

A decorative border surrounds the central text, featuring various science-related icons such as a beaker labeled 'Dilute Acid', a DNA double helix, a globe, a magnifying glass, a test tube, a petri dish, a Bunsen burner, a microscope, and a gear. The background is a light yellow with faint floral and geometric patterns.

**LITTLE ROSE ACADEMY  
HIGH SCHOOL**

**SUBJECT: SCIENCE**

**CLASS: NINTH (9th)**

## IS MATTER AROUND US PURE? (DEFINITIONS)

(Note: To understand these concepts better, read through the chapter and write down appropriate examples for each definition provided. Additionally, if you come across any other important definitions or terms that are missing from these notes, feel free to add them to your notebooks.)

### Basic Concepts

**Pure Substance:** A substance that consists of a single type of particle (atoms or molecules) of the same chemical nature.

**Mixture:** A substance formed by simply mixing two or more pure substances together in any proportion, without any chemical reaction occurring.

### Types of Mixtures

**Homogeneous Mixture:** A mixture that has a uniform composition throughout. Its components cannot be easily seen or separated by simple physical methods.

**Heterogeneous Mixture:** A mixture that does not have a uniform composition throughout. Its constituents can be easily seen and physically separated.

**Solution:** A homogeneous mixture of two or more substances.

**Solute:** The component of a solution that is dissolved in the solvent (usually present in a lesser quantity).

**Solvent:** The component of a solution that dissolves the other component, the solute (usually present in a greater quantity).

**Suspension:** A heterogeneous mixture in which the solute particles do not dissolve but remain suspended throughout the bulk of the medium.

**Colloid (or Colloidal Solution):** A heterogeneous mixture that appears homogeneous, where the particles are intermediate in size between a true solution and a suspension.

### Types of Pure Substances

**Element:** A basic form of matter that cannot be broken down into simpler substances by chemical reactions.

**Compound:** A pure substance composed of two or more elements chemically combined with one another in a fixed proportion by mass.

### Methods of Separation

**Evaporation:** The process of separating a volatile component (the solvent) from a non-volatile solute by heating.

**Centrifugation:** The process of separating denser particles from lighter particles by spinning the mixture rapidly.

**Sublimation:** The process of converting a solid directly into vapor upon heating (used to separate a sublimable volatile substance from a non-sublimable impurity).

**Chromatography:** The technique used for the separation of those solutes that dissolve in the same solvent.

**Distillation:** The method used for the separation of components of a mixture containing two miscible liquids that boil without decomposition and have sufficient difference in their boiling points.