

FORMAT FOR DESIGNING KPIS:
Class IX
Science

SHEET 1-

What are the problems?	Compilation of problems	Categorization of Problems (Subjective & Behavioral)
<p>Students face problems in :</p> <ul style="list-style-type: none"> • applying concepts to day to day life. • Calculation • Interpretation of various scientific terms. • In drawing the diagram. • Deriving chemical formula using the concept of valency. • Remembering new/difficult scientific terms. • Comprehending the language of question paper. • Time management during the examination. • Inter conversion of units. • In learning and balancing the chemical equations. • Analysis of graph or pictorial questions. 	<ul style="list-style-type: none"> • Students find problem in : deriving the formula, calculation, unit conversion and application of formula. (Application) • analysis of graph. (Analysis) • relating the concept with daily life. (Application) • understanding the language of question paper and time management during exam. (Evaluate) • remembering and interpreting various scientific terms. (Knowledge) • drawing diagrams, and in identifying the specimen, colour, odor etc. (Knowledge) • deriving chemical formula using concept of valency. (Synthesis) • expressing his/her ideas/concept/understanding in their own language. (Knowledge) • applying the learned concepts to daily life application. (Application) 	<p>Subjective Problems :</p> <ul style="list-style-type: none"> • Deriving formula, applying concepts,. • Inter conversion of units, and solving problems. • Comprehending problem while solving the numerical. • Memorizing the scientific terms. • Students are not able to apply scientific terms in day-to -day life. <p>Behavioural Problems :</p> <ul style="list-style-type: none"> • Lack of practice of diagrams, graph, numericals , valency, chemical formula. • Lack of focus/attention while making observation in laboratory. • Lack of scientific approach. • Lack of interest and concentration in the topic, it takes more time

<ul style="list-style-type: none"> • Differentiating between the basic things like atoms, cells, molecules, elements etc. • Identification of specimens, colour, odor. 		to understand the topic.
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Lesson Plan 1
Class – IX
Subject: Science
Topic: Is matter around us pure?

DEFINITION ADDRESSED TO THE LESSON PLAN

KPI 1- To strengthen in- depth understanding of some complex scientific concepts

KPI 5- Application of scientific concepts in doing experiments

KPI 6- Promoting analytical thinking in order to establish connectivity with the real-world situation and compare the different physical quantities.

KPI 4 -Encourage maximum participation of students in activities and classroom discussions.

KNOWLEDGE	UNDERSTANDING	APPLICATION	ANALYSIS	SYNTYHSIS	EVALUATION
S-1, B-1,6	S-2,3,5 B-4	S-4,6 B-2,3	S-5 B-5	S-5 B3,5	B-6

Brief Description of the lesson: -

UN Sustainable Goals to be achieved (if any): quality education

Objectives:

I - Specific Objectives

Students are enabling to: -

- 1) Define pure substances (Knowledge)(KP1)
- 2) Classify element, compound and mixture.(Understand) (KP-6)
- 3) Classify homogeneous and heterogeneous mixture.(Understand) (KP-6)
- 4) Apply concept of saturated, unsaturated and super saturated solution in day-to-day life.(Application) (KP6)
- 5) Classify solution, suspension and colloids on basis of their size of particles, diffusion, Tyndall effects. (Understand , analysing) (KP5)
- 6) Exemplify types of colloids in day-to-day life. (Application) (KP5)
- 7) Calculate different concentration of a solution on basis of volume by volume, mass by volume and mass by mass.(application) (KP6)

II - Behavioral Objectives

To enable the students to-

- 1) Understand pure substance. (knowledge) (KP1)
- 2) Utilize concept of mixture for classification of things in day-to-day life. (Application) (KP5)
- 3) Apply concept of saturated and unsaturated and super saturated during formation of tea, sugar candy and some Indian sweets like Besan barfi etc(synthesis, Application)
- 4) Analyse the colloids in day to day life like milk ,fog etc. (Analysis)
- 5) Differentiate solution, suspension and colloids. (Analysing) (KP4)
- 6) Classify element ,compound and mixture . (Understanding) (KP1)

Process / Activities

Activity (to introduce the lesson)

Warm up activity: 1. Identification of substances

Teacher will write examples of some common substances used in day to day life on the black board and ask students in which one is pure and which one is impure.

