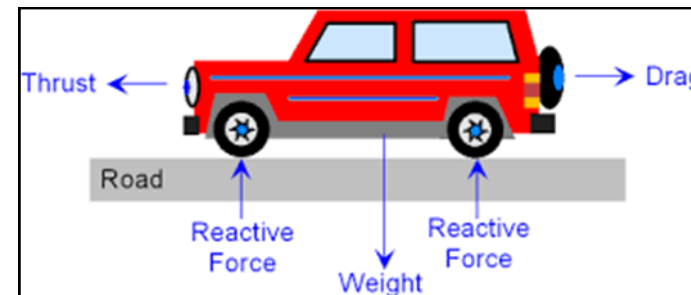
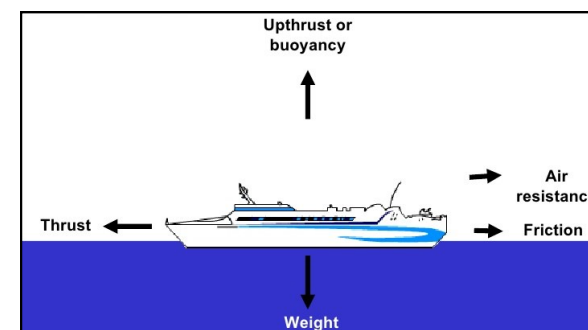


Year 7 Mastery — Forces and Energy (part 1)

Newton	The standard unit of force
Force	A force can be a push or a pull. For example, when you push open a door you have to apply a force to the door. You also have to apply a force to pull open a drawer.
Diagram	A drawing that represents a machine, system, or idea
Magnetism	Magnets are made from magnetic materials. These are metals that can be magnetised or will be attracted to a magnet. Most materials are not magnetic, but iron, cobalt and nickel are magnetic.
Friction	Objects moves against another object, it feels frictional forces. These forces act in the opposite direction to the movement. Friction makes it harder for things to move.
Gravity	All objects have a force that attracts them towards each other. This is called gravity.
Air resistance	Air resistance is caused by the frictional forces of the air against the vehicle. The faster the vehicle moves, the bigger the air resistance becomes.
Buoyancy	The ability to float in a liquid or to rise in a fluid
Reaction force	When an object rests on a surface such as the ground, its weight is balanced by the reaction force from the ground.
Electrostatic	A charged object creates an electric field. You cannot see an electric field, but it surrounds the charged object. If another charged object is moved into the electric field, a force acts on it.
Contact force	Forces can be contact forces, where objects must touch each other to exert a force.
Non-contact force	Non-contact forces, where objects do not have to touch each other.
Thrust	Thrust is the force that propels an object
Control variable	The part of an experiment that is not changed.
Independent variable	The independent variable is the variable for which values are changed or selected by the investigator.
Dependent variable	The dependent variable is the variable of which the value is measured for each and every change in the independent variable
Mass	The amount of matter in an object
Weight	The mass under the force of gravity
Weight calculation	$\text{Weight (N)} = \text{mass (kg)} \times \text{gravitational field strength (N/kg)}$
Repel	Like poles push apart from each other
Attraction	Opposite poles pull toward each other
Poles	Magnets have north poles and south poles at either end
Magnetic field	Magnets create magnetic fields. These cannot be seen. They fill the space around a magnet where the magnetic forces work, where they can attract or repel magnetic materials.

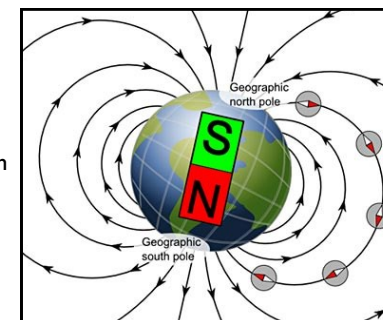


Forces acting on a car



Forces acting on a boat

Magnetic field of the earth



Quizlet



Bitesize



PRIDE THROUGH SUCCESS

Year 7— Forces and Energy (part 1)

Learning Outcome	Strengthen	PQ- Extend
1.1,1.2	<ol style="list-style-type: none"> 1. name 5 forces. 2. Describe the direction of 4 forces. 3. Describe what three things a force can do to an object. 	<ol style="list-style-type: none"> 4. describe four forces that act in opposite directions. 5. Explain how a force could be measured. 6. Produce a Venn diagram of friction and magnetism.
2.1	<ol style="list-style-type: none"> 1. Recall 3 contact and 3 non-contact forces. 2. Describe how the movement of a train is affected by forces. 	<ol style="list-style-type: none"> 3. Explain how the negative effects of forces on a bus can be minimised 4. Explain the changes in the forces experienced by a sky diver.
2.2	<ol style="list-style-type: none"> 1. Recall the definition of friction. 2. Give three examples of when friction occurs. 3. Give an example of when friction is useful. 	<ol style="list-style-type: none"> 4. Explain 2 uses of friction on a bicycle. 5. Explain how friction can be beneficial . 6. Describe how friction can be reduced.
2.3	<ol style="list-style-type: none"> 1. Recall the weight equation. 2. Describe how weight is different to mass. 3. If a object has 10 kg of mass what will it's weight be on earth? 	<ol style="list-style-type: none"> 4. Give an example of when weight varies. 5. If the gravitational field was 5 N/kg what would 48kg weigh? 6. What are the problems of humans living in a low gravity?
2.4	<ol style="list-style-type: none"> 1. Draw a diagram showing attraction and repulsion. 2. Give a real life scenario where magnets are used. 3. List the 3 magnetic metals. 	<ol style="list-style-type: none"> 4. How does a monorail work? 5. When you want to use magnets for their repelling properties? 6. Explain how magnets were discovered.
2.5, 2.6	<ol style="list-style-type: none"> 1. Draw a diagram showing the magnetic field of the earth. 2. Where is the magnetic field strongest? 	<ol style="list-style-type: none"> 3. What phenomenon does the magnetic field cause? 4. How does magnetic north and true north differed?