

BPRI329- Sparking Scientific Curiosity in Young Minds

ECTS Value: 5 ECTS
Self-Study Hours: 60

Contact Hours: 25
Assessment Hours: 40

Overall Objectives and Outcomes

This module will demonstrate that science is not simply a body of knowledge but should also be understood as a process of inquiry and human endeavour. It will show how the teaching of science can be delivered in a meaningful way that develops children's curiosity and inquiring skills. Throughout this module, participants will develop their knowledge and understanding of scientific principles to plan meaningful learning activities which allow learners to investigate phenomena. Topics to be explored include: the diversity of life, local and global ecosystems, the dynamic earth; atmosphere, oceans and land; weather and climate; science and the environment; sites for fieldwork activities and investigations.

By the end of this module, the learner will be able to:

Competences

- a. demonstrate creativity and initiative in developing the teaching of science within the school, by evaluating and selecting resources, leading other colleagues and developing team performance;
- b. develop a research-based approach to pedagogies suitable for the primary science classroom;
- c. create classroom activities and experiments which engage primary learners in science;
- d. design and carry out effective field activities that engage primary learners.

Knowledge

- a. critically identify approaches to deliver science in an engaging and practical way;
- b. distinguish the different types of inquiry learning and embed it within science teaching.
- c. identify opportunities for creating cross-curricular links with other subjects in the primary curriculum;
- d. develop an understanding of how to effectively and safely make use of scientific instruments and resources within the primary classroom.
- e. Outline the characteristics of living things and the seven vital functions;
- f. Demonstrate an understanding of local and global ecosystems
- g. Critically identify fieldwork activities in Natura 2000 sites and MPAs.
- h. Demonstrate an understanding of the Dynamic Earth - interior earth structure and plate tectonics.
- i. Link atmospheric composition, ocean pollution and land pollution.
- j. Systematically understand weather and climate basic patterns and conditions.
- k. Demonstrate an understanding of pollution issues, conservation issues, deforestation, global warming, ozone depletion and aquifer depletion;
- l. I) understand the science dimension's impact on society

Skills

Applying knowledge and understanding

The learner will be able to:

- a. Design a learning environment utilising an inquiry-based approach;
- b. apply teaching approaches and strategies which engage primary learners in science;
- c. devise outdoor activities and fieldwork;
- d. devise activities which develop learners' understanding and skills within science.
- e. Apply taxonomy skills and the use of keys.
- f. Infer results from a seismograph.
- g. Measure and interpret readings from instruments that measure atmospheric and oceanic characteristics.
- h. Plan relevant fieldwork activities and investigations in Local Natura 2000 sites and Marine protected areas, electricity generation plants, sewage treatment plants and reverse osmosis plants.

Assessment Methods

This module will be assessed through: Practical Assignment.

Suggested Readings

Core Reading List

1. Cutting, R. and Kelly, O. (2015) *Creative Teaching in Primary Science*, London: Sage.
2. Harlen, W. (2018). *The Teaching of Science in Primary Schools* (Seventh Edition), London: David Fulton Publishers.
3. Fitzgerald, A., & Smith, K. (2016). *Science that Matters: Exploring Science Learning and Teaching in Primary Schools*. Australian Journal of Teacher Education, 41(4). <http://dx.doi.org/10.14221/ajte.2016v41n4.4>
4. Mifsud M. (2014), *Environmental Science: A Maltese Perspective*. Miller Publications, Malta. (pp. 478), ISBN 9789995737696

Supplementary Reading List

1. Zerafa, I. & Gatt, S. (2014). *Implementing a science curriculum reflecting an inquiry-based approach in the upper primary science*. IPSE Journal 9(2), 13-26
2. Mifsud M. (2003), *Maltese Nature in Focus*. Mireva Publications, Malta. (pp. 281), ISBN 1-870579-44-5
3. Schembri P.J., (1992). *Ilma, Blat u Hajja*, Malta University Services Limited