PRIMARY SCIENCE
YEAR 6 LEARNING OUTCOMES

CoPE Training – June 2023

SCIENCE CENTRE
PEMBROKE MALTA

GOVERNMENT OF MALTA
MINISTRY FOR EDUCATION, SPORT, YOUTH
RESEARCH AND INNOVATION
DIRECTORATE FOR LEARNING AND ASSESSMENT PROGRAMMES

CoPE Outline

- Why promote STEM?
- Science in the Primary Years – a snap shot
- Primary Science Learning Outcomes in Year 6
- Assessment – Continuous and Summative Assessment
- STEM initatives
- Resources and other weblinks

WHY PROMOTE STEM?

Why promote …

STEM Science, Technology, Engineering, Mathematics

1. To develop…

Critical Thinking

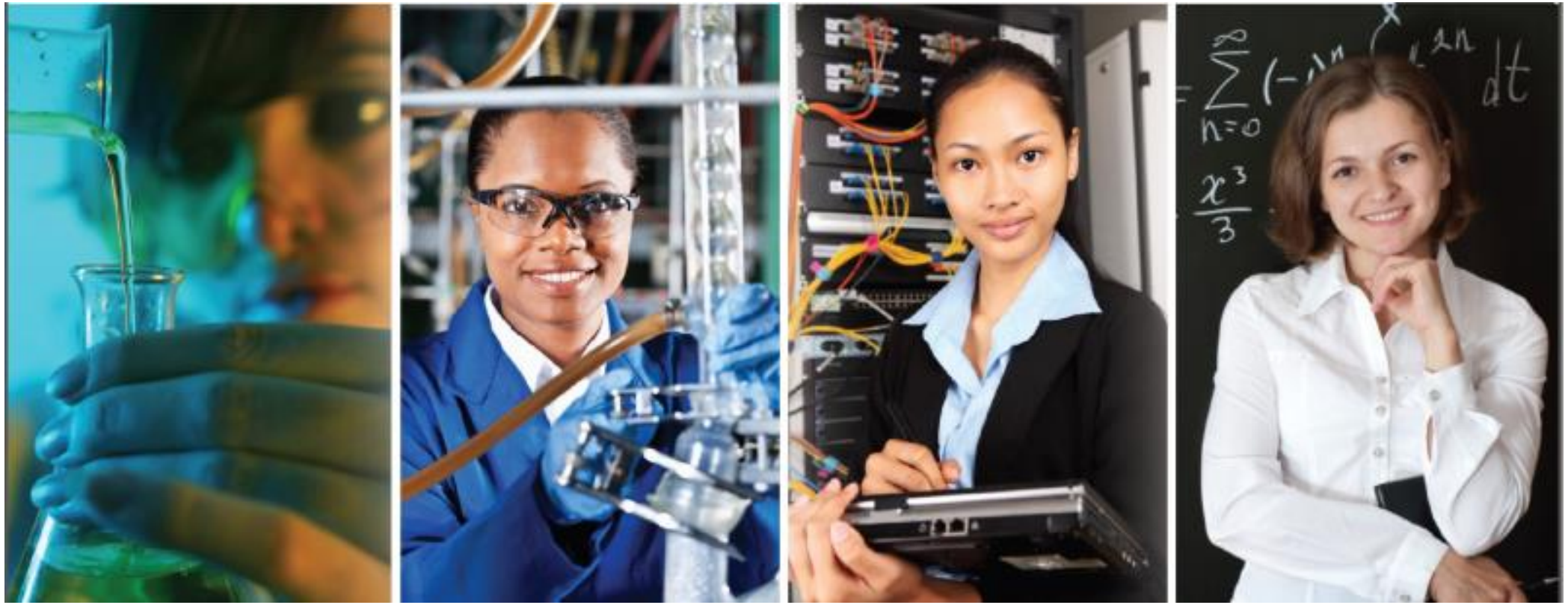
Collaboration

Communication

Creativity

2. Economic growth…

3. Bridge the gap…



4. Catch them young…

"I've found STEM to be so rewarding for both myself and the children. They are so engaged. Just love inquiry based learning!"