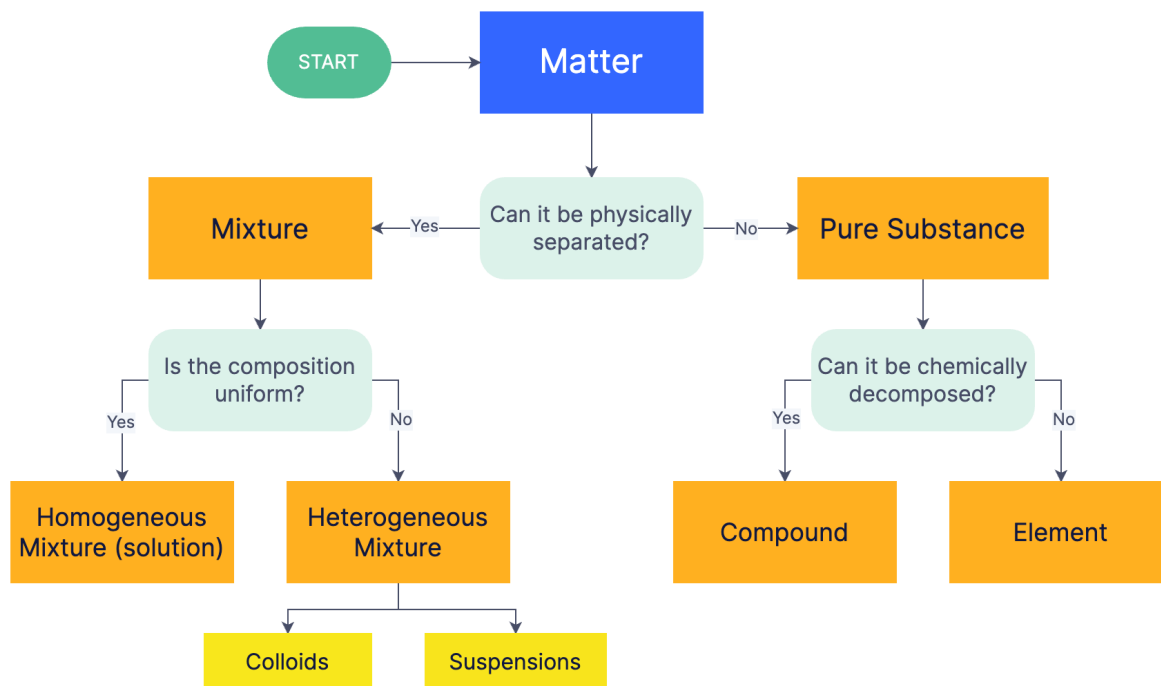


Probing questions:

1. Identify pure and impure substance?
2. If pure than why it is pure and if impure than why it is impure?







Activity: -2 To show flow chart of classification of matter and explain in detail step by step.

KPI-2









Homogeneous & Heterogeneous Mixture Definition & Examples

Homogeneous Mixture: It is the mixture, in which the components are uniformly distributed throughout its volume and cannot be seen separately.

					
Tea	Fruit Juice	Medicine	Honey	Milk	Blood

Heterogeneous Mixture: It is the mixture, in which the components are not uniformly distributed throughout its volume and can be easily seen separately.

					
Ice in Water	Soupy Noodles	Assorted Candies	Assorted Dry Fruits	Soil	Oil in Water

Probing questions:

Give some examples of element and compound?

How you prepare solution?

Activity -3 Teacher will explain concept of solution by activity in lab and by chart also. Teacher will give example and definition of solute ,solvent and solution and also show example of solution in the class.

. KPI-2



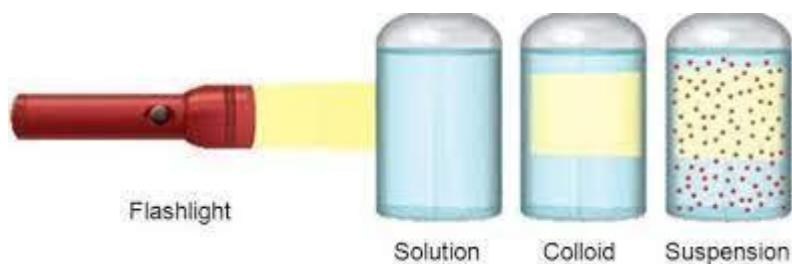
Activity -4 Teacher will prepare suspension in class by adding chalk powder and water/ soil and water and will show to students and tell them to compare size of particles. Teacher will also show chart.

Examples of Suspension

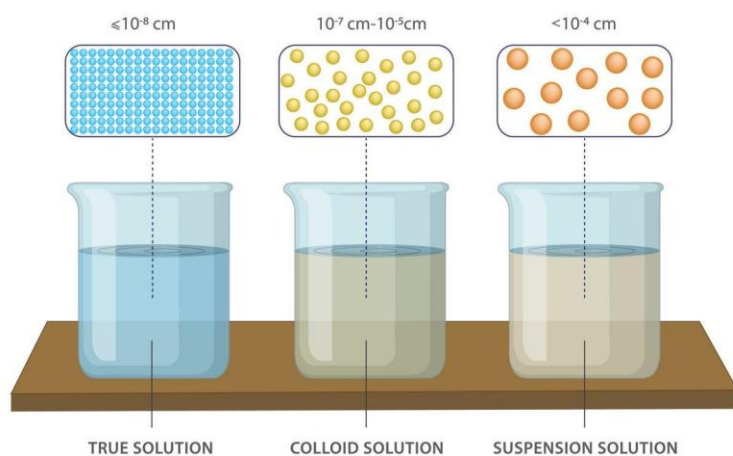


Activity :5 Teacher will explain colloidal solution with the help of example of milk and blood. Also show chart of types of colloids.

Dispersed phase	Dispersion medium	Type of colloid	Example
Solid	Solid	Solid sol	Some coloured glasses, and gem stones
Solid	Liquid	Sol	Paints, cell fluids
Solid	Gas	Aerosol	Smoke, dust
Liquid	Solid	Gel	Cheese butter, jellies
Liquid	Liquid	Emulsion	Milk, hair cream
Liquid	Gas	Aerosol	Fog, mist, cloud, insecticide sprays
Gas	Solid	Solid sol	Pumice stone, foam rubber
Gas	Liquid	Foam	Froth, whipped cream, soap-lather



TYPES OF SOLUTION



In the same way teacher will explain other Tyndall effect also steps one by one by showing PPT.

Activity-6 Teacher will explain difference between solution, suspension and colloids

Activity -7 teacher will explain concentration of solution on black board.

Digital content: -

Expected Learning Outcomes

Students will be able to

- understand two types of matter.
- understand pure and impure matter.
- Classify pure and impure matter.
- Exemplify element and compound.
- Apply concept of mixture in day-to-day life to classify the things.
- Apply concept of solution in day-to-day life.
- Understand suspension and differentiate between solution and suspension.
- Understand colloids and its examples .
- Calculate concentration of solution.

Assessment Activity:- MCQS test , class test, Oral test.