The City Water Project

BY

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Published by GoatKeeper's Press

For Teachers

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Other Books by Karen GoatKeeper

Nonfiction:

The Pumpkin Project
Goat Games
Exploring the Ozarks Hills
My Ozark Home
For Love of Goats

Fiction:

Dora's Story
Capri Capers
Edwina
Running the Roads
Hazel Whitmore Series
Broken Promises
Old Promises
Mistaken Promises

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Introducing The City Water Project

Most people in the U.S. turn on a tap and water gushes out. They don't stop to wonder where the water comes from or where it goes after it goes down the drain. Water is a special and remarkable substance. We don't think about this either.

Welcome to The City Water Project to find out more about this liquid that gushes out of your tap. Water Stories explore what water is, where cities get their water then make it safe for all the people who get their water from the city and, last, what becomes of the water when the city is done with it. You are asked to do two Projects about this: Where does your city get its water? How do you use the water in your household?

Puzzles are fun to do. There are several kinds of puzzles in this book. Each puzzle is concerned with water.

Water Investigations and Activities invite you to find out more about water. Is all water the same? Why does ice float? How does a straw work? These and more are some of the questions asked in the Investigations and Activities.

Water, being liquid, is easily spilled. With care many of these Investigations and Activities can be done inside. Some are definitely done outside. Doing them outside on a hot, sunny day makes being sloppy and getting wet fun.

The Investigations try to use materials and methods to keep them as safe as possible. Warnings are given when appropriate. Each Investigation is set up giving a Question to be answered, the Materials needed, the Procedure to follow, the Observations to note and any needed Analysis problems. Last are the Conclusions questions about the Investigation.

Most science activity books try to give age and/or grade ratings and adjust themselves to teaching objectives. This book does not. The Investigations are written primarily for grades four to nine. However, many are appropriate for younger and older people with some adjustments. Younger children may not be able to do the more exacting investigations, math or graphs. Older people may want to increase the difficulty of these.

I taught high school science and have based these Investigations on my classroom work. Yes, my classes did shoot off water rockets. My objectives in my classes were to observe and measure what was happening in an experiment, to think about and analyze the results, then use this knowledge to consider other related science questions. These Investigations will, I hope, encourage you to observe and think about what you see. In the process, these will meet or exceed many of the ever changing teaching objectives.

Trivia is lots of fun. Some of it is useful. Some should make you stop and think. Lots of water trivia is found in the various puzzles and Water Notes scattered throughout this book.

Mostly this book is about having fun learning about water.

What You Need To Do the Investigations and Activities

I tried to include all the materials used. Most are items you will have already or can obtain easily. The few more unusual items have notes on where to find them.

Item	Used	Obtain	Notes
Bottled Water	Inv 1	store	Plain, no additives
Various flavorings	Act 1	home	
Various foods	Act 4		
Ice	Inv 6, Act 5	store or home	
Food coloring	Act 5, Inv 10	store	
Masking tape	Inv, 4, 5, 7; Act 1	store	
10cc or 12cc Syringes	Inv 4	Veterinarian	
1 foot 1/4 " aquarium tubing	Inv 4	Pet store	fits on syringe
Paper	Inv 4, 6; Act 3		
Paper towels	Inv 7	store or friends	three sheets of several kinds
Bottle cap	Inv 3		
Balls, assorted	Inv 8	store	same size, different kinds
Plastic tubing	Inv 10	Hardware store	
Index card	Act 2		
Quill feather	Act 3		
Cans	Inv 5		1 small, 3 Juice
Ink	Act 3	store	
Toothpicks			
Straws	Act 7	store	
Soda bottle	Act 8	store	
Kitchen Items			
Refrigerator	Inv 1		
Freezer	Inv 9		
Glasses	Inv 1, 2; Act 1, 7		sizes vary
Measuring cup	Inv 2,5; Act 1		
Stove	Act		
Microwave	Act 5		
Jars, glass	Act 5, 6; Inv 7, 10		sizes vary
Jars, plastic	Inv 9		
Hot pad or oven mitt	Act; Inv 6		
Cookie sheet	Inv 3, 7		
Bowl	Inv 8, 10; Act 6		
Stock Pot	Inv 6		
Thermometer	Inv 6		0 to 212 degrees F
Stirring spoon	Inv 6		

Tongs	Act 2, Inv 6		
Paring knife	Act 3		
Special Items			
Metric Ruler	Inv 2, 5, 7, 8 9	Store	
Scale	Inv 2, 3, 5, 8, 9; Act 4	Online	Should mass up to 2 lbs, get zeroing mass with it
Eye dropper	Act; Inv 3	Pharmacy or veterinarian	
Pencils	Inv 7		
Scissors	Inv 4, 6; Act 3		
Watch or Clock with second hand	Inv 6		
Drill, 1/8, 1/4 bits	Inv 5	Workshop	
Candle in holder, matches	Act 2		
Stapler	Act 2		
Graph Paper	Inv 6	Store	
Bicycle pump	Act 8	store	
Air needle	Act 8	store	comes with pump
Cork	Act 8	store	
Stop watch	Act 8	store	
Launch pad	Act 8	make it	

Water Note: Water is the most common substance on Earth.

What Is Water?
Water Story 1

Water has a long history on Earth. The Greeks considered water one of the four elements from which all things were made. The other three were earth, air and fire.