Liz, Pre-kindergarten Teacher

SCIENCE IN THE PRIMARY

a snapshot

Science in the Primary – 2023-2024

Year Group	Syllabi	Student entitlement per week
Kindergarten	Emergent Curriculum	Depending on project
Year 1	Primary Science Guidelines (Emergent Curriculum)	Depending on project
Year 2	Primary Science Guidelines (Emergent Curriculum)	Depending on project
Year 3	Year 3 Learning Outcomes	Approx. 3 lessons
Year 4	Year 4 Learning Outcomes	Approx. 3 lessons
Year 5	Year 5 Learning Outcomes	Approx. 3 lessons
Year 6	Year 6 Learning Outcomes	Approx. 3 lessons

Science in the Junior Years (Year 3 to Year 6)

ENGAGE

INVESTIGATE

EVALUATE

LEARNING OUTCOMES FRAMEWORK – PRIMARY SCIENCE

Year 6

Learning Outcome themes include…

plants

body systems

chemical changes

states of matter

moon, stars and galaxy

sound

energy

forces

food groups

environment

light

Learning Outcomes for Primary Science

- **Nine overarching themes:**
- Learning Outcome 1: What do scientists do?
- Learning Outcome 2: How do we stay alive?
- Learning Outcome 3: How do we keep fit and healthy?
- Learning Outcome 4: How do our senses help us gather information?
- Learning Outcome 5: What is energy?
- Learning Outcome 6: What are things made of?
- Learning Outcome 7: How does planet Earth support life?
- Learning Outcome 8: How do things move?
- Learning Outcome 9: What is there out in space?

Learning Outcomes – Year 6

Primary Science Level 6 Year 6 Learning Outcomes	
Learning Outcome code reference: *Example: 6.1.2 means Year 6 – Learning Outcome 1 – Sub-section 2.*	
Learning Outcome 1 ***What do Scientists do?*** Learning Outcome 1 *What do Scientists do?* will be integrated throughout the framework for Level 6 (Year 5 and Year 6).	
6.1.1	I can ask questions about the world around me.
6.1.2	I can find out about a simple scientific idea.
6.1.3	I can use basic scientific knowledge to predict the outcome to an investigation.
6.1.4	I can carry out a simple practical investigation, which involves up to two variables being investigated separately, with the teacher's support.
6.1.5	I can record observations in a simple format.
6.1.6	I can make simple conclusions from my direct observations and link these using key scientific terms.
6.1.7	I can apply scientific knowledge to practical situations.
6.1.8	I can identify simple cause and effect relationships.
6.1.9	I can explain how a scientist uses a model to explain ideas.
6.1.10	I can through a role play exercise, act out simple stories about famous scientists.
6.1.11	I can give examples and explain how technology and science have improved life.
6.1.12	I can present information about some science occupations.
6.1.13	I can name, use and describe the purpose of a range of basic scientific resources referred to in the Learning Outcomes for Level 6 (Year 6).
6.1.14	I can take basic measurements of size, mass and temperature, and express the reading using appropriate units.
6.1.15	I can apply basic safety rules when working on an investigation.
6.1.16	I can take some decisions while working on an experiment in a group.

Learning Outcomes – Year 6

Learning Outcome 7 *How does planet Earth support life?*			
	LEARNING OUTCOMES *Children will be able to:*	**KEY VOCABULARY**	**LEARNING OPPORTUNITIES** *Children should be encouraged to:*
6.7.1 **6.7.2**	HUMAN IMPACT ON THE ENVIRONMENT I can explain that the environment is an ecosystem that can be harmed through pollution, destruction of the natural environment, acid rain, overfishing and overpopulation. I can observe and describe how the sea is becoming polluted and its effect on marine life.	**environment, ecosystem, land, sea, air, light, pollution, habitats, micro-plastics, acid rain, overfishing, overpopulation, sustainability.**	• Research about the environment as an ecosystem and find out about threats to the environment through use of multimedia resources. • Discuss and debate how human activity has had an impact on the environment. • Explore practical and personal ways of conserving the environment.
Learning Outcome 8 ***How do things move?***			
	LEARNING OUTCOMES *Children will be able to:*	**KEY VOCABULARY**	**LEARNING OPPORTUNITIES** *Children should be encouraged to:*
6.8.1 **6.8.2** **6.8.3** **6.8.4**	FORCES I can investigate, through simple experimentation, the effect of gravity, as a force which pulls things to the Earth. I can show that air resistance exerts an opposing force to a moving object. I can demonstrate the effect of air resistance on differently shaped objects. I can apply principles of gravity and air resistance to everyday life.	**gravity, force, air resistance, mass, kilograms, push, pull, surface area, opposing force, streamline.**	• In simple terms, differentiate between mass and weight. Mass is the amount of matter that makes up an object (how much stuff is inside the object) and is measured in kilograms. Weight is the force acting on the object and is measured in Newtons. The weight of an object varies in relation to the force of gravity e.g. an object would weigh less on the Moon than on

