

KNOWLEDGE ORGANISER

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-Simple machines and mechanisms include pulleys, gears and levers. They can be used to turn a small force into larger forces. This means that we can use these machines to accomplish things more easily.

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| **What you should already know…** |  | **Definitions of Forces****FORCES**  |
| Image result for forces - Forces are pushes and pulls which make things move and stop moving.-Most forces need contact between objects, but magnets can act at a distance.-Magnets are made of materials that create a magnetic field (the area in space where the force of magnets can be detected). -Forces are shown by arrows in diagrams. The bigger the arrow, the bigger the force.-When forces are unbalanced, objects can speed up, slow down, or change direction.-  |  | Applied force | Image result for forces on a ball being thrownAir resistance | There are a number of different forces that affect us in our daily lives:-Applied force: The force placed on an object by a living creature.* (see ‘Gravity’ definition bottom left);
* Friction: the ‘sticking’ force that occurs when an object moves over another.
* Air resistance is a type of friction force that pulls against an object travelling through the air. Some objects are more ‘streamlined’, meaning that the air pulls on them less, and they travel faster.
* Water resistance is the friction force on objects floating or moving in water.
* Surface resistance is the friction force of objects moving across a surface.

  Gravity |  |
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| **Gravity** |  |
|  Gravity attracts all matter towards each other.-It has been around since the beginning of the Universe, and applies to all matter in the Universe.-The bigger an object’s mass, the more gravity it will have. The smaller the mass of an object, the less gravity it will be subject to.-Without gravity we would fly right off the planet! The moon’s gravity causes our ocean tides on Earth. The Sun’s gravity keeps Earth in orbit around the Sun.-We don't actually "feel" gravity. We only feel the effects of trying to overcome it by jumping or when we fall.-Sir Isaac Newton discovered gravity around 300 years ago. The tale is that he saw an apple fall from a tree, and wondered what force made it fall to the ground. |  |  |  |  |
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| Machines and Mechanisms |
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|  |  |  |  | -Levers give us extra pushing or pulling force and help us lift greater weights.-Gears are different sized cogs which work together to give a machine extra force.-Pulleys are wheels and ropes that work together to life heavy objects. |
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Machines and Mechanisms

Window Blinds

Exercise Equipment

Well

Shovels

Fishing rods

Wheelbarrows

Boat Oars

Brooms

Elevators

Scissors