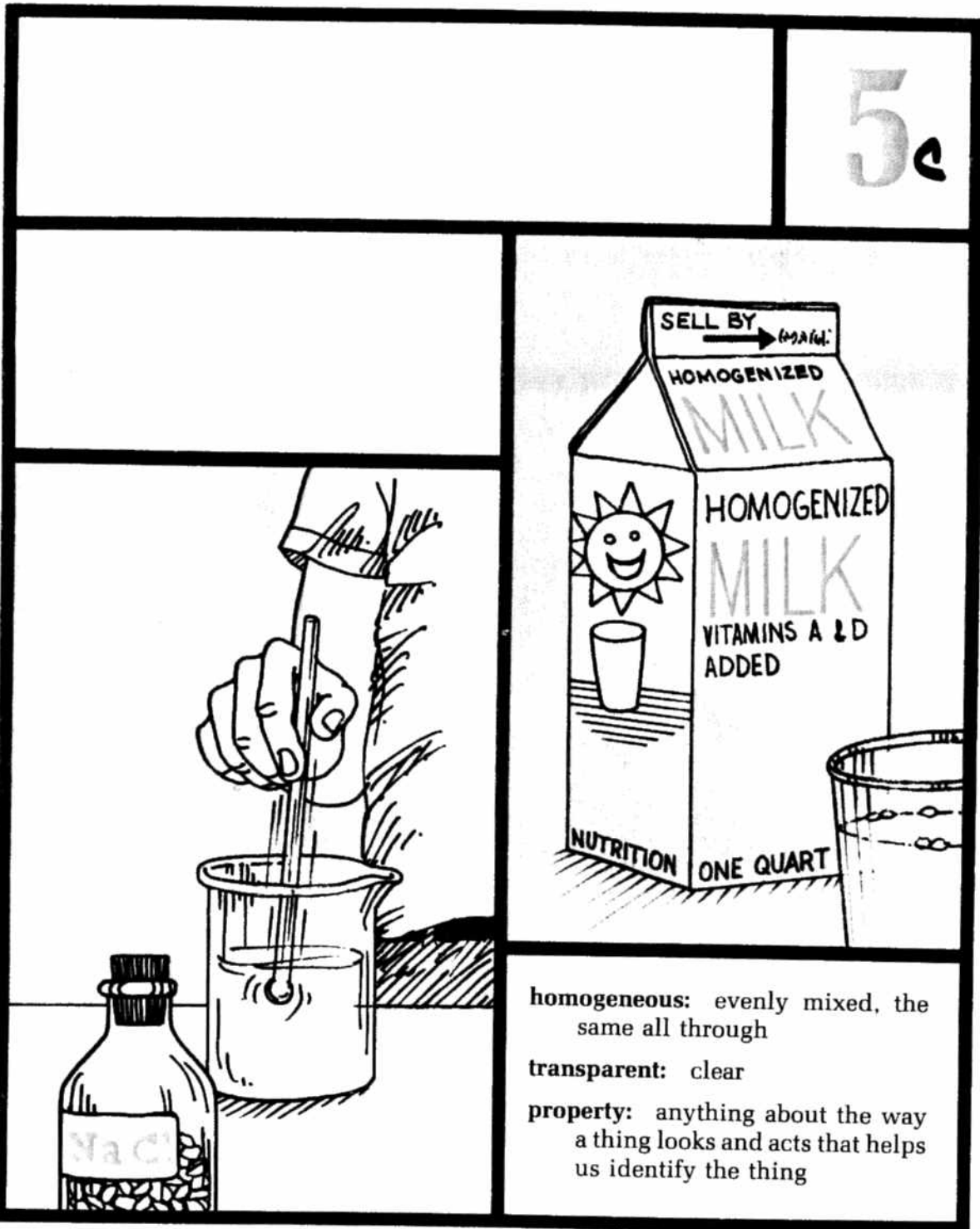


WHAT ARE THE PROPERTIES OF LIQUID SOLUTIONS?

5c



homogeneous: evenly mixed, the same all through

transparent: clear

property: anything about the way a thing looks and acts that helps us identify the thing

AIM | What are the properties of

5 | liquid solutions?

What happens when you add salt to a jar of water and stir? The salt disappears. You have made a *liquid solution*. Does the same thing happen when you add sand to water? No. The sand settles to the bottom of the jar.

How can we tell if a mixture is a solution or not? We can tell by its *properties*. Properties tell us how a kind of matter looks and acts.

These are the properties of liquid solutions:

- (1) The parts are the size of molecules.
- (2) Liquid solutions are *homogeneous* [ho MOJ uh nus].
- (3) Liquid solutions are *transparent* [trans PARE ent].
- (4) Liquid solutions *do not settle out*.

MOLECULE SIZE You know that matter is made of tiny atoms. Most matter is made of groups of atoms called molecules. In a liquid solution, the particles of solute break up until they are the size of molecules.

HOMOGENEOUS *Homogeneous* means evenly mixed, the same all through. Because the particles are the size of molecules they weigh very little. They move around and spread out evenly.

TRANSPARENT You can see clearly through something that is transparent. Glass is transparent. So are liquid solutions. The molecules that make them up are tiny. They don't block out light. Light passes right through.

THE PARTS NEVER SETTLE OUT Something that settles out drops to the bottom of its container. The parts of a liquid solution never separate. They never settle out no matter how long they sit. That is because the molecules are light. They keep bouncing around. This also keeps the solution homogeneous.

CHOOSE ONE Look at each figure. Then choose the correct word or term for each statement. Write your choice in the space.

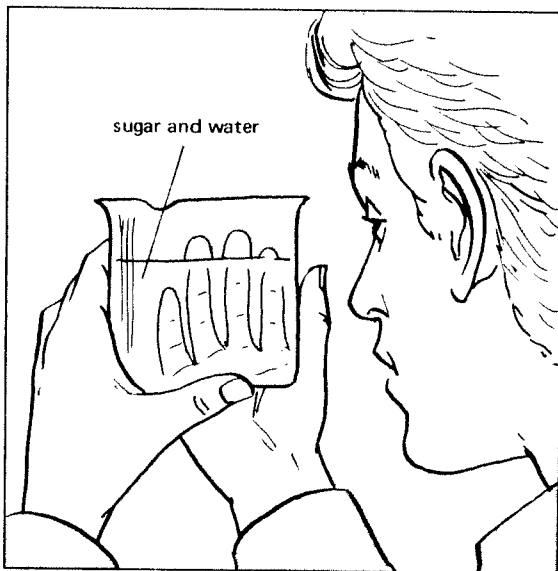


Figure A

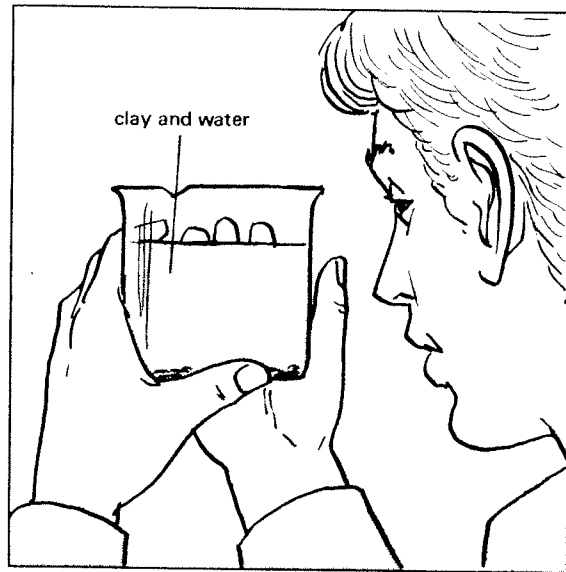


Figure B

1. The boy _____ see clearly through the sugar water.
can, cannot
2. Sugar water _____ transparent.
is, is not
3. The parts of sugar water are _____
the size of molecules, larger than molecules
4. Particles the size of molecules _____ stop light.
do, do not
5. The sugar _____ settling to the bottom.
is, is not
6. The mixture in Figure A _____ homogeneous.
is, is not

Conclusions

7. The mixture in Figure A _____ homogeneous.
is, is not
8. Sugar water _____ a liquid solution.
is, is not
9. The boy _____ see clearly through the clay water.
can, cannot
10. Clay water _____ transparent.
is, is not

11. The clay pieces are _____
the size of molecules, larger than molecules
12. Particles larger than molecules _____ stop light.
do, do not
13. The clay pieces _____ settling out.
are, are not
14. The clay pieces _____ evenly mixed.
are, are not

Conclusions

15. The mixture in Figure B _____ homogeneous.
is, is not
16. Clay water _____ a liquid solution.
is, is not

COMPLETING SENTENCES Complete the sentences with the choices below. One of these terms may be used twice.

liquid solutions
drop
molecules

moving around
is not
transparent

light
clay water
small in size

1. When we can look clearly through something we say it is _____.
2. _____ are transparent.
3. _____ is not transparent.
4. Clay water _____ a liquid solution.
5. The parts of a liquid solution are the size of _____.
6. The molecules of a liquid solution do not block _____.
7. To "settle out" means to _____.
8. The parts of _____ do not settle out.
9. Liquid solutions do not settle out because the parts are too _____.
10. The molecules in liquid solutions are always _____.

WHICH IS HOMOGENEOUS?

The dots stand for copper sulfate molecules. The liquid is water.

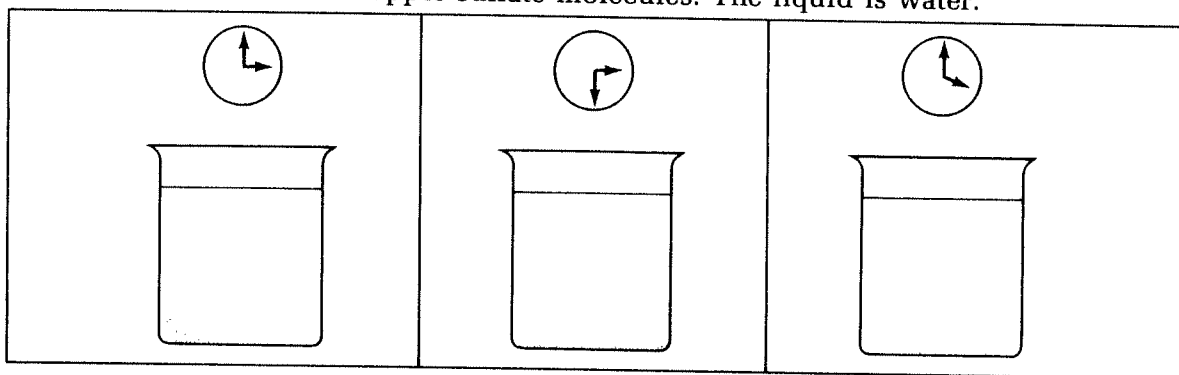


Figure C

Figure D

Figure E

- Which figure shows a homogeneous mixture? _____
- Which figure shows a liquid solution? _____
- The mixtures in Figures _____ and _____ are not liquid solutions.
 - They are not liquid solutions because they _____ homogeneous.
are, are not
- The mixtures that are *not* liquid solutions _____ become liquid solutions.
could, could not
 - They would be solutions if all the _____ dissolved, and spread out evenly.
solute, solvent
- Think about this: What would you do to make the mixtures that are *not* homogeneous, become homogeneous *fast*?

MATCHING Match the two lists. Write the correct letter on the line next to each number.

- | | |
|----------------------|--|
| 1. _____ molecule | a) evenly mixed |
| 2. _____ homogeneous | b) drop |
| 3. _____ settle out | c) tiny part of matter |
| 4. _____ properties | d) clear |
| 5. _____ transparent | e) things that tell us how a kind of matter looks and acts |

TRUE OR FALSE Write T on the line next to the number if the sentence is true.
Write F if the sentence is false.

1. _____ Anything we can see through clearly is transparent.
2. _____ Every mixture is homogeneous.
3. _____ Sand becomes the size of molecules when it is in water.
4. _____ Liquid solutions are transparent.
5. _____ Muddy water is transparent.
6. _____ Muddy water settles out.
7. _____ The parts of liquids are the size of molecules.
8. _____ Salt water is a liquid solution.
9. _____ Liquid solutions settle out.
10. _____ The molecules of solutions are always moving around.

REACHING OUT

Transparent, *translucent*, and *opaque* are three words that have to do with light. Give a definition of each word in the spaces below. (You may use a dictionary.) Next to each definition give an example of each.

Transparent _____

Translucent _____

Opaque _____

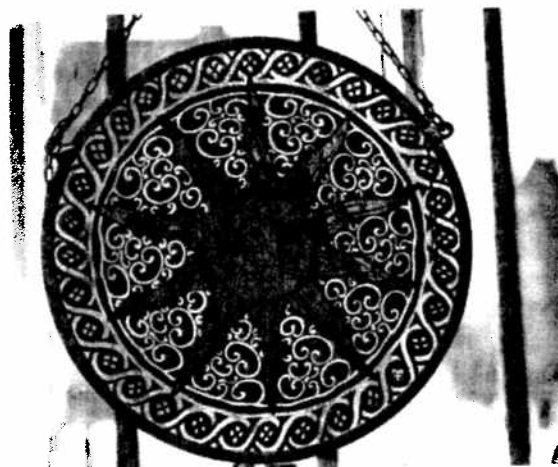


Figure F