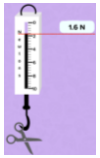
Year 5 – Autumn 2 – Science – Pupil Knowledge Organiser

What do I already know?	What am I learning now?
• A force makes an object move, stop, or change direction. • A contact force is one that needs two objects to be touching. • Contact forces include: Friction, air resistance, up thrust, and tension. • A non-contact force is one that does not need two objects to be touching. • Non-contact forces include: gravity, and magnetic. • Newtons is the unit of measurement use to measure force. It is shortened to N.	1. Why do unsupported objects fall towards the Earth? 2. How can we investigate the force of gravity? 3. How does air resistance affect objects? 4. How does water resistance affect objects? 5. How do levers and pulleys affect the movement of objects? 6. How do gears affect the movement of objects?

Key Knowledge: Forces

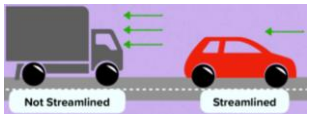


The force of gravity on an object can be measured using a force meter.

On some planets, gravity is stronger, so the weight of an object increases, but the mass stays the same.

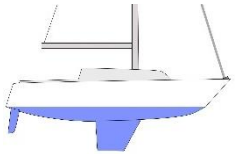
Gravity on the moon is weaker, so the weight of an object decreases, but the mass stays the same.

Both air and water resistance try to slow things down.



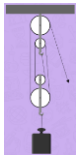
We can decrease air/water resistance by making an object more streamlined.

Air resistance can be helpful, such as in parachutes.

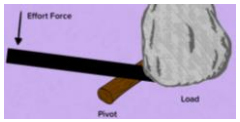


Water resistance can be very helpful for stabilising boats e.g. by adding keels.

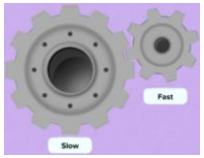
Pulleys and levers make it easier to lift things.



If we use more pulleys we would need even less force to lift a load.



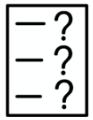
If we use a longer level, we would need less force to lift a load.



Connecting a smaller gear to a larger one (with more teeth) makes the smaller one turn much faster but with less force.

Key Skills: Working Scientifically

Ask Questions



Enquiry

Observe

Record/ Present

Conclusions

Evaluation

Communicate

Key Vocabulary

gravity	A non-contact force that pulls an object down to the centre of the Earth.
weight	The force of gravity acting on an object.
mass	How much matter there is in an object. It is measured in g or Kg.
Newtons (N)	The unit used to measure force/weight.
friction	A contact frictional force that occurs when two objects rub together.
air resistance	A contact frictional force that occurs when on object moves through air.
water resistance	A force that occurs when on object moves through water.
streamline	Where an object is designed to move smoothly and easily.
pulley	A mechanism where a rope runs over a set of wheels to lift an object.
level	A long pole that be used to lift an object.
gear	A wheel with teeth around its outer edge.
load	An object that you want to lift.