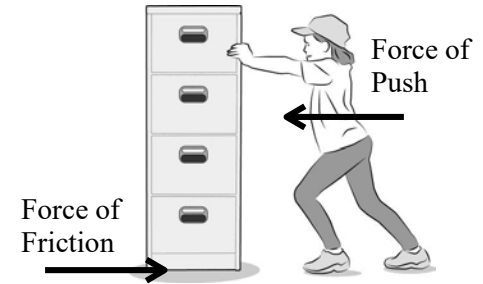
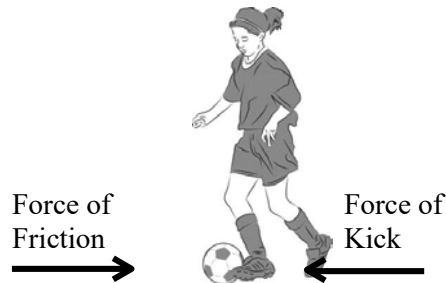


Features Analysis Chart—Forces

Teacher Name: _____

Circle One: PRE POST

Describe the assessment item: Questions 1–5 on the pre-post assessment for the Forces unit:



1. What **forces** caused the ball to start moving?
2. Why do you think the ball slowed down and stopped?
3. Do you think any **forces** are pushing or pulling the pencil when it's sitting still on the table? Explain your answer.
4. After the pencil started to move, why did it change direction from rolling across the table to falling to the floor?
5. Why could your friend move the file cabinet she was pushing, but you couldn't budge the cabinet you were pushing?

Describe the ideal response:

1. The ball started moving because the girl kicked it, exerting a force by giving it a push.
2. The ball stopped moving because of friction exerting a force in the opposite direction of the ball's motion. Tiny bumps on the surface of the grass pushed against tiny bumps on the surface of the ball, causing the ball to slow down and eventually stop.
3. Yes, I think forces are acting on the pencil even when it's still. Gravity is pulling down on it, and the table is pushing up on it.
4. When the pencil rolled off the table, gravity was the only force pulling on the pencil, so it changed direction and fell to the floor.
5. I couldn't move the cabinet I was pushing because there were more bumps on the surface that created more friction. My friend could move the cabinet she was pushing because the surface was smoother. Smoother surfaces have less friction than bumpier surfaces, so she was able to move the cabinet using less force.

