

## Grade One, Unit 6

**Organizing Topic:** Force, Motion, and Energy

### **Standards of Learning:**

- Science 1.2 – The student will understand what force, motion, and energy are, and how they are connected
- Science 1.1 – The student will understand and investigate how to conduct simple science experiments.

### **Objectives:**

- The student will understand that push and pull are forces that cause movement.
- The student will observe and explore different forms of push and pull.

### **Materials:**

Book: *Forces Make Things Move*, by Kimberly Brubaker Bradley ISBN 13:978-0-06-4452114-4

Toy cars, balls, swings, jump ropes, marbles, playground equipment

### **Lesson procedures:**

1. Preassessment: Use a 4 block paper, labeled with push, pull, gravity, and motion. Have students illustrate or write what they know about these terms.
2. Activate prior knowledge. Ask students what happens when you move something. Teacher can demonstrate pushing or pulling a small object. Allow students to respond to elicit vocabulary such as push and pull. Record student responses (this could be interactive or shared writing). Explain that push and pull are words that scientists use to describe something called “force”.
3. Read book. Have students make predictions about text, for example, page 7, ask students whose feet would push harder on the ground in a race, and why? Have students turn and talk to a partner about this, then share with class. Continue to read, stop and repeat on p. 22 – why does the car fall when dropped?
4. Fan and Pick: working in cooperative groups of 4, students will work with picture cards. Each student chooses a card, and tells whether the force is a push or a pull.
5. Take students outside to playground. Allow students to use equipment, i.e., swings, etc. to demonstrate and explore push and pull. Have students take paper and pencil outside to record their findings.
6. When completed, have students gather and share their findings. Allow students to demonstrate if needed to illustrate each force of push and pull. Ask students to demonstrate on classroom objects, such as moving a chair from under a desk, closing a door, turning a faucet on and off.

7. Shared Writing: Model writing 2 complete sentences about push and pull. “\_\_\_\_\_ is moved by a push. \_\_\_\_\_ is moved by a pull.” Review components of complete sentences.
8. Independent writing: Students will write 2 complete sentences following this model. Illustrate this motion. Share with a partner or class.
9. Extension: allow students to have a tug of war. Have equal number of students on each side for first round. Allow students to explore force that is relatively equal on each side. Then put a greater number of students on one side, and allow them to explore force that is not equal on each side. Ask students to discuss why the movement was different for each group.

**Assessment:** Exit Ticket – draw or write how push and pull are the same.

#### Literacy Centers:

- Word Study: provide picture/word sorts of objects that are moved by push and pull. Have students sort by type of motion used to move object.
- Poetry: find a poem about movement. Put on sentence strips, cut up. Have students reassemble in pocket chart. Have students read aloud to each other to practice fluency.
- Writing Center: use various classroom objects or small toys . Have students practice writing complete sentences and state how these objects move.
- Word Study: provide a page of text. Have students identify words by one, two , or 3 syllables. Or, depending on ability, have students identify words with short vowel sounds, or singular or plurals.
- Writing: provide students with straws and small objects like cotton balls, pencils, etc that roll. Have students blow through straw to move object. Have them record observations about how objects move and which move farther, how much force is required, etc. to move them.
- Dramatic play: students act out various forms of movement with partners or small groups. Other students take turns acting out and other students guess the form of movement and the object being moved.
- Technology: Use BBC website to access program for pushes and pulls.