The Water Cycle

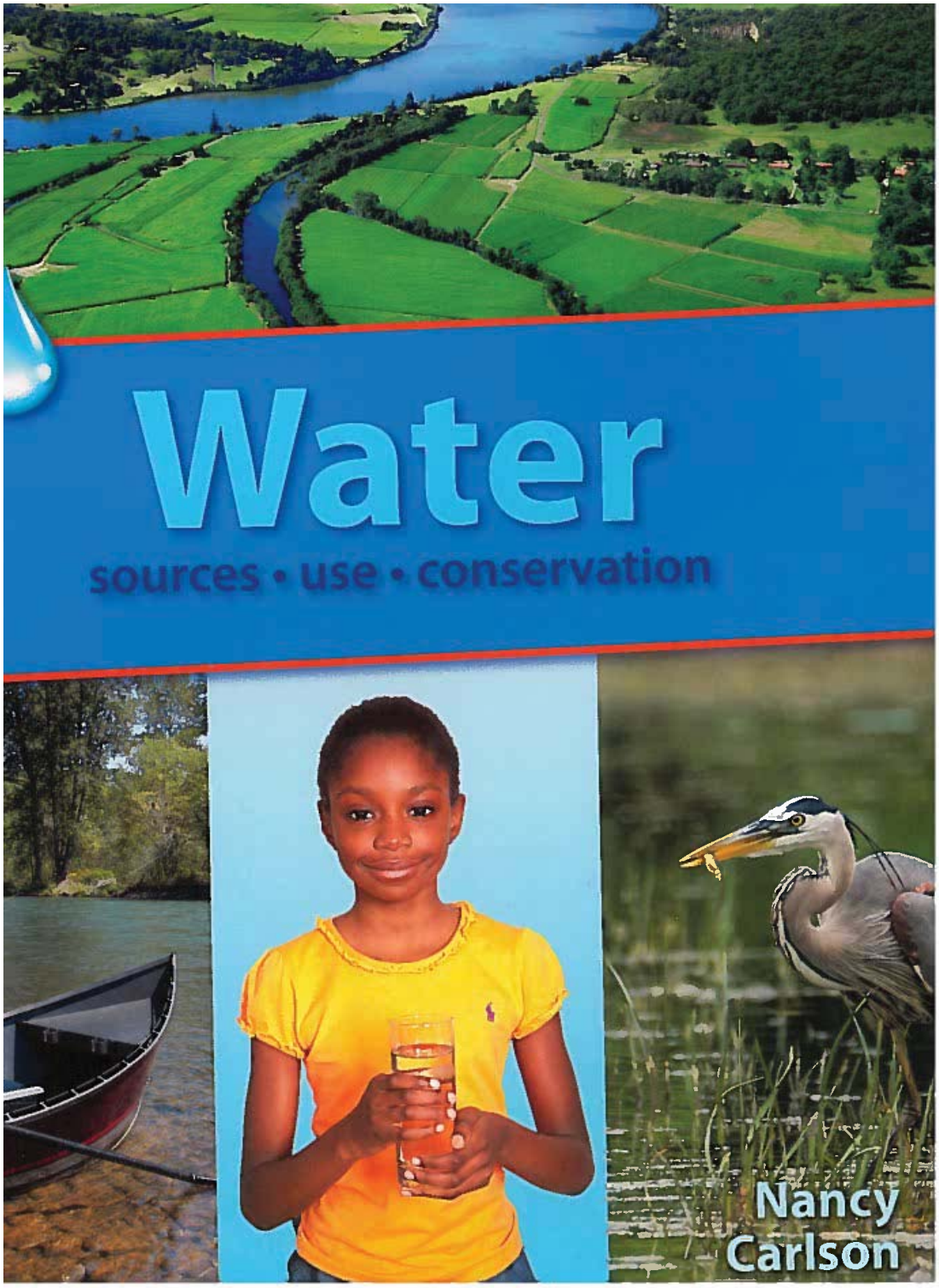


Table of Contents

Michigan Agriculture in the Classroom

Lesson Outline

Objective

Students will

1. Identify states of matter and conditions causing change of state as observed in the hydrologic cycle.
2. Understand both short and long hydrologic cycles and be able to determine points at which contamination may occur.
3. Discern information about the hydrologic cycle from an info-graph and from reading a technical article
4. Distinguish between renewable and non-renewable resources.
5. Use scientific equipment to understand the mathematical concept of parts per million.
6. Understand how water is used in agricultural production and the conservation practices employed to maintain or improve the quality of our water.

