

sk8art

Grade Level:

all grades

Subject Matter:

physical science

Curricular Uses:

This lesson plan encourages science vocabulary, experimentation, and scientific theory.

Materials/Resources

Required:

- a large, sturdy cardboard or plastic box
- one concrete block or other heavy object
extended: action figures, etc.
- wooden dowels (or paper towel rolls or pencils)

Evaluation:

Lesson Plan 13 – Can wheels cut down on friction?

Overview:

This lesson plan examines the properties of friction.

Learning Objectives:

- students experiment to see if wheels cut down on friction

Procedures:

Divide the class into small groups. Ask students to designate at least one note taker in each group.

Give each group the following materials: a large, sturdy cardboard or plastic box; one concrete block or other heavy object; wooden dowels (or paper towel rolls or pencils).

Students place the box on a smooth, flat surface (like the classroom floor) and try to drag it a short distance. Place the concrete block inside the box, and drag again. Which box requires more effort or force to move? Does friction increase as the box's weight increases?

Students line up wooden dowels (or paper towel rolls or pencils) on the floor and set the weighted box on top. Place a few more dowels in front of the box so they'll be able to pull it a short distance. Is it easier to make the box move now? Do rolling dowels reduce friction? Why or why not?

Discuss results in small groups. (Note: Encourage students to include vocabulary words such as motion, force, friction, sliding, rolling and resistance in their discussion.)

Reconvene class to share ideas and answer the questions: How do wheels cut down on friction between themselves and the road? Do they eliminate friction entirely? How might some friction be useful if you were riding a skateboard? What might happen if there was no friction at all?

Credit:

- <http://www.teachervision.fen.com/tv/curriculum> (“extreme sports web adventure”)

Extended Activity:

- see lesson plan 2 “Design a Skateboard”
- see <http://www.teachervision.fen.com/tv/curriculum> (“extreme sports web adventure”)