An element can not be broken down into any other elements. Water was considered an element until the late 1800's with the discovery of batteries. Then someone got the brilliant idea of putting two electrodes from a battery into a beaker of water. The water became two gases, twice as much of one than the other.

You can do this yourself with a glass of water, a 6 volt battery, a pinch of salt and some wires. We know now the most gas is hydrogen and the other is oxygen. If you do try this, remember that oxygen burns easily. Hydrogen explodes if a flame touches it. Ask your parents first. Find good directions and follow them carefully.

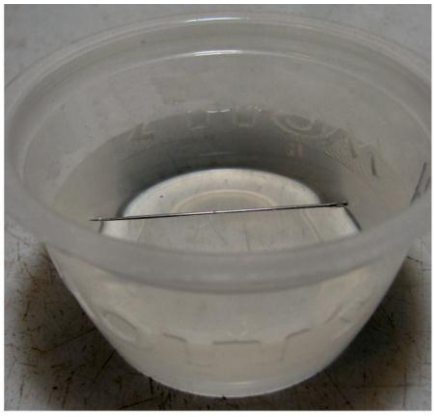
Chemically water is two hydrogen atoms attached to an oxygen atom. The three don't form a line. Instead they are bent kind of like <. This is very important about water.

The oxygen at the meeting point is slightly negative. The two hydrogens are slightly positive. Negative likes positive so water molecules line up ≪≪≪≪≪≪. They hold on tightly enough so that water drops have rounded tops and insects such as water striders can walk on water.

In the everyday world water is wet, a liquid found in everything including 67% of you. We need to eat or drink water every day to replace the water we dump out various ways such as sweat, breath and urine.

We put water in by eating. Lots of foods are mostly water. We drink liquids that are mostly water. We even make some when our bodies digest our food.

Because water is so common, we tend to ignore it or take it for granted. Perhaps you wonder what could be interesting about water. You may find the answer and do some fun things as you complete the Investigations and Activities.



You can try this. Put water in a small cup. Carefully set a needle down on the water.

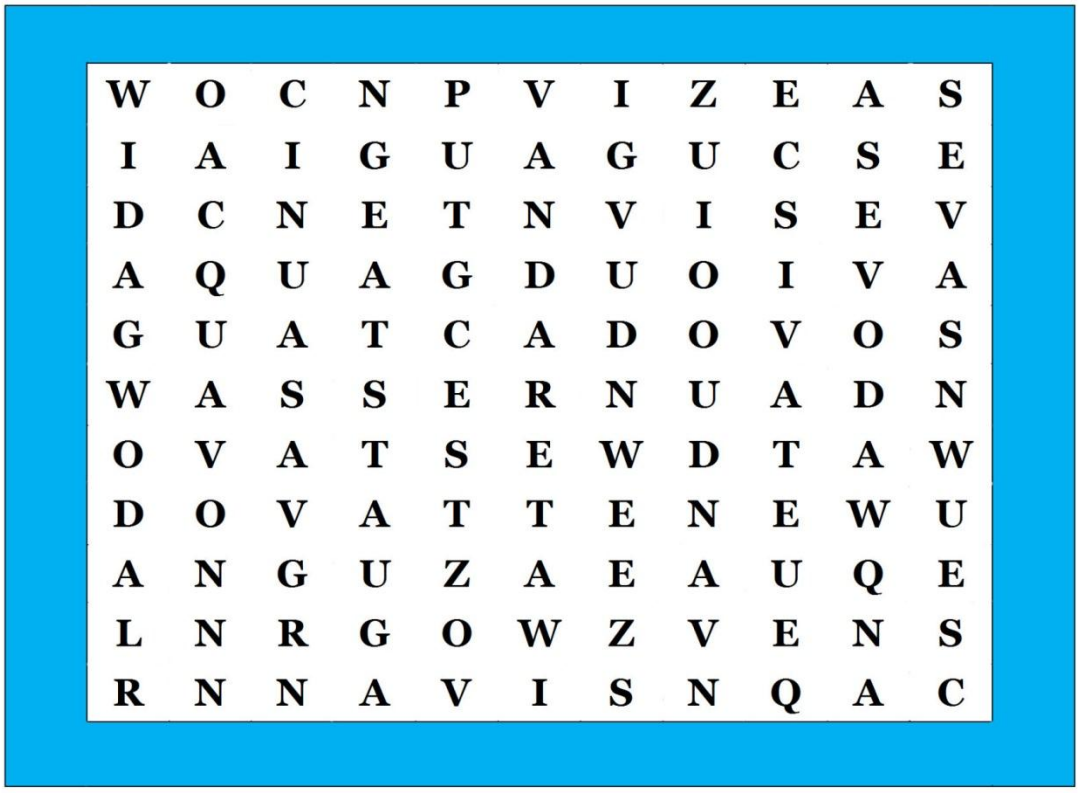
As you read the trivia and other stories, you will find that, common as water is, for many people water can be hard to get. Wars can be fought over water. It is important enough to be in our sayings. It can help us, hurt us, move us and do work for us.

Without water, all that you know would not exist. What is water? Water is life.

How Do You Say Water?
Hidden Words 1

Solution page

The words on the list are hidden in the letter grid. They can read forward, backward or diagonally. When you find one, circle it or strike through it and mark it off the list.



