

KNOWLEDGE ORGANISER

Y5

-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 thrown  Air 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