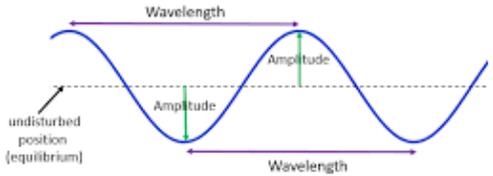
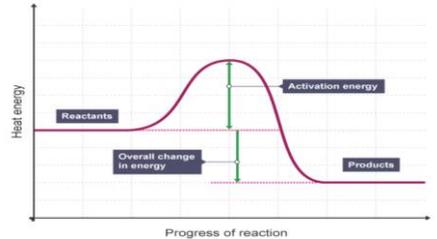


Biology		Chemistry	Physics
1	<p>Respiration - (must remember this word equation)  <b>Oxygen + Glucose → water + carbon dioxide</b></p> <p>Respiratory system: Trachea – Bronchus – bronchioles – alveoli</p> <p>Diaphragm – dome shaped muscle that contracts and relaxes to control breathing</p>	<p><b>Energy is conserved in chemical reactions</b>, so the total amount of energy in the universe at the end of a reaction is the same as it was before the reaction.</p> <p>When energy is transferred to the surroundings, this is called an <b>exothermic reaction</b>, E.g. combustion reactions  many oxidation reactions  most neutralisation reactions</p>	<p><b>Transverse Wave</b> – a wave with undulations that are at right angles to the direction of the wave travel.  <b>Longitudinal Wave</b> – a wave with vibrations that are parallel to the direction of wave travel</p> <p><b><u>Waves transfer energy from place to place</u></b></p>
2	<p><b>Breathing IN</b> – Diaphragm contracts, volume of chest cavity increases so pressure decreases, air drawn into lungs.</p> <p><b>Breathing OUT</b> – Diaphragm relax, volume of chest cavity decreases so pressure increases, air forced out.</p>	<p>When energy is taken in from the surroundings, this is called an <b>endothermic reaction</b> and the temperature of the surroundings decreases. Examples of endothermic reactions include:</p> <ul style="list-style-type: none"> <li>• thermal decomposition reactions</li> <li>• the reaction of citric acid and sodium hydrogencarbonate</li> </ul>	 <p>The diagram shows a blue sine wave oscillating above and below a horizontal dashed line labeled 'undisturbed position (equilibrium)'. Two horizontal double-headed arrows labeled 'Wavelength' span the distance between two consecutive peaks. Two vertical double-headed arrows labeled 'Amplitude' measure the height from the equilibrium line to the peaks and troughs.</p>
3	<p>Exercise – Breathing rate and depth increase during exercise.</p> <ul style="list-style-type: none"> <li>-Strengthens diaphragm and intercostal muscles</li> <li>- Increases number and size of small blood vessels in lungs</li> <li>-Increases number of alveoli</li> </ul>	<p>A catalyst is a substance that:</p> <ul style="list-style-type: none"> <li>• speeds up reactions</li> <li>• is not used up during the reaction (its mass is the same at the start and end of the reaction)</li> <li>• is chemically unchanged after the reaction has finished</li> </ul>	<p>Sounds are vibrations that move through the particles in the air. The air particles bump into one another and can eventually hit the ear.</p> <p>Speed of sound in air is 340 m/s</p> <p>Sound is a longitudinal wave, the energy put in moves parallel to the vibration/movements of the air particles.</p>
4	<p>Smoking – damages cilia (small hair that line airways). Can lead to lung cancer. Can lead to bronchitis.</p> <p>Asthma attack – muscles contract (narrow airways), fluid builds up in airways, wheezing and difficulty breathing.</p>	<p>Combustion is another word for burning. In a combustion reaction, a fuel is heated and it reacts with oxygen. Combustion reactions are used to heat our homes, power most cars, and to generate a lot of our electricity.</p>	<p>How we hear: Vibrations pass from object – to air – to ear drum – to ear bones – to hairs in cochlea – message sent along auditory nerve to brain.</p> <p>The loudness of a sound is measured in decibels (dB)  Loudest sound humans can hear is about 120 dB.</p>
5	<p>Gas exchange is required in plants for Photosynthesis and Respiration.</p> <p>Stomata – small holes in leaves for gas exchange.  Carbon Dioxide IN, Oxygen OUT.</p>	 <p>The diagram is a graph with 'Heat energy' on the vertical axis and 'Progress of reaction' on the horizontal axis. A red curve starts at a level labeled 'Reactants', rises to a peak, and then falls to a lower level labeled 'Products'. A vertical double-headed arrow from the reactant level to the peak is labeled 'Activation energy'. A vertical double-headed arrow from the reactant level down to the product level is labeled 'Overall change in energy'.</p>	<p><b>Wave Speed can be calculated using the equation:</b></p> $v = f \times \lambda$ <p><math>v</math> = wave speed  <math>f</math> = frequency  <math>\lambda</math> = wavelength</p>

## Quiz Time

### Week 1 Quiz

1. What is the equation for respiration?
2. What happens to the energy in a reaction?
3. Do waves transfer energy or particles?
4. A wave in the sea is a longitudinal wave? True or False?
5. What is an exothermic reaction?

### Week 4 Quiz

1. Name 2 diseases that smoking can lead to?
2. Sound travels by V..... particles?
3. True or False? During an asthma attack, airways will widen?
4. What is combustion?
5. Sound is measured in what unit?

### Week 2 Quiz

1. Draw a transverse wave label the Wavelength and Amplitude
2. What happens to the energy in an endothermic reaction?
3. Describe breathing IN? [Use the word pressure]
4. Describe breathing OUT? [Use the word diaphragm]
5. Give an example of an endothermic reaction

### Week 5 Quiz

1. What is the equation for wave speed?
2. Describe the term erosion?
3. Name 2 process in which plants use gas exchange?
4. Small holes in leaves are called what?
5. If a wave has a high frequency, what does this mean?

1. If you are exercising, will your breathing rate increase or decrease?
2. Why?
3. Sound travels in what type of wave?
4. What does a catalyst do?
5. How is a catalyst used?