Full Lesson Time

2 Class Periods

Grade Level

3-4

Lesson Outline

1. Introduction to states of matter using water (ice, liquid water, vapor)
   - Demonstration using ice, water and mirror
2. Discussion of factors that cause water to change form (evaporation, transpiration, freezing, thawing, etc.)
   - Closed system
3. Technical reading about the hydrologic cycle (Copy of article attached)
   - Students read and underline or highlight important terms.
   - Discussion and clarification of terminology (precipitation, interception, condensation, water vapor, etc.)
4. Info-graph about the hydrologic cycle (Copy of info-graph attached)
   - Students draw arrows with different colors showing short and longer paths taken by water as it goes through its cycle.
   - Students identify points in the cycle where contamination might occur. Students discuss findings and concepts with their peers.
5. Parts per million (PPM) Activity
   - Using sepup trays or white egg cartons, students carry out a simple experiment with water and food coloring to practice titrations and show that contamination is not always visible when present.
6. Use of water in agriculture
   - By referring to the info-graph, students identify examples of farmers using water.
   - Using photos and descriptions, discuss how farmers use technology to conserve water and to avoid contamination of water resources. (drip irrigation, filter strips, field wells, etc.)
7. Conclusion
   - Review states of matter, hydrologic cycle terminology and concepts, parts per million activity and uses of water in agriculture and technology used to protect our water resource.

Options for Extended Study

- Research-based technical writing
- Cloud in a bag activity
- Farmer led discussion on technology and conservation practices
- Field trip to observe conservation practices or to a water treatment plant
- Simple water tests performed on a nearby water source – velocity, turbidity, total and dissolved solids, etc…

Michigan Agriculture in the Classroom

Defining Water

Objective

Students will

1. Identify states of matter and conditions causing change of state as observed in the hydrologic cycle.

On Water Book Pages

Pages 2-5

Time: 1/2 Class Period

Grade Level: 3-4

Curriculum Standards

Common Core:

- Literacy: CCSS.ELA.RI.3.1; 3.3; 3.4; 3.7

Next Generation Science Standards:

- Earth Systems: 4-ESS2-1; 4-ESS2-2
- Ecosystems: Interactions, Energy and Dynamics 5-LS2.B
- Earth and Human Activity: 5-ESS3-1; ESS3.C

Other Resources

- water.usgs.gov

Materials Needed

☐ Ice
☐ 1 gallon jug water
☐ small compact mirror

Background

Water is the most essential component for all life forms. It covers 71% of the Earth's surface and occupies spaces above and below ground. Water is a finite resource meaning that we only have a certain amount. Humans can only consume freshwater which is 2.5% of the total supply of water. The other 97.5% is saline based water, i.e. found in oceans & inland salt lakes. Of the 2.5% water that humans can consume, less than a third of it is readily accessible. The other freshwater is in the ground or stored in glaciers and ice caps.

Directions

1. Define water
   - Q: Does everyone know what this is? (hold up a glass of water)
   - A: Its liquid water and it is the most essential component for all life forms on Earth
2. Introduction to states of matter using water (ice, liquid water, vapor)
   - Liquid: We are most familiar with water when it is in liquid form, like this (reference glass again)
   - Ice Cubes: Q: Who can tell me what this might be? A: That's right, this is ice or frozen liquid water. We like this in our pop and we use it in our coolers to keep things cold.
   - Vapor: Q: Does anyone know what the last form of water might be? A: Water in the form of a gas is the last state. (Demonstrate breathing onto a hand mirror) The fog is exhaled water vapor, which condenses on the surface of the mirror. We are surrounded by water vapor in our atmosphere.
3. Explain how water changes forms
   - Q: Liquid water into ice? A: Freezing
   - Q: Liquid water into water vapor? A: Evaporation, when the sun heats up water on the earth. An example is when you boil water on the stove. When the evaporation is from plants it is called transpiration.
   - Q: Water vapor to liquid water? A: Condensation
4. Water as a resource in the cycle
   - Q: Can we make new water? A: Nope, all the water we have now is all we have ever had and ever will have, making it a finite resource.
   - Water travels in a cycle. It can change form, and move to different places but we can't make any more of it. We call this a closed cycle and it is very important that we take good care of it.

Michigan Agriculture in the Classroom

Hydrologic Cycle Technical Reading

Objective

Students will

1. Understand both short and long hydrologic cycles and be able to determine points at which contamination may occur.
2. Discern information about the hydrologic cycle from an info-graph and from reading a technical article

On Water Book Pages
Page 8

Time: 1/2 Class Period

Grade Level: 2-3

Curriculum Standards:
Common Core:

- Literacy: CCSS.ELA.RI.3.1; 3.3; 3.4; 3.7

Next Generation Science Standards:

- Earth Systems: 4-ESS2-1; 4-ESS2-2
- Ecosystems: Interactions, Energy and Dynamics 5-LS2.B
- Earth and Human Activity: 5-ESS3-1; ESS3.C

Materials Needed

☐ 1 copy of reading pg. 7 for each student
☐ Highlighters or markers

Background

Water travels in a closed cycle, meaning that it can change form but we cannot make any more of what we already have, so it is very important that we take good care of it. The scientific name for the water cycle is the hydrologic cycle, with hydro meaning water. Have the students read a short article about the hydrologic cycle and while they are reading, have them underline or highlight the terms that they think are important. When everyone finishes, have the students discuss their answers.

