

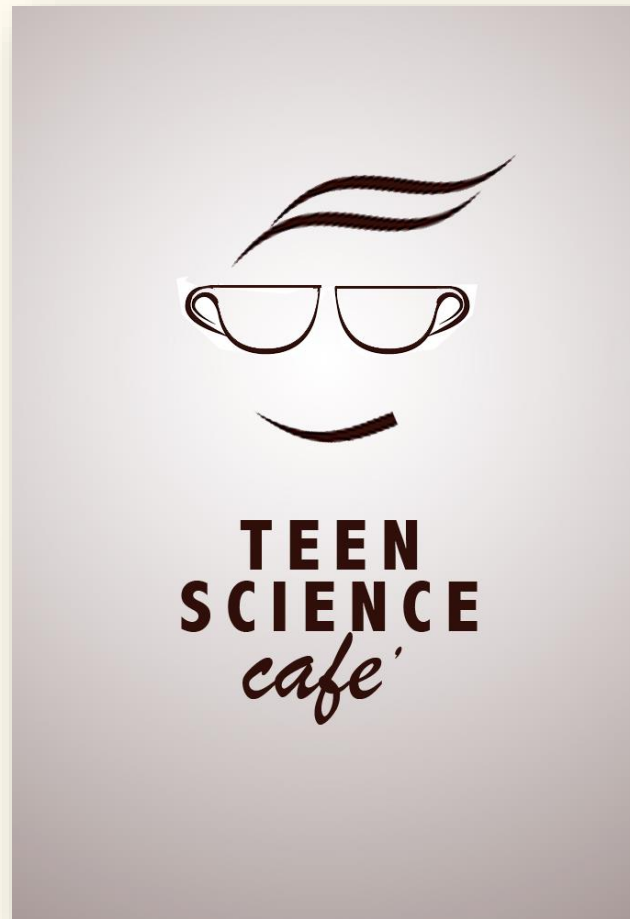
This framework for the Education Strategy for Malta 2014-2024 has four broad goals in line with European and world benchmarks:

- 1** Reduce the gaps in educational outcomes between boys and girls and between students attending different schools, decrease the number of low achievers and raise the bar in literacy, numeracy, and science and technology competence, and increase student achievement
- 2** Support educational achievement of children at-risk-of-poverty and from low socio-economic status, and reduce the relatively high incidence of early school-leavers
- 3** Increase participation in lifelong learning and adult learning
- 4** Raise levels of student retainment and attainment in further, vocational, and tertiary education and training

A National Curriculum Framework for All

Ministry of Education and Employment

Science and Technology	<p>This Learning Area is directed to provide a clear understanding across the education Cycles of how the process of inquiry and investigation leads to the development of solutions and their application. This is to be achieved through a pedagogical approach of “purposeful design and inquiry” that combines technological design with scientific inquiry, engaging students or teams of students in scientific inquiry situated in the context of technological problem-solving.</p>
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Students will work collaboratively on **one comprehensive investigative task** related to the SEC Biology, Chemistry and Physics content. The selected theme for this year's event is *Elements*. This year's theme is aligned to the 2019 UNESCO International Year of the Periodic Table of Chemical Elements. The table below indicates the subject topics relevant to the investigation.

Biology	Living together
Chemistry	Gases in Air; Atoms, molecules, RAM, RMM and RFM; Chemical formulae & equations; Rates of reaction.
Physics	Staying cool; Electricity in the Home; Balancing Forces



Science

Primary Schools (5 -11)

Learning Outcome 7 <i>How does planet Earth support life?</i>			
	LEARNING OUTCOMES <i>Children will be able to:</i>	KEY VOCABULARY	LEARNING OPPORTUNITIES <i>Children should be encouraged to:</i>
	OUR PLANET		
3.7.1	I can identify water, air, rocks, soil and life forms as the constituents of our planet.	water, air, rocks, soil, life forms, support life.	<ul style="list-style-type: none"> Understand that planet Earth supports life and therefore we must take care of Earth's resources.
3.7.2	I can recognise and discuss the importance of saving water.	fresh water, sea water, contaminated water, water shortage, save/conserve water.	<ul style="list-style-type: none"> Identify practical ways of saving water.
3.7.3	I can explain the importance of the 4Rs: reduce, reuse, recycle and repair.	reduce, reuse, recycle, repair, refuse, rethink.	<ul style="list-style-type: none"> Identify practical ways of reducing, reusing, recycling and repairing waste as well as refusing items and rethinking everyday practices to safeguard our planet - Earth.

