Burwell Village College Primary

Year 3 - Forces and Magnets

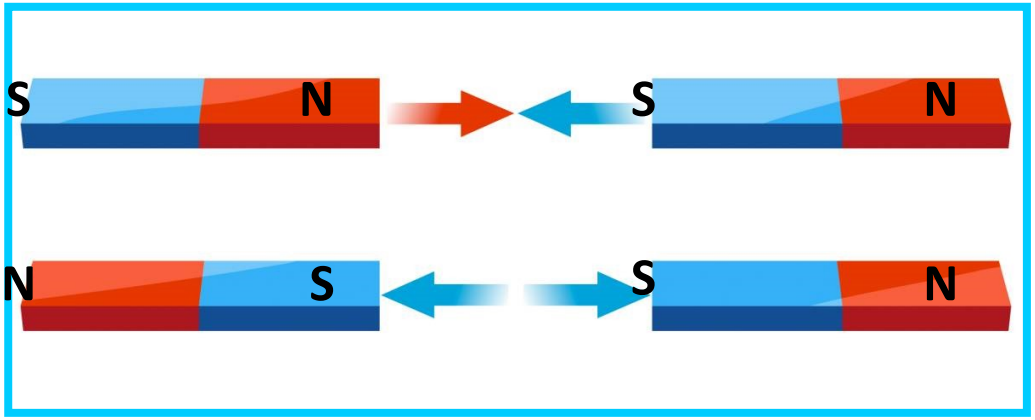
Key Vocabulary	
force	movement caused by the strength or energy of an object
power	the strength, force or speed at which something moves or travels
surface	the outside part of an object
contact	touching between two objects
repel	to force something away or back from another object
attract	to cause something to come towards another object
material	what an object is made out of
friction	a force between two objects, trying to slide past each other

How do magnets work?

- For an object to move physical contact has to be caused between two objects to generate force to move the object. However, magnetic forces can be generated without physical contact.
- The end of each magnet is called a pole. There is a north pole, and a south pole. These poles are what create the force that attracts and repels objects.
- Only opposite poles are able to attract each other. Therefore, for a magnet to attract something, the north pole must face the south pole. If the north pole were facing another north pole, or a south pole facing another south pole, the two magnets would repel each other.

What are magnets?

- A magnet is an object that produces a magnetic field, which can cause certain types of metal such as iron and nickel to be attracted towards it.
- A magnetic field is an invisible field which, when an object is within its range, causes attraction.



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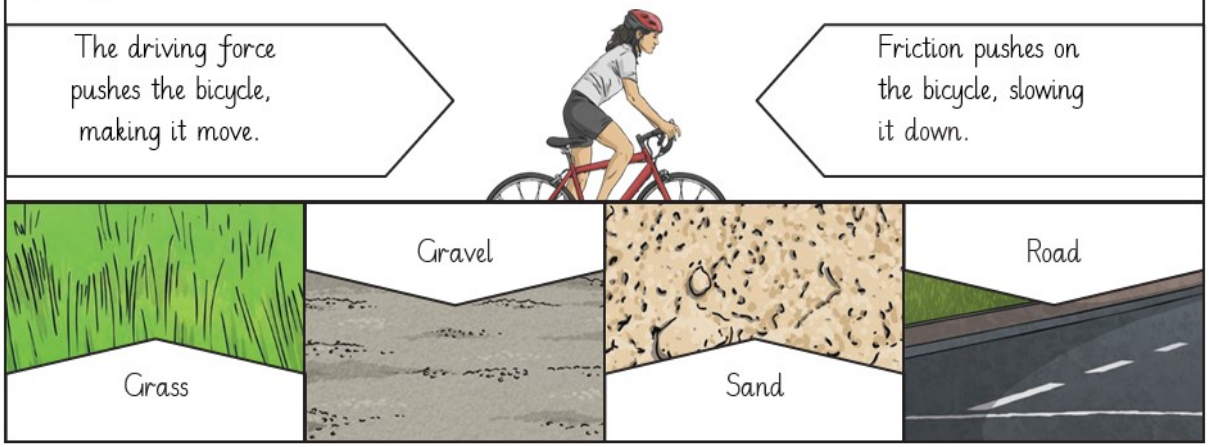
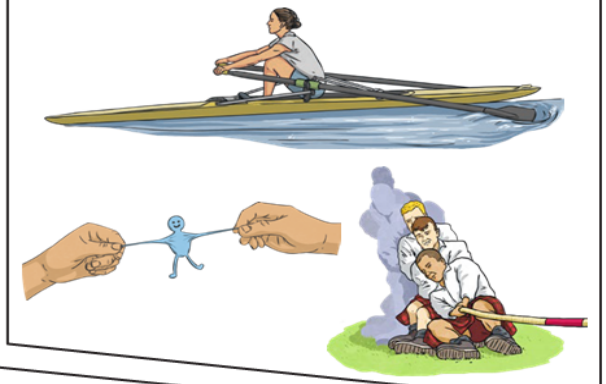
Key Knowledge

Different surfaces create different amounts of friction. The amount of friction created by an object moving over a surface depends on the roughness of the surface and the object, and the force between them.



Pushes

Pulls



Forces will change the motion of an object.
They will either make it start to move, speed up, slow it down or even make it stop.

Key Inventions

- Some forces need contact between two objects, but magnetic forces can act at a distance. We might see this in everyday situations like self-closing wardrobe doors or applied to new technologies such as electromagnetic repulsion.
- Electromagnetic repulsion means that Japanese bullet trains travel at 320 km/h or 200 mph every day. The world record for a bullet train is 603 km/h or 375 mph from a SCMag-lev train in 2015!
- Electromagnetic repulsion helps the bullet trains to travel so fact because they do not have any friction pushing between the rails and the track. This friction would slow them down.