Directions

1. Give a background on the hydrologic cycle
   - The scientific name for the water cycle is the hydrologic cycle. Hydro means water.
   - Can we make new water? Nope, all the water we have now is all we have ever had and ever will have.
   - An important thing to remember about water is that it travels in a cycle. It can change form, and move to different places but we can't make any more of it. We call this a closed cycle. So it is very important that we take good care of it.
2. Pass out the article and have students underline/highlight the terms that they think are important while they read.
3. When the students finish, have them volunteer one of their choices of an important term that they highlighted or underlined.
   - Ask how many other students also chose that term.
   - Have students discuss the meaning of the word (see definitions on the next page) and its importance.

Hydrological Cycle Technical Reading

Continued

Vocab Words

Hydrologic: Form of the word Hydrology, which is the scientific study of the movement, distritbution and quality of water

Water Cycle: Explains the continuous movement of water on, above or below the Earth's surface.

Atmosphere: The layer of gases surrounding a planet that is held in place by the gravity of the planet.

Evaporation: When water changes from a liquid to a gas (through vaporization).

Transpiration: When water moves through plants and some water vapor is realsed through the leaves.

Water-vapor: The gaseous phase of water.

Evapotranspiration: The process of evaporation and plant transpiration from the Earth's land and ocean surface to the atmosphere.

Condense: Abbreviation of Condensation, the process of water changing from a gas to a liquid.

Precipitation: A form of condensation, when the water in the atmosphere falls to the Earth i.e. rainfall, snow, or hail.

Interception: When precipitation does not reach the soil because it came in contact with the leaves of a plant first.

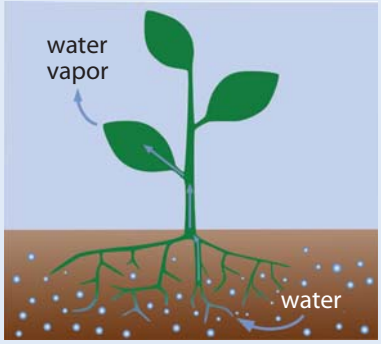
Directions
Read the passage below and underline or highlight all of the terms that you believe to be important.

Name:_____

From the earth to the sky – how the hydrologic cycle works

In the hydrologic, or water, cycle the liquid water moves from the earth to the atmosphere. To do this it changes states from liquid to vapor by evaporation and transpiration. When water on a lake is heated by the sun, it turns into vapor and rises up into the air, or atmosphere. This is called evaporation.

When liquid water comes up through the roots of a plant, changes states, and goes out through the leaves as vapor, it is called transpiration.



Hydrologists are using a new word, evapotranspiration, for the combination of evaporation and transpiration. This new word describes both the loss of water from the soil or lakes, which is evaporation, and the loss of water from plants, which is transpiration.

As the vapor created by evapotranspiration rises into the atmosphere, it cools back into a liquid, or condenses, to form clouds.

When too much water cools and condenses in the clouds, it becomes too heavy for the clouds to hold. The water falls to the ground as precipitation. Precipitation is usually rain, but it can also be sleet, hail, or snow.

Raindrops may hit a leaf or a plant stem and stop before they hit the ground. This is called interception. Interception by the leaf is like the other team catching the football your quarterback threw. Raindrops not intercepted continue falling to the ground.

Text is an excerpt from *Water; sources, use, conservation* by Nancy Carlson

Michigan Agriculture in the Classroom

Hydrologic Cycle Info-graph

Objectives

Students will

1. Understand both short and long hydrologic cycles and be able to determine points at which contamination may occur.
2. Discern information about the hydrologic cycle from an info-graph and from reading a technical article.

On Water Book Pages
Pages 6-7

Time: 1/2 Class Period

Grade Level: 3-4

Curriculum Standards
Common Core:

- Literacy: CCSS.ELA.RI.3.1; 3.3; 3.4; 3.7

Next Generation Science Standards:

- Earth Systems: 4-ESS2-1; 4-ESS2-2
- Ecosystems: Interactions, Energy and Dynamics 5-LS2.B
- Earth and Human Activity: 5-ESS3-1; ESS3.C

Materials Needed

☐ One copy of pg. 9 info-graph per two students
☐ 2 different color markers

Background

The hydrologic cycle is a closed cycle so no new water enters or leaves. However, the water can change forms and take many different paths through the cycle. It might take only hours for a drop of water to travel through or it can years as some of the water enters the ground.

