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| **Year 5: Spring 1 Forces (Strand: Physics)** |
|   | **Vocabulary**GravityFrictionAir resistanceUp thrustWeightNewton’sPushPullBalanceParticles |
| **What I already know:** |
| Year 3* Compare how things move on different surfaces.
* Notice that some forces need contact between two objects, but magnetic forces can act at a distance.
* Observe how magnets attract or repel each other and attract some materials and not others.
* Compare and group together a variety of everyday materials based on whether they are attracted to a magnet and identify some magnetic materials.
* Describe magnets as having two poles.
* Predict whether two magnets will attract or repel each other, depending on which poles are facing.
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| **What I will learn now:** |
| **Year 5*** Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
* Identify the effects of air resistance, water resistance and friction that act between moving surfaces.
* Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
 | **Key facts*** Gravitational force is a pull towards the centre of an object such as the Earth. All objects have a gravitational force, but the size of the force depends on the mass of the object.
* Friction is the force from two surfaces rubbing together.
* When objects fall through the air, the air resistance is the force that acts in the opposite direction of gravity.
* Up thrust in water is the force pushing up against an object. If this force balances the gravitational force pulling the object down, then it will float.
* If you want to lift a heavy weight, there's only so much force your muscles can supply, even if you are the world's strongest man. But use a simple machine such as a pulley and you can multiply the force your body produces.
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| **What I will learn next:** |
| KS3* Forces as pushes or pulls, arising from the interaction between two objects.
* Using force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces.
* Moment as the turning effect of a force.
* Forces: associated with deforming objects; stretching and squashing –springs; with rubbing and friction between surfaces, with pushing things out of the way; resistance to motion of air and water.
* Forces measured in Newtons, measurements of stretch or compression as force is changed.
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| **Year 5: Spring 1 Forces (Strand: Physics)** |
| **Question 1: In what unit do we measure force?** |
| **Pre** | **Post** |
| **Question 2: What is the name of the force that pulls things towards the centre of the Earth?** |
| **Pre** | **Post** |
| **Question 3: Explain why astronauts move in a bouncy way on the moon** |
| **Pre**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | **Post**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Question 4: Label the force that is pushing against this swimmer in the water and parachute in the air.** |
| **Pre**  | **Post** |
| Question 5: Name these three mechanisms that make things easier to do as they lessen the force needed to be used. |
| **Pre** | **Post** |