

Mix It Up

Compare mixtures by observing how their materials behave.

4.6.B “investigate and compare a variety of mixtures, including solutions that are composed of liquids in liquids and solids in liquids; and”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each mixture named in the passage, write L-L for liquid in liquid or S-L for solid in liquid beside it, and circle the mixtures that are solutions.

Three Cups, Three Mixtures

- ① During a science station, Maya mixes water with rubbing alcohol in a clear cup. Both starting materials are liquids. After gentle stirring, the cup looks the same from top to bottom. The liquids spread evenly, making one kind of mixture called a solution. A solution can contain liquids mixed with liquids. Its parts are too small to see and do not settle into layers.
- ② Next, Maya adds a spoonful of sugar to water and stirs. The sugar seems to disappear, but it is still present. This solid-in-liquid solution is clear and even throughout the cup. In another cup, she stirs sand into water. Sand grains remain visible. When the cup rests, the grains settle on the bottom, so this mixture is not a solution.
- ③ Maya compares the three cups by looking for visible pieces, layers, and settling. She could pour the sand mixture through filter paper because the grains are large enough to be trapped. Filtering would not separate the sugar-water solution or the alcohol-water solution. Both solutions stay evenly mixed. Scientists use observations like these to decide whether a mixture is a solution and to compare its materials.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 Which mixture is a liquid-in-liquid solution? Give one observation from the passage that supports your answer.

2 Which solid-in-liquid mixture is a solution? How does the passage describe it?

3 Compare sugar water and sand water after stirring and resting. What happens in each cup?

4 Which mixture could be separated with filter paper? Which two mixtures would not be separated by filtering?

3 YOUR TURN _____ Your own words

Plan a comparison using two safe mixtures. Include one solid mixed with a liquid and one liquid mixed with a liquid, then predict what you would observe after stirring and resting and classify each mixture.

MIXTURE MATERIALS	MATERIAL TYPES	PREDICTION AFTER STIRRING AND RESTING	SOLUTION OR NOT A SOLUTION?

PART 1 • READ AND MARK

Underline each mixture named in the passage, write L-L for liquid in liquid or S-L for solid in liquid beside it, and circle the mixtures that are solutions. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Which mixture is a liquid-in-liquid solution? Give one observation from the passage that supports your answer.	Water and rubbing alcohol. The cup looks the same from top to bottom, and the liquids stay evenly mixed without layers.
2	Which solid-in-liquid mixture is a solution? How does the passage describe it?	Sugar and water. The sugar is still present, but the mixture is clear and even throughout the cup.
3	Compare sugar water and sand water after stirring and resting. What happens in each cup?	Sugar water stays clear and even because the sugar dissolves. Sand water has visible grains that settle on the bottom when the cup rests.
4	Which mixture could be separated with filter paper? Which two mixtures would not be separated by filtering?	The sand-and-water mixture could be filtered because the grains are trapped. Sugar water and alcohol water would not be separated by filtering.

PART 3 • YOUR TURN (SAMPLE ANSWER)

MIXTURE MATERIALS	MATERIAL TYPES	PREDICTION AFTER STIRRING AND RESTING	SOLUTION OR NOT A SOLUTION?
A small amount of salt and water	solid + liquid	No visible salt after stirring, stays even after resting	solution
Oil and water	liquid + liquid	May mix briefly when stirred, then forms separate layers after resting	not a solution

Accept any safe, sensible pair of mixtures with one solid-liquid example and one liquid-liquid example. Predictions and classifications should match evidence such as even mixing, visible pieces, settling, or layers.