It is very important for us to keep our water clean. Anytime water is near the surface of the earth, there is a chance that something might contaminate it.

Directions

1. Discuss the lengths of time it takes water to travel through the cycle.
   - Q: What do you think is the shortest route through the system?
   - A: Precipitation, evaporation and condensation make up the short cycle (Can write these terms on the board).
2. Pass out the info-graph. Have the partners use colored writing utensils for each short cycle term and label its parts.
3. Then have students use a different colored writing utensil to show at least four other longer paths that water can take.
   - Example: When it rains, the soil can absorb the water. Some water will seem very deep into the ground that we cannot access unless we dig a well. Farmers can then use the liquid water to irrigate their fields.
   - Remind students to complete the cycle for each path.
   - Have some groups share their answers.
4. Lastly, with a pencil have the students find and circle at least four different places where water might be contaminated.
   - When finished, have students discuss their answers.

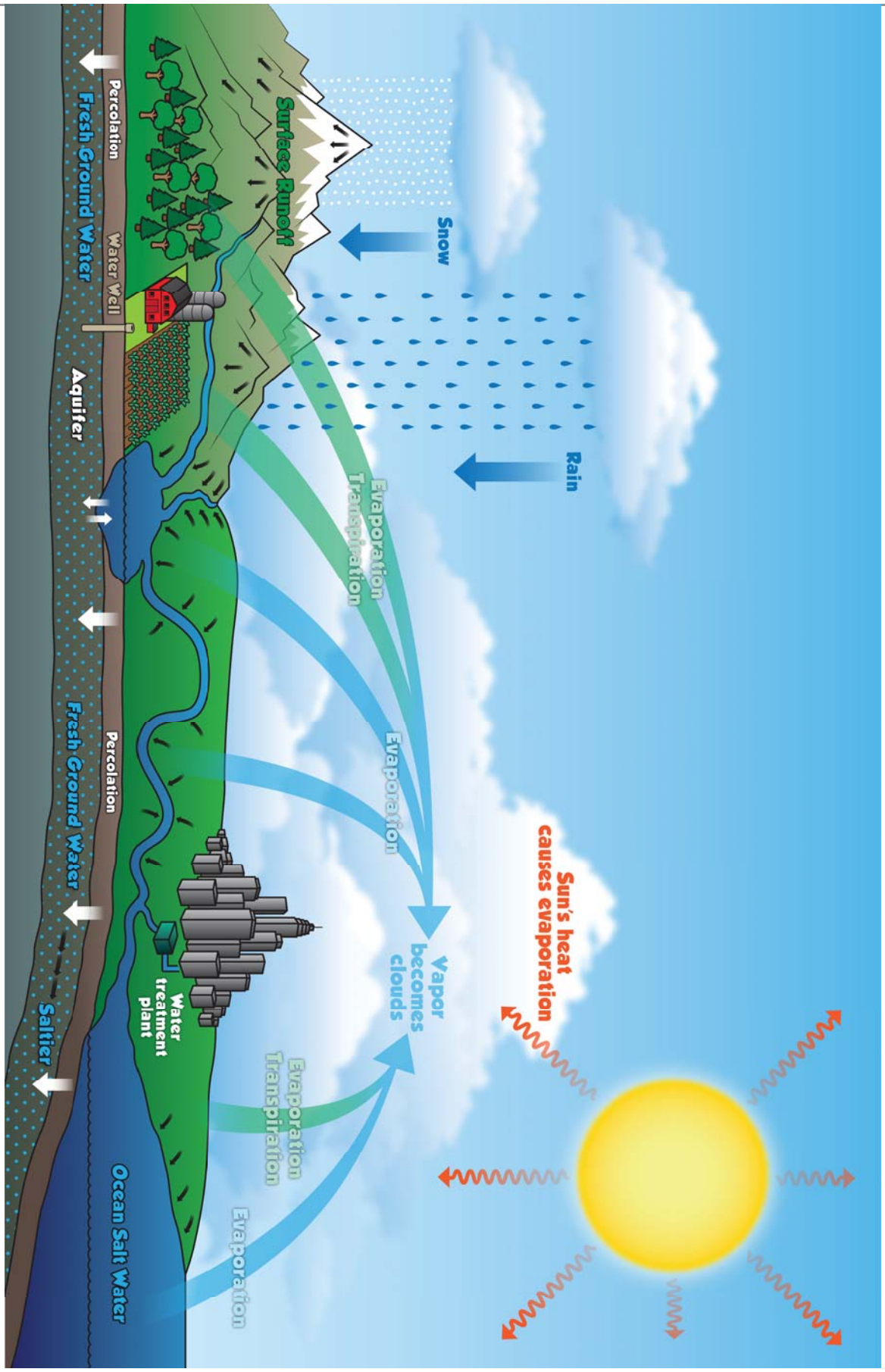


Illustration by Gerry Cleary, courtesy of Northwest Arm Press.

Michigan Agriculture in the Classroom

Parts Per Million Activity

Objectives

Students will

1. Use scientific equipment to understand the mathematical concept of parts per million.

Time: 1 Class Period

Grade Level: 3-4

Curriculum Standards:

Common Core:

- Mathematics: CCSS.Math. Content.4.MD.A.2
- Literacy: CCSS.ELA.RI.3.1; 3.3; 3.4; 3.7

Next Generation Science Standards:

- Earth Systems: 4-ESS2-1; 4-ESS2-2
- Ecosystems: Interactions, Energy and Dynamics 5-LS2.B
- Earth and Human Activity: 5-ESS3-1; ESS3.C

Vocab Words

Parts Per Million (PPM): A unit of measurement for a dilute in a solution, 1 mg/L in an aqueous solution with the density of water being 1 g/mL.

Hypothesis: An educated guess at the outcome of an experiment.

Materials Needed

☐ 1 gallon water
☐ small bucket for clean-up
☐ food coloring
☐ roll of paper towel (1 sheet per two students)
☐ Dixie cups (1 per two students)
☐ sepup trays or bottoms of white egg cartons (1 per two students)
☐ copy of worksheet pg. 12 (1 per two students)
☐ eye dropper (1 per two students)

Background

Scientists have a method of measuring the concentration of a certain dissolved mineral or pollutant that is in water. The units of measurement are called parts per million (PPM). In a aqueous solution, we assume that the density of water is 1.00 g/mL. Therefore, it is common to equate 1 gram of water with 1 mL of water. PPM corresponds to 1 mg/L. A part per million is very small quantity but it can still be a problem to the surrounding ecosystem. Students will do an experiment to show what this looks like.

Directions

1. Discuss Parts Per Million
2. Hand out PPM worksheet pg. 13 and other supplies needed
   - Put 1 drop of Red food coloring and 9 drops of water into well #1 of the trays or egg cartons.
   - Have students put their names on the worksheet and answer the first 2 questions.
3. The students will continue to dilute the food coloring in their tray at a measured rate until the concentration is 1 ppm. Explain the purpose of a hypothesis.
   - Q: What do you think will happen to the color of the food coloring as we dilute it? Write down your answer in question three.
4. In well #1 the liquid food coloring is burgundy (a very dark red) and its concentration is 1/10 or .1 using decimals. Demostrate how to use an eyedropper and go through each of the steps for diluting properly.
5. Have students fill out their worksheet table as they go.
   - Take one drop of food coloring from well #1 and put it in well #2.
   - Put any remaining food coloring back in well #1 then rinse the eyedropper out carefully in your large cup of water.
   - When it is clean, add 9 drops of clean water from your tray to the one drop of food coloring in well #2.
   - What color is it? Let's fill in the next row in our chart.

Parts Per Million Activity

Continued

- The concentration in this well is 1/100 or .01. Write that in your chart.
- Take one drop from the well you just worked on, #2 and put it into well #3.
- Rinse out your eyedropper in your cup and add 9 drops of pure water to that cup.
- Describe the color and write it in your chart.
- What do you think the concentration is in that well? (Take guesses) It would be 1/1000 or .001. Write that number in your chart.
- Continue the pattern until you've gone to well #7.

6. Lastly, have students complete question 5 of the worksheet when they finish the dilutions.
   - Q: How did the color change as you went from well #1 to well #7?
   - Q: When does it look clear?
   - Q: Does it mean that the contamination was all gone? A: No, it is still there but so small that it can't be seen.
7. Wait to have students complete question #6.

Sample Filled in Chart

Cup #	Color of Liquid	Concentration-Fraction	Concentration-Decimal
1	Burgundy	1/10	.1
2	Deep Red	1/100	.01
3	Pale Red	1/1000	.001
4	Bright Pink	1/10000	.0001
5	Light Pink	1/100000	.00001
6	Pale Pink	1/1000000	.000001
7	Clear	1/10000000	.0000001

Name:_____

Water Quality Activity PPMs

1. What does PPM stand for? _____

2. What materials will you need for this activity?

_____

3. In your own words, write a hypothesis for this experiment. (What do you think will happen?)

_____

_____

_____

4. Use the chart below to record your data

Cup #	Color of Liquid	Concentration-Fraction	Concentration-Decimal
1	Burgundy	1/10	.1

5. At what concentration did the color disappear? _____ Was the contamination all gone? _____ Why or why not?

_____

_____

6. Describe two ways that farmers protect and conserve water.

a._____

_____

b. _____

_____

Michigan Agriculture in the Classroom

Use of Water in Agriculture

Objectives

Students will

1. Understand how water is used in agricultural production and the conservation practices employed to maintain or improve the quality of our water.

On Water Book Pages
Pages 22-27

Time: 1/2 Class Period

Grade Level: 3-4

Curriculum Standards
Common Core:

- Literacy: CCSS.ELA.RI.3.1; 3.3; 3.4; 3.7

Next Generation Science Standards:

- Earth Systems: 4-ESS2-1; 4-ESS2-2
- Ecosystems: Interactions, Energy and Dynamics 5-LS2.B
- Earth and Human Activity: 5-ESS3-1; ESS3.C

Water Facts from

www.ecotechwater.com/Company/watertrivia.html

Materials Needed

☐ Photos of irrigation, drip (conservation) irrigation, filter strips, technology that operates irrigation equipment (See pages 14-17).

Background

By referring to the info-graph, students identify examples of farmers using water. Using photos and descriptions, discuss how farmers use technology to conserve water and to avoid contamination of water resources (drip irrigation, filter strips, field wells, etc.)

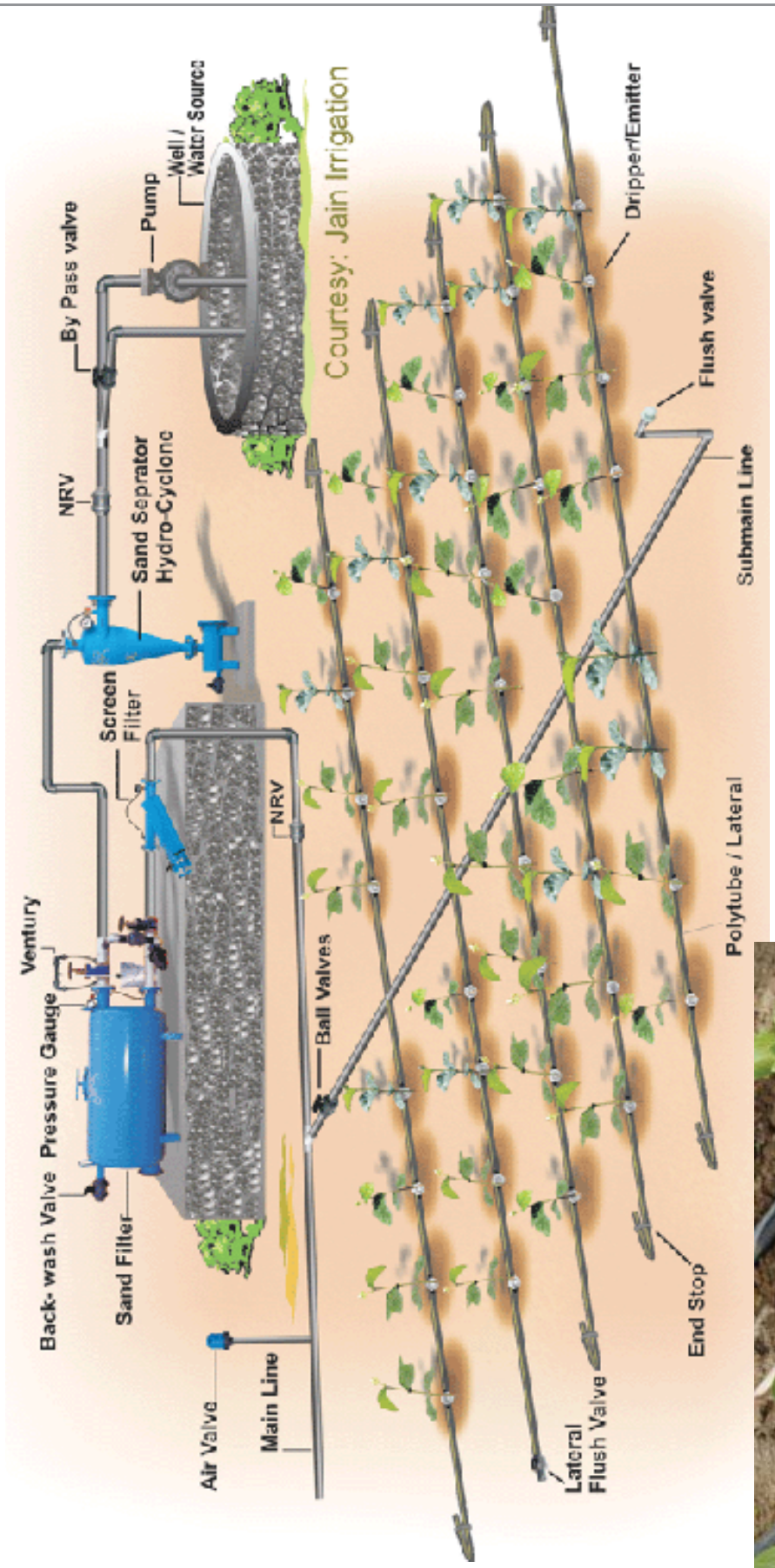
Directions

1. Have students refer back to their info-graph
   - Q: Are there any places in the water cycle where farmers use water?
   - A: Irrigation for crops, spraying fields and watering animals.
2. Explain the use of water in growing crops and raising livestock.
   - It takes 4 gallons of water for a dairy cow to produce 1 gallon of milk.
   - It takes 3 gallons of water to grow 1 tomato.
   - It takes 150 gallons of water to produce a loaf of bread.
   - It takes 2,500 gallons of water to produce a bushel of corn.
3. Water is essential for farmers to grow their crops or raise their livestock. It is very important for them to keep the water supply clean so that their crops and animals are safe. Farm use different tool and practices to keep their water clean. Show students images.

- Drip irrigation: Farmers use this type of irrigation so the water goes directly to the roots of the plant and less is lost to evaporation.
- Filter strips: Farmers plant these strips around their fields next to any flowing water source. The grass filters the water and removes impurities before it reaches the stream or ditch.
- Technology to measure soil moisture: Farmers use this to measure soil moisture and weather patterns so they apply water only when it is needed. Farmers also collect lots of data using technology to help them choose plant varieties that need less water.

4. Lastly, have students complete question #6 on the PPM worksheet.

Drip Irrigation



Land Filter Strip

Agriculture Technology

Concentrated Irrigation

Michigan Agriculture in the Classroom

Conclusion

Background

Review what was learned through the activities: States of matter, hydrologic cycle terminology and concepts, parts per million activity and uses of water in agriculture and technology used to protect our water resource.

Directions

1. Review states of matter
   - Q: What forms of matter did we discuss today?
     A: Solid, Liquid and Gas
2. Review the Hydrological Cycle
   - Q: Who remembers some parts of the hydrologic cycle?
     A: Precipitation, transpiration, condensation, run-off, evaporation, etc.
3. PPM Experiment
   - Q: What does PPM mean? A: Parts per million
4. Water's use in Agriculture
   - Q: In what ways did farmers use water?
