Feel the Friction!

Experience the force and motion of a go-kart at Tapnell Farm Park, then make your own back at school!

In the Straw Bale Adventure Zone you will be able to ride the Pedal Go-Karts.

- As you pedal the go-kart the tyres will grip the floor and the kart will move forwards.
- This grip is caused by friction.
- This lack of friction is why ice surface is so smooth.
- You will experience the effects of friction as you pedal your go-kart.
- You will have to pedal with more force as you move over different surfaces.

AT THE PARK

1. Fill in the table below to record the amount of force you used as you pedal over the different surfaces.
2. What happens when there are two of you in the go-kart?
3. Look at the different surfaces, are they rough or smooth?

Surface	Rough or smooth?	Amount of Force needed 1 = not much force 2 = some force 3 = lots of force
Inside of barn (concrete)		
Outside of barn (hard core)		
One person in the go-kart		
Two people in the go-kart		

4. Circle the correct word:

   I had to pedal harder over the **rough/smooth** surface.

   There was more friction from the **rough/smooth** surface.

   With two people in the go-kart I needed **more/less** force to pedal.

BACK AT SCHOOL

Making Model Go-Karts

You will need:

Small cardboard box

2 drinking straws

Sellotape

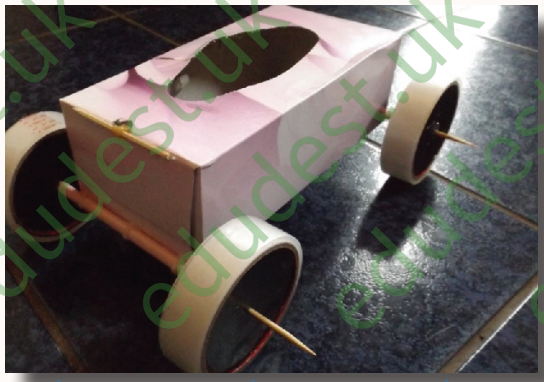
2 barbecue skewers

4 plastic bottle tops (with holes in the centre)

Scissors

String

Force meter



1. Cut a hole in the top of your box.
2. Cut the drinking straws to match the width of the box.
3. Tape the drinking straws to the bottom of the box, one at each end.
4. Pass the barbecue skewer through the drinking straw.
5. Place the plastic bottle caps onto the end of the barbecue skewers.
6. Glue the skewers into place in the bottle caps.
7. Test your model go-kart.
8. Can it be improved?

Testing your Model Go-Kart

1. Fix a loop of string to your go-kart.
2. Hook the force meter to the string and pull your model go-kart.
3. Put a 500g mass inside your model go-kart.
4. Pull your model go-kart across different surfaces, e.g. grass.
5. Take a force reading for each different surface:

Surface	Force (N)

6. Try adding different masses to your go-kart:

Surface	Mass inside Go Kart (g)	Force (N)

▶ What did you find out?

The surface that needed most force was _____ .

This surface caused most friction.

As I added more mass the amount of force needed to pull the go-kart was _____ .