W	O	C	N	P	V	I	Z	E	A	S
I	A	I	G	U	A	G	U	C	S	E
D	C	N	E	T	N	V	I	S	E	V
A	Q	U	A	G	D	U	O	I	V	A
G	U	A	T	C	A	D	O	V	O	S
W	A	S	S	E	R	N	U	A	D	N
O	V	A	T	S	E	W	D	T	A	W
D	O	V	A	T	T	E	N	E	W	U
A	N	G	U	Z	A	E	A	U	Q	E
L	N	R	G	O	W	Z	V	E	N	S
R	N	N	A	V	I	S	N	Q	A	C

Word List:

Eau (French)
Viz (Hungarian)
Agua (Spanish)
Aqua (Latin)
Vand (Danish)
Vann (Norwegian)
Vesi (Finnish)
Voda (Bosnian)
Woda (Polish)
Acqua (Italian)
Aigua (Catalan)
Visce (Irish)
Water (English)
Vanduo (Lithuanian)
Vatten (Swedish)
Wasser (German)

Water Note: About 85% of people on Earth live in the driest half of Earth.

Is All Water the Same?
Investigation 1

My Results page 107

Have you looked at the shelf of bottled water in the store? How many kinds are there? Each kind seems to claim it is the best.

Water comes out of the tap when you turn it on at home. Is it so different from the water in bottles?

All water is supposed to be the same. Water molecules are made of two hydrogen atoms attached to an oxygen atom. It is supposed to have no color, no odor and no taste.

If all water is the same, why are there so many kinds?

Question: Is all water the same?

Materials:

Several kinds of plain bottled water
Tap water
2 glasses for each kind of water
Refrigerator

Procedure:

Read the label or the package or look up where each kind of water came from. Record this in the Table.

Number the glasses, two for each kind of water, so there will be two ones, two twos etc.
Open the first bottle of water.
Pour some in each of the two number 1 glasses. Record the kind of water for that number in the Table.
Pour another kind of water in the two number 2 glasses. Record the kind of water in the Table.
Continue doing this for each kind of bottled water.
Pour tap water into two glasses.
Put one glass for each kind of water into the refrigerator for half an hour or until it is cold.
Leave the other glass on the counter for the same amount of time to warm up to room temperature.

Pick up the first glass. Look at, smell and taste the water and describe it in the Table.
Get the first glass out of the refrigerator. Look at, smell and taste the water and describe it in the Table.
Do this for each kind of water.

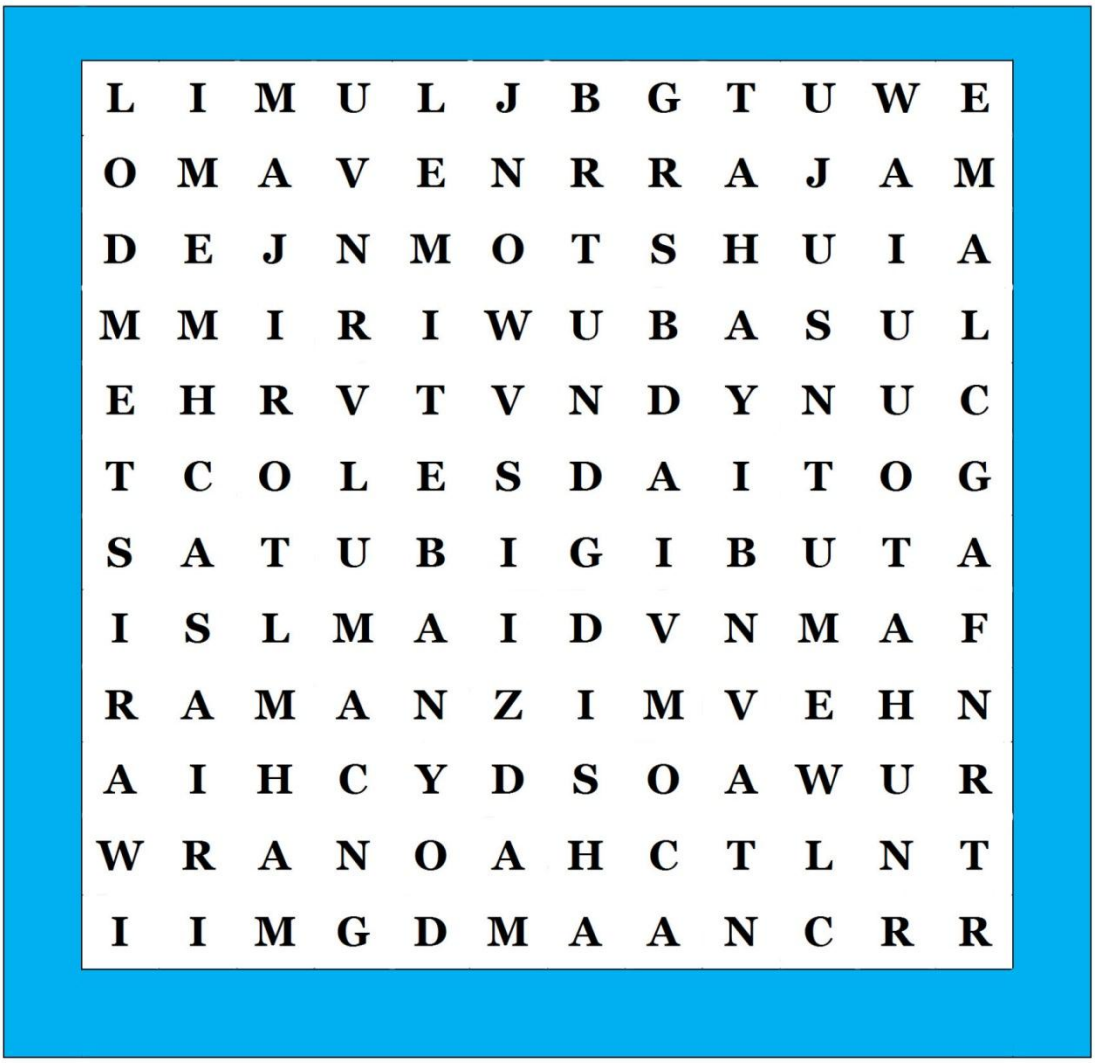
Observations:

