

Investigate matter: Mixtures and solutions



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المزيد من مادة
علوم:

إعداد: Adel Rania

التواصل الاجتماعي بحسب الصف الخامس



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الخامس والمادة علوم في الفصل الأول

ملزمة منهج انسابير تحتوي على شرح دروس الفصل كامل بالإضافة الى تمارين بعد كل درس

1

ملزمة إثرائية

2

أسئلة الدرس الأول انسابير

3

اسئلة درس أن تصبح عالماً" بريدج

4

إعداد أفضل العلماء: أن تصبح عالماً - منهج بريدج

5



Investigate matter

Mixtures and solutions



التاريخ

2/9/2026



المعلمة

Rania Adel



الصف

خامس
أنسباير



المادة

science



افهم



اكتشف



استكشف



Discovering Mixtures & Solutions

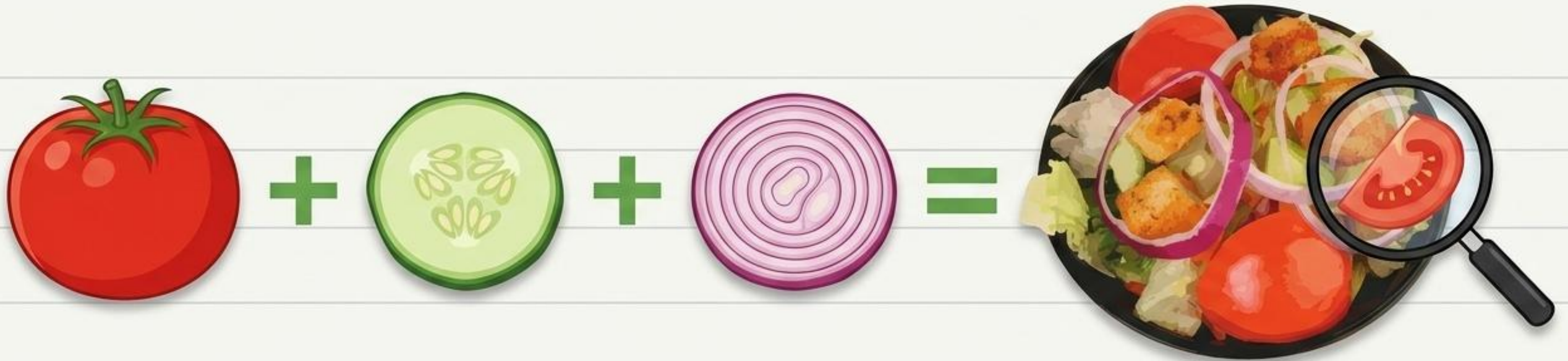
Exploring the science of how things combine.

Academy: Science Zone
Teacher: Rania Adel



What is a Mixture?

A physical combination of two or more substances.



Mixed, but NOT chemically combined!
When two substances mix to form a mixture, they keep their own individual identities.

The Golden Rule of Mixtures

When you mix materials together, the mass of the mixture is exactly the same as the sum of the original materials.

