

Year 3 and 4 Home Learning

Science Week 3

Thursday

Our new Science topic is Forces and Magnets.

Which type of Science is this? Biology, Physics, Chemistry. How do you know?

Forces and Magnets

Learning Objective:

To explore what forces are and notice that some forces need contact between two objects.



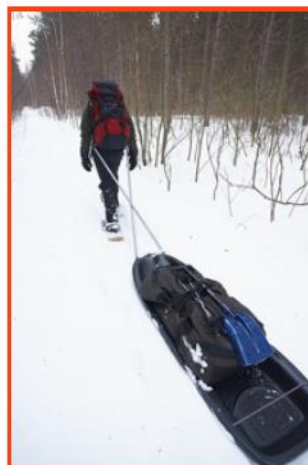
What is a force?

A force is a push or a pull on an object. A force needs two objects where one pushes or pulls the other to make it move. We use forces all the time to move things and to make ourselves move.



Have a look at the pictures on the next slides. Which show pushes and which show pulls? Which two things are touching in each picture to create a movement?

Which pictures are showing pushes and which are showing pulls?



Which two things are touching in each picture to create movement?

Challenge Apart from push and pull , what other forces are acting on the images?

ANSWERS



Man pushing lawnmower
Hands on handle of lawnmower

Tyres of the lawn mower and
soles of shoes causing friction
with the grass.



Sledge being pushed by man
Man's hands on back of sledge

Soles of feet and bottom of sledge
causing friction with snow.



Woman's hands pulling his whole
body up.

Sole of shoe and fingers
causing friction with the rock



Man pushing wheelchair
Man's hands on wheelchair
handles

Tyres of the wheelchair and
man's feet causing friction with
floor



String of bow being pulled.

Man's left hand holding bow up.
Gravity would cause bow and
arrow to fall.



Finger pushing lift button



Man pulling the sledge.
Hands gripping/pulling the rope handle.

Soles of feet and bottom of
sledge causing friction with
snow.



Man and girl pulling the rope
one way while boy and lady
pulling the rope the other way.

Hands pulling on rope.

People's hands causing friction
with the rope.
People's hands holding rope up
otherwise gravity would cause
rope to fall



Man pulling the door.
Hand pulling the door handle then the door



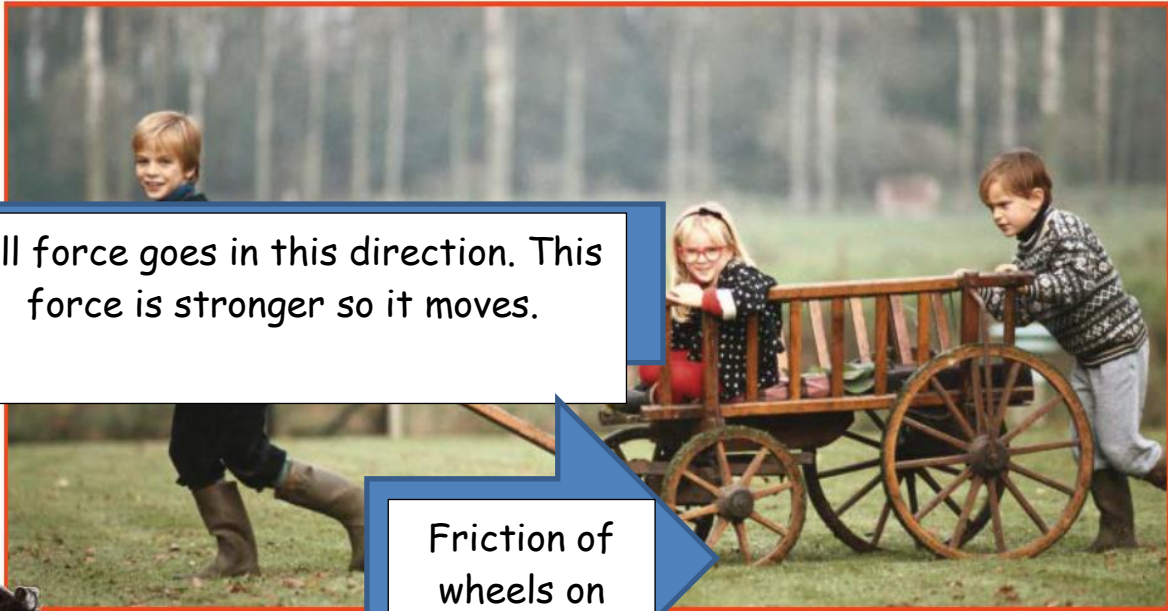
finger pushing the buttons on
calculator



Can you explain how pushes and pulls work to make a swing move? Which direction do the forces act in?



