



WATER - H₂O **

by Lanny and Marilyn Johnson

The simplest things can show God's incredible design. At first, water might seem pretty simple - two hydrogen atoms attached to one oxygen atom - but as we will see, God designed water to work in extraordinary ways.

Water is unique and essential for life. It occurs naturally in all three states of matter; solid, liquid, and gas. The solid forms are ice, snow, and frost. We can't see water as a gas or vapor because it is invisible. Water can evaporate (or disappear) with the help of heat. Plants release water vapor into the air, and so do people as they breathe out (exhale). Liquid water is the form we're most familiar with. It runs out of the tap and is also found in rain, streams, rivers, ponds, lakes, and oceans. It makes up the most significant part of the weight of plants, animals, and man. Water covers around 70% of the Earth's surface. Water is almost everywhere!

Of all the known liquids, water is by far the best solvent. In other words, more substances can be dissolved in water than in anything else. God created water molecules with two hydrogen atoms with positive (+) electrical charges attached to an oxygen atom with a negative (-) charge in the shape of a V (with an angle of 104 °). Since opposite electrical charges

attract (+ to -), this means that one side of the water molecule or the other will stick itself to molecules of other substances, such as minerals, vitamins, oxygen, and other gases. Water dissolves other materials by tearing their molecules away from each other. Fortunately, water can't dissolve everything it touches. If it did, it would be almost impossible to carry. These same electrical charges also make water molecules stick to one another with strong

holding power. Pulling them apart takes a lot of energy. As a result, water has a very high surface tension. In other words, water is sticky and elastic. It tends to bunch up in drops rather than in a thin film. Surface tension is responsible for capillary action, which allows water (and things it dissolves) to move through the roots of plants and the tiny blood vessels in our bodies.

Water has a high specific heat index, meaning it must lose a lot of energy for it to become cold. Likewise, it also takes a lot of energy to heat it. Because of this, the vast bodies of water on Earth help keep the Earth's temperature fairly consistent. Land heats up and cools down much faster than water. As a result of the different temperatures of land and water, wind is created, which keeps our air fresh. God thought of everything!¹

Water freezes at 32 °F (Fahrenheit) and boils at 212 °F. Water's freezing and boiling points are the standard by which temperature is measured:

0° on the Celsius (C) scale is the freezing point of water, and 100 °C is its boiling point.

Water is unusual in the way it freezes. As most liquids freeze, they become heavier (denser) and sink. However, as water freezes and turns to ice, it expands, becomes less dense, and floats. Unless the winter is extremely long and cold, this layer of ice will insulate the lake from the cold and thus prevent it from freezing solid. By designing water this way, God made it possible for fish to survive winters under the ice.²

Is water necessary? Yes, it is life-giving. Without it, plants, animals, and people would die. We can live quite a long time without food, but without water, we would die in a matter of days. In Bible lands, the people knew how very important water was. They knew they could not exist without it. Jesus, wanting them to understand how important he was, said to them,

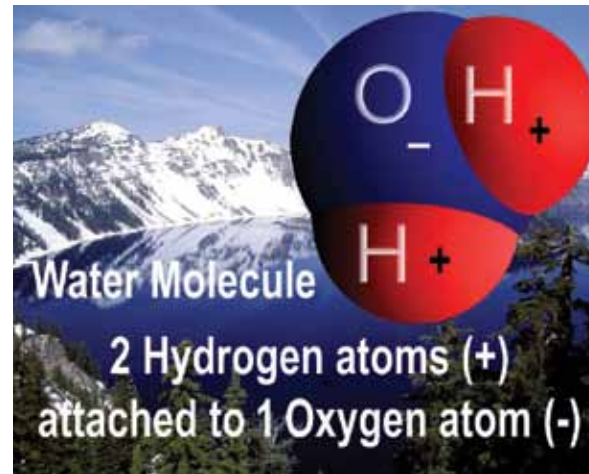
"Whosoever drinketh of this water shall thirst again: But drinketh of the water that I shall give him shall never thirst; but the water that I shall give him shall be in him a well of water springing up into everlasting life." John 4: 13b-14. Water is necessary for our physical life. Jesus is necessary for our spiritual and eternal life. Have you taken a drink from the cup of Jesus?

References:

** A revision of <https://www.discovercreation.org/documents/kids/SepandOct1999KTB.pdf>

¹ <https://creation.com/the-wonders-of-water>

² <https://www.coolkidfacts.com/water-facts-for-kids/>
Water Molecule: https://upload.wikimedia.org/wikipedia/commons/6/6e/H2o_hq2_alpha.png



WORDSEARCH

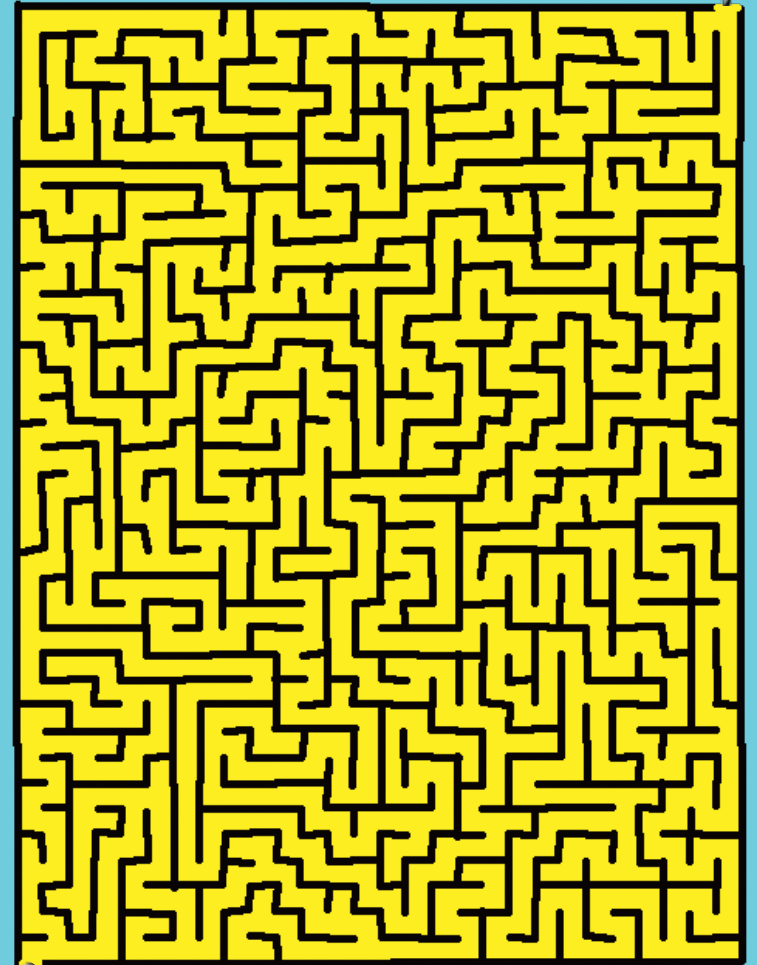
Look for the words from the WORD LISTS below. The hidden word might be up, down, sideways or slanted, but not backwards.



WORD LIST

BOIL DISSOLVE FREEZE FROST GAS HYDROGEN
ICE LIQUID MOLECULE OXYGEN SNOW SOLID
SOLVENT VAPOR WATER

Find the path through the maze for the water to flow to the thirsty dog below.



Adapted from <https://krazydad.com/mazes>

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