

Simple machines

Introduction

Since the beginning of mankind, tools and machines have been invented to make life easier. Ancient civilizations already worked using simple machines such as inclined planes, screws or pulleys. These simple machines can be thought of as building blocks for more complicated machines, so learning their basics is fundamental to understanding more intricate mechanisms.

'*Simple machines*' is a fifteen hours project which has been designed for 14 year old students (3rd ESO). It is divided into three different units. Units one and three are structured in five lessons and unit two has four lessons.

The aim of the project is to introduce the students into the world of mechanics. Unit one, '*Force, work and machines*', is a review of some physics concepts: force, work, energy, conservation of energy principle... It is also an introduction about machines, simple machines and mechanical advantage. After unit two, '*Inclined planes*', students will know what an inclined plane is, its main features and the adaptations of the inclined plane: the wedge and the screw. In the third unit, '*Levers*', students will understand what a lever is studying the law of the lever and the three classes of levers. They will also learn the adaptations of the lever: the wheel and axle and the pulley.

The project has been developed by thinking of the student as an active learner who needs to manipulate and experiment in order to construct their own knowledge. The learning process is meaningful and functional and students can relate to it through their personal experiences as they use many simple machines in their daily lives: doorknobs, water taps, knives, bicycles...

As a CLIL project, '*Simple machines*' integrates technology content and language learning. To learn technology the project provides a wide range of materials that offer students motivating and progressive activities along the three units. With regard to the language, it is supported by a variety of strategies such as pictures or slideshow presentations which help students to understand the topic in order to achieve the content learning.

Acknowledgments

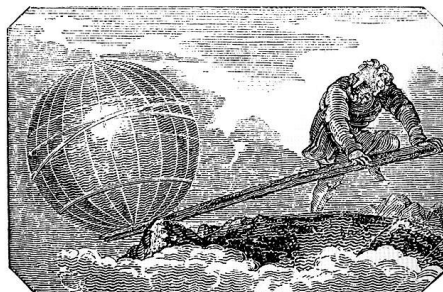
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“Give me a place to stand and I will move the Earth”

Archimedes of Syracuse (c. 287 BC – c. 212 BC)