

Grade 3	Lesson: “Some Will Push and Some Will Pull”	Reference to English Interconnections Lesson Push or Pull pg. 70
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Science Standard(s): Standard 3.1 – Physical Science

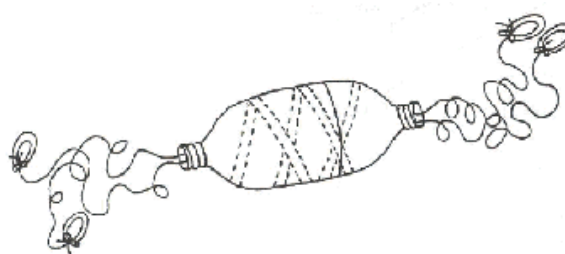
Content Objective(s):	Language Objective(s):
Students will determine and record whether the force of an activity is push or pull with a small group. <i>I can determine and record whether the force of an activity is push or pull with a small group.</i>	Students will define force as a push, a pull, or both. <i>I can define force as a push, a pull, or both.</i>

Essential Questions: How does the strength of a force affect its impact on an object?	Required Academic Vocabulary for Word Wall: Listen: force, push, pull Speak: force, push, pull, Read: force, push, pull, both Write: force, push, pull, both Sentence Frames: Force is _____(push/pull/both push and pull). _____pushes the _____. _____pulls the _____.
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Materials: <ul style="list-style-type: none"> • “My Force and Gravity Book” (1 per student) • 1 Liter Plastic Soda Bottle (2 per group) • Plastic Six-Pack Soda Can Holder (1 per group) • 8 Foot Length of Cord (2 lengths per group) • Sports Equipment • Watch or Timer • Whistle or Bell 	Additional Lesson Vocabulary: Charades, explanation
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Lesson: “Some Will Push and Some Will Pull”	Instructional Time: 60 minutes
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- Teacher Preparation Prior to Teaching the Lesson:**
- Copy and cut apart the “Push and Pull Charade Cards” and put them in a bag or container.
 - Make a “Zoom Ball.” You will need at least one. Ideally, you would have one Zoom Ball for every two students to share.
 1. Directions to make a Zoom Ball:
 - Cut the bottoms off of two 1 liter soda bottles
 - Push the bottles together, end to end, so they form a football shape.
 - Decorate if desired.
 - Thread two 8 foot lengths of cord through the neck of one bottle and out the other.
 - Cut a plastic six-pack soda can holder apart to form handles.
 - Tie one handle to the end of each cord.



Opening: (5 minutes)
T: “I have a riddle for you. Listen as I read the riddle one line at a time. If you think you know the answer to the riddle, place your hand on top of your head. Be careful not to call out the answer! We don’t want to spoil it for anyone who is still thinking. I’ll know that you know the answer when I see your hand on your head. What should you do when you know the answer?”
S: (Put my hand on my head.)
T: “Here is the riddle:
 I am two words.
 Both words describe ways to get a wagon up a hill.
 You do the first word when you lean against a wall.
 You do the second word when you open a cabinet door.”

You would do both words if you sawed through wood.

Which two words am I?"

T: "Do you know the answer to the riddle? Turn to your neighbor and tell them what you think the words are."

S: (Push and Pull!)

T: "That's correct! Push and pull. Both of these are what we call a force. A force is a push or a pull or both. Let's record this definition in our "Force and Gravity Book."

- Have students open their "My Force and Gravity Book" to the page titled "Some Will Push and Some Will Pull." Write the definition of the Force (a push, a pull, or both) on the line at the top.

Guided Practice Part 1: (10-15 minutes)

Teacher Does:

T: "We use force every day. Remember force is a push or pull or both. Let's play charades and see if we can figure out if the activity is a push, a pull, or both."

- Show the students the attached word cards and go through them.

T: "Let me show you how we play charades. First, I pull a card out of the bag and read it silently to myself."

- Take a card from the bag and read it. Example: Clapping your hands.

T: "Now I will act out what the card said, but I'm not allowed to say anything or make any noises. It must be silent."

- Demonstrate how you can show clapping your hands without making any sound.

T: "Can you guess what I'm doing? Think about it, what am I doing. Whisper to your neighbor what you think I'm doing?"

S: will turn to their neighbor and whisper what they think the teacher is doing "clapping hands".

T: "That's correct. Now can you figure out if clapping my hands is a push, a pull, or both? Clap your hands with me. Are you pushing, pulling, or both?"