Teacher's Resource Pack – Year 6

Lesson Plan

Engage

Inquire



Evaluate


Resources





Student's Resource Pack – Year 6

Brief notes

Investigation process

Interactive links to resources

Self-Assessment

Teacher's and Student's Resource Pack

- The Teacher's and Student's Resource Packs will be available on the Primary Science website and at Teleskola.mt.
- Both resource packs will be available in **editable format** for educators to adapt according to the needs of the students in class.
- One may access the Teacher's and Student's Resource Packs for Year 3, Year 4 and Year 5 as an idea, through the following links:

Teacher's Pack – Year 3	Student's Pack – Year 3
Teacher's Pack – Year 4	Student's Pack – Year 4
Teacher's Pack – Year 5	Student's Pack – Year 5

ASSESSMENT

Continuous Assessment

- Continuous Assessment or Formative Assessment is an **essential** part of every lesson.
- Teachers and students interact verbally or through assigned tasks/activities. The teacher provides **constructive feedback** to **improve learning**.
- Continuous Assessment **takes place several times** over a period and may include different forms of assessment/tasks/activities.
- For Primary Science, Continuous Assessment primarily focuses on **skills**, as outlined in the **Broad Learning Outcomes**.
- It is suggested that the actual assessment task/s takes place after student have **gained confidence**, **practiced** and **familiarised** themselves with the BLO being assessed.

Continuous Assessment – Suggested Tasks

- Continuous Assessment carries **40% of the final global mark**.
- **Suggested task 1:** Investigation
- **Suggested task 2:** Project work
- **Suggested task 3:** Fieldwork activity
- **Other meaningful, authentic tasks** may be carried out to assess students' learning.

Continuous Assessment – Broad Learning Outcomes (BLOs)

- There **7 Broad Learning Outcomes** (BLOs) to be assessed for continuous assessment in Year 6. These are available on the Primary Science website.
- The teacher will choose the order to assess the BLOs throughout the scholastic year.
- Preferably, 2 to 3 BLOs are ticked/reported per term.
- All BLOs should be ticked/reported by the end of the scholastic year.

Continuous Assessment – Broad Learning Outcomes (BLOs)

Primary Science Level 6 Year 6 Broad Learning Outcomes	
The following learning outcomes should be assessed throughout the scholastic year. It is suggested that two or three learning outcomes will be selected per term to be assessed as part of the 40% continuous assessment. This element of flexibility will facilitate multi-disciplinary integration which is highly encouraged and also specified in the NCF, 2012.	
Learning Outcome 1 ***What do Scientists do?*** Learning Outcome 1 *What do Scientists do?* will be integrated throughout the framework for Level 6 (Year 5 and Year 6).	
6.1.1	I can ask questions about the world around me.
6.1.2	I can find out about a simple scientific idea.
6.1.3	I can use basic scientific knowledge to predict the outcome to an investigation.
6.1.4	I can carry out a simple practical investigation, which involves up to two variables being investigated separately, with the teacher's support.
6.1.5	I can record observations in a simple format.
6.1.6	I can make simple conclusions from my direct observations and link these using key scientific terms.
6.1.7	I can apply scientific knowledge to practical situations.

Continuous Assessment – Rubric

- The **Rubric** may be used to guide the teacher in assessing the Broad Learning Outcomes for Year 6.

Year 6 Continuous Assessment Rubric

Suggested continuous assessment tasks:

- **Investigation**
- **Fieldwork**
- **Project work**

Other meaningful, authentic tasks may be carried out to assess students' learning.

