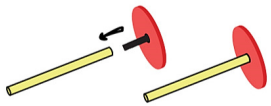
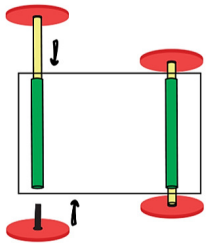
FORCE KIT

1. Insert allen bolts in all the four wheels.

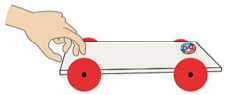
2. Insert two allen bolt fixed with the wheel into the green flouroscent straw.



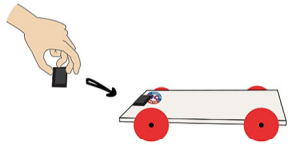
3. Insert the green flouroscent straw into the straw fixed on the base of a car and fix another wheel from the other side.



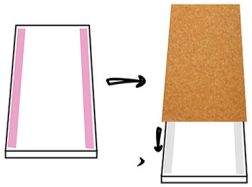
4. Push or pull the car to make it move and to understand how contact force works.



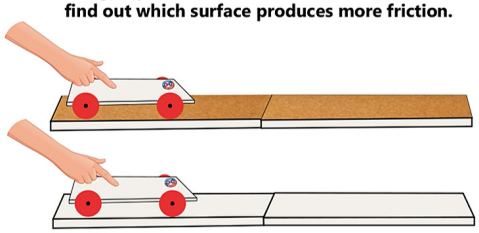
5. Place one magnet on the base of the car and hold another magnet in your hand. Use the magnetic repulsion to move the car and to understand how non-contact force works.



6. Remove the pink layer of double sided tape from corrugated sheet & paste sand paper by keeping rough surface on upper side. Do the same with other sheets to make a long track.

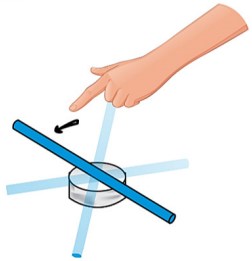


Working: Try to move the car on both the surfaces & find out which surface produces more friction.



7. Take the given straw and rub it on your hair.

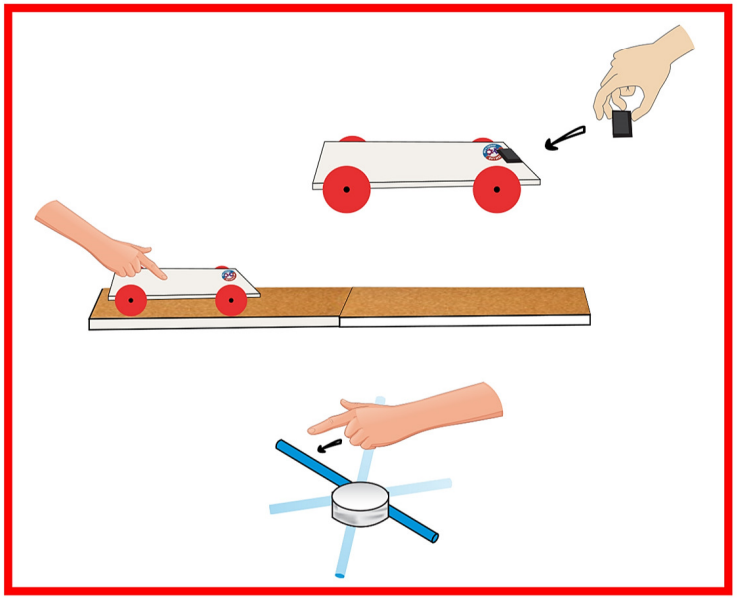
8. Place the straw carefully on the bottle cap and use your fore finger to move the straw along with the movement of your finger. This happen due to the charge acquired by the straw while rubbing it with the hair.



Future STEM Explorers

Future STEM Explorers

Force Kit



Learning Outcomes

Students will be able to

- Understand the meaning of force
- Understand the types of forces
- Distinguish between contact and non-contact forces
- Understand about friction and electrostatic force

Force

If we push or pull any object, that means we are applying a force on it. In simple words, a force is known as a push or pull.

Types of Forces -

- **Contact Forces-** When a force is applied on any object by touching it, it comes under contact force. Here, two objects come in direct physical contact. For e.g. pushing a door, throwing a ball, picking up a book, hitting a ball with a bat etc.

- **Non-Contact Forces-** In this type of force, two objects do not come in direct contact. For e.g. moving one magnet using force applied by another magnet etc.

About the activity-

In this activity, a model of car is made to understand about the contact and non-contact forces.

Case 1- Push & Pull Car

Use your hands to push the car 5 times and record your observation in the box given below-

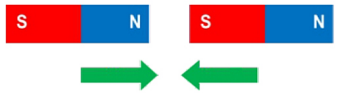
No. of push	Distance covered (in cm or m)
1st Push	
2nd Push	
3rd Push	

Case-2- Magnetic Car

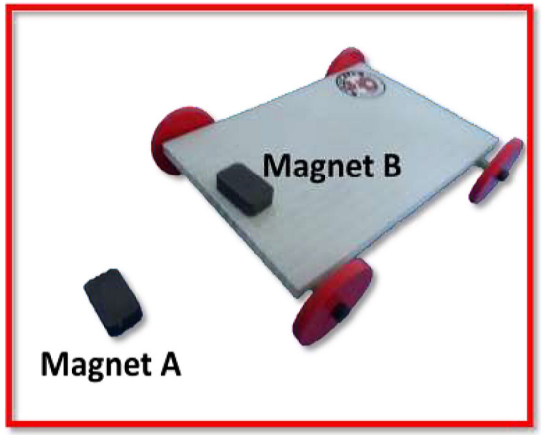
In this case, paste 1 magnet on the base of a car and hold another magnet in your hand. Using the repulsive property of magnet, move the car to understand about non-contact forces.

- Similar poles of two magnets go away from each other. This property of magnet is known as **repulsion.**

- Different poles of two magnets pull each other. This property of magnet is known as **attraction.**



How does a magnetic sensor car works??



Magnet A is held in a hand in such a manner that it repels Magnet B and a push is provided to a car which pushes it in forward direction

Case 3 - Friction

Friction is a force that holds back the movement of a sliding object.

Cause of friction

Friction is caused by interlocking of irregularities in the surface of two objects which are in contact with each other.

More the roughness of surface larger is the number of irregularities on its surface and greater will be the friction.