Table					
Kind		**From**	**Color**	**Smell**	**Taste**
	Warm				
	Cold				
	Warm				
	Cold				
	Warm				
	Cold				
	Warm				
	Cold				
	Warm				
	Cold				

Conclusions:
What color is water? Why do you think so?
What does water smell like? Why do you think so?
Did the temperature change how different kinds of water taste? Why do you think so?
What do you think water really tastes like?
Why might different kinds of water or water at different temperatures taste differently?
Why did we do both glasses of one kind of water together?
Why did we use only plain water?

More Ways To Say Water
Hidden Words 2

Solution page



Word List:

Air (Indonesian)
Dej (Hmong)
Mul (Korean)
Suv (Uzbdk)
Wai (Maori)
Maan (Arabic)
Maji (Swahili)
Nuoc (Vietnamese)
Rano (Malagasy)
Ruwa (Hausa)
Shui (Chinese)
Vatn (Icelandic)
Banyo (Java)
Madzi (Chichewa)
Metsi (Sesotho)
Mmiri (Igbo)
Tubig (Filipino
Ananzi (Zulu)
Biyaha (Soamli)
Satubig (Cebuano)

Water Note: Around the world women use over 53,000 hours getting water for their families every day.

Why Does the Taste of Water Change?
Activity 1

My Results page 108

When water flows over and through the ground it dissolves lots of different things, some good and some not so good. Each can change how water tastes. We want to see how some different things can change how water tastes, but safe things to use.

First you need to find some things to add to the water. Check around your kitchen. There's salt, sugar, baking soda, baking powder, vinegar, lemon juice, flour, fruit juices. Maybe you have some mint or sodas.

You might know what many of these taste like all ready. That makes this difficult. You can't know what's in a particular glass when you taste it.

Have as many 6 oz. glasses as you have things to try plus one. Have all the glasses alike.

Turn the glasses upside down and put a small piece of tape on the bottom of each. Number the glasses. Make a list on a piece of paper with one flavor for each number and plain by one.

Turn glass 1 upright. Put in 1/4 tsp of the first substance. Add 1/2 c water. Set it aside.

Turn glass 2 upright. Put 1/4 tsp of the second substance in the glass. Add 1/2 c water. Set it aside.

Keep doing each glass until all of them are done.

Now mix the glasses up.

Get a tall glass of plain water. Choose one glass. First take a small sip of plain water and rinse your mouth. You can swallow it or not. Then take a sip from the glass. What does the water taste like? You may need another sip. Write down what you tasted. Set the glass down so you know which one it is.

Rinse your mouth out with a sip of plain water. Taste the water in another glass. When you are done, set it beside the first glass.

Keep going until you have tasted each of the glasses. Now look under each glass and write down the number of the glass.

How many did you recognize? How did the different kinds of substances affect the taste of the water?

Water Note: In the U.S. 36 states expect to have water shortages this century.

Whose Water Is That?
Deduction Problem 1

Solution page

Read each clue carefully. Put a line in each box in the grid for anything not true. Put a dot in each box for anything true.

While on a picnic, Clara and four friends each grab different kinds of bottled water and sandwiches from the cooler. Use the clues to find out who (first name, last name) chose which water and sandwich.

Clues:

1. None of the girls choose a ham or cheese sandwich. None of the boys chose spring or strawberry water.
2. The Price girl invited the Myers girl, the boy drinking sparkling water, the alkaline water with ham sandwich eater and Emily on the picnic. (All five are mentioned.)
3. Matt doesn't like cheese sandwiches. Kaitlyn doesn't like tuna or turkey sandwiches.
4. The Price girl drinking strawberry water eats a tuna sandwich while the Norris boy burps from his sparkling water and the Lantham girl munches on a turkey sandwich.
5. Emily thanks Clara for inviting her to the picnic as she tosses her spring water bottle into the trash.

	Cheese	Ham	Salami	Tuna	Turkey		Alkaline	Plain	Sparkling	Spring	Strawberry		Lantham	Myers	Norris	Price	Salter
Brady																	
Clara																	
Emily																	
Kaitlyn																	
Matt																	
Lantham																	
Myers																	
Norris																	
Price																	
Salter																	
Alkaline																	
Plain																	
Sparkling																	
Spring																	
Strawberry																	

Where Do Country People Get Their Water?
Water Story 2

City people live close together and have one big water system to deliver water to their homes. That's not true in the country where houses can be a mile or more away from each other. Each house must have its own source of water.

