

# JOURNEY THROUGH THE WATER CYCLE

**Grade Level or Special Area:** 2<sup>nd</sup> Grade

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**Length of Unit:** Seven lessons and a Culminating Activity (eight days, sixty to eighty minutes each)

## I. ABSTRACT

This unit is based on the water cycle as outlined in the *Core Knowledge Sequence*. Through experimentation, observation, listening, vocabulary, writing, music, and art activities students will gain a new understanding of the presence of water on earth. The processes of the water cycle and the cyclical nature of water will be emphasized.

## II. OVERVIEW

### A. Concept Objectives

1. Students will understand the processes of scientific investigation and communicate about such investigations.
2. Students will recognize common forms and changes in water.
3. Students will recognize and be able to communicate the cyclical nature of water on the earth.

### B. Content from the *Core Knowledge Sequence*

1. The Water Cycle
  - a. Most of the earth's surface is covered by water. (p. 59)
  - b. Evaporation and condensation (p. 59)
  - c. Water vapor in the air, humidity (p. 59)
  - d. Clouds: cirrus, cumulus, stratus (p. 59)
  - e. Precipitation, groundwater (p. 59)
2. Transpiration (not included in the *Core Knowledge Sequence*)
3. Runoff (not included in the *Core Knowledge Sequence*)

### C. Skill Objectives

1. Students will distinguish between solid, liquid, and gas.
2. Students will summarize classroom discussion, demonstrations or experiments in complete, factual sentences.
3. Students will formulate questions based on prior knowledge, discussions or observations.
4. Students will use dictionaries to help them develop a common knowledge of science terms.
5. Students will follow teacher's directions to set up and observe a scientific experiment.
6. Students will record observations on a chart.
7. Students will use songs and other mnemonic devices to reinforce learning.
8. Students will use dictionaries to help them develop a common knowledge of science terms.
9. Students will make accurate visual representations of scientific terms.

## III. BACKGROUND KNOWLEDGE

### A. For Teachers

1. Water Science for Schools website- <http://ga.water.usgs.gov/edu>
2. *A Drop of Water—A Book of Science and Wonder* by Walter Wick
3. *What Your Second Grader Needs to Know (Revised Edition)* by E.D. Hirsch, Jr.
4. *The Cloud Book* by Tomie de Paola

- B. For Students
1. Produce a variety of types of writing—such as stories, reports, letters, poems, descriptions—and make reasonable judgments about what to include in his or her own written works based on the purpose and type of composition (p. 43, Second Grade *Core Knowledge Sequence*)
  2. Use complete and detailed sentences to respond to what, when, where, and how questions (p.24, First Grade *Core Knowledge Sequence*)
  3. Listen to and understand a variety of texts, both fiction and nonfiction (p. 8, Kindergarten *Core Knowledge Sequence*)
  4. Names and common examples of three states of matter: solid, liquid, gas (p. 38, First Grade *Core Knowledge Sequence*)
  5. Water as an example of changing states of matter of a single substance (p. 38, First Grade *Core Knowledge Sequence*)
  6. Basic dictionary skills
  7. Familiarity with filling in charts
  8. Understanding of key instruction terms such as observe, explain, define, and illustrate (if students do not know these key terms introduce them as part of the lesson or substitute other terms)

#