Enseignement secondaire		
Classes internationales		
	Régime anglophone	
Chimie		
Programme		
5IEC		

Leçons hebdomadaires: 2
Langue véhiculaire: anglais
Nombre minimal de devoirs par trimestre: 1

Theory

	Topic	**Teaching hours**	**Contents**	**Methods**
1	Rocks.	10	Volcanic eruptions. Rocks and their uses.	- Describe the textures of some different rocks. - Explain how some of the properties of rocks are related to their texture. - Recall some uses of rocks. - Describe the structure of the Earth.
			Igneous and metamorphic rocks.	- Describe how igneous and metamorphic rocks are formed. - Explain how the grain size is evidence for the speed of cooling.
			Assessing sources.	- Identify the use of emotive language in media reports. - Evaluate the information contained in media reports.
			Weathering and erosion.	- Describe how weathering can break up rocks.

				- Describe how weathered rocks are eroded.
			Sedimentary rocks.	- Describe how sedimentary rocks are formed. - Describe the texture of some sedimentary rocks. - Use the rock cycle model to link the three types of rock.
			Theories in geology. Working scientifically.	- How are theories about the Earth developed? - Describe how the scientific method is used by geologists. - Use a hypothesis to make predictions. - Explain how evidence disproves a certain theory.
			Materials in the Earth.	- Describe how metals are obtained from the Earth. - Describe some advantages of recycling metals.
			Living in danger.	- Explain why some people live on dangerous places. - Discuss whether people should be allowed to live in areas where they might be killed by volcanoes or other natural disaster?
2	Future materials	10	Ceramics and polymers	- Give some examples of ceramics and their uses - Properties of ceramics depend on their structure
			Polymers	- Give some examples and uses of polymers - Properties of polymers - How are polymers made?
			Working scientifically	- Process of peer review - Read some articles of a scientific journal and explore them
			Composite materials	- Explain composite materials - Uses of composite materials

				- Thermal decomposition, exothermic and endothermic reactions
			Environmental problems with materials	- What is meant by biodegradability? - Greenhouse effect - Toxic substances in the environment
			Biased language	- Compare and identify texts with biased language
			Recycling	- Advantages and difficulties of recycling - Describe the recycling of some materials
3	Reactivity	10	Types of explosions	- State the difference between explosion and implosion - Pressure of a gas
			Active and passive in scientific language	- Make examples with active and passive voice
			Reactivity	- Reactions of metals with water, dilute acids and air - Reactivity series of metals - Rusting
			Energy changes	- Test for oxygen - Speed change in combustions - Exothermic and endothermic reaction - Supply of energy for some reactions
			Percentage loss or gain	- Calculation on percentage change
			Displacement reactions	- What is meant by a displacement reaction? - Prediction of displacement reactions
			Extracting metals	- Methods used to extract metals, relation to costs - Oxidation and reduction reaction, symbol equation could be used - Alfred Nobel

4	Project	5	Planning a project	- Investigation about a project in chemistry - Introduce the safety symbols for the reactants - Work with variables (independent, dependant and controlled) - Set of the experiment should give accurate, precise, repeatable and reproducible results
5	Introduction to some chemical principles	10	Ionic compounds	- Ionic and metallic bonding - Attraction between charged ions - Electric conductivity in metals and for ionic compounds
			Energy transfers	- Reaction profiles - Chemical reactions and energy transfer
			Rates of reaction	- Explain reaction rate and define mean rate, explore graphs - Importance of surface area
			Chemical equations	- Easy balanced symbol equations - Introduce state symbols
			Standard units	- Introduce the standard form of writing a number - Introduce some standard units - Convert numbers to standard form - Explain significant numbers

Practical work

	Topic	**Teaching hours**	**Contents**	**Methods**
1	Safety in the lab.	1	Hazards	Recognize some common hazard symbols. Explain why hazard symbols are necessary. Recognize some common acids.

			Controlling risks.	Plan and explain safety precautions. Recognize hazards and explain how the risks can be controlled.
2	The Bunsen burner	1	Safety when heating.	Describe how a Bunsen burner is used. Use Bunsen burner to heat up test-tubes.
3	Ceramics and polymers	2	Study of ceramics and polymers	Study thermical stability of ceramics and polymers.
3	Rock experiments	2	Identify some rocks with chemical reactions.	Use some rocks that could react with acids, use microscope or binocular.
4	Redox reactions	2	Use redox reaction to produce some metals (Cu, Fe...)	Use metal oxides to produce metals, explain metals that are easy to get. Use electrolyses to produce metals
5	Endothermic and exothermic reactions	2	Use for example dissolution reactions to measure endo-and exothermic reactions.	Work out graphs on thermic reactions. Calculate ΔT.
6	Percent calculations	1	Decomposition reactions	Work with a scale to work out the mass lost during a decomposition reaction (hydrated salts, decomposition of carbonates)
7	Project	2	Plan a project that could be realized by the students.	Use the capacities of the students to work out a little project.
8	Rate of reaction	2	Use different variables to show variation of the rate (temperature, concentration, size of particles...)	Different choices of experiments, reaction between carbonates and acids