

## Section 3

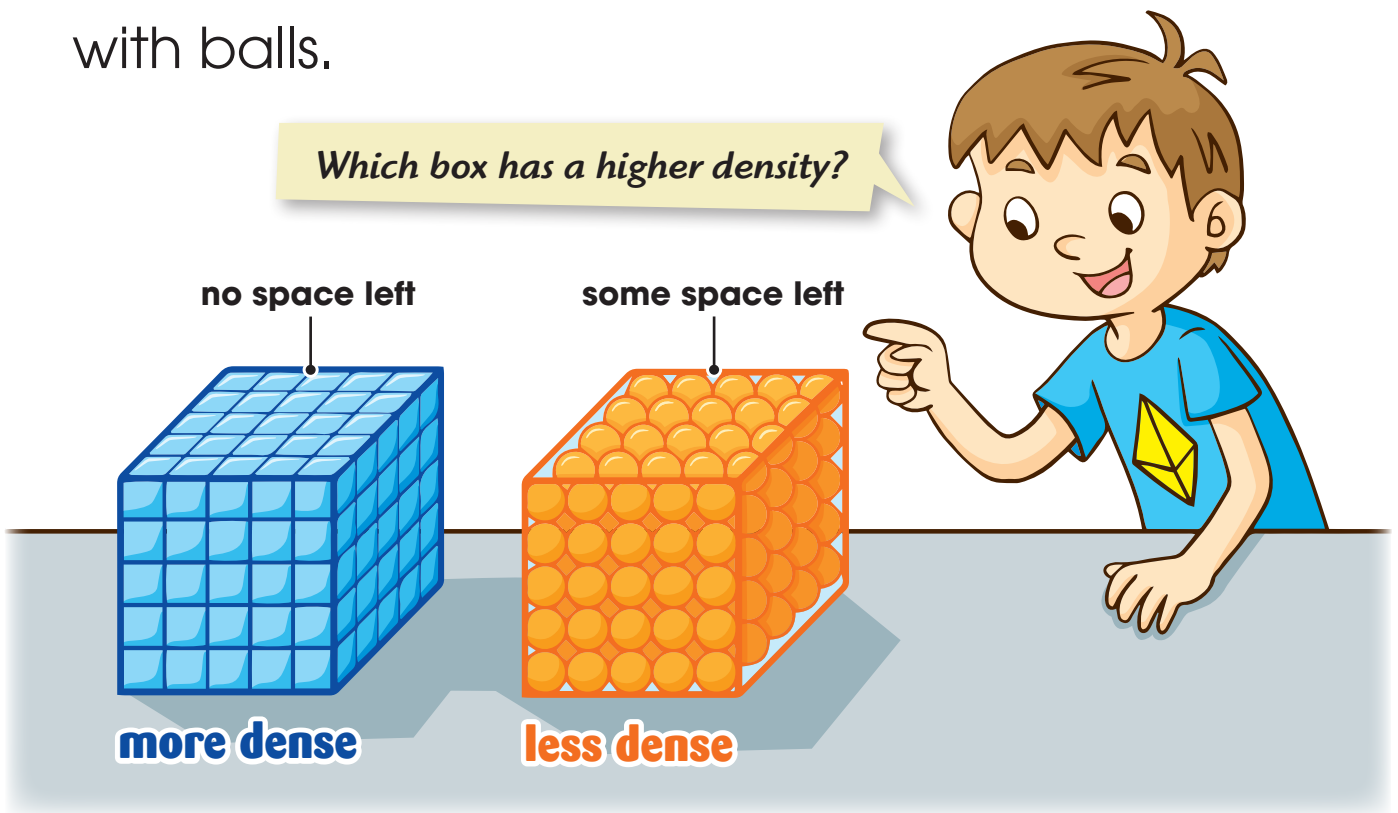
### Understanding Matter and Energy

#### EXPLORATION 2

## Liquid Layers

Relate water temperature to its density.

Do you know what density is? Density is how compact an object is. For example, imagine there are two boxes of the same size, and one box is filled with cubes, while the other is filled with balls.



The box with the cubes has a higher density because it is packed with more stuff.

Do you think that the density of an object always stays the same? Is it affected by temperature?

## Section 3

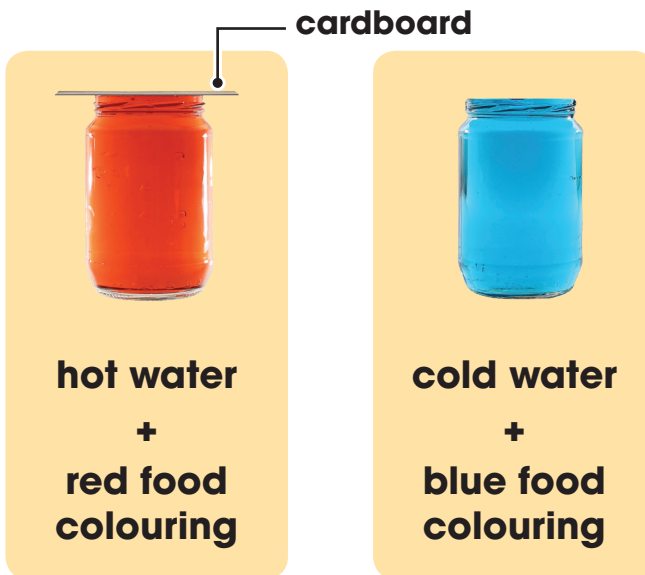
### Understanding Matter and Energy

EXPLORATION  
**2**

## Liquid Layers

Conduct this experiment to see how temperature affects the density of water.

### Setup 1



While holding the red jar and cardboard in place, turn it upside down and rest it onto the blue jar.



### Setup 2



While holding the blue jar and cardboard in place, turn it upside down and rest it onto the red jar.



## Section 3

### Understanding Matter and Energy

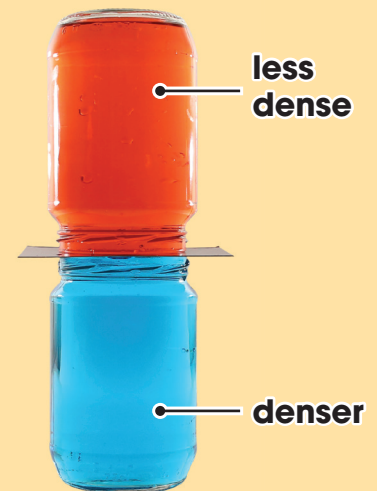
# EXPLORATION 2

## Liquid Layers

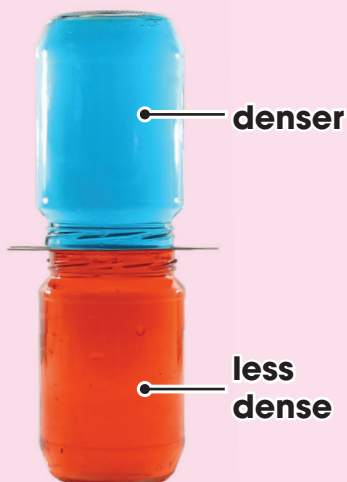
For both setups, have someone hold onto both jars while you slowly and carefully pull out the cardboard.

For Setup 1, you should have noticed that when you put the hot red water on the cold blue water, both layers of coloured water stayed where they were. This is because the hot water was less dense than the cold water. Therefore, the hot red water floated on the cold blue water and no mixing happened.

### Setup 1



### Setup 2



Conversely, mixing happened in Setup 2 because the hot red water was less dense and rose while the cold blue water was denser and sank. Therefore, they mixed instantly and created purple water.