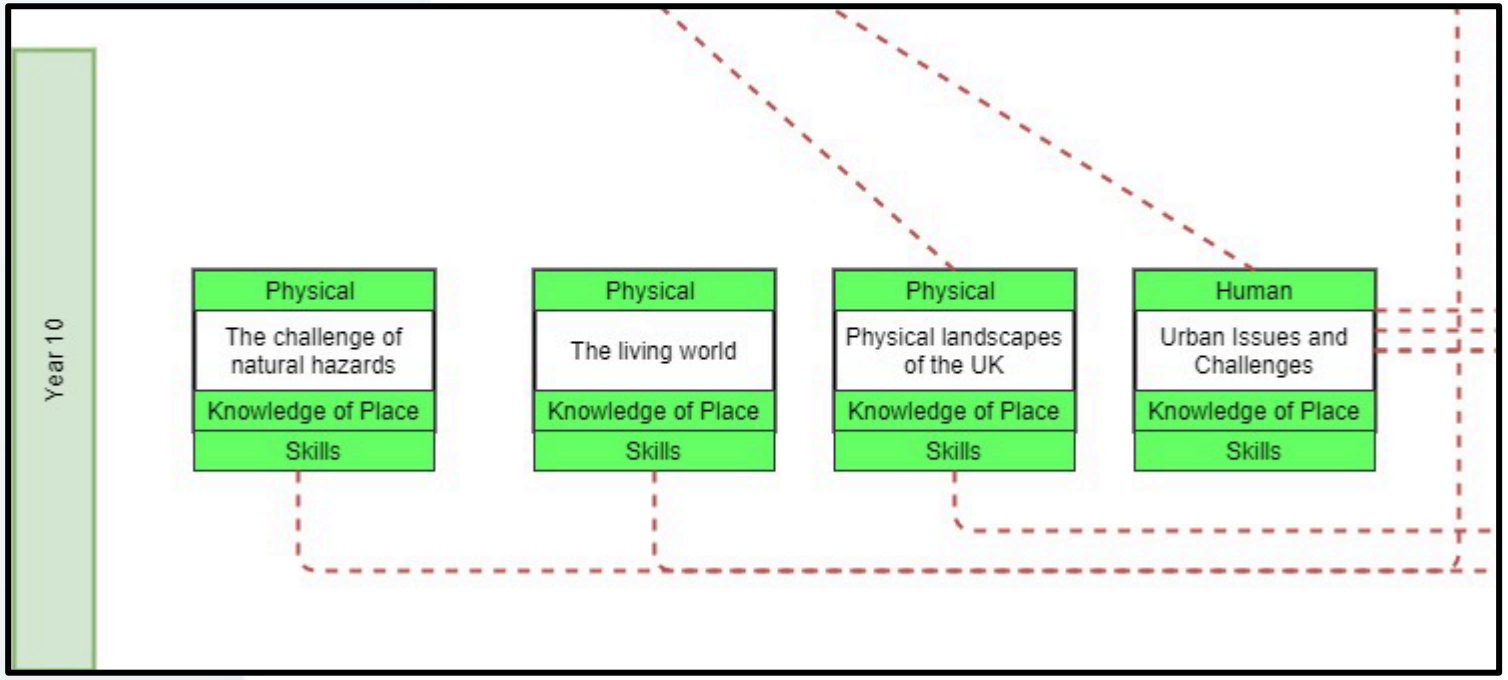


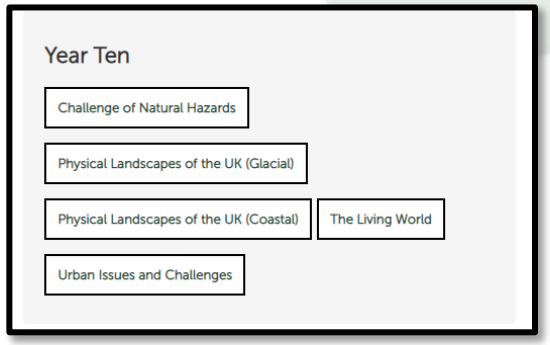
Y10,11

White Boxes – Unit Titles

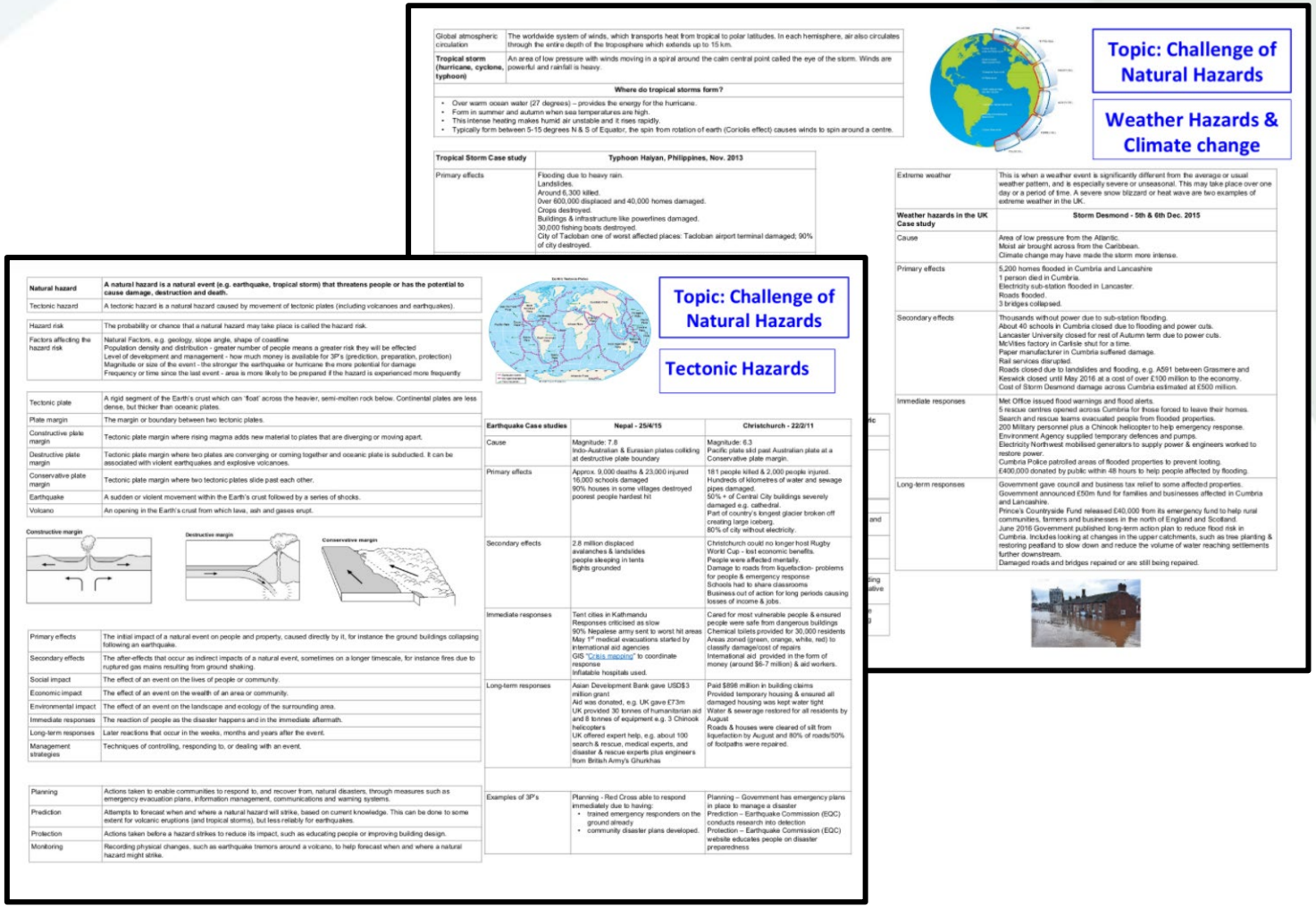
Revision Resources

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Designed to be ‘quizzable’

The same approach and style has been used by all subjects in all key stages.