Can you explain why this cart is moving? What forces are there? What is in contact to create a movement?



Pull force goes in this direction. This force is stronger so it moves.

Friction of wheels on grass

Can you explain why this cart is moving? What forces are there? What is in contact to create a movement?



What forces are in action when you open a can of drink? What is in contact to create movement? Which direction are the forces acting in?





What forces are in action when you open a can of drink? What is in contact to create movement? Which direction are the forces acting in?



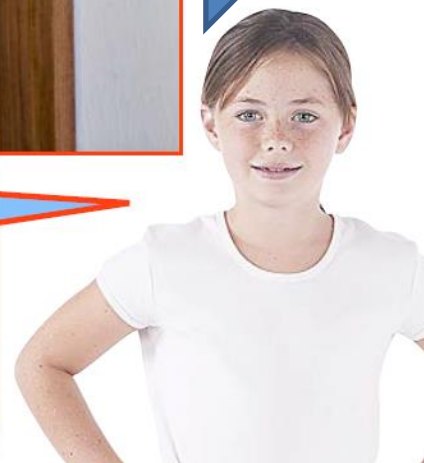
Which forces would you use to open and close a door? What needs to be in contact to create movement?





Pull force goes in this direction

Which forces would you use to open and close a door? What needs to be in contact to create movement?



Bronze



Look at the picture cards. Which show pushed and which show pulls. Write a list in your book.

Pushes

Pulls



Write the answers in your book..

Silver



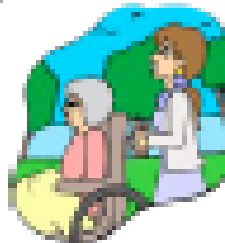
Look at the picture cards. Which show pushed and which show pulls. Write a list in your book.

Pushes

Pulls



Describe how this sledge is moving. What forces are there? What is in contact to create movement?



