Content - Big ideas

CC10 Electrolytic Process
Big Question: How can electricity be used to break down ionic substances?
Learning Outcome:
- Describe how the process of electrolysis allows for ionically bonded substances to be separated. Predict and explain the product of electrolysis of substances in solution and that are molten.

CC11 Obtaining & Using Metals
Big Question: Where do we find metals and how to be obtain them?
Learning Outcome:
- Explain that rocks come from ores and how we obtain them through displacement reactions and electrolysis. Being able to explain and predict the reactivity of metals and carbon using the reactivity series.

CC16 Fuels
Big Question: Why do we use different fuels for different jobs?
Learning Outcome:
- Describe crude oil and its fractions uses, explaining the molecules size and its properties related to its use.

CC12 Reversible Reactions & Equilibria
Big Question: Why can some reactions be reversed?
Learning Outcome:
- Recall that chemical reactions are reversible and use a $\rightleftharpoons$ symbol to represent this in equations.
- Recall the conditions of the Haber process and factors effecting dynamic equilibrium.

CC09 Calculations Involving Masses
Big Question: What is a mole?
Learning Outcome:
- Calculate empirical formula, RFM, percentage by mass, mass and concentration.

Prior learning

- Ionic binding and ions
- Displacement reactions
- Chemical reactions
- Unit conversions

Global/IOM/Subject Links

Global & IOM links:
- Chemical industry, plastics, recycling, agriculture

Subject:
- Earth and atmosphere – Geography
- Energy changes – D&T

Subject specific skills development

Subject Skills:

- Carry out electrolytic processes of ionic solutions and predict the products on the anode and cathode.

- Use knowledge of the reactivity series of metals in order to predict displacement reactions.

- Use knowledge of distillation processes and molecule size to predict the fractional distillation products of crude oil.

- Use knowledge of the periodic table and mass number to calculate moles and masses of substances.