Competence-based Assessment Criteria	Started to be achieved 0 - 4	Partially achieved 5 - 9	Satisfactorily achieved 10 - 15	Fully achieved 16 - 20
6.1.1 I can ask questions about the world around me.	The question posed for the investigation is irrelevant to the investigation topic or cannot lead to an investigation.	The question posed for the investigation is partially identified and not clearly stated or stated with guidance.	Can pose a question for the investigation which is not clearly stated or stated with guidance.	Can clearly identify and state the question directly related to the investigation topic to be investigated.
6.1.2 I can find out about a simple scientific idea.	Can gather minimal information on the question posed through observation, experimentation and/or research, with guidance.	Can partially gather information on the question posed through observation, experimentation and/or research, with guidance.	Can gather information on the question posed through observation, experimentation and/or research, with guidance.	Can gather information on the question posed through observation, experimentation and/or research, independently.
6.1.3 I can use basic scientific knowledge to predict the outcome to an investigation.	The prediction is partially scientifically correct or incorrect and the reason provided, if any, does not support the prediction.	Can predict what may happen or be observed with guidance and support the prediction with a reason, which may not be scientifically correct.	Can predict what may happen or be observed and can support the prediction with a reason which may not be scientifically correct.	Can predict what may happen or be observed and support the prediction with a scientific logical reason.
6.1.4 I can carry out a simple practical investigation, which involves up to two variables being investigated separately, with the teacher's support.	Can identify one of the steps of the investigation, with the teacher's support, which may not be connected to the inquiry question or the prediction.	Can identify one or two steps of the investigation, with the teacher's support, which are directly or indirectly connected to the inquiry question or the prediction.	Can identify most of the steps for the investigation, with the teacher's support, which are directly or indirectly connected to the inquiry question or the prediction.	Can identify clear steps for the investigation, with the teacher's support, which are directly or indirectly connected to the inquiry question and the prediction.

Continuous Assessment – Excel Sheet

- An **Excel sheet** available on the Primary Science website may help in keeping record of continuous assessment marks.

Primary Science Continuous Assessment Mark Year 6 (40% of Final Global Mark)

Teacher Info
Teacher:
Class: Year 6

Suggested Assessment Tools*
Investigation
Project work
Fieldwork

*It is suggested that each Assessment Tool carries 20 marks.

Schools_home:
I can ask questions about the world around me.

Student List	BLO 6.1.1	BLO 6.1.4	BLO 6.1.5	BLO 6.1.6	BLO 6.1.7	Average Mark	Rounded Average Mark	Percentage Mark (out of 100)
Student 1								
Student 2								
Student 3								
Student 4								
Student 5								
Student 6								
Student 7								
Student 8								
Student 9								
Student 10								
Student 11								
Student 12								
Student 13								
Student 14								
Student 15								
Student 16								
Student 17								
Student 18								
Student 19								
Student 20								

Summative Assessment

- Summative Assessment carries **60% of the final global mark**.
- The annual exam paper is based on topics outlined in the **learning outcomes**.
- The summative assessment assesses both content **knowledge**, **skills** and **higher abilities** including application, synthesis, analysis, evaluation.
- The Primary Science Annual Reports based on Annual June 2021 and Annual June 2022 are available on the Primary Science website and at curriculum.gov.mt.

STEM INITIATIVES

STEM Initiatives

STEM explorers
parent - kid club

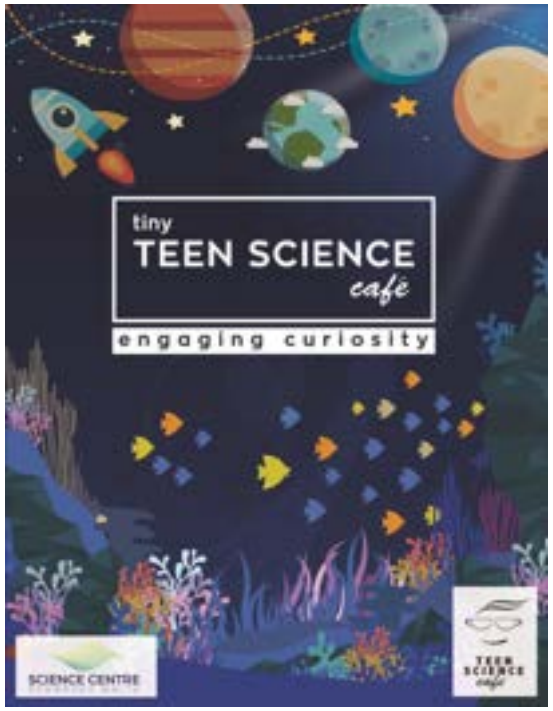
junior SCIENCE club

X'hemM?

