

| 3.1 - Forces Introduction     |   |
|-------------------------------|---|
| What is a force?              | A <b>push</b> , <b>pull</b> or a <b>twist</b> .   |
| What can a force do?          | Change the <b>speed</b> , <b>direction</b> or <b>shape</b> of an object.  |
| Units for Force               | <b>Newtons</b> (unit symbol = N)  |
| Measuring Force               | Use a <b>Newton meter</b> (also called a force meter).  |
| 3.2 - Different Forces        |   |
| Friction                      | Acts between <b>two surfaces rubbing together</b> . Acts in the <b>opposite direction</b> to movement.  |
| Air Resistance                | Acts on all objects <b>moving</b> through <b>air</b> . Acts in the <b>opposite direction</b> to movement.   |
| Weight or Gravitational Force | Force caused by <b>gravity</b> . <b>Pulls</b> all objects towards the <b>centre</b> of the <b>Earth</b> .   |
| Upthrust                      | Acts <b>upwards</b> on <b>floating</b> objects.   |
| Driving Force or Thrust       | Force produced by an <b>engine</b> , which <b>moves</b> objects.  |
| Support Force                 | Acts <b>upwards</b> on objects resting on <b>solid surfaces</b> e.g. the ground.  |
| Water Resistance              | Acts on all objects <b>moving</b> through <b>water</b> . Acts in the <b>opposite direction</b> to movement.   |
| Tension                       | <b>Pulling</b> force in <b>ropes</b> and <b>cables</b> .  |
| 3.3 – Effects of Forces       |   |
| Resultant Force               | <b>Overall force</b> acting on an object.   |
| Stationary                    | <b>Not moving</b> (still).  |
| Balanced Forces               | <b>Resultant force</b> is <b>zero</b> . Forces <b>cancel</b> out. Cause <b>no change</b> in <b>motion</b> .   |
| Unbalanced Forces             | <b>Resultant force</b> is <b>not zero</b> . Forces do <b>not cancel</b> out. Cause a <b>change</b> in <b>motion</b> .   |
| Interaction Pairs of Forces   | Forces come in <b>pairs</b> that: <ul style="list-style-type: none"> <li>- Are the <b>same size</b>.</li> <li>- Act in <b>opposite directions</b>.</li> <li>- Act on <b>two different objects</b>.</li> </ul> |

| 3.4 - The Solar System & Beyond        |   |
|--|---|
| Solar System                           | Made up of <b>8 planets</b> which <b>orbit</b> the <b>Sun</b> .   |
| Planets (Closest to furthest from Sun) | <b>Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune</b> .  |
| Pluto                                  | <b>Reclassified</b> as a <b>dwarf planet</b> .  |
| Sun                                    | The <b>star</b> in the middle of our <b>solar system</b> .  |
| Moon                                   | A <b>natural satellite</b> that <b>orbits</b> a planet.   |
| Galaxy                                 | A <b>collection</b> of <b>billions</b> of <b>stars</b> .  |
| Milky Way                              | Name of the <b>galaxy</b> that our <b>Sun</b> is in.  |
| Proxima Centauri                       | <b>Nearest star</b> to our <b>Sun</b> . <b>4 light years</b> away.  |
| Andromeda                              | <b>Nearest galaxy</b> to the <b>Milky Way galaxy</b> .  |
| Light Year                             | The <b>distance light travels</b> in <b>one year</b> .  |
| Universe                               | Everything in <b>space</b> – made up of <b>billions</b> of <b>galaxies</b> .  |
| 3.5 - The Earth                        |   |
| Day                                    | Length of <b>time a planet</b> takes to make one full <b>spin</b> on its <b>axis</b> .  |
| Length of Earth Day                    | <b>24 hours</b>   |
| Daytime in the UK                      | When the UK <b>faces towards</b> the <b>Sun</b> .   |
| Night-time in the UK                   | When the UK <b>faces away</b> from the <b>Sun</b> .   |
| Year                                   | Length of <b>time a planet</b> takes to <b>orbit</b> the <b>Sun</b> .   |
| Length of Earth Year                   | <b>365.25 days</b>  |
| Leap Years                             | Occur every <b>4 years</b> . <b>February</b> has an <b>extra day</b> .  |
| Summer in UK                           | When the <b>northern hemisphere</b> is <b>tilted towards</b> the <b>sun</b> . Sun's <b>rays</b> more <b>concentrated</b> . Sun <b>high</b> in <b>sky</b> .  |
| Winter in UK                           | When the <b>northern hemisphere</b> is <b>tilted away</b> from the <b>sun</b> . Sun's <b>rays</b> less <b>concentrated</b> . Sun <b>low</b> in <b>sky</b> . |

## Y7 Science Cycle 1 - Sheet 3

### Forces & Space

