**C1 Revision - Chapter 1 - Fundamental Ideas**

**ASSESSMENT:**

- What are the charges and masses of electrons, protons and neutrons?

- Write down all you know about the periodic table.

- Balance the following equation:
  
  \[
  \text{Ca} + \text{O}_2 \rightarrow \text{CaO}
  \]
  
  \[
  \text{Cl}_2 + \text{Al} \rightarrow \text{AlCl}_3
  \]

- How many atoms and elements are there in \( \text{C}_2\text{H}_5\text{OH} \)?

- Where are electrons and neutrons and protons found in an atom?

**KEY WORDS:**

- Electron
- Proton
- Neutron
- Shell
- Electronic Configuration
- Orbit

**C1 Revision – Chapter 1 – Fundamental Ideas**

- Draw the symbol for sodium include its atomic mass and atomic number (what do they tell us)
- What are the charges and masses of electrons, protons and neutrons
- Draw the electronic configuration for argon
- Describe how sodium and chlorine bond
- What is covalent bonding?
What is thermal decomposition?

Write the word and symbol equation for the thermal decomposition of limestone

What is cement?

What is concrete?

What are the benefits and drawbacks to limestone quarrying?

**BENEFITS**

**DRAWBACKS**

Complete the limestone reaction cycle:

1. Calcium Carbonate
2. Heat
3. Add CO₂
4. Add more water & filter
5. Add water

KEY WORDS:

- CALCIUM CARBONATE
- THERMAL DECOMPOSITION
- CONCRETE
- CEMENT
- QUARRYING
- LIMESTONE
- LIMEWATER
Put these metals in their order of reactivity:
Carbon, Magnesium, Copper, Iron & Potassium

Less reactive metals are displaced by carbon. Complete the equation below and then make your own one:

Copper Oxide + Carbon $\rightarrow$ ____________ + ____________

$\rightarrow$

Explain a bit about each of the ways to extract copper:

Smelting:

Displacement:

Bioleaching

Phytomining

What is an ore?

How is iron extracted?

What is an alloy?

Name 2 alloys:

Give 2 use AND properties of:

i) Aluminium

ii) Titanium

KEY WORDS:
DISPLACEMENT
ORE
BLAST FURNACE
ALLOY
SMELTING
BIOLEACHING
PHYTOMINING

ASSESSMENT:
Name the process by which we separate crude oil into useful components:

What property does this process rely on?

What does 'saturated' mean?

Give a problem each pollutant causes:
- Carbon Dioxide
- Sulphur Dioxide
- Carbon Monoxide
- Nitrogen Oxide
- Particulates

Give the benefits and drawbacks of each alternative fuel

<table>
<thead>
<tr>
<th>BENEFITS</th>
<th>DRAWBACKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIODIESEL</td>
<td>(more detail required for this one!)</td>
</tr>
<tr>
<td>ETHANOL</td>
<td></td>
</tr>
<tr>
<td>HYDROGEN</td>
<td></td>
</tr>
</tbody>
</table>

Complete the table to summarise alkanes and alkenes:

<table>
<thead>
<tr>
<th>ALKANES</th>
<th>ALKENES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturated or unsaturated</td>
<td></td>
</tr>
<tr>
<td>General formula</td>
<td></td>
</tr>
<tr>
<td>Name an example</td>
<td></td>
</tr>
<tr>
<td>Draw an example</td>
<td></td>
</tr>
</tbody>
</table>

KEY WORDS:
- ALKANE
- ALKENE
- SATURATED
- FRACTIONAL DISTILLATION
- ALTERNATIVE FUEL
- POLLUTANT
- COMBUSTION

ASSESSMENT:
What does 'cracking' mean?

What happens to the following when added to Bromine water:

i) Alkanes

ii) Alkenes

What is 'polymerisation'?  

Draw a diagram to demonstrate it:

List 3 problems with plastics:

How are biodegradable plastics made?

Describe how 2 designer polymers work:

Explain the 2 ways ethanol can be produced:

What are the problems with them?
What is the equation for photosynthesis?

Describe the 2 ways to extract plant oils:

- Pressing
- Distillation

What do emulsifiers do?

Name 2 products that need emulsifiers in them

Name 2 products that ARE emulsifiers

Complete the diagram to demonstrate emulsification:

[Diagram showing emulsification process]

Use the diagram to explain how oils are hardened into spreads (hydrogenation)

Explain what is happening:

- Conditions required:

- What does hydrophobic mean?

- What does hydrophilic mean?

KEY WORDS:

- PRESSING
- DISTILLATION
- HARDENING
- HYDROGENATION
- EMULSIFIER
- HYDROPHOBIC
- HYDROPHILIC

ASSESSMENT:
What are the layers of the Earth?

Complete the table to show the atmosphere of Earth today

<table>
<thead>
<tr>
<th>Gas</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Others (inc. Argon)</td>
<td></td>
</tr>
</tbody>
</table>

What was Earth's atmosphere like in the past?

Explain how it changed to contain oxygen

What is continental drift?

What causes the motion of the plates?

What happens at plate boundaries

How did life on Earth possibly start? Use the headings below to help you.

Miller-Urey Experiment:

Meteorites

Deep Sea Vents

What is the carbon cycle?

Why have carbon levels been increasing?

What is the carbon cycle?

Why have carbon levels been increasing?

KEY WORDS:

ATMOSPHERE
CARBON CYCLE
MANTLE
CRUST
CORE
MILLER-UREY

ASSESSMENT: