

Course Unit	Option 2 - Constructing, Testing and Evaluation of Didactic Resources for Elementary School		Field of study	Educational Sciences	
Master in	Science Education		School	School of Education	
Academic Year	2020/2021	Year of study	1	Level	2-1
Type	Semestral	Semester	2	ECTS credits	4.0
Code	5016-627-1204-01-20				
Workload (hours)	108	Contact hours	T -	TP 36	PL -
			TC -	S -	E -
			OT -	O -	

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Delmina Maria Pires, Manuel Florindo Alves Meirinhos

#### Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Examine national and international guidelines on science education, to improve the teaching and learning of science in the 1st cycle of basic education.
2. (Re)build knowledge, teaching and content that promote the development of quality practices in the 1st cycle of basic education, based on references from the field of education in science.
3. Recognize science in everyday life.
4. Distinguishing scientific knowledge of common sense knowledge.
5. Focus on the use of recyclable materials in the construction of educational resources for the 1st cycle of basic education.
6. Build, experiment, explore and evaluate practical activities so that they can be implemented properly and effectively.
7. Understanding the importance of teaching resources in the construction of learning.

#### Prerequisites

Before the course unit the learner is expected to be able to:  
No pre-requisites.

#### Course contents

1. Scientific knowledge and knowledge of common sense; 2. Didactics resources - Concept and objectives; 3. Construction of teaching resources adapted to the 1st cycle of basic education (forecast, experimentation, observation, explanation and application); 4. The importance of teaching resources as learning materials.

#### Course contents (extended version)

1. Scientific knowledge and knowledge of common sense.
  - Science in everyday life.
  - Science, technology, society, environment interactions and implications.
2. Didactic resources - Concept and objectives.
  - Characteristics and function of didactic resources.
  - Different typology of didactic resources: conventional, audiovisual and technological.
3. Making resources, primary school (forecast, experimentation, observation, explanation, application).
4. Importance and exploitation of teaching resources as learning material.

#### Recommended reading

1. Cobb, P. , Zhao, Q. , & Dean, C. (2009). Conducting design experiments to support teache' learning: a reflection from the field. *The Journal of the Learning Sciences*, 18, 165–199. rs
2. Fisher, L. (2004). *A ciência no cotidiano: Como aproveitar a ciências nas atividades do dia-a-dia*. Rio de Janeiro: ZAHAR.
3. Martins, I. , Veiga, M. , Teixeira, F. , Vieira, C. , Vieira, R. , Rodrigues, A. , & Couceiro, F. (2007). *Educação em Ciências e Ensino Experimental*. Lisboa: ME-DGIDC.
4. Pires, D. , Mafra, P. , & Fernandes, I. (2016). *O ensino experimental como estratégia de abordagem das ciências*. Nuevos Escenarios en La Docencia Universitaria. Ourense: Educación Editora.
5. Vieira, R. , Tenreiro-Vieira, C. , & Martins, I. (2011). *A educação em ciências com orientação CTS – atividades para o ensino básico*. Porto: Areal Editores.

#### Teaching and learning methods

The course has a strong practical and interactive component, but also reflective. The focus is the construction of teaching resources in small groups, in some cases using recyclable materials. These will be tested, discussed, reflected and evaluated in its applicability in the classroom of the 1. st cycle of basic education.

#### Assessment methods

1. Continuous Assessment - (Regular, Student Worker) (Final)
  - Development Topics - 50% (Individual work on the subject of the Course.)
  - Practical Work - 50% (Presentation and discussion of the didactic resources built.)
2. Alternative 2: Rating by Exam - (Regular, Student Worker) (Supplementary, Special)
  - Development Topics - 50% (The exam will focus on the theoretical component of the course in its application to the classroom.)
  - Final Written Exam - 50% (Presentation and discussion of the didactic resources built in the classroom (frequency valuation).)

#### Language of instruction

Portuguese

#### Electronic validation

Delmina Maria Pires, Manuel Florindo Alves Meirinhos	Paulo Miguel Mafra Gonçalves	Delmina Maria Pires	António Francisco Ribeiro Alves
02-12-2020	11-12-2020	11-12-2020	12-12-2020