     A: Watering crops and livestock
   - Q: In what ways did farmers work to conserve water and keep it clean? A: Through drip irrigation, land filter strips and other soil technologies
5. New terms
   - Q: What new terms did we learn today? A: Any words from the lesson that students can think of.

Water Lesson Script

Good morning! My name is _____and I am a farmer from _____. How many of you know a farmer? I'm here today to talk to you about water and why it is important to you and to farmers across the country and around the world.

Let's start with defining what water is (hold up a glass of water). Everyone knows what this is, don't they? We are most familiar with water when it is in liquid form, like this. But water can be found in other forms too. Who can tell me what this might be? (Hold up some ice cubes, reacting to the cold). That's right, this is ice or frozen liquid water. We like this in our pop and we use it in our coolers to keep things cold. There is one more type of water. Does anyone know what that might be? Suppose I took this small mirror (hold up a small mirror) and exhaled close to it. What would happen? It gets foggy, doesn't it? That's because I exhaled water vapor, which condensed on the surface of the mirror. We are actually surrounded by water vapor in our atmosphere.

So what has to happen in order for water to change forms? What do we have to do to change liquid water into ice? Freeze it, that's right. How about changing liquid water into water vapor? That can happen by boiling it but it also happens when the water particles get very spread apart like they are in the air. This water in the air is from evaporation. Evaporation happens when the sun heats up water on the earth and it changes to vapor. When the evaporation is from plants it is called transpiration. Then when these particles in the air get closer together they form clouds, and what comes from clouds? That's right, liquid water that we call rain or frozen water that we call snow, sleet or hail.

Can we make new water? Nope, all the water we have now is all we have ever had and ever will have. An important thing to remember about water is that it travels in a cycle. It can change form, and move to different places but we can't make any more of it. We call this a closed cycle. So it is very important that we take good care of it.

The scientific name for the water cycle is the hydrologic cycle. Hydro means water. We're going to have you read a short article about the hydrologic cycle. While you are reading, I'd like you to underline or highlight terms that you think are important. When everyone has finished we'll discuss your choices. (Pass out article and have students read and underline/highlight)

(Following the reading, have students volunteer their choices

Water Lesson Script
Continued

of important terms, ask how many other students also chose that term and have students discuss the meaning and the importance). Now that we've learned some of the important terms that help us understand the hydrologic cycle, let's look at a diagram showing how water moves through the hydrologic cycle. (Pass out diagram).