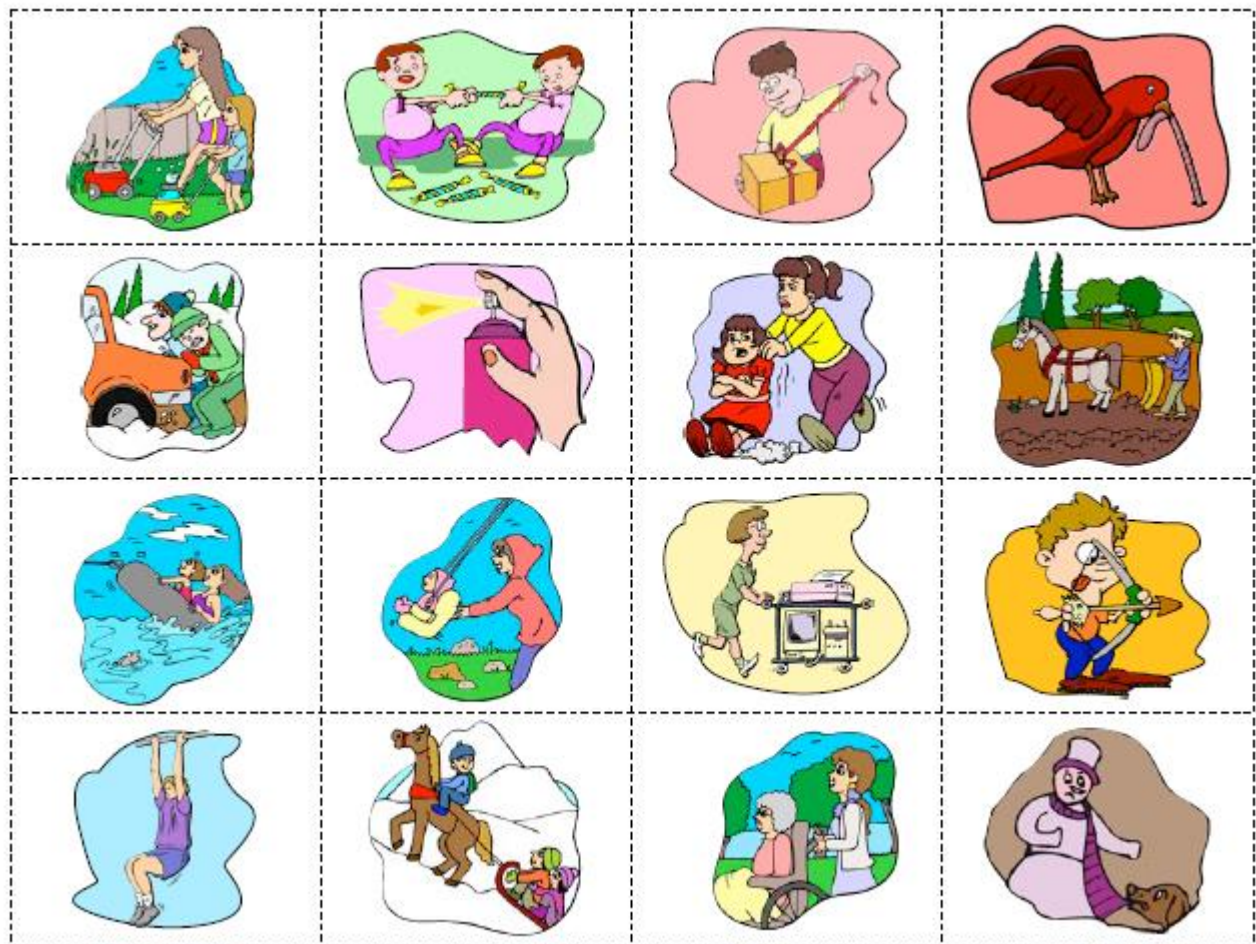
Describe how this wheelchair is moving. What forces are there? What is in contact to create movement?

Gold



Look at the picture cards. Which show pushed and which show pulls. Write a list in your book.

Pushes	Pulls
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Draw an annotated diagram to show how forces can make a wheelbarrow move:

Draw an annotated diagram to show how forces can make a door open:

Annotated diagram - a picture that is labelled (label the forces).

Extra Challenge

How can you make a chair move?

- ★ Can you push it?
- ★ Can you pull it?
- ★ Which direction do the forces act in?
- ★ What needs to be in contact in order for the chair to move?

How can you open a book?

- ★ What force do you need to open it?
- ★ What force do you need to close it?
- ★ Which direction do the forces act in?
- ★ What needs to be in contact in order for the pages to move?

How can you make a door move?

- ★ Can you push it?
- ★ Can you pull it?
- ★ Which direction do the forces act in?
- ★ What needs to be in contact in order for the door to move?

How can you make a pencil move?

- ★ Can you push it?
- ★ Can you pull it?
- ★ Which direction do the forces act in?
- ★ What needs to be in contact in order for the pencil to move?

What forces do you need to write your name?

- ★ What will you use to write?
- ★ What will move?
- ★ Which direction do the forces act in?
- ★ What needs to be in contact in order for you to write your name?

What forces do you need to clap your hands?

- ★ Do you push or pull or both?
- ★ What will move?
- ★ Which direction do the forces act in?
- ★ What do you need to move in order to clap?

What forces do you need to jump up and down?

- ★ Do you push or pull or both?
- ★ What will move?
- ★ Which direction do the forces act in?
- ★ What do you need to move in order to jump?

What forces do you need to open a window?

- ★ Do you push or pull or both?
- ★ What will move?
- ★ Which direction do the forces act in?
- ★ What needs to be in contact in order for the window to open?

Answers



push



pull



pull



pull



push



push



push



pull



pull



push



push



pull



push - swinging his feet



pull



push



pull

pull - pulling his legs up to chest