Settlers often dug wells. These had to be wide enough for people to stand in them and keep digging deeper. The sides were built up with rocks or bricks to keep dirt from falling in. They weren't very deep, only 10 feet to 30 feet, so the sides wouldn't collapse.

Another method came into use. A large pipe was pounded 30 feet to 50 feet into the ground. The pipe kept the well from collapsing.

Both of these kinds of wells had problems. One was finding water a short way down underground. Another was the source of water. Both used surface water which is often contaminated and affected by floods and droughts.

In the Ozarks springs are common. A cold water spring was boxed in and covered by a small room called the spring house. Milk and butter could be kept in the cool water. The water was used in the house.

Spring boxes are now made of cement. The bottom has large gravel and a pipe coming up through the gravel. This pipe is connected to a jet pump to pump it into a pressure tank in the house. The box is covered to keep leaves and other debris from falling in.

Springs are surface water. Somewhere the water seeps or flows under ground and travels a short distance or for miles before coming up in the spring. It can be contaminated anywhere along the route.

Large rains can wash mud into the gravel. The gravel must be dug out and replaced. Using filters helps keep the water in the house clean.

Another method was a cistern, a large underground space next to or under a house and lined with rock, brick or cement so water wouldn't leak out. The house roof had gutters collecting rain water and guiding it down into the cistern. A hand pump in the house pulled water out of the cistern to be used.

Some kind of filter system was needed to keep leaves and twigs from washing down into the cistern with the water. It could need cleaning out if debris got in. It depended on rainfall to fill it and drought could cause the cistern to run dry. Then water could be brought out by truck to refill it.

Country people today face problems getting water. Some houses still have cisterns. Some still use springs. Other people have large plastic water tanks placed on stands. They have another one in their truck to be filled in town. This water is pumped into the one on the stand. That water goes to the house.

More commonly country people have a well drilled. These can be hundreds of feet deep. A company sends someone out to choose a site for the well. It must be 100 feet to 300 feet from the house and 100 feet from the septic or sewer lines. Then a big truck with a drilling rig mounted on it comes out.

A large drill is on the end of the pipe. This doesn't work like the drill used to bore holes in wood. It has lots of little teeth on it and is pounded into the ground. The teeth make the bit turn to pull the bit deeper into the ground.

The sound of the drilling can be heard for a long way. Near the drilling site the ground trembles as if thunder is traveling through it. Drilling continues until water is found or something stops the well from going further down. This can be a cave.

Once the well is drilled a casing which is like a hollow pipe with a screened end is pushed down into the water at the bottom of the well. As with the other kinds of wells, the casing keeps the walls from collapsing and surface water from getting into the well. The screen keeps solid bits from getting sucked up into the house pipes. How far down a casing goes is set by each state according to how deep a well must be drilled to find solid rock.

The water must get from the bottom of the well up to the house. Drilled wells have a submersible pump slid down close to the bottom of the casing. It has a pipe attached for water to come up out of the well and a pipe protecting electrical lines going down to turn the pump on and off.

A cap is put on the top of the well. The cap keeps leaves, dirt, water and other things from falling into the well.

The well means water is available to a house. Now pipes are added to carry the water to the house. They go to a pressure tank. This looks like a fat cylinder with a round top. An air filled bladder is inside the tank to put pressure on the water. Investigations 3 and 7 and Activity 6 are about water pressure. The air pushes the water out of the tank so it runs instead of drips out of the faucets.


Two sizes of pressure tanks

Pipes carry water around the house to the various sinks and other places water is needed in the house. These were made of copper. Now they are PVC pipes.

Where several houses are in a smaller area the homeowners may form a rural water district. This works much like a city water district with a single well and water lines to all the member houses.

Water Note: An artesian well is a deep well into water that gushes up out of the ground. Most wells must have the water pumped out and are not artesian wells.

Trouble Looms
Water Tale 1

Solution page

Fill in as many words as you can from the definitions. Use the numbers to put the letters in the grid. Try to guess other words in the grid putting the letters in the definitions to get more them.

This is a truism or true saying from Benjamin Franklin.

Word List:

A. Happens once a week.....____ ____ ____ ____ ____ ____
8 3 25 19 10 16

B. Holds glass to look through.....____ ____ ____ ____ ____ ____
17 12 4 14 21 33

C Amount of money someone has.....____ ____ ____ ____ ____ ____
1 7 34 11 5 24

D. Suds or foam.....____ ____ ____ ____ ____
32 37 27 23 6

E. Toss or heave.....____ ____ ____ ____ ____
35 30 15 31 22

F. Place something is.....____ ____ ____ ____ ____
26 2 7 28 18

G. Where baby birds live.....____ ____ ____ ____
20 36 13 29

C1	F2	A3	B4		C5	D6	F7		A8	C9	A10	C11		B12	G13
B14	E15	A16		B17	F18		A19	G20	B21	E22		D23	C24	A25	
F26	D27	F28	G29	E30		E31	D32		B33	C34	E35	G36	D37		

Water Note: Almost 97% of Earth's water is salt water. Of the remaining 3%, close to 2% is ice in glaciers and ice sheets. Only 1% is available as fresh water and .3% of that is ground water.

