## Core Science C1: Chemistry

### Fundamental Ideas in Chemistry

- **Annotate a diagram of an atom with names and features of each part.**
- **State no. of protons and electrons in an atom and use this to explain the overall charge.**
- **Define ‘element’, ‘mass number’ and ‘atomic number’.**
- **Draw diagrams to show electronic structure of the first 20 elements.**
- **State and explain the relationship between elements in the same group.**
- **State what noble gases are and explain why they are so unreactive.**
- **Define ‘compound’ and ‘molecule’.**
- **Explain how ionic compounds are formed from metals and non-metals.**
- **Explain how molecular compounds are formed from non-metals.**

### Limestone and Building Materials

- **Give the chemical name and formula for limestone.**
- **Describe how limestone is quarried.**
- **Describe thermal decomposition of calcium, magnesium, zinc & sodium carbonates.**
- **Describe the reaction of calcium oxide with water and of limewater.**
- **Describe how limestone is used to make cement and how cement is used.**

### Metals and Their Uses

- **Link how metals are found in the earth’s crust to their reactivity.**
- **Describe how metals can be extracted by reduction or electrolysis.**
- **Choose which method of extraction would be used, depending on the reactivity of a metal.**
- **Describe how copper, aluminium and titanium are extracted and purified.**
- **Evaluate the benefits of recycling.**
- **Explain the properties of different iron and steels.**
- **Link some properties of everyday alloys to their uses.**
- **Define transition metals. Link some properties of transition metals to their uses.**
- **Link the properties of copper to its uses in electrical wiring and plumbing.**

### Crude Oil and Fuels

- **Define ‘mixture’ and describe what crude oil is and what it is made up of.**
- **Recognise & define ‘alkanes’, name & draw the first 4 hydrocarbons in formulae/diagrams.**
- **Describe how fractional distillation is used.**
- **Link the size of molecule to its boiling point, viscosity and flammability.**
- **State products of combustion of fuels, e.g sulphur dioxide, nitrogen oxides, carbon monoxide.**
- **Give the environmental problems with some of these products.**
- **Describe how levels of sulphur dioxide can be reduced.**
- **Evaluate the advantages of biofuels.**
### OTHER USES OF CRUDE OIL

- State why hydrocarbons are cracked
- Describe the process and conditions of cracking and state the products of cracking
- Give the general formula for alkenes
- Recognise alkenes from their names & formulae and draw out the structures for alkenes
- Describe the bromine test
- State that some products of cracking can be used as fuels
- State what monomers & polymers are
- Identify names of polymers and monomers
- Match monomers to the polymers they would make
- Explain why waste disposal is a problem of using polymers
- Explain why plastic bags are being made from cornstarch
- Give the advantages and disadvantages to using and disposing of polymers
- Describe how ethanol can be produced from ethane or from fermentation

### PLANT OILS AND THEIR USES

- Describe the stages involved in extracting vegetable oils
- Describe why vegetable oils are important foods
- State how the boiling points of vegetable oils compares to water
- Explain how fried foods are different to boiled foods
- Describe what an emulsion is
- State some uses of emulsions based on their special properties
- **Describe how emulsifiers work**
- Describe how we can identify unsaturated vegetable oils
- Describe how vegetable oils can be hardened
- **Explain the properties of hydrogenated vegetable oils and link these to their uses**

### CHANGES IN THE EARTH AND ITS ATMOSPHERE

- State the layers of the Earth
- Describe the layers of the Earth in terms of size and properties
- Describe why tectonic plates move
- Explain how earthquakes and volcanoes happen
- State what the Earth’s atmosphere is made up of and how it changed over time

**Explain one theory of how life was formed and the Miller-Urey experiment**

- Describe how oxygen became part of the atmosphere
- Describe two reasons why the levels of carbon dioxide have decreased
- Explain why increased levels of carbon dioxide in the ocean can be a problem
- Explain why burning fossil fuels is a problem
- **Explain how the gases in air can be separated**

**Describe some industrial processes that the gases in air can be used for**

Revision checklist brought to you by my-GCSEscience.com.
Check the website for more resources.