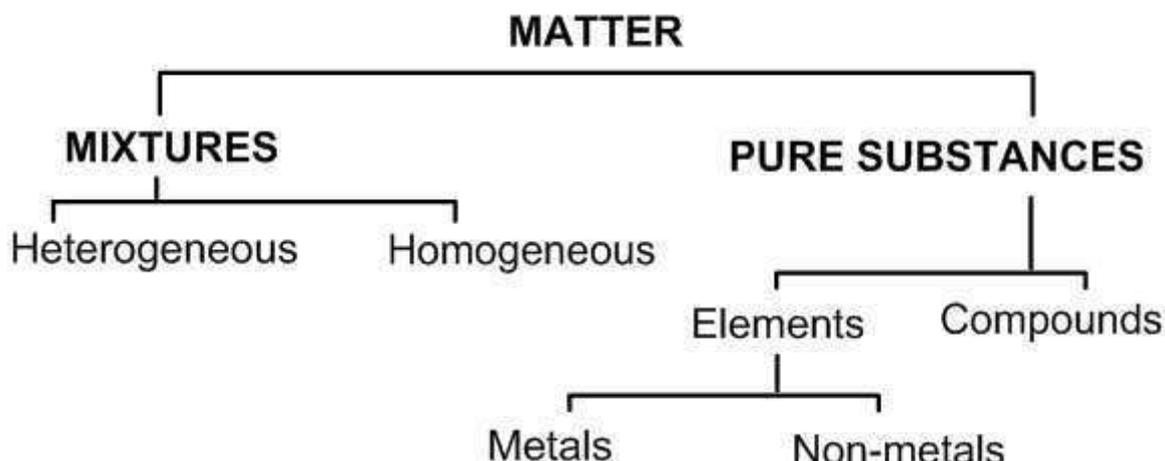


MATTER AND MATERIALS

STUDY NOTES

- Material** A substance that has particular physical properties that can be used to perform a useful function.
- Mixture** A combination of two or more substances, where these substances are not bonded (or joined) to each other and no chemical reaction occurs between the substances.
- Homogeneous mixture** A mixture that is uniform, and where the different components of the mixture cannot be seen.
- Heterogeneous mixture** A mixture that is not uniform, and where the different components of the mixture can be seen.
- Element** A substance that cannot be broken down into other substances through chemical means. Elements are given symbols and arranged in a special order on the Periodic Table.
- Compound** A substance made up of two or more different elements that are joined together in a fixed ratio.

Classification of matter



Properties of Materials

- **Thermal Conductors** Substances that conduct heat
- **Thermal Insulators** Substances that do not allow heat to flow through it
- **Electrical Conductors** Substances that allow charge to pass through it.
- **Electrical insulators** Non-conducting materials that do not carry any charge.
- **Brittle** Substance that break when force is applied to them

- **Malleable** Substances that can be rolled into thin sheets
- **Ductile** Substances that can be draw into strands of wire
- **Melting Point:** The temperature at which a *solid* changes its phase or state to become a *liquid*.
- **Freezing Point** The temperature at which a *liquid* changes its phase to become a *solid*
- **Boiling Point** The temperature at which a *liquid* changes its phase to become a *gas*.

Radio Broadcast 10 Sept 18:00 -19:00

Questions for Discussion

For each of the following materials, say what properties of the material make it important in carrying out its particular function:

- tar** on roads
- iron** burglar bars
- plastic** furniture
- metal** jewellery
- clay** for building
- cotton** clothing

Radio Broadcast 11 Sept 18:00 -19:00

Questions for Discussion

You are given three substances labelled X, Y and Z. The melting and boiling points of these substances are tabulated below:

Substance	Melting Point ($^{\circ}\text{C}$)	Boiling Point ($^{\circ}\text{C}$)
X	-218,4	-183
Y	-24	76
Z	112	440

- What state of matter (i.e. solid, liquid or gas) will each of the substance be in at room temperature (25°C)?
- Which of these substances has the strongest forces between its particles? Give a reason for your answer.
- Which of these substances has the weakest forces between its particles? Give a reason for your answer.