

States of Matter Puzzle

The labels have fallen off three jars in the chemistry lab. Jill, Jess, and Juan are each holding a jar. One jar contains a solid, another contains a liquid, and the third jar contains a gas. They know that the substances contained in the jars are nitrogen monoxide, silicon dioxide, and hydrogen hydroxide. Use the clues provided below to match the jars with their contents and the students holding them. Then, in the space provided below, write the new label that describes the contents and identifies who last handled the jar. The grid provided below may help you organize the information and solve the puzzle.

Clues:

- Juan is not holding jar C.
- Nitrogen monoxide is the state of matter that had no definite shape or volume and has particles that move independently of one another.
- Jill is not holding jar A.
- Juan does not have the state of matter in which the particles are closely packed together and connected to each other, with a definite shape and volume.
- Jar A does not contain the state of matter in which particles have a definite volume, but no definite shape.
- The jar Jess is holding does not contain hydrogen hydroxide.
- Silicon dioxide is not the state of matter that has particles connected together, but have no definite shape.
- The jar Jess is holding is not jar C.
- Jar A does not contain a gas.
- Neither Jess nor Jill have the gas.
- Silicon dioxide is not in jar B.

Place an X in the box if the if the description doesn't fit the jar
Place an O in the box if the description fits the jar.

	A	B	C	Jill	Jess	Juan	solid	liquid	gas
nitrogen monoxide	X	O	X	X	X	O	X	X	O
silicon dioxide	X	X	O	X	O	X	O	X	X
hydrogen hydroxide	O	X	X	O	X	X	X	O	X
solid	O	X	X	X	O	X			
liquid	X	O	X	O	X	X			
gas	X	X	O	X	X	O			
Jill	X	X	O						
Jess	X	O	X						
Juan	O	X	X						

Jar A hydrogen hydroxide Jar B nitrogen monoxide Jar C silicon dioxide, solid
liquid Jill *gas Juan* *Jess*