

### KEY VOCABULARY

**Permeable:** a material is permeable if it allows liquids or gases to pass through it.

**Impermeable:** a material is impermeable if it does not allow liquids or gases to pass through it.

**Electrical conductor:** a material that allows electricity to pass through it.

**Electrical insulator:** a material that does not allow electricity to pass through it.

**Mixture:** two or more materials combined together without chemical change.

**Compound:** two or more materials joined together through a chemical reaction.

**Dissolving:** if something dissolves it is mixed into a liquid to become a solution.

**Solution:** a mixture where one substance is dissolved into another.

**Soluble:** able to be dissolved.

**Solute:** the substance that is being dissolved.

**Solvent:** a liquid in which other substances can be dissolved.

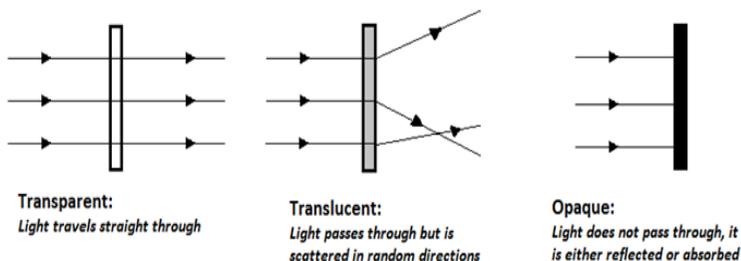
**Insoluble:** not able to be dissolved.

**Thermal conductor:** a material that allows transfer of heat.

**Thermal insulator:** a material that does not allow the transfer of heat

### Transparency

**Transparency** is the capability of a material to let light through



**Transparent:**  
Light travels straight through

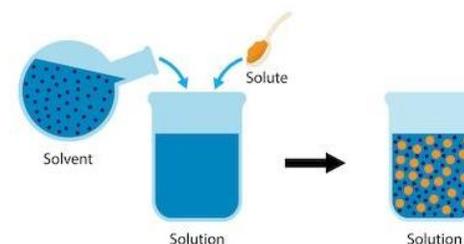
**Translucent:**  
Light passes through but is scattered in random directions

**Opaque:**  
Light does not pass through, it is either reflected or absorbed

### STICKY KNOWLEDGE

1. Magnetic materials are always made of metal, but not all metals are magnetic.
2. Iron, nickel and cobalt are metals which are magnetic.
3. Most other metals, for example aluminium, copper and gold, are NOT magnetic.
4. Materials have different properties, including: hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnet.
5. Insulators do not let heat or electricity to pass through. Conductors let heat and electricity pass through easily.
6. Solubility is a measurement of how much of a substance will dissolve in an amount of liquid. The liquid is called the solvent.

### KEY CONCEPT – Dissolving



Some substances **dissolve** when you mix them with water.

When a substance dissolves, it might look like it has disappeared, but in fact it has just mixed with the water to make a transparent liquid called a **solution**.

Substances that dissolve in water are called **soluble** substances.

Substances that do not dissolve in water are called **insoluble** substances.

### KEY CONCEPT – Conductors and insulators

## Conductors

**Do allow** energy to get through.

**Insulators**

**Do not allow** energy to get through.