



(ENG) The Lever Brings the Power

Introduction

Step 1 - Motivational Stage

Step 2 - Investigational Stage

Step 3 - Consolidation Stage

Introduction



#Online activity #In-class activity #Inquiry-based learning #Art work #Paintings

The pupils test and understand the basic concept of force and levers hands on and list their everyday usage.

Learning Objectives



understand and experiment the basic description of levers

ACTIVITY DETAILS

Activity Details

Connection of the activity with Art —

Painting Kyrö Rapids by Finnish artist Werner Holmberg



Link to local, national School Curriculum —

Forces/ Assembling forces



Equipment required —

- heavy object like a home sofa
- long strong stick for lever arm
- a sturdy podium like a thick book as a fulcrum
- Internet connection



Duration of activity —

45 minutes



Sources —

Drawing credits Vilma Mantere Lever 2022

Step 1 - Motivational Stage



You can ask a motivational question to encourage brainstorming in class



"How can physics help to make it easier to lift things?"

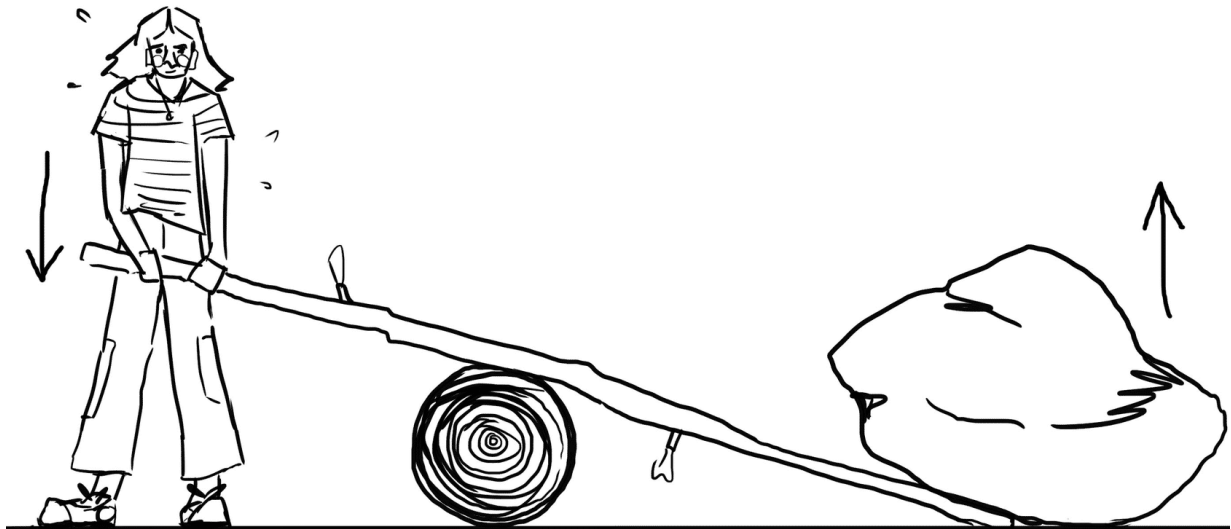
Step 2 - Investigational Stage



The painting (Werner Holmberg: Kyrö Rapids) shows a building. It is a sawmill, where the power of moving water was transferred to equipment for sawing logs into boards. Leverage was used in the transmission, among other things.

Leverage is effective because when the fulcrum of the lever arm is near one end, a small force can produce a large amount of movement. Lifting the load is lighter the closer the load is to the fulcrum and the longer the lever arm is.

The long arm of the lever thus facilitates the work, for example, when crocheting a heavy object to another location. A support point placed close to the object to be moved facilitates the work.



STUDENTS' TASKS

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Task 1

The pupils can try moving a heavy object first with a short, then a long lever. They test the effect of a support point such as a stone or a piece of plank under a lever. By placing the support near or far from an object makes a difference.

If levering a very heavy object, safety should be taken care of. The lever arm should be made of durable material, as the force on the lever arm can be so great that the lever arm pops out uncontrollably or breaks violently.

Task 2

To deal with the topic afterwards with more depth and review, the pupils watch a five-minute video in which physics researcher Otso Peräkylä and art expert Anne-Maria Pennonen share their thoughts of the artwork Kyrö Rapids by Finnish artist Werner Holmberg from 1854.

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Step 3 - Consolidation Stage



The pupils are encouraged to describe situations in everyday life where they can experience using levers.

Examples:

- scissors
- nut breaker
- wheel carrier

- gym equipment
 - catapult
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End of the activity

EXIT