S: will clap their hands with the teacher.

T: "When we clap are we pushing, pulling or both?"

S: will respond "

T: "That's correct. When we clap our hands, we push them together. It is a push. Let's all demonstrate this action by clapping our hands.

Teacher Does with Student:

T: "Now let's do one together."

- Choose a student to come take a card from the bag. Read it silently or quietly together. Example: Sharpening a pencil.

T: "We will act out what the card said, but remember no sound is allowed. I want you to think about it until I ask for the answer."

- The teacher and the student act out sharpening a pencil.

T: "What we are doing? Think about it. Tell your neighbor."

S: will turn to their neighbor and tell each other what the teacher and student are doing.

T: "We were sharpening a pencil. Do it with us."

S: students and teacher will act out sharpening a pencil.

T: "Good job. When sharpening a pencil, are we doing a push, a pull, or both? Act out sharpening a pencil with me again. Are you pushing, pulling, or both?"

S: will say "both"

T: That's correct. When we turn the handle at the top, we are pushing it away. When we turn the handle at the bottom, we are pulling it toward us. It is both a push and a pull. Let's all do the action together."

- All act out sharpening a pencil

2 Students Do:

T: "Now I need 2 students. You two will play charades. One of you pick a card and act it out, the other one will guess what 1st student is doing."

S: will pick a card and act out the picture on the card. The other student will guess what the action is.

T: "Awesome! Now, when you doing the action are you pushing or pulling or both?"

S: will answer "push" "pull" or "both"

- Teacher will restate the correct answer.

All Students Do:

T: "Now it is your turn. I am going to separate you into groups of two. You will each be given 4 cards. Each person gets to act out two pictures. Don't forget to say if you are pushing, pulling or both."

- Separate the students in to groups of two. Hand them each 4 charade cards. Walk around the room as the students play charades.

- Bring the students back together.

Independent Practice: (5 minutes)

T: **“Very good. Let’s think about the many different actions we did during charades. Let’s draw pictures of some of these activities in our “My Force and Gravity Book.”**

- Have students open their “My Force and Gravity Books” to the page titled “Some Will Push and Some Will Pull.”
- Have them draw pictures of appropriate activities in the boxes.
- Encourage them to select activities from those you’ve demonstrated during charades as well as other activities they can think of that fit in the appropriate category.

Guided Practice - Part 2: (10-15 minutes)

Teacher Does:

T: **“What is a force? Turn to your neighbor and tell them what force is. Say, ‘force is _____.’”**

S: *will turn to their neighbor and say “force is _____ (push, pull, or both push and pull)”*

T: **“Now that we know about force, we can play Zoom Ball!”**

- Show students the “Zoom Ball” you have made.

T: **“Let me show you how to play Zoom Ball.”**

1. Each player holds onto two handles and moves away from the other player until the strings are tight.
2. Slide the Zoom Ball to one end.
3. The player closest to the Zoom Ball pulls his hands apart to send it flying to the other partner.
4. The partner pushes her hands together to allow the Zoom Ball to travel to her.
5. Continue to send the Zoom Ball back and forth.”

- Choose a student to help you play Zoom Ball.

Teacher Does with Student:

T: **“Let’s play Zoom Ball. I need one student to help me.”**

T: **“You hold on to one handle, I hold the other. Let’s walk apart until the string is tight.”**

T: **“Slide the zoom ball to my end. I am going to pull my hands apart and see what happens.”**

T: **“What just happened with the zoom ball?”**

S: *will respond, “it moved”*

T: **“Now it is your turn to move your hands apart.”**

S: *will pull their hands apart.*

- Continue to send the Zoom Ball back and forth 4 more times.

2 Students Do:

T: **“Now I need 2 students to help me demonstrate this activity.”**

- Choose two new students from the class and have them play Zoom Ball while the class watches.

All Students Do:

T: **“Now it is your turn. I am going to separate you into pairs. Each of you will be given a Zoom Ball.”**

- Divide the students into pairs (or small groups depending on how many Zoom Balls you have made) and allow them time to play.
- While the students are playing, walk around to visit the individual groups and ask leading questions or make suggestions to deepen their investigation while playing. The following are examples of questions or suggestions you can give to the students:

T: **“What happens if both people push their hands together?”**

T: **“What happens if both people pull their hands apart?”**

T: **“What happens when you pull the cords apart softly?”**

T: **“What happens when you pull the cords apart with a lot of energy?”**

- Give students 5 minutes to play and experiment, discuss what they observed and learned.
- Bring the students back together.