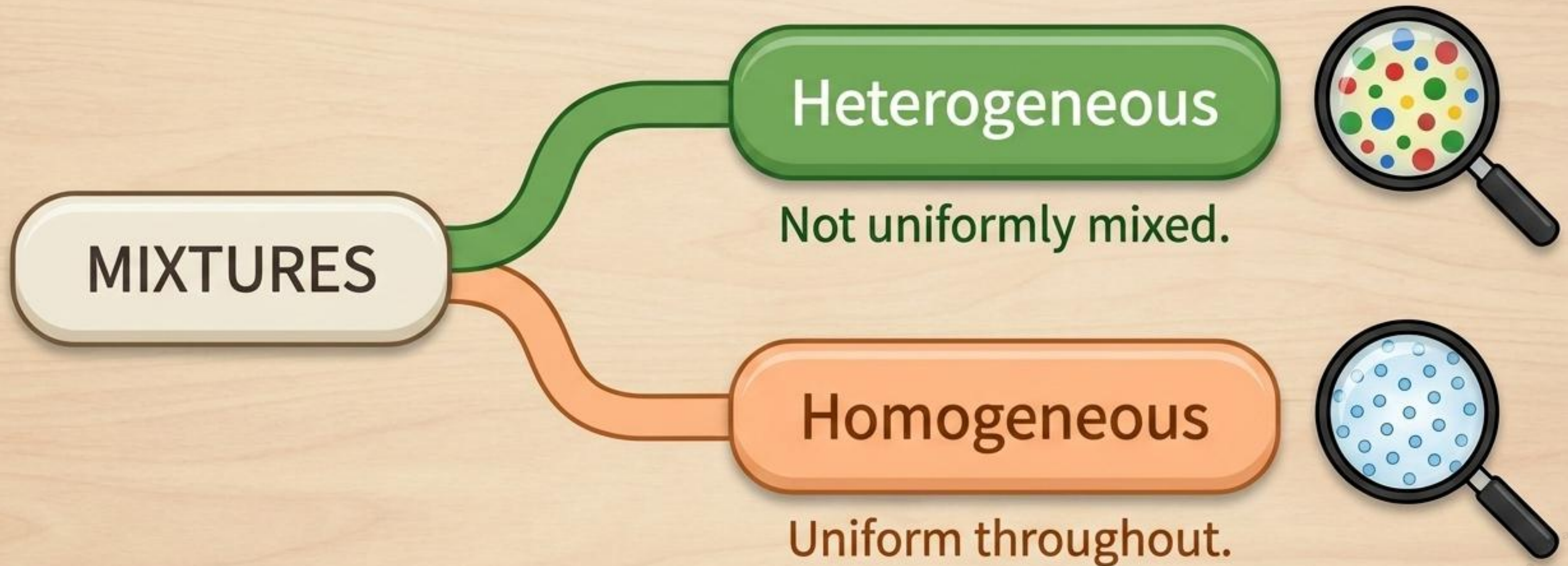


Quick Tip

$10.9\text{g} + 5.0\text{g} = 15.9\text{g}$. Nothing disappears!

The Two Main Families of Mixtures

Scientists group mixtures by asking one simple question:
Does it look the same everywhere?