THEMATIC STEM DEBATE

Sfida STEM

Breakfast STEM PD



RESOURCES

…and other weblinks.

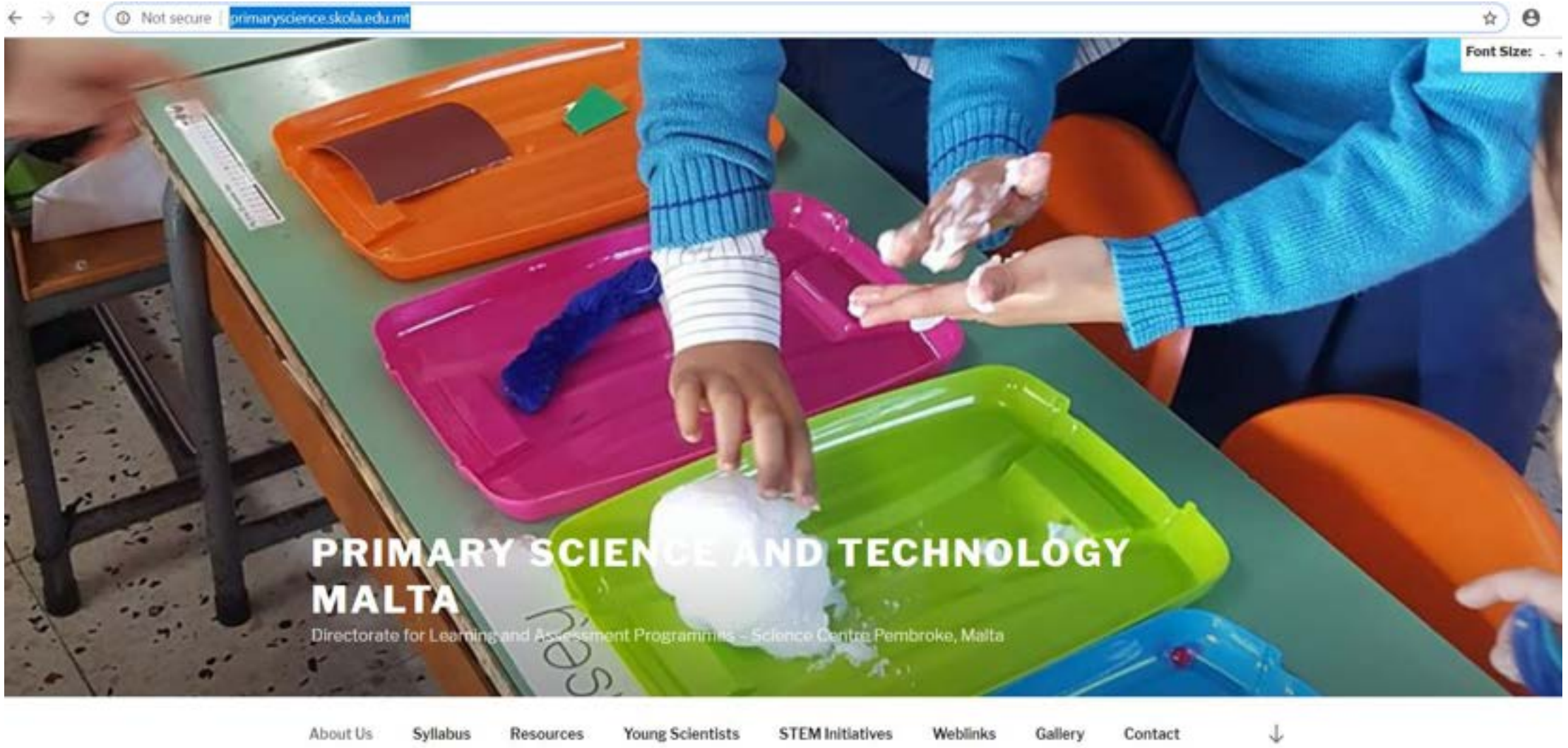
https://teleskola.mt/

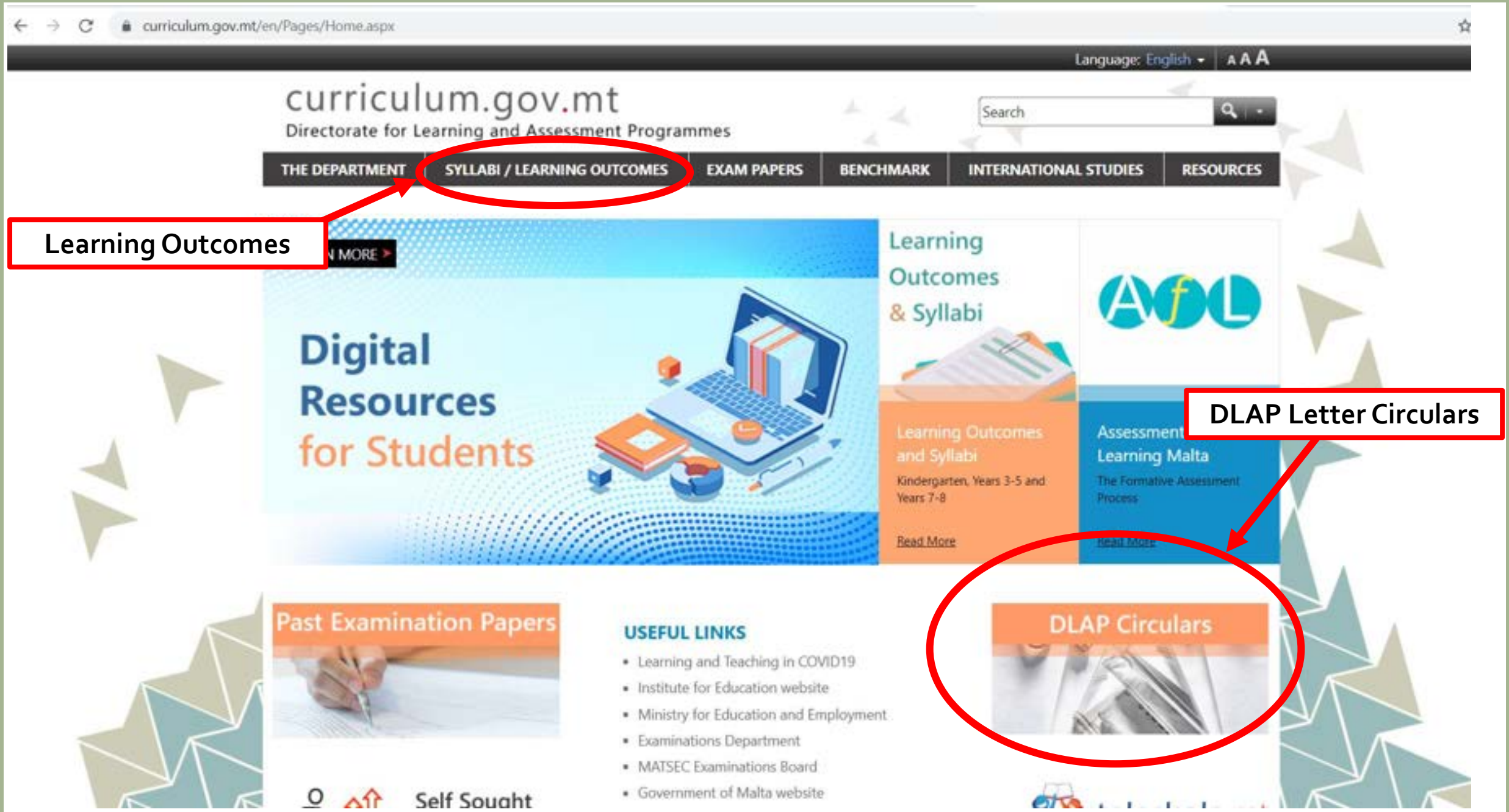
Welcome to Teleskola!

- Recorded Lessons
- Teacher's Resource Pack
- Student's Resource Pack

- Other useful resources under 'Just for Fun' section, including:
- Sfida STEM Challenges
- ĊEKĊIK
- Xjentifikwiżż
- Xjenza ma' Xandru

