Melting point - at this temperature solid materials turn liquid full stop the stronger the forces between particles the higher the melting point
Strength - strength is how good a material is at resisting a force
There are two types of strength
Tensile strength - how much a material can resist a pulling Force
Compressive strength - how much a material can resist a pushing Force
Stiffness - stiff materials don't bend when a force is applied
Hardness - the hardness of the material is how difficult it is to cut into
Brittleness - brittle materials break if they are hit by a sudden Force for example a hammer
Ease of reshaping - materials that deform but don't break when a force is applied to them can be shaped
Conductivity - to conduct electricity, a material must have charged particles (ions or electrons) which can move

Types of materials
Ceramics are stiff but brittle
Play is soft when it's wet, so it's easy to mould into different shapes
It is hardened by firing it at a very high temperature, it has high compressive strength
glass is transparent and strong, it can be molded when hot and can be brittle when thin
Most glass is Soda lime glass which is made by heating lime, sand and sodium carbonate until they melt
Composites are made of different materials
Carbon fibre composites has been made using carbon atoms bonded together to make carbon fibres or carbon nanotubes held together in a polymer resin Matrix.
Some materials are damaged by corrosion
metals can be destroyed by corrosion
If iron comes into contact with air and water it will slowly corrode which also means rust
This limit the lifetime of iron objects
Iron only corrodes when it is in contact with both oxygen and water
You can stop corrosion of Metals by creating a barrier with paint to stop the metal coming into contact with oxygen and water
You can also attach a more reactive metal to the metal you want to protect. This is sacrificial protection

Polymers are really adaptable. For example, some of flexible, so they can be bent without breaking and can be easily molded into any shape
They are often cheaper and tend to be less dense than most metals or ceramics
they are also thermal and electrical insulators
Ceramics are insulators of heat and electricity. They are much more brittle and stiff than other materials but they are also strong and hard-wearing
Metals are good conductors of heat and electricity full stop they generally have high melting points. They are malleable so they can tend to form different shapes. However metals corrode easily
Composites have different properties depending on the binder and the reinforcement