

# Science | Science fundamentals | Year 9 | Spring 2

Week 1	Week 2	Week 3
<ol style="list-style-type: none"> <li>1. What is the function of the skeletal system?</li> <li>2. What are the adaptations of a muscle cell?</li> <li>3. List 3 organs in the respiratory system</li> <li>4. Explain gas exchange</li> <li>5. Describe the structure of DNA</li> </ol>	<ol style="list-style-type: none"> <li>1. Write a word equation to represent a metal reacting with hydrochloric acid</li> <li>2. What substance will be formed if a metal reacts with oxygen?</li> <li>3. Describe what a displacement reaction is</li> <li>4. What pHs are acids and alkalis</li> <li>5. List 4 properties of metals and 4 properties of non-metals</li> </ol>	<ol style="list-style-type: none"> <li>1. Describe the motion and arrangement of particles in a solid</li> <li>2. Describe the motion and arrangement of particles in a liquid</li> <li>3. Describe the motion and arrangement of particles in a gas</li> <li>4. What is density?</li> <li>5. What is upthrust?</li> </ol>
Week 1 answers	Week 2 answers	Week 3 answers
<ol style="list-style-type: none"> <li>1. To protect vital organs, to allow for movement, mineral reserves such as calcium</li> <li>2. Lots of mitochondria for energy, they are elastic so can stretch</li> <li>3. Lung, trachea, alveoli, diaphragm, bronchi, bronchioles</li> <li>4. When oxygen moves by diffusion from the lungs to the blood, and carbon dioxide moves by diffusion from the blood to the lungs</li> <li>5. Two strands, arranged in a double helix with bases A-T and C-G, held by weak bonds</li> </ol>	<ol style="list-style-type: none"> <li>1. Metal + hydrochloric acid → metal + hydrogen chloride</li> <li>2. An oxide</li> <li>3. Where a more reactive element displaces a less reactive element from a compound</li> <li>4. Acids – 1-6, Alkalis 8-14</li> <li>5. Metals – shiny, malleable, ductile, conductors. Non-metals – dull, brittle, insulators</li> </ol>	<ol style="list-style-type: none"> <li>1. Particles are arranged in rows, tightly packed and vibrate around a fixed point</li> <li>2. Particles are close together but with some space between them and can flow past one another</li> <li>3. Particles are spread far apart and move rapidly and randomly</li> <li>4. How much mass is in a given volume</li> <li>5. The force of water pushing up on an object</li> </ol>

# Science | Science fundamentals | Year 9 | Spring 2

Week 4	Week 5	Week 6
<ol style="list-style-type: none"> <li>1. State the equation for photosynthesis</li> <li>2. What part of a cell is necessary for photosynthesis?</li> <li>3. How can we measure the rate of photosynthesis?</li> <li>4. What is carried by the xylem?</li> <li>5. What is carried by the phloem?</li> </ol>	<ol style="list-style-type: none"> <li>1. How can we measure the average rate of reaction?</li> <li>2. How does concentration affect the rate of a reaction?</li> <li>3. How does surface area affect the rate of reaction?</li> <li>4. What is an endothermic reaction?</li> <li>5. What is an exothermic reaction?</li> </ol>	<ol style="list-style-type: none"> <li>1. What is a force?</li> <li>2. What is Hookes law?</li> <li>3. What is the law of conservation of energy?</li> <li>4. How can we calculate work done?</li> <li>5. What is a moment?</li> </ol>
Week 4 answers	Week 5 answers	Week 6 answers
<ol style="list-style-type: none"> <li>1. Carbon + water → glucose + oxygen dioxide</li> <li>2. Chloroplasts</li> <li>3. Counting the bubbles of oxygen produced</li> <li>4. Water</li> <li>5. Dissolved sugars (glucose)</li> </ol>	<ol style="list-style-type: none"> <li>1. <u>Reactant used or products produced</u> time</li> <li>2. Increasing concentration will increase the rate of reaction</li> <li>3. Increasing the surface area will increase the rate of reaction</li> <li>4. A reaction that gives out heat energy to the surroundings</li> <li>5. A reaction that absorbs heat energy from the surroundings</li> </ol>	<ol style="list-style-type: none"> <li>1. A force is a push, pull or twist</li> <li>2. Extension is directly proportional to the force applied</li> <li>3. Energy cannot be created or destroyed, it can only be transferred between energy stores</li> <li>4. Work done = force x distance</li> <li>5. A moment is a turning force</li> </ol>