

**Project FOCUS
Best Lessons
SECOND GRADE**

Title of Lesson: Pushes, Pulls & Friction

Theme: Physical Science

Unit Number: 5 **Unit Title:** energy/ Pushes and Pulls

Performance Standard(s) Covered (enter codes):

S2P3

S2CS6

S2CS7

S2CS3

Enduring Standards (objectives of activity):

Habits of Mind

- Asks questions
- Uses numbers to quantify
- Works in a group
- Uses tools to measure and view
- Looks at how parts of things are needed
- Describes and compares using physical attributes
- Observes using senses
- Draws and describes observations

Content (key terms and topics covered):

Motion, Pushes, Pulls, Friction, Force, Speed

Learning Activity (Description in Steps)

Abstract (limit 100 characters): Learning about pushes and pulls by setting up several different stations with different activities.

Details: After students read in their science textbooks about motion, I put together this activity to help them understand how pushes, pulls and different forces affect objects around us. I set up several stations for my students to rotate to in teams. At one station, I had 3 balls: a small bouncy ball, a tennis ball, and a basketball, students were to make predictions about which ball would roll the farthest when a small amount of force was placed on it, then they would take turns rolling the balls on the floor to each other, and then explain which ball rolled the farthest distance, which the least, and why. At another station on a tabletop, I had two 12 inch rulers lined up parallel to each other and taped down with just enough space inbetween to slide a flat penny through. I lined up 10 pennies inbetween the rulers, with the last one just at the edge of the rulers. On the other end I placed one penny. Students were to attempt to slide/flick the penny down the chute into the other pennies and see if one would escape the end of the rulers, they were to make predictions about how their turn would go, and then observe what happened, and explain why a penny came out of the chute, or why a penny did not come through the chute. At the last station, I had a glass bottle set on the floor that could hold a flat quarter on its mouth without the quarter falling in, and without being too small to balance the quarter. In this activity, students were to place a piece of paper on the mouth of the bottle and place a quarter on top of the piece of paper, over the bottle's mouth. The students were to try to either push or pull the piece of paper from between the bottle and

quarter, but without causing the quarter to fall. I gave teams of four students about 5 minutes at each station before rotating. I walked around and quizzed my students about the results they saw at each station and why, and determined whether or not they had grasped some of the important ideas in the lesson, alternatively, you can develop some sort of worksheet for them to fill out at each station.

Materials Needed (Type and Quantity):

1 Grape-size ball

1 Tennis Ball

1 Basketball

2 Rulers

11 pennies

Masking Tape

1 Glass Bottle (whose mouth is just smaller than a flat quarter)

Strips of paper (1 strip or several strips of different sizes)

1 Quarter

Notes and Tips (suggested changes, alternative methods, cautions):

This activity requires a lot of supervision, depending upon your students, tweak the group numbers, or turn this into a 3-day activity with one part each day.

Be sure to warn students that the 3 balls are for rolling only. State the consequence of any student caught bouncing, throwing etc and be sure to follow through with it. Do this part of the activity somewhere with a good amount of space for rolling.

Be careful with the glass bottle. I used a very short bottle with thick glass and I set this station up on carpet. When students pull the paper under the quarter, some of them will knock over the bottle, so be sure it won't break.

Sources/References:

1)

<http://www.task.uaf.edu/docs/AlaskaDiscoveryLessons/Exploring%20Concepts%20of%20Force%20and%20Motion-6%20lessons.pdf>

2)

3)