POST FIELD TRIP ACTIVITY

Explore Pushes and Pulls

Let Them Roll

Grades: P-K

THE Discovery
Terry Lee Wells Nevada Discovery Museum

What You Will Need:

- One marble or small ball per pair
- Domino or 3 stacking cubes (or other small object to be knocked over) per pair of students
- Notecards, popsicle sticks and tape (or other small objects for building)

Extend Their Learning:

Post trip lesson to extend the learning experience into the classroom after their field trip to The Discovery.

Engagement:

Ask students what they learned about pushes and pulls when they went to The Discovery. When they experimented with the large maze wall, what needed to happen for the ball to change directions? It had to hit something! Demonstrate rolling the ball toward a book or other object and observe as a class when it changes directions.

Exploration:

Exploration: Show the students the ball. Explain that you want them to design a solution that will make the ball change directions at least two times before it stops. It can only be pushed one time. Once students have designed a solution, have them draw a picture or write a few sentences to illustrate their findings.

Things to look for in their diagram and retelling:

- The relative speed or direction of the object before AND after a push or pull is applied (i.e., qualitative measures and expressions of speed and direction; e.g., faster, slower, descriptions of "which way"). "We added the ramp and it made it go faster when it was pushed."
- How the relative strength of a push or pull affects the speed or direction of an object (e.g., harder, softer). Example, "When we pushed the marble harder it went further."

Explanation:

Have students share their designs and drawings and talk about their observations. Point out when students use strength or directional words. Example, "when you talked about it going forward and then backwards, those are direction words."

Extension:

Option 1: Have students see if they can modify their design so that it changes direction three times. What did they have to do to make this happen?

Option 2: Have students modify their design so that it knocks down a domino or small stack of blocks before it stops.

Evaluation:

Look for speed and direction words in their drawings and descriptions of their design solutions as described in the exploration phase.

Nevada Academic Content Standards in Science (NGSS): K-PS2-2.

Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.