Dirección General de Innovación, Becas y Ayudas a la Educación
CONSEJERÍA DE EDUCACIÓN, JUVENTUD Y DEPORTE
Comunidad de Madrid

PFLE 2017

Outline of the Digital Final Project by Maxi Roxo

1 Topic

- **Properties of materials**. The most common physical properties of technical materials.

2 Aims

Through their observation students will have to **distinguish between objects and materials** and learn that objects are made from specific materials. They will **describe materials with specific characteristics** in order to connect **the use of the object** with these material's characteristics. **They will** understand how materials behave under certain conditions and **identify their properties**.

3 Age group

- First year of ESO (12-13 years old)

4 Time

- 7 sessions: 6 in the classroom and around the school and 1 in the workshop.

5 Materials

- Animations (warm-up activity and materials)
- Web pages
- Activity sheets
- Different pieces of materials
- Cards
- Student's materials: a small packet of spaghetti, 20 marshmallows and a pair of scissors

6 Introduction

- **War-up Activity**: **What do you know about materials?** Activity in the classroom in groups of 4 people. It consists of a game (a contest) using a power point presentation. The teacher does not say anything about properties or materials. Apart from activating their prior knowledge the activity is intended to encourage the students. **1 session**

✎ **Previous activity**: **Microteaching** (the teacher shows some of the properties using a presentation and a few objects) + **class activity with cards** (properties of materials) in pairs. **2 sessions**

✎ **Prediction**: is a structure made up of simple drinking straws going to support (bear) a certain weight (100 times its own weight)?

7 Procedure

✎ **Task 1**: **The jumble (box)**. Class activity (in pairs) in which the students explore a piece of material in order to identify its properties. They also have to explore objects around the school in order to identify the materials they are made of and the property that fits the purpose of the object. **2 sessions**

✎ **Task 2**: **Spaghetti Challenge**. Workshop activity (in pairs) in which the students have to identify the properties of spaghetti as a construction material and build the tallest freestanding structure using only spaghetti and marshmallows. **1 session**

✎ **Task 3**: **Revision of Properties** (quizlet or kahoot or **our virtual classroom**). **½ a session**

8 Debrief (plenary session)

✎ Questions about the whole thing. **½ a session**

- What part did you like the most in this project?
- What do you think is the most challenging part?
- Can you think of the benefits of selecting materials for a particular use?

9 Follow-up Activities

✎ Workshop Activity: Straw Bridges.