<u>Watery Wonders</u> – Water Cycle Kit Lesson Plan.

Welcome to the wonderful world of water! The four songs in the Water Cycle Kit represent a wide coverage of water research including: "Water, Water", "H2O Cycle Rap", "Water Cycle Story Dance" and "Water Is Life".

The emphasis is on the Water Cycle (Hydrological Cycle) demonstrated in simplified fashion through song and movement theater. The great thing about studying the water cycle is that it demonstrates the *dynamic, ever-changing, fluid nature inherent in <u>all living systems!</u>*

Water is in permanent motion; constantly changing states from liquid to solid to gaseous phases and cycling 'round again. The four most basic 'elements' in the water cycle are:

1) ***Precipitation*** – rain, snow, sleet, hail…
2) ***Accumulation*** – water storage by virtue of run-off, percolation, infiltration and precipitation in oceans, lakes, rivers, streams, ground-water, aquifers and ice and snow.
3) ***Evaporation*** – driven by solar energy heating up oceans and lakes along with water 'stored' in soil and in plants and trees (transpiration) AND in all living organisms!
4) ***Condensation*** – the formation of tiny water droplets in water vapor formations (clouds!)

Movement of water through the planet's many wind and ocean current systems, run-off and underground 'arteries' is called ***Water Transport***.

Teaching the water cycle is an absolute joy when showing it through movement and story-theater and song. Demonstrate the graphic 2D diagrams of the water cycle in 3D in the center of your classroom! That's what Talking Hands Talking Feet is here to help you do!

Now here comes a cascade of *watery wonders*:

We humans are a living part of the ***hydrosphere***! To be conscious of that fact can lead to greater understanding, responsibility and care for the earth her many interdependent systems.

Water is the marriage of two of the most combustible elements in the Universe, *HYDROGEN and OXYGEN – H_2O!* The configuration of these building blocks (two hydrogens and one oxygen) produces a molecule with almost magical properties:

Water is called the *UNIVERSAL SOLVENT.* Think about it. Water circulates throughout the entire planet exosphere absorbing and dissolving contaminants; from the bottom of the ocean to the highest mountain spring, from the underground aquifers to the giant thunderclouds marching across the sky – *IT IS ALL THE SAME WATER!*

That's why we need to care for it. There are no 'isolated' systems.

WATER IS THE FOUNDATION FOR ALL LIFE ON EARTH.

The human body is between 55% - 70% water. That makes us more fluid than solid!

Nearly everything we eat is between 50% - 90% water.

The *THREE STATES OF WATER* – solid (ice), fluid (liquid) and gas (vapor, steam) – allow water to be marvelously versatile. *ICE* is less dense than *FLUID* water. So, unlike most substances in their *SOLID* state, it floats! If it did not float, lakes and rivers and polar waters would freeze from bottom up. Aquatic life could not survive and we would have a very cold planet.

Pure water has *NO COLOR, NO TASTE* and *NO SMELL.*

It is *SOLID* at 0 degrees Celsius and *VAPOR* at 100 degrees Celsius.

The planet's surface is at least 70% water. Only 3% of the planet's water is fresh water. The other 97% is salty.

Water binds to many other substances like glass, cotton, plant tissues and soils. This property is called *ADHESION.* This is why water can climb up the roots, trunks and branches of plants and trees. This movement of water is called *CAPILLARY ACTION.*

Besides the property of adhesion, water also has a high degree of *SURFACE TENSION* which allows it to hold up substances (and objects) heavier and denser than itself. Surface tension is also what makes calm water look like glass.

What is a *MERMAID'S MIRROR?* Look at the surface of a calm body of water from just underneath, and you will see your reflection!

Water also has marvelous *THERMAL PROPERTIES.* The earth's big bodies of water are giant heat reservoirs generating weather and affecting climate the whole wide world around.

Oh yes! There are other extraordinary properties to water as well:

Water is *CONDUCTIVE* to electricity. Does that mean water is conductive to the electro-magnetic atmospheres generated by human beings? In other words, can water be affected by our mental and emotional states? Can music affect the state of water?

Water is the best *CLEANSING AGENT* (Universal Solvent). So, the best way to refresh after a day's work is to get into the shower and let the water take all that static down the drain!

OUR BODIES NEED WATER more than we realize. Drink plenty of good clean water. But not out of petroleum based plastic bottles please! Most plastics are petroleum based chemistry, and we are trying to move away from petroleum driven world economy. Better for the earth. Better for human health. Better for the world's water. Better. Better. Better!

So… a few watery facts for you to sprinkle on your student's minds so that they too can begin to soak in the wonder of water! Here are a few more:

Ninety five per cent of the fertilized human egg is *water!*

Seventy per cent of the adult human body is *water!*

In light of these *watery* facts, the word 'physical' has a different connotation. That is, we are more fluid than solid!!! Human physiology is a fluid thing. We are *watery* beings!

Sounds a little 'out there', but it's true. We are more *water* than anything else. This fact alone is astounding, and it implies so much!

<u>Here's an experiment to show your children:</u>

Part One.
Fill a transparent glass container three quarters full with clean *water.*
This is what humans are mostly made of – pure water.
Now take a bottle of food coloring (try red) and squeeze a few drops into the glass of transparent *water.* What happens?
The *water* becomes that same color (in lesser concentrate).
Now add more of the same color. What happens?

O.K. here's where it gets more interesting.
Add the color blue. First a few drops, then more…What happens?
The *water* goes from red to violet, to purple, to indigo…it's beautiful.

This concludes Part One of the experiment.

Part Two.
Get a new glass of clean, clear, transparent, neutral, unbiased, uninfluenced *water.*
Put a few drops of red in it again.
This time add green, and then yellow, and then blue. What happens?
It becomes a muddy brown color.

What does it mean?

Children do best with just one drop of color at a time. Let their systems run with just one idea, one notion, one 'lesson' for a while before introducing the next bit, the next drop of color. If we try to put too much in their faculties, we end up with a muddy confusion, true? Keeping it simple leads to the most profound results.

Water is a beautiful analogy for education - in so many ways. And here's the mystery bit: We are literally made of *water* by majority; and our thoughts, actions, attitudes, feelings and emotions are literally drops of color we exchange with each other all the time!

How do we get back to having a clean and clear glass of *water*, free of the influences, the 'coloring' of that particular day?

That is what *sleep* is for! Sleep wipes the canvas clean, filters the colors out, giving us a fresh start the next day, *every day!*

Isn't life awesome!

Enjoy your researches into the wonders of water!

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