Integrated Science

Middle Schools (12-13)

- 'S' components working together in an integrated approach, in some areas more than others.

Subject: **SCIENCE**
LOF Subject Focus: **WHAT DO SCIENTISTS DO?**
Unit code and title: **SCI LOF 8.5 FORENSIC SCIENCE**

Year 8 /Form 2

OBJECTIVES Teacher will:

1. guide students to describe the importance of forensic science to solve investigations and relate observation skills to forensic science.
2. guide students to collect and process evidence from a crime scene.
3. guide students to use separation techniques to provide evidence.
4. guide students to identify different types of human teeth and their function.
5. guide students to collect and process evidence from a fire.
6. guide students to investigate different surfaces and the effect of friction.
7. guide students to use the light microscope to discover details not visible with the naked eye.

Key words

Science & Technology

Core Curriculum Programme for Secondary Schools (14-16)

- A level 1 programme for low-achieving students
- An element of STEM integration such as:

SITUATION	DESIGN BRIEF
At school, you were asked to study the effects of planting seeds in a controlled environment but you do not have access to a greenhouse.	Design and make a model greenhouse in which to plant few seeds.
Your parents frequently forget to switch off the lighting of your garage when they lock it up. It would be ideal to find a system which switches off the lighting of the garage when both the front and back doors are closed.	Design and make a model of a system which switches off the lighting of a garage when both front and back doors are closed.

Upcoming: Two new integrated programmes

Core Science and Applied Science (14-16)

- Level 3 programmes for non-science specialising students

Subject Focus: Water		
Learning Outcome 2: (Controlled and Coursework)		
At the end of this programme, I can explain the properties and behaviour of water and aqueous solutions.		
Assessment Criteria (MQF 1)	Assessment Criteria (MQF 2)	Assessment Criteria (MQF 3)
2.1a Distinguish between solvent, solute and solution.	2.2a Describe the concepts of solubility (the maximum amount of solute that can dissolve in a certain amount of solution at a certain temperature); saturation; the effects of temperature, stirring, size of solute particles.	2.3a Distinguish between solubility of ionic compounds and covalent compounds.
2.1b Recall the units in which volume can be measured in, mainly cm^3 , mL, dm^3 , L.	2.2b Conversion of units: cm^3 to dm^3 and vice versa; mL to L and vice versa.	
	2.2c Recall that there are different measures of concentration: grammes per dm^3 ; moles per dm^3 ; ppm; ppb; % by vol v/v.	2.3c Explain different measures of concentration: grammes per dm^3 ; moles per dm^3 ; ppm; ppb; % by vol v/v. <i>Simple calculations.</i>
2.1d Recognise that water is the basis of life on Earth.	2.2d List the importance of water for life. <ul style="list-style-type: none"> medium for chemical reactions to occur; transport; support; reproduction; cooling agent. 	2.3d Use the physical properties of water to explain its importance in living organisms.
2.1e Recall water as the most abundant molecule in cells.	2.2e Name ways in which living organisms gain and lose water. <ul style="list-style-type: none"> intake of food and drink; absorbed by plant's roots; evaporation (including sweating, exhaled air and transpiration); urine and faeces. 	

Upcoming: Two new integrated programmes

Core Science and Applied Science (14-16)

- Particularly in Applied Science, the strength lies in Assessment also including a high degree of integration.

The **coursework** will be based on **all** Learning Outcomes.

Each coursework assignment, will be presented in the form of a Portfolio (a series of tasks related to a specific scenario) as explained in the Coursework Mode section. An exemplar and the respective marking rubric are included.

Part 1: Coursework – Category Levels 1-2-3 (60 %)				
Assignment 1 (12 %)	Assignment 2 (12 %)	Assignment 3 (12 %)	Assignment 4 (12 %)	Assignment 5 (12 %)
Portfolio	Portfolio	Portfolio	Portfolio	Portfolio

Figure 1: Coursework Assignments for School Candidates