

# A PUSH OR A PULL?

## **BENCHMARK and TASKS**

**SC.C.1.1.2** The student knows that there is a relationship between force and motion.

- The student changes the position and motion of objects by pushing or pulling on them.
- The student relates the amount of the change to the strength of the push or pull.

## **KEY QUESTION**

How do we make things move?

## **BACKGROUND INFORMATION**

Young students should have many experiences in moving objects, getting objects to stop moving, and in changing the direction of moving things. It is important for them to understand that there is a relationship between force and motion, and that a **force** (push or a pull) causes objects to move or to stop moving. Starting, stopping, changing direction, falling and other motion-related phenomenon are explained by forces.

Things people do using the force of push include:

- pushing a shopping cart
- pushing a baby stroller
- closing a drawer
- pushing the pedals of a bicycle
- opening/closing a door
- throwing a ball



Things people do using the force of pull include:

- pulling a wagon
- opening a drawer
- catching a ball
- opening/closing a door

Sweeping with a broom and vacuuming are motions that involve push and pull.

## **MATERIALS**

### **Teacher**

1 large container (cardboard box works well)

several small-to-medium size books

*Berlioz the Bear* by Jan Brett

*Some Things Push and Some Things Pull* (Dominie Press)

## **ENGAGE**

1. Read and discuss the book, *Berlioz the Bear*.
2. Place a box with a light load, such as several books, on a table where all students can see it.
3. Ask one student to move the box. Ask the student to describe what kind of movement was used to move the box. Accept all answers. (Record student responses.)
4. Ask:  
*Is there another way to move the box?*

Allow students to move the box in different ways, and ask each student to use a word to describe the way the box was moved. Record all responses.

5. Read the list of responses back to the students.

### **EXPLORE**

1. Ask each student to stand by some object in the room that can be moved.
2. Have each student name the object chosen and demonstrate for the class how it can be moved. Again, ask students to name the type of movement used (push, pull, lift, raise, etc.)
3. Ask one student to push or pull a student desk or another object with similar mass. Have the students identify whether the force he/she used was a push or a pull. Ask another student to help the first student move the desk by working together – the first student continues to use the pushing or pulling motion he first used and the second student uses the opposite motion (students should be on opposite sides of the desk). Note: one student will be pushing and one student will be pulling to move the object.
4. Discuss the advantages of having more than one student push and pull an object in order to move it.
5. Have the students try to move the desk with both of them using the same force (i.e., both pushing or both pulling at the same time).

### **EXPLAIN**

1. Create a chart with columns, labeled with the headings the students used earlier to describe the movements they made during the exploration phase (e.g., push, pull, lift, shove).

<b>Push</b>	<b>Pull</b>	<b>Lift</b>	<b>Shove</b>
chair	curtain	pencil	book

2. As each student names the object moved and the type of movement that was used, record the responses on the chart.
3. Develop the concept of movement and clarify with the class the related vocabulary through questioning. Accept all answers while emphasizing that all responses, such as lift, slide, roll, etc. are related to push and pull movements.

Ask:

*What kind of movement is this? (Demonstrate a push.)*

*What kind of movement is this? (Demonstrate a pull.)*

*How are they different?*

*How are they the same?*

*Is a lift like a pull or a push?*

*In what directions are you moving an object when you pull it?*

*In what directions are you moving an object when you push it?*

*Can you move anything in this room without pushing or pulling it?*

(Work through any examples students mention. For instance, if a student blows on a piece of paper to move it, discuss the blowing as air pushing the paper.)

### **EXTEND/APPLY**

1. Take students on a walk where they can observe both objects and people moving and being moved. Stop along the way and discuss any obvious movements and whether they seem to be examples of a push or a pull.
2. Discuss and demonstrate common actions, such as mowing a lawn, sweeping, throwing and catching a bean bag, etc. and discuss whether a pull or a push would be the most efficient way to move the object being used.
3. Teacher sits on a rolling chair while students push and pull the chair.
4. Read *Some Things Push and Some Things Pull*.

### **EXTENSION**

Make a push or pull class book. Use photos of students pushing or pulling objects. On each page write, "Is (child's name) pushing or pulling the (object)? Write the answer on the back of the page.

### **ASSESSMENT**

Conference with student. Have student open and close a door. Have him/her move a chair. Can the student explain how he/she used a push or a pull to move the door and the chair?