

Classify Forces

Summary

Students will compare the forces of pushing and pulling. Students will also recognize that objects at rest will not move unless a force is applied to them.

Time Frame

1 class periods of 45 minutes each

Group Size

Small Groups

Materials

Magazines,
Catalogues
Scissors
Glue
Butcher paper
Crayons
Markers
Pencils
Science response logs

Background for Teachers

Pushing and pulling are forces that change the direction of objects. An object at rest will not move unless a force is applied to it.

Intended Learning Outcomes

Observe simple objects and patterns and report observations.
Compare things and events.
Use simple classification systems.
Know science information.
Report observations.

Instructional Procedures

Step 1. Tell the students that the class will be going on a walking field trip around the school. Tell them to bring their science logs and a pencil. Their task will be to record any action they observe. For example: lunch ladies doing dishes, secretary typing, custodian mopping, teacher blowing whistle, man mowing lawn, leaves moving in the breeze, automatic door opening, etc... Tell them that it is important that they record the specific actions they observe. Each student should record at least 10 actions. Be sure to walk around the inside and the outside of the school.

IMPORTANT NOTE: While you are walking with the students, be sure to notice at least five objects that are motionless. For example, a car in the parking lot, a swing that is hanging idle, a large ornamental boulder.

Step 2: Return to the classroom. Tell students that all the actions they observed were caused by a push or a pull or a combination of pushing and pulling. Instruct students to classify the actions they observed as a push or pull or a push/pull combination.

Step 3. Record some student observations on the board. Discuss those items as a class. For

example, a secretary typing is pushing keys. A man mopping is pushing and pulling. A boy going down the slide is caused by gravity pulling the boy toward the center of the earth. This may be a good time to introduce the concept of gravity. (Standard IV, Objective 1)

Step 4. Mention the motionless things you observed on your walk. Ask the students why the objects were not moving. Develop the idea that objects at rest will not move unless a force is applied to them.

Step 5: Have students get into groups of four. Each group should have some magazines, glue, scissors, markers, and a large sheet of butcher paper. Have them divide the paper into four sections. Label the sections: PUSH, PULL, PUSH AND PULL, and REST. Have the students look through the magazines, catalogues, etc. and cut out different activities. Glue each activity under the correct section of the butcher paper. They should have at least three objects in each category.

Extensions

1. Have students record and classify tasks done around the home.
2. Watch "The Magic School Bus Plays Ball" by Joanna Cole.
3. Read *The Gravity Company* by John Sandford.

Assessment Plan

1. Assess the charts created in Step 5 for accuracy and understanding.
2. Show the students the following things and ask them to identify the forces involved:
 - push a broom
 - blow a bubble
 - lift a book from table to chest
 - point out a item that is sitting motionless
 - writing with a pencil.

Bibliography

Original lesson plan written by Kimberly Johnson.

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