

Life

Physical

Earth and Space

## LESSON 42

### Identifying that round objects and objects with wheels require less force to move

#### ***Lesson Preparation***

##### ***Program Materials***

- Teacher's Booklet E *Exploring Forces That Move Objects* (p. 4)
- Children's Booklet E *Exploring Forces That Move Objects* (p. 4)

##### ***Tool Kit Materials***

- Foam cube
- Sponge ball
- 2 small toy cars

##### ***Teacher Collected Materials***

- Desk chair with wheels or a wheelchair
- Classroom chair
- Marker
- Colored pencils (1 set per child)

## ***The Lesson***

- Seat children in a circular arrangement on the floor. All children should be able to easily see the demonstration.

**“In our last science lesson, we learned what happens when we use more force or less force to push or pull objects.”**

**“What happens when we use only a little force to kick a ball?” *The ball doesn't go far.***

**“What happens when we use more force to kick a ball?” *The ball goes farther; it goes faster.***

**“What is an object in our classroom that would take a lot of force to move?”**

**“What is an object in our classroom that would take only a little force to move?”**

**“In today's science lesson, you will learn about using force to push and pull round objects and objects with wheels.”**

- Show children the foam cube and the sponge ball.

**“I will use the same amount of force to push these objects.”**

**“Which object do you predict will move farther?”**

- Ask a child to make a prediction.

**“Put your thumb up if you agree.”**

**“Let’s test your predictions.”**

- Use the same amount of force to gently push each object.

**“What happened?”** *The ball went farther.*

**“Why do you think this happened?”** *The ball is round; the cube has flat sides.*

**“Round objects move farther than objects with flat sides when we use the same amount of force to push them.”**

- Show children the two toy cars.

**“I will put one car on its roof and one on its wheels.”**

**“I will use the same force to push both cars.”**

**“Which car do you predict will move farther?”**

- Ask a child to make a prediction.

**“Put your thumb up if you agree.”**

**“Let’s test your predictions.”**

- Use the same amount of force to gently push each car.

**“What happened?”** *The car on its wheels went farther.*

**“Why do you think this happened?”** *The wheels turn and help the car move.*

**“Wheels are round.”**

**“Round objects move farther than objects with flat sides when we use the same amount of force to push them.”**

- Show children the chair with wheels and a classroom chair without wheels.

**“One of these chairs has wheels and the other does not.”**

**“Which chair should I use if I wanted to push someone across the room?”**  
*the one with wheels*

**“Why do you think it would be easier to push?”** *The round wheels will roll, and you will use less force to move the person in the chair.*

- Ask a child to sit in the chair with wheels.

**“What should I do to move (child’s name)?”** *push or pull the chair*

- Push the chair with wheels.

**“What did I do?”** *pushed the chair*

- Pull the chair with wheels.

**“What did I do now?”** *pulled the chair*

**“Wheels make objects easier to move.”**

**“What is something that has wheels that people use to move a baby?”** *a stroller or carriage*

**“What are other things people use that have wheels to make things easier to move?”** *wheelchairs, grocery carts, trash cans, carts, bicycles*

- Allow time for the children to name objects.

**“Now we will use our science booklets to show an object that is easy to push or pull because it has wheels.”**

- Show children page 4 of teacher’s Booklet E *Exploring Forces That Move Objects*.

**“Follow along as I read the sentence at the top of page 4.”**

- Read the sentence “Objects with wheels are easy to push or pull.”
- Use a marker to circle the word “push” and underline the word “pull.”

**“I circled the word ‘push’ and underlined the word ‘pull.’”**

**“In the box on this page, I will draw a picture of myself pushing or pulling an object with wheels.”**

**“What is something I could push or pull that has wheels?”**

- Allow time for the children to offer suggestions.

**“When I draw my picture, I will add details so that we can see what I am doing and the object I am pushing or pulling.”**

- Use one of the children’s suggestions to draw your picture on page 4.

**“The sentence at the bottom of the page will tell us what I am doing in my picture.”**

**“Follow along as I read the sentence.”**

- Read the sentence “A (blank) has wheels and is easy to (blank).”
- Point to the blanks.

**“This sentence is missing two words.”**

**“On the first line, I will write the name of the object I drew.”**

- On the first line, write the name of the object you drew.

**“On the next line, I will write the word ‘push’ or the word ‘pull’ to show what I am doing in my picture.”**

**“Am I pushing or pulling the (name of object) in my picture?”**

**“The words ‘push’ and ‘pull’ are in the sentence at the top of the page.”**

- Write the word **push** or **pull** on the second line.

**“Now I will give you your booklet.”**

**“When I give you your booklet, return to your seat and open your booklet to page 4.”**

- Distribute the children’s booklets *Exploring Forces That Move Objects*.

**“Open your booklet to page 4.”**

- Circulate and make sure children have opened their booklets to the correct page.
- Distribute colored pencils.

**“Follow along as I read the sentence at the top of the page.”**

- Read the sentence “Objects with wheels are easy to push or pull.”

**“Use a colored pencil to circle the word ‘push.’”**

- Circulate and check the children’s booklets.

**“Underline the word ‘pull.’”**

- Circulate and check the children’s booklets.

**“In the box, you will draw a picture of yourself pushing or pulling an object with wheels.”**

**“When you draw your picture, remember to add details so that we can see what you are doing and the object you are pushing or pulling.”**

**“In the sentence at the bottom of the page, there are two missing words.”**

**“On the first line, you will write the name of the object you are pushing or pulling.”**

**“On the next line, you will write the word ‘push’ or the word ‘pull’ to show what you are doing in your picture.”**

- As the children draw, circulate and ask children to tell you what they are doing in their pictures. If necessary, suggest additional details a child might want to add to his or her picture.

**“On the first line, write the name of the object you are pushing or pulling and the word ‘push’ or the word ‘pull’ on the next line.”**

- Assist children as they write the words in the sentence at the bottom of the page.

**“Who would like to share something you learned today in science?”**

- Allow time for the children to share.

**“In our next science lesson, we will learn about a force called gravity.”**

- Collect the children’s booklets and colored pencils.