

Can You Lift a Horse?

Summary

Students will calculate the mechanical advantage of a lever.

Time Frame

1 class periods of 60 minutes each

Group Size

Small Groups

Materials

- 30 cm rulers
- stopper or other fulcrum
- spring scale
- 20-40 gram weights or washers
- [student worksheet](#)
(attached)

Student Prior Knowledge

Students need to know what a fulcrum, lever arm and mass are. They should know that resistance is the weight or mass and effort is the force as measured on a spring scale. Introduce mechanical advantage as the length of the effort arm divided by the length of the resistance arm.

Instructional Procedures

Demonstrate with a large lever how a person can lift something much heavier than they could otherwise comfortably lift. Or, try to open a can of paint without a screwdriver then with a screwdriver.

Ask students what is traded when a lever does work. Discuss the change in distance that the load must be carried to reduce the force.

Read the introduction with students and show them where materials are located. Demonstrate the use of the spring scale. It helps if the weight can be taped to the lever.

Assessment Plan

Scoring Guide

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1. Students set up levers and record data.....4
2. Students correctly find MA for levers.....4
3. Students answer questions correctly.....4
4. Conclusion is thoughtfully written.....4

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

[Utah LessonPlans](#)