

Am I Working?

Summary

Students will apply their knowledge of force and distance to see if they can make their body work harder.

Time Frame

1 class periods of 30 minutes each

Materials

- Space for students to move about freely
- Stopwatch or watch with second hand
- Several light objects (pencil, paper, pebbles, etc.)
- Several heavy objects (bricks, stacks of books, tables, etc.)
- pencil/paper for recording heart rate

Background for Teachers

Teacher should be able to help students find their pulse.

Student Prior Knowledge

Students should have an understanding of the terms "force" and "distance" and should understand that the scientific definition of "work" is to move an object.

Intended Learning Outcomes

Students will discover that it takes effort (force) to move a heavy object. The heavier the object, the more force it takes. Students will relate that to their own body. They will discover that when their body puts out energy to force objects, the heart rate increases.

Instructional Procedures

Students will begin by finding their pulse (easiest to find on the wrist or on the neck).

Students will measure their pulse rate for 30 seconds.

Students will use force to push a light object (pencil, pebble, paper) and then measure their pulse rate again for 30 seconds. Record any changes.

Students will use force to push a heavier object. Measure heart rate again and record.

Students may repeat this process with as many heavy objects as the teacher makes available for them.

At the conclusion of the activity, students can record on paper, or participate in a discussion about what happened to their heart rate.

- What is the relation of force and distance on an object?
- What effect does weight have on the object?
- What is the relation of force on the heart rate?

These questions could be answered in a journal, report paper, or discussion.

Assessment Plan

Students will be observed for appropriate participation in the activity and discussions. If a written assessment is used, the "Am I Working Rubric" can be used.

Rubrics

[Am I Working Rubric](#)

Authors

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