What Happens When Water Changes Shape?
Investigation 2

My Results page 109

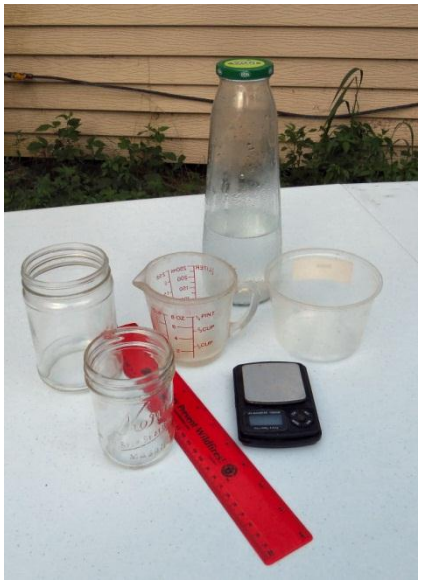
When you get a drink of water, maybe you use a mug or a plastic cup or a glass. Water fits in all of them.

What happens to the amount or volume of water when you pour it from one container to another? Perhaps you assume the volume stays the same. Can you prove it does?

Question: Does the volume of water stay the same if its shape changes?

Materials:

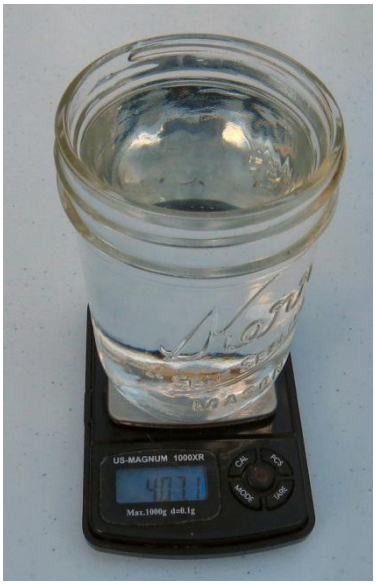
2 c Measuring Cup
Short, fat glass or jar with straight sides
Tall, skinny glass or jar with straight sides
Glass or jar with straight sides sized between the others
Metric Ruler
Scale



Procedure:

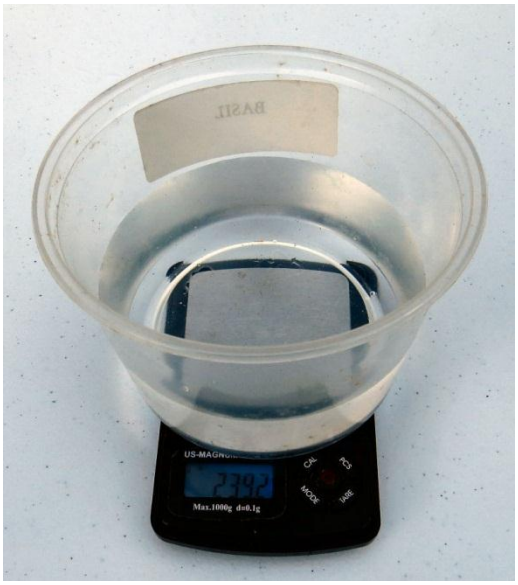
Mass the empty measuring cup. Record the mass in Table 1.
Pour 1 cup of water into the measuring cup. Write down how much water it says is in the measuring cup.

Mass the measuring cup of water. Record the mass in Table 1.
Mass the short, fat glass. Record the mass in Table 1.
Measure the diameter of the glass. Record the diameter in centimeters in Table 2.
Pour the water into the glass.

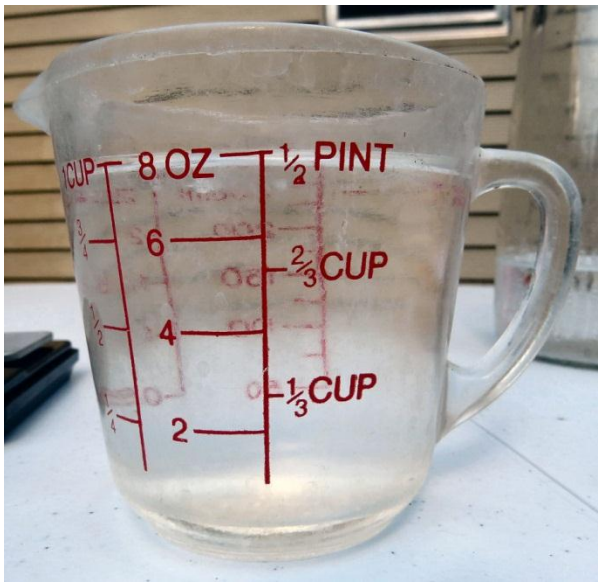


Measure the height of the water in the glass. Record the height in centimeters in Table 2.
Mass the glass and water. Record the mass in Table 1.
Mass the tall, skinny glass. Record the mass in Table 1.
Measure the diameter of the glass. Record this in centimeters in Table 2.

Pour the water into this glass
Measure the height of water in the glass. Record the height in centimeters in Table 2.
Mass the glass and water. Record the mass in Table 1.
Mass the third glass. Record the mass in Table 1.