Remember we said that the hydrologic cycle is a closed cycle so no new water enters or leaves. However, the water can take lots of different paths to go through the cycle. It might take only hours for a drop of water to travel through the cycle or it might take years. It just depends of the path it takes. Remembering what we talked about after your reading, what do you think is the shortest route through the system? (Solicit answers). That's right, precipitation, evaporation and condensation make up the short cycle (write these terms on the board). I want you to find two different colored crayons or markers and choose one color to draw and label the short cycle on your diagram, use the terms on the board to label the three parts. Now, working with your partner, use the other color to show at least four other, longer paths that water can take to go through the hydrologic cycle. (Give an example then monitor students as they work, reminding them to complete the cycle for each path). You kids did a great job coming up with longer paths through the hydrologic cycle. Which groups would like to share one of their long cycles? (Allow several groups to share).

Remember, we talked about the importance of keeping our water clean. Looking at your diagrams, I'd like you to find at least four different places where water might be contaminated; that means something bad might get into the water. (Allow students to find points of contamination and discuss answers). Almost anytime water is near the surface of the earth, there is a chance that something might get into it.

Scientists have a method of measuring how much of a certain substance is in the water. We call the units they use parts per million. A part per million is very, very small but might still be a problem. We are going to do an experiment to show you what this might look like. You will each get a worksheet, a tray, a cup of clean water and an eyedropper. We will come around and put a few drops of food coloring and some clean water in your tray. It is very important that you follow the directions carefully so you get accurate results so don't touch anything until we tell you to. Put your name on the worksheet and answer the first two questions.

Water Lesson Script

Continued

What we are going to do is to continue diluting the food coloring in your tray at a measured rate until the concentration is 1 ppm. What do you think will happen to the color of the food coloring as we dilute it? Make an educated guess which is called your hypothesis, and write it down to answer question three. Before we start our experiment, let's look at the chart. You can see that the first line is filled in for you. In well #1 is the liquid food coloring. Its color is burgundy (a very dark red) and its concentration is 1/10 or .1 using decimals. Let's get started. Does everyone know how to use an eye dropper? (Demonstrate if necessary) Use your eye dropper to take only one drop of food coloring from well #1 and put it in well #2. Put any remaining food coloring back in well #1 then rinse the eyedropper out carefully in your large cup of water. When it is clean, then add 9 drops of clean water from your tray to the one drop of food coloring in well #2. What color is it? Let's fill in the next row in our chart. The concentration in this well is 1/100 or .01. Write that in your chart. (Put on board). Now take one drop from the well you just worked on, #2 and put it into well #3. Rinse out your eyedropper in your cup and, again add 9 drops of pure water to that cup. Describe the color and write it in your chart. What do you think the concentration is in that well? (Take guesses) It would be 1/1000 or .001. Write that number in your chart. Are you beginning to see a pattern in our numbers? Now you're going to keep following that pattern until you've gone to well #7. If you're not sure what to do, raise your hand and I'll come and help you. When you've finished, fill in the rest of your chart and answer question #5.

How did the color change as you went from well #1 to well #7? When does it look clear? Does that mean the contamination was all gone? No, it is still there but so small that it can't be seen. Scientists use this unit of measurement to determine the amount of all sorts of things that might be in water, some good things and some bad things.

Let's go back to our diagram again. Where do you see farmers using water? (Students share answers including irrigation, spraying, watering animals, etc.) It takes quite a bit of water to raise livestock or crops. For example, it takes 4 gallons of water to produce just on gallon of milk and a bushel of corn takes 2,500 gallons of water to grow and mature. Farmers need to have water to use and they know how important it is to keep it clean. Farmers

Water Lesson Script
Continued

have several tools and practices they use to protect our water. I'm going to show you some pictures and explain a few of them to you.

(Show picture of drip irrigation) Farmers use this type of irrigation so the water goes directly to the roots of the plant and less is lost to evaporation. (Show picture of filter strips). Farmers plant these strips around their fields next to any flowing water source. The grass filters the water and removes impurities before it reaches the stream or ditch. (Show picture of technology) Farmers use this to measure soil moisture and weather patterns so they apply water only when it is needed. Farmers also collect lots of data using technology to help them choose plant varieties that need less water. Let's fill in the last question on our worksheet to help us remember how farmers conserve and protect our water resources.

Let's review what we've learned today. We started by talking about the three forms that water is found in. Who remembers what those were? That's right; solid, liquid and gas. Then we went through the parts of the hydrologic cycle. Who remembers some of the parts? (Precipitation, transpiration, condensation, run-off, evaporation, etc.) Then we did the experiment on ppm. What does ppm mean? Parts per million. And we learned that we can't always see what's in our water. We finished up with some of the tools that farmers use to help keep our water clean. We talked about drip irrigation, filter strips and different types of technology. Did we learn some new terms today? What were they?

I hope that the next time you get a drink of water or go for a swim at a nearby lake that you'll think about this resource we call water and how important it is for all of us to conserve it and keep it clean.

Thanks for being such good listeners. Are there any questions?