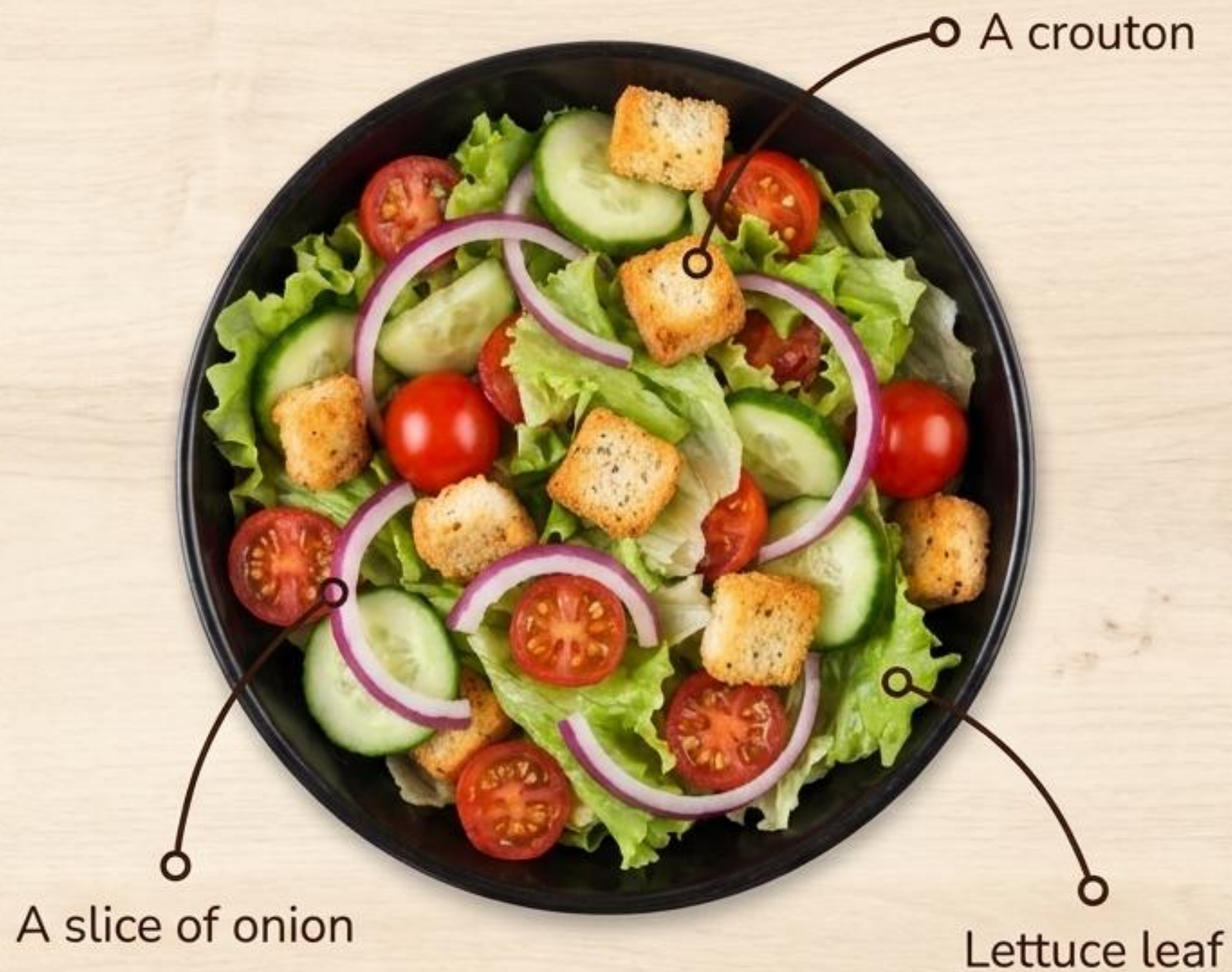


Heterogeneous Mixtures

Mixtures that have parts that are NOT uniformly mixed together. You can see the individual parts.

Remember

There are NO rules for how much of each ingredient is mixed! One part of the salad might have more tomatoes than another part.



Suspensions: The “Settle Down” Mixture

A suspension is a heterogeneous mixture that looks the same throughout at first, but its parts settle out over time.