primaryscience.skola.edu.mt




curriculum.gov.mt/en/Pages/Home.aspx
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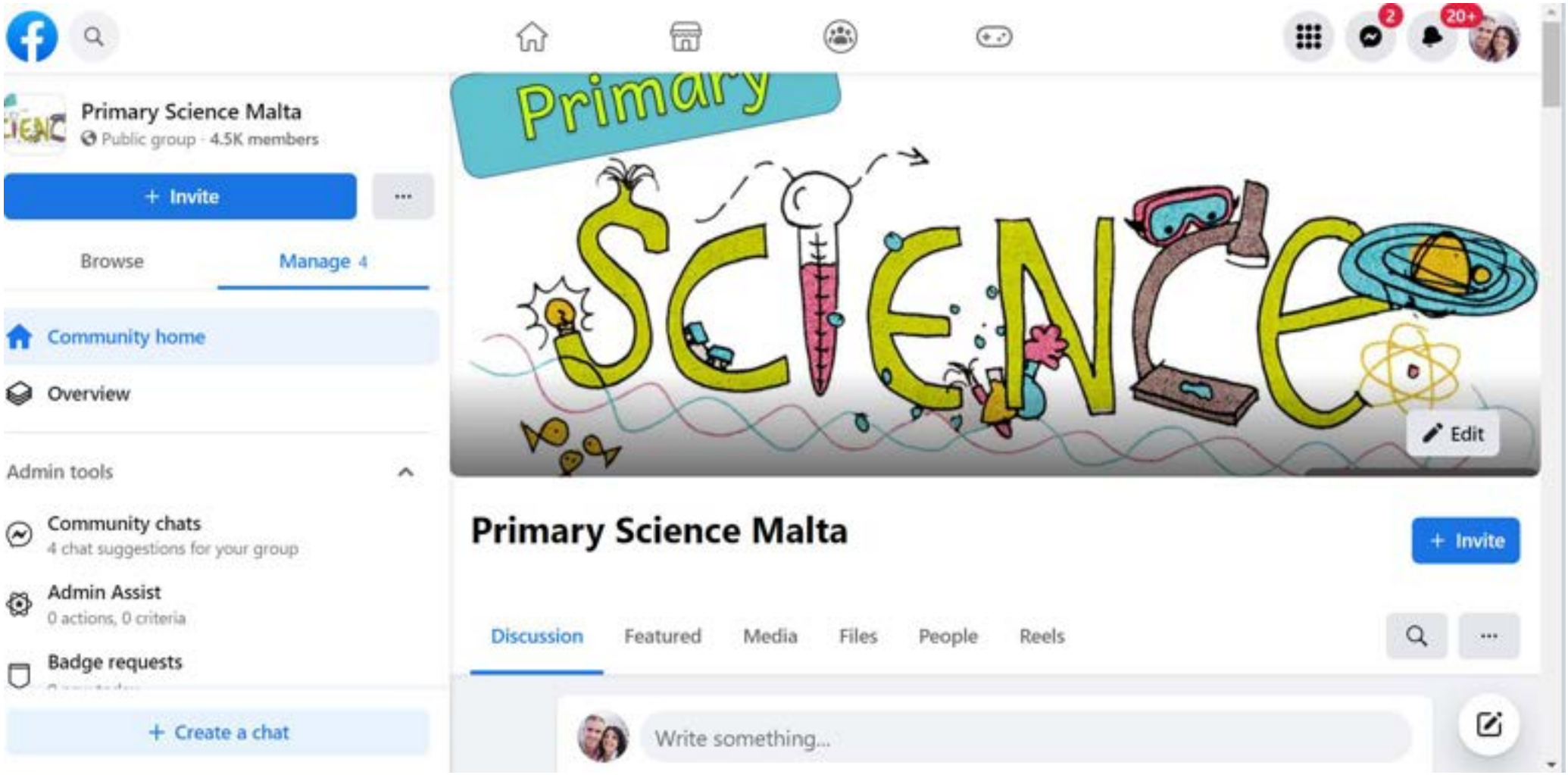
AAA
curriculum.gov.mt
Directorate for Learning and Assessment Programmes
Search
THE DEPARTMENT
SYLLABI / LEARNING OUTCOMES
EXAM PAPERS
BENCHMARK
INTERNATIONAL STUDIES
RESOURCES
Learning Outcomes
Digital Resources for Students
Learning Outcomes & Syllabi
AfL
Learning Outcomes and Syllabi
Kindergarten, Years 3-5 and Years 7-8
Read More
Assessment Learning Malta
The Formative Assessment Process
DLAP Letter Circulars
Past Examination Papers
USEFUL LINKS
Learning and Teaching in COVID19
Institute for Education website
Ministry for Education and Employment
Examinations Department
MATSEC Examinations Board
Government of Malta website
DLAP Circulars
Self Sought

Primary Science Malta



THANK YOU

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