

Respiration and Combustion	
Similarities	Differences
Both are chemical reactions	Respiration occurs in living things
Both need oxygen for chemical reaction	Combustion occurs in non-living things
Both are exothermic	Combustion needs a fuel
Both produce carbon dioxide	Respiration is carried out with the help of enzymes
Both release energy	Enzymes are not involved in the process of combustion

Aerobic and Anaerobic Respiration	
Similarities	Differences
Both take place in a cell	Aerobic respiration doesn't produce ethanol or lactic acid
Both release energy	Anaerobic respiration does produce ethanol and lactic acid
Both use glycolysis to produce ATP	Aerobic is complete
Both break down glucose	Anaerobic is incomplete

Rates of Reaction:

The rate of a chemical reaction can be affected by factors including temperature, concentration and the presence of a catalyst.

Factors that affect the rate of corrosion:

- Presence of water
- Amount of oxygen dissolved in the water
- The temperature (all reactions are faster at higher temperatures)
- The presence of electrolytes in the water (e.g. Salt)
- The purity of iron (the greater the purity, the slower the corrosion)

Methods to prevent corrosion:

1. Protective coatings (physical):

- Galvanising is when the zinc layer stops the oxygen, water and/or salt from attacking the iron
- Painting or greasing physically stops oxygen, water and/or salt from reaching the metal because the particles literally cannot reach the iron to corrode it

2. Design:

- Designer has to consider where the structure is being put (E.g. Near the ocean) and its purpose (E.g. A bridge)
- The wall thickness needs to be considered as corrosion will happen faster or slower depending on the thickness
- Structure should be able to be drained and cleaned easily
- Avoid two metals in contact because it may speed up corrosion
- Shapes that gather water should not be used
- Try to keep temperature down as otherwise metals will expand and contract and then cracks will form and corrosion will happen faster