T: **“What worked well?”**

S: *will say “When one person pushed and one person pulled. When we took turns.”*

T: **“What didn’t work? Why?”**

S: *will say “When we both tried to push or pull at the same time. The ball couldn’t travel anywhere if both strings we pulled apart. It was stuck in the middle.”*

Independent Practice: (20-30 minutes)

T: **“Playing sports is a great way to explore the use of force (a push, a pull, or both). Let’s try it!”**

- Set up 10 different sports stations (outside, in the gym, in the classroom). See the list below (or feel free to create your own stations instead.)
- Dribble a Ball - Push
- Swing a Bat – Push and Pull
- Jump Rope – Push and Pull

- Kick a Ball - Push
- Run a Race - Push
- Do a Handstand - Push
- Do a Push Up - Push
- Do a Sit Up - Pull
- Crab Walk - Push
- Jumping Jacks – Push and Pull

Teacher Does:

T: **“We have 10 different sports stations we are going to experiment with today. For each station we will experiment with the sport, decide if it is a push, a pull or both, and then explain why on the “Sport Forces” page in our “My Force and Gravity Book.”**

T: **“Let’s do one together.”**

- Choose a station to demonstrate. Example: Swing a Bat

T: **“First, I do the sport. For this station, I will carefully swing the bat making sure I’m not going to accidentally hit anyone or anything.”**

- Demonstrate swinging the bat.

T: **“Now I need to decide if that was a push, a pull, or both. What do you think?”**

S: *will say, “It is both a push and a pull.”*

T: **“You are correct, it is both. I push the bat when I swing it forward. I pull the bat when I bring it back. It is both a push and a pull. I’ll check the box for both on the “Sport Forces” page in “My Force and Gravity Book.”**

- Model checking the correct box on the page and have the students do the same.

T: **“Now I need to explain why it is both. Tell your neighbor why it was push and pull.”**

S: *will turn to their neighbor and explain how the bat pushes and pulls.*

Teacher Does with Student:

T: **“Let’s try another one.”**

- Choose a student to work with you.

T: **“First, choose a station.”**

S: *will choose a station and acts it out.*

T: **“Carefully kick the ball. Is that a push or a pull?”**

S: *will respond, “push, pull, or both”*

T: **“Why is it a push?”**

S: *will respond, “My foot pushes the ball forward”*

T: **“That is correct. Kicking a ball is a push. Let’s check the box next to push on the page in our book. Now tell your neighbor how it is a push ‘Our foot pushes the ball.’”**

S: *will turn to their neighbor and say “our foot pushes the ball”.*

All Students Do:

T: **“Now it is your turn. Visit each of the stations in small groups. You will be separated into groups of 4. You have 3 minutes at each station. When I ring the bell you will switch to the next station. Be sure to do the activity, check the correct box, and tell each other the explanation.”**

- Give students time to complete the other 8 activities. Check on them while working to help as needed, provide modeling of the activities, or help them determine if it is a push, pull, or both.

T: **“Let’s talk about each of the activities. We will discuss which activities are push, pull or both.”**

- Go through each of the 8 remaining activities and discuss their observations and if they determined it was a push, a pull, or both.

- While going over each activity use the sentence frames “_____pushes the _____.” “_____pulls the _____.”

Give the students many opportunities to use the sentence frame.

Closing (1-2 minutes)

T: **“Today we learned about force. What is force?”**

S: *will respond, “Force is push, pull or both.”*

T: **“Show me a push.”**

S: *will act out a push.*

T: **“Show me a pull.”**

S: *will act out pull.*

Assessment:

- Check for understanding during class discussions and activities.
- Check their “My Force and Gravity Books” for correct definitions, illustrations, and explanations.

Extra Ideas:

- Review what students have learned about push and pull with energizers.
- Take a few minutes regularly to have students get up and stretch between lessons or activities.
- Try a variety of exercises such as pushups, sit ups, jumping jacks, arm circles, toe touches, etc.
- Be sure to have students identify whether these exercises push, pull, or both.

Clapping
Your
Hands



Sharpening
a Pencil



Opening
a Book



Writing



Walking



Pulling
a Wagon



Fishing



Opening
a Door



Crawling



Brushing
Your Teeth



Some Will Push and Some Will Pull

Force: _____

Some activities push, some pull, and some do both!

