

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.