



Year 4 Rocket Science - The Forces of Flight

TEACHER REFERENCE GUIDE

With Street Science, you became a junior rocket scientist, and used **Newton's Laws of Motion** to propel a rocket into the sky!

1. Use the word bank to complete the following sentences about Newton's First Law of Motion



stop in motion at rest start object force

Newton's First Law of Motion says that an o b j e c t at rest will remain a t r e s t until a force is applied to it.

It also says that an object in motion will remain i n m o t i o n until a f o r c e is applied to it.

This means that pushing and pulling forces are used to s t a r t and s t o p movement.

2. Using Newton's law, draw how you would apply a force to each ball below to make it move (be in motion) or stop moving (be at rest). Use arrows to show these forces.

Force this ball into <i>motion</i>	Force this ball to <i>rest</i>
Push or pull to make ball move →	Push or pull to make ball stop
	

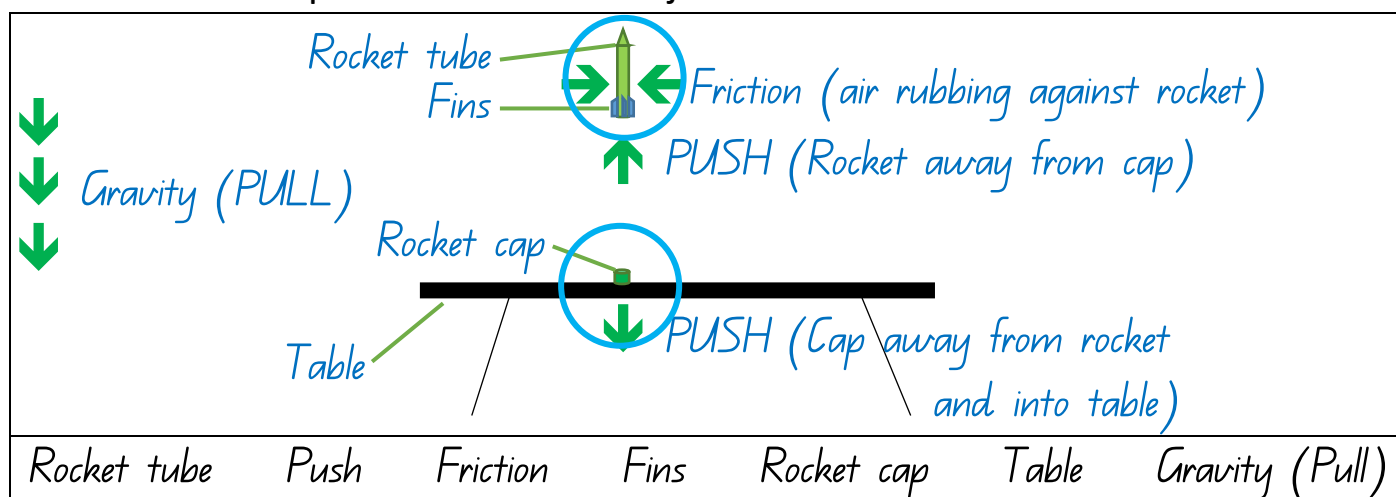
List any other objects which come into contact with these balls:

Floor, air particles, hands or feet when force is applied.



3. Draw and label your rocket flying off the launch table.

- Include all the labels to show objects and forces
- Use ARROWS to show the direction of forces
- Circle places where two objects CONTACT each other



4. Contact and non-contact forces occurred between your rocket and other objects such as the table, air and Earth.

a) Describe how a **contact force** affected your rocket

Air particles rubbed against the rocket causing friction (drag) and made it slow down. The rocket cap pushed against the table, pushing the rocket tube in the opposite direction. (Question only asks for one response).

b) Describe how a **non-contact force** affected your rocket

Gravity pulled the flying rocket tube towards the Earth.

Extras for Experts!

Forces affect every part of our day. Take a walk around your school and see how many forces you and your classmates can describe. Decide if they are contact or non contact (HINT: some objects involved in contact forces cannot be seen!)