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Key Stage 3 (Years 7 to 9) | GCSE (Years 10 to 11) | Sixth Form (Years 12 to 13)

GCSE (Years 10 to 11)


Art & Design: Craft


Art & Design: Fine Art


Biology



Business Studies


Chemistry



Child Development


Combined Science


Computer Science


D&T: Graphic Products


D&T: Product Design


Dance

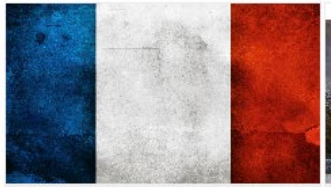

Drama


Electronics


English Language


English Literature


Food Preparation and Nutrition


French


Geography

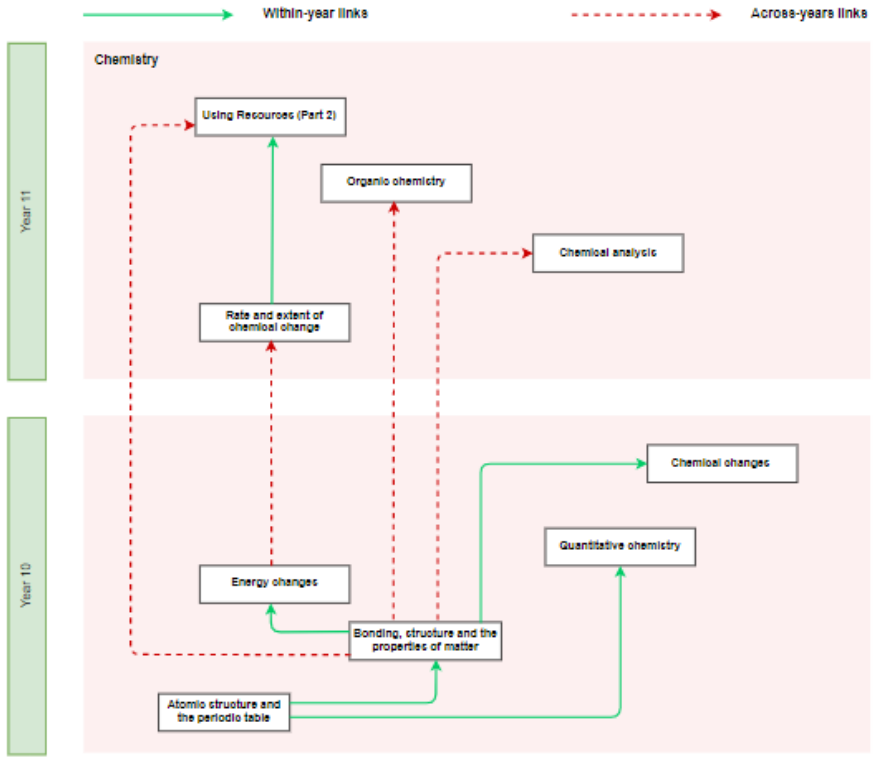

German



History

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The Fallibroome Academy Key Stage 4 Chemistry Curriculum Map



Knowledge Organisers

Please note: You must be logged into your Fallibroome Academy Google email account to access the material on this page.

Year Eleven

- Rate and extent of chemical change
- Organic chemistry
- Chemical analysis
- Using resources

Year Ten

- Atomic structure and the periodic table
- Bonding, structure and the properties of matter
- Quantitative Chemistry
- Chemical Changes
- Energy Changes

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Elements and Atomic Structure

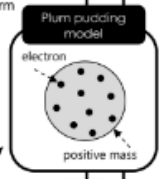
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History of the Atom

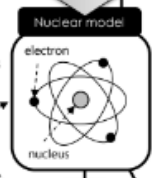
500 BC The word 'atom' comes from the Greek word **'atomos'**, which means 'undivided'. **Ancient Greeks** believed everything was made up of **tiny objects** that could not be split apart.

1800s **John Dalton** suggested that elements were made of atoms of a **unique single type**, and atoms of different elements could combine to form compounds.

1897 **J J Thomson** discovered the electron. He devised the **plum pudding model** of the atom, which had negative electrons embedded in a mass of positive charge.

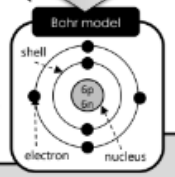


1911 **Geiger and Marsden's** gold foil experiment showed something inside the atom reflecting alpha particles. **Ernest Rutherford** concluded there must be a tiny positive **nucleus** at the centre (**the nuclear model**). The nucleus contained positively charged **protons**.



1913 **Niels Bohr** refined the model so the electrons **orbit around** the nucleus in shells (**the Bohr model**).

