What Is a Fluid?

A **fluid** is a substance that can flow. Liquids and gases are fluids. Their particles can move past one another, so fluids can change shape to fit their containers.

1. Identify the fluids

Circle the substances that are fluids.

water **air** **wood** **cooking oil** **steam** **ice** **honey**

2. Complete the table

Property	Solid	Liquid	Gas
Can it flow?			
Does it keep its own shape?			
Does it fill the entire container?			

3. Explain

a. Why does water change shape when you pour it from a bottle into a glass?

b. Air is invisible. What evidence shows that it is a fluid?

4. Apply your ideas

a. A student pours juice into two differently shaped cups. What changes: the juice's shape, its volume, or both? Explain.

b. Air is pumped into a bicycle tyre. How does the air behave differently from juice poured into a cup?

c. A sealed syringe contains air. Its plunger can be pushed in. A similar syringe is filled with water. Why is the water much harder to compress?

5. Exit question

Write one similarity and one difference between liquids and gases.

Similarity: _____ **Difference:** _____

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1. Identify the fluids

water **air** **wood** **cooking oil** **steam** **ice** **honey**

2. Complete the table

Property	Solid	Liquid	Gas
Can it flow?	No	YES	YES
Does it keep its own shape?	YES	NO	NO
Does it fill the entire container?	NO	NO	YES

3. Explain

a. Why does water change shape when you pour it from a bottle into a glass?

Water's particles can move past one another, so it flows and takes the shape of the glass.

b. Air is invisible. What evidence shows that it is a fluid?

Air moves and flows. For example, you can feel it as wind, and it moves into a balloon when you inflate it.

4. Apply your ideas

a. A student pours juice into two differently shaped cups. What changes: the juice's shape, its volume, or both? Explain.

Its **shape** changes to match each cup. Its **volume** stays the same, provided none is spilled.

b. Air is pumped into a bicycle tyre. How does the air behave differently from juice poured into a cup?

Air spreads out to fill all available space inside the tyre and can be compressed. Juice keeps a nearly fixed volume and collects at the bottom of the cup.

c. A sealed syringe contains air. Its plunger can be pushed in. A similar syringe is filled with water. Why is the water much harder to compress?

There is much more space between gas particles than between liquid particles. Pushing the plunger moves the air particles closer together, but water particles are already close together.

5. Exit question

Similarity: Both liquids and gases can flow and take the shape of their containers.

Difference: A gas expands to fill its entire container and is easily compressed; a liquid has a nearly fixed volume and is difficult to compress.

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