Freshly Stirred



Hours Later

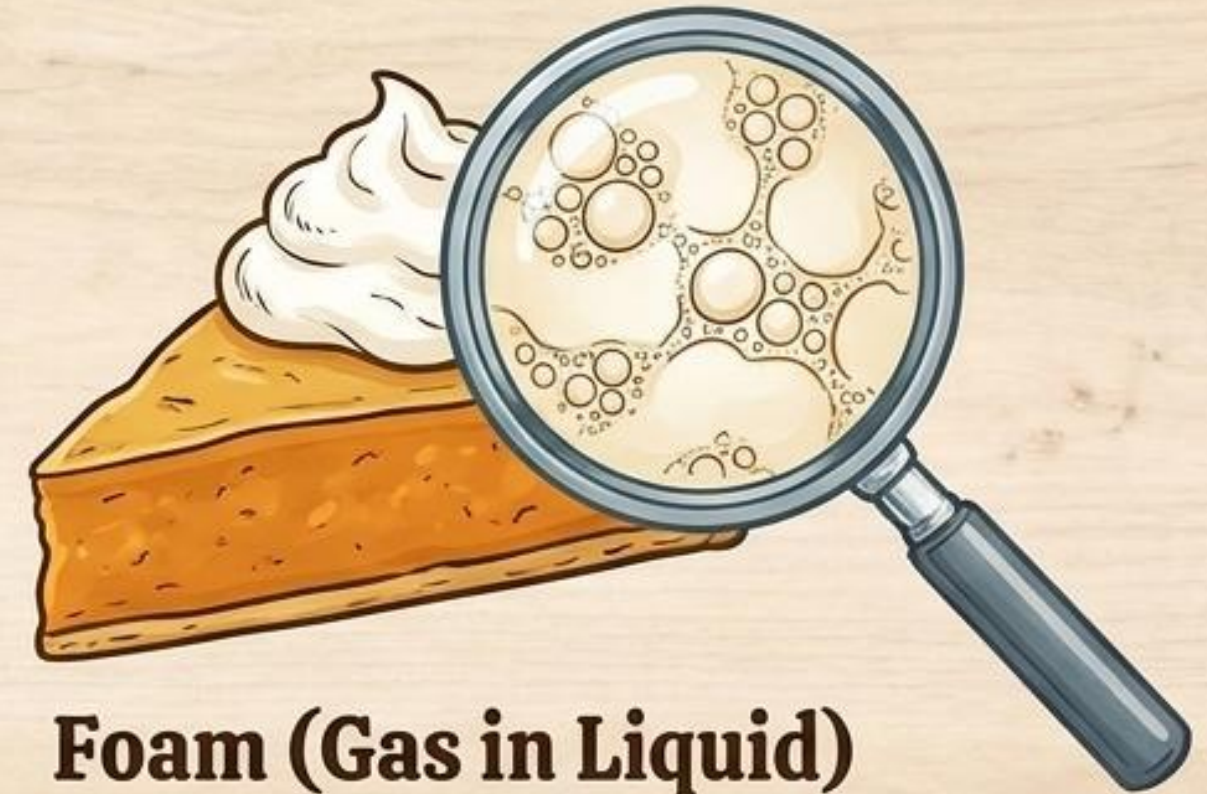
Colloids: The “Trapped” Mixture



Misconception Alert. Colloids might look smooth, but they are completely heterogeneous!



Fog (Liquid in Gas)



Foam (Gas in Liquid)

The parts are so small they do not settle out. They remain perfectly trapped in a liquid, solid, or gas.

Homogeneous Mixtures (Solutions)

Mixtures that are perfectly uniform throughout.

How it Works:

One substance dissolves completely into another.

Examples

-  - Tap water (dissolved minerals)
-  - Sugar water (solid dissolved in liquid)
-  - Carbonated beverages (gas dissolved in liquid under pressure)



The Ultimate Mixture Comparison

	Suspension	Colloid	Solution
Looks uniform?	 No (Initially yes)	 No (Looks like yes)	 YES! (Perfectly uniform)
Do particles settle?	 YES (Settle over time)	 NO (Trapped)	 NO (Dissolved)
Particle Size?	Large	Very Small	Molecular / Invisible
Examples	Muddy water	Fog, Whipped Cream	Sugar Water, Soda

How Do We Separate Mixtures?

Because mixtures are **NOT chemically combined**, we can **separate** them using their **physical properties** (like size, magnetism, or boiling point).

Magnetism



Pulls out magnetic metals like iron.

Filtration



Separates large pieces from small pieces.

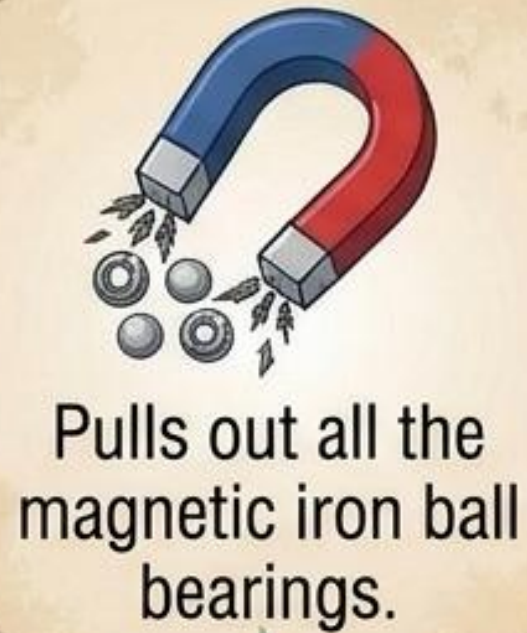
Evaporation



Boils away liquid to leave solids behind.

Step-by-Step Separation Challenge

The Challenge:



Step 2: The Sieve



Step 3: The Result



Only the fine sand is left behind! Mixture completely separated.

Visual Summary

Heterogeneous

Standard
(e.g., Salad)
- Parts easily
visible

Suspension
(e.g., Muddy water)
- Particles
settle out

Colloid (e.g., Fog)
- Particles trapped,
don't settle

MIXTURES
(Physical combination)

Homogeneous

Solution
(e.g., Soda, Sugar Water)
- Uniform
throughout, fully
dissolved

Three-Dimensional Thinking (Self-Check)

Which mixture is most likely a solution?



A. muddy water



B. cranberry juice



C. potting soil



D. milk

Answer: B. Cranberry Juice! Explanation: It is completely uniform and perfectly dissolved, unlike soil or suspended mud.

Key Takeaways



It's Physical, Not Chemical!

Mixtures are just physical combinations. Every ingredient keeps its own identity.



Mass is Conserved

The weight of a mixture is always exactly equal to the combined weight of its parts.



Uniform or Not?

Heterogeneous mixtures (salads, suspensions) are uneven. Homogeneous solutions (soda) are perfectly mixed throughout.



Teacher Rania Adel