

Introduction

'Machines move the world' is a CLIL unit designed to be developed in the science class by pupils from the 5th and 6th grade of primary education.

Everything has a scientific explanation but sometimes we don't know it. Scientists work is about making questions and finding the answers. I want pupils to formulate questions themselves about what they have observed and to be curious about everyday phenomena.

There is a clear organization of the activities and while they are doing the lessons they will ask themselves questions about new everyday phenomena. However, it is necessary to begin with a little help so because of that I give them three questions to answer and they start working with the scientific method: to observe, to predict, to analyse and to make conclusions.

How do objects move?

Unit1. Ready, steady, go!

It is about motion. Pupils will analyse the movement of the objects that they can use or find in their home, in the street or in the school.

That analysis of movement of objects allows us to introduce the concept of motion, trajectory and direction as well as talk about the different kinds of motion.

Why does an object stop its motion?

Unit2. Forces in action

It is about forces. This unit is more theoretical and there is a link between motion and forces by defining Newton's laws of motion. There are three experiments in this unit with some physics phenomena: friction, weight and pull/push. The experiments always have the same structure and have easy steps to do. The scientific work is deal with: the formula application, the data

recording, using laboratory tools and cooperates with the partner to find a conclusion for the experiment. There are links on the power point and in the teaching notes to different websites where they can see interactive videos, play with forces and have a good model of pronunciation as well as vocabulary.

How can we reduce the force to move objects?

Unit3. Machines

In this unit students should reconstruct the parts of the experiment: materials, steps, predictions, data recording and conclusions that they have seen in the unit of forces. Students should learn that the machines are devices to make work easier, and work is done when a force is applied upon an object. They will discover the first simple machine the lever and its inventor Archimedes, by doing experiment. As well as this they will discover all the simple machines and how we can combine them to build another machine to create their own compound machine. They should use a lot of language because the work will be in pairs.

The organization of the units is flexible enough to include or extend the content; you can find it in the teaching notes.

Scaffolding

There are some frames in the exercises where the conclusion needs a difficult structure of language. Pair work also has an important role in most of the activities so they need to agree with the teacher what language they are going to need: to ask questions, to work in pairs, to order a process, to analyse, to predict, to agree and to disagree.

Self- assessment

In the first unit see the [video](#) about the importance of learning a second language I take the concept of the cat and the gold fish that appears in the video to encourage pupils to use English but at the same time give them the

opportunity to express themselves in Catalan if they wish to ask or to answer some questions.

At the end of each unit they have to put a tick in an easy table showing: the use of English during the lesson, their attitude and a ranking activity for the achievement of the learning outcomes. Also there is a small part that they can use Catalan if they wish ('I'm getting better at...').

Teacher assessment

The teacher will monitor the use of English in the classroom and record learning outcomes that there are in the self-assessment table for the pupils.

I feel that science is a good subject to be applied in CLIL because it has a clear structure and pupils can discover, find and search for, the answers to their questions by learning English. Everything is dynamic and all changes, scientific theories change and technology is around us. We are in charge of offering resources to our pupils to deal with that new technology.

How does a problem become a challenge? Teachers must teach how to organize, select, use and apply all the information that students get in a specific situations.

We are preparing our students for jobs that are not invented yet; we must ensure that they have enough resources to deal with that challenge.