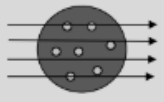
1932 **James Chadwick** discovered that the nucleus also contains uncharged **neutrons**.



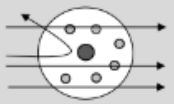
The scientific model of the atom has changed a lot over time. This happens when new discoveries are made that don't match with the current model, and the model needs to be updated or completely remade to fit the new information.

The 1911 gold foil experiment

Geiger and Marsden fired **alpha particles** (helium nuclei) at very thin gold foil. They expected the particles to **pass right through** so were surprised when some of them **bounced back**. We now know that the positive alpha particles got reflected back by **repulsion** from the positive **nucleus**.



Plum pudding model (predicted)
-ve electrons embedded in a +ve mass

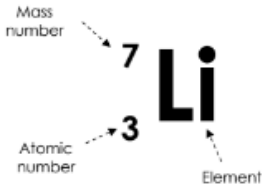


Nuclear model (actual)
-ve electrons surrounding a tiny +ve nucleus

What is an Element?

An element is a substance that only contains **one type of atom**. Elements cannot be broken down into simpler substances, and make up all materials by combining to form **compounds**. There are **over 100** elements in the universe. Each is identified by a unique symbol, a mass number and an atomic number.

- An atom is the **smallest** part of an element that can exist.
- Atoms of different elements have different **atomic numbers** and **mass numbers**.
- All atoms are **neutral** so the number of positive protons must **equal** the number of negative electrons.



Atomic number = number of protons
Mass number = number of protons + neutrons
Number of protons = number of electrons

EXAMPLE!

Element	Mass no.	Atomic no.	No. protons	No. electrons	No. neutrons
$^{9}_{4}Be$	9	4	4	4	5
$^{14}_{7}N$	14	7	7	7	7
$^{39}_{19}K$	39	19	19	19	20

Exam Tip!

The number of neutrons in an element is not always the same as the number of protons! Work it out using mass no. – atomic no. = no. neutrons

Isotopes

Isotopes are atoms of the same element that have the same number of protons but a **different number of neutrons**, and, therefore, different mass numbers. If an element has isotopes, a relative atomic mass must be calculated. **Relative atomic mass** is an average mass that accounts for the abundance of different isotopes.

$$\text{Relative atomic mass } (A_r) = \frac{(\text{mass of isotope 1} \times \% \text{ of isotope 1}) + (\text{mass of isotope 2} \times \% \text{ of isotope 2}) + \ldots}{100}$$

EXAMPLE!

^{10}B has an isotopic abundance of 20 %. ^{11}B has an isotopic abundance of 80 %. Calculate the relative atomic mass of boron.

$$A_r = \frac{(10 \times 20) + (11 \times 80)}{20 + 80} = \frac{1080}{100} = 10.8$$

Subatomic Particles

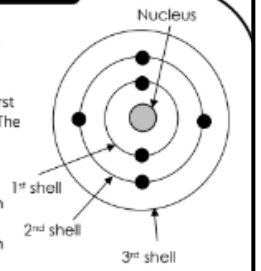
Exam Tip! $1 \times 10^{-10}\text{ m} = 0.1\text{ nm}$

- Atoms are very small (1×10^{-10} m radius).
- The nucleus is 1/10,000 of the size of the atom but contains almost all the mass.
- Compared to protons and neutrons, electrons barely weigh anything.

	Proton	Neutron	Electron
Relative mass	1	1	Very small
Relative charge	+1	0	-1

Electronic Structure

Electrons orbit the nucleus in **shells**, which have different energy levels. The lowest energy electrons are in the first shell, closest to the nucleus. The second shell is further away, and so on.



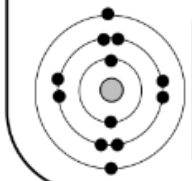
Electrons fill the nucleus from the **lowest** energy shell first, and each shell holds a certain number of electrons.

Shell	Max. no. electrons
1	2
2	8
3	8
4	18

The electron configuration of an atom can be written in numbers, or drawn as a diagram.

EXAMPLE!

Magnesium has 12 electrons. Show its electron configuration in both forms.



Shell	No. electrons
1	2
2	8
3	2
4	0

Electron configuration = **2, 8, 2**

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