Measure the diameter of the glass. Record this in centimeters in Table 2.
Pour the water into the glass.
Measure the height of the water. Record this in centimeters in Table 2.
Mass the glass and water. Record this in table 1.
Pour the water back into the measuring cup. Record how much water is in the measuring cup.
Look at how much water is in the measuring cup.
Mass the measuring cup and water. Record the mass in Table 1.



Observations:

The beginning amount of water in the measuring cup:
The final amount of water in the measuring cup:

Table 1			
Container	With Water	Empty	Water
1 Measuring cup			
Short, fat glass			
Tall, skinny glass			
2 Measuring cup			
In between glass			

Table 2			
Container	Height	Diameter/Radius	Volume
Short, fat glass			
Tall, skinny glass			
In between glass			

Analysis:

Table 1:
Subtract the empty mass from the mass with water to get the mass of the water.

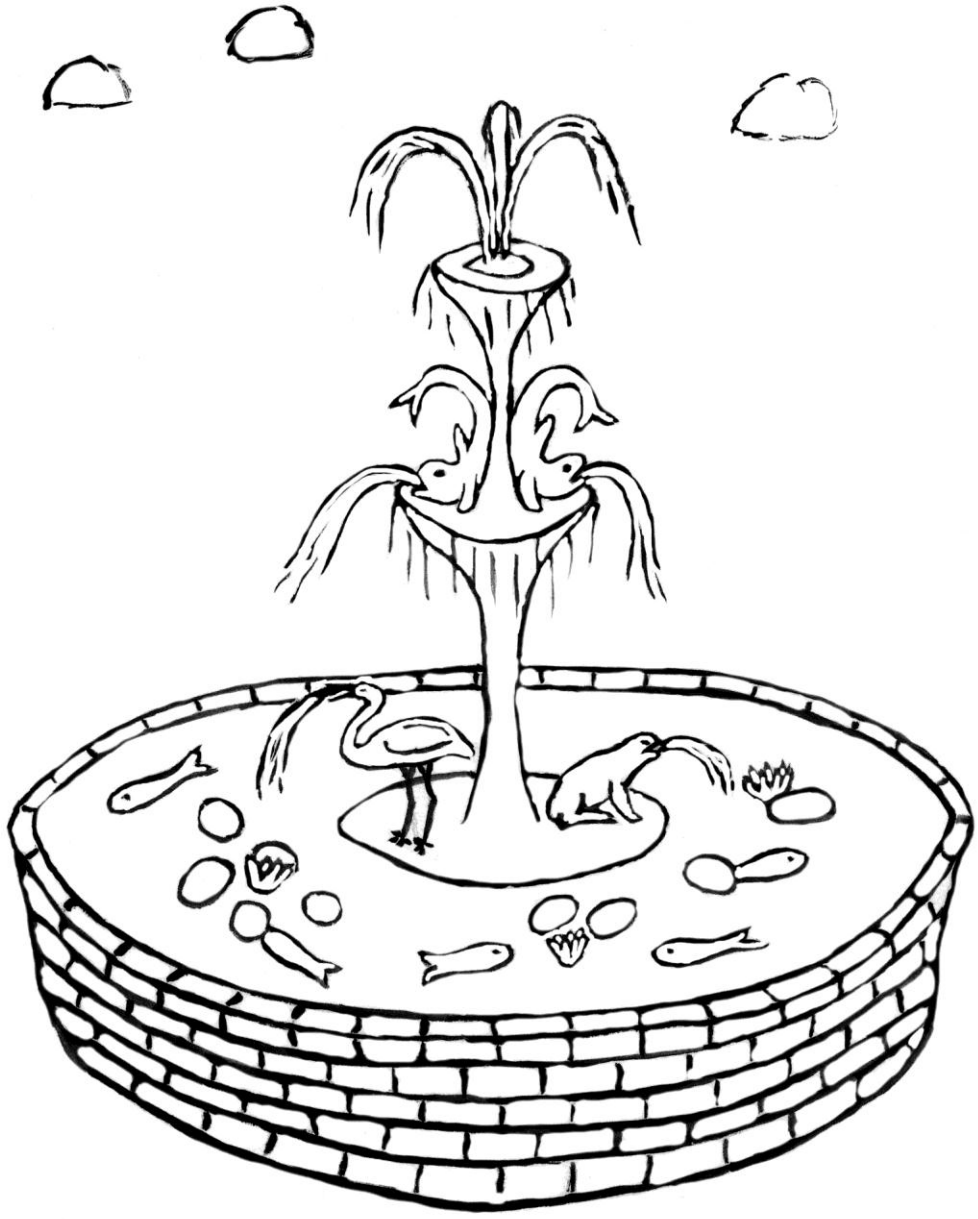
Table 2:
A glass is a kind of cylinder. The volume of a cylinder is found using this formula: $V = \pi r^2 h$.
First divide the diameter in half. This is the radius. Write it in Table 2.
The value for π is 3.14.
To find the volume for the short, fat glass multiply 3.14 times the radius times the radius times the height. Write it in Table 2.
To find the volume for the tall, skinny glass multiply 3.14 times the radius times the radius times the height. Write it in Table 2.
To find the volume for the third glass multiply 3.14 times the radius times the radius times the height. Write it in Table 2.

Conclusions:

Are your glasses perfect cylinders? (Take a look at the bottoms and sides.) How will this affect your results?
Did the amount of water you saw in the measuring cup change from the beginning to the end?
Did the mass of water stay the same?
Did the volume of water stay the same?
What changed between the glasses to keep the volume the same?
If you did the same steps with another cup, would the mass and volume of water stay the same? Why do you think so? Test your hypothesis.
Did you prove the volume of water stays the same when it changes shape? Why do you think so?

Water Note: The very first city water system was set up in Paisley Scotland, in 1832.

The Fountain
Coloring Page 1



How Big Is a Drop of Water?
Investigation 3

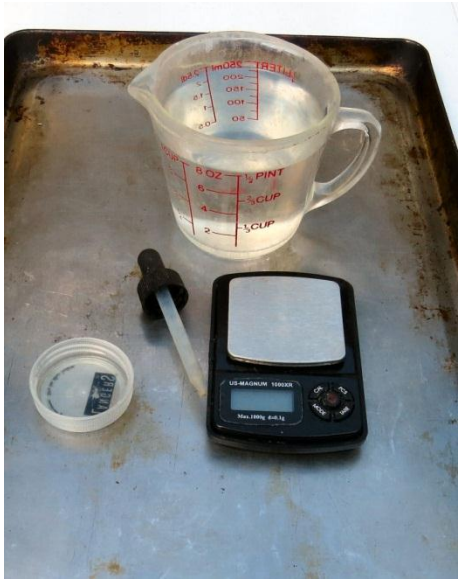
My Results page 111

A water drop is so small. How can you ever hope to measure how much one drop is?

Question: How big is one drop of water?

Materials:

Cookie sheet
Eyedropper
Water
Plastic cap from a half gallon bottle
Scale



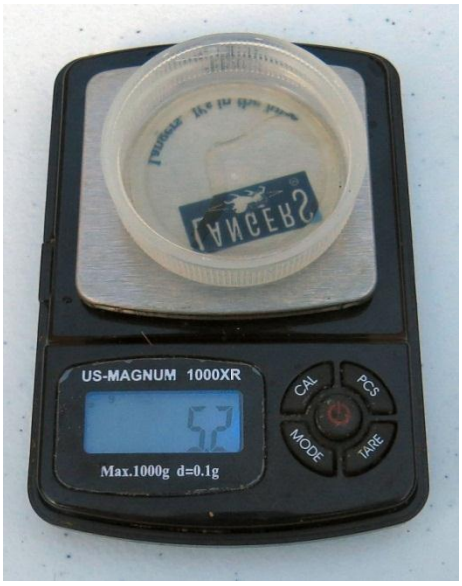
Procedure:

Get your hand drippy wet.
Fling drops of water onto the cookie sheet.

Examine the drops. Draw a few.
Lift one end of the cookie sheet a little. Record what the drops do.
Fill the eyedropper with water.
Hold the eyedropper so you can see the end and squeeze out a drop of water. Record what you see.

Let that drop fall and squeeze out a second drop. Record what you see.
Empty the cookie sheet.
Place the cap on the scale. Record the mass.
Fill the eyedropper with water. Discard the first drop and put ten drops in the cap. Do not use all of the water in the eyedropper. If you need to refill it, remember to discard the first drop.
Record the mass.

Fill the eyedropper with water. Discard the first drop and put ten drops in the cap for a total of twenty drops. Do not use all of the water in the eyedropper. If you need to refill it, remember to discard the first drop.



Record the mass.

Fill the eyedropper with water. Discard the first drop and put ten drops in the cap for a total of thirty drops. Do not use all of the water in the eyedropper. If you need to refill it, remember to discard the first drop.

Record the mass.

Empty and dry the cap. Repeat the measurements for 10, 20 and 30 drops.

Observations:

Draw some of the drops of water on the cookie sheet.

Are all the drops the same size? Are they all the same shape?

What do they do when the cookie sheet is lifted?

Draw the shape of a water droplet from the eyedropper.

Table						
Drops	**10**	**20**	**30**	**10**	**20**	**30**
Mass						
Cap Mass						
Water Mass						
Drop Mass						

Analysis:

Subtract the mass of the cap from the total mass and record the mass of the water.
Divide the mass of the water by the number of drops to get the mass of one drop.

Conclusions:

Are water droplets all the same shape? Explain why you think so.
Why do you discard the first drop of water from the eyedropper?
Why do you not use the last drop?
Is the mass of one drop the same for all the calculations you did? Explain why you got this result.
Is the mass of one drop more accurate from using 10, 20 or 30 drops? Explain why you think so.

Water Note: Chlorine was first added to a city water supply in 1908.

Size Matters
Water Saying 1

Solution page

This puzzle may look like a water tale, but it isn't. The big differences are a few of the letter clues are repeated and the length of the saying is shorter.

This is an old African proverb. It wants to make you think about how you look at things.

Word List:

A. A small city.....
4 20 8 24

B. The name of a book.....
19 13 10 2 7

C. Length times width.....
15 12 17 1

D. Pulled by a locomotive.....
4 12 9 3 22

E. The flavor of a food.....
25 18 16 5 11

F. Someone who works on a ship.....
14 23 3 2 10 12

G. Not turned in on time.....
6 21 10 17

Saying:

1 2 3 4 5 6 7 8 9 10 11 12

13 14 15 16 17 18 19 20 21 22 23 24 25

Water Note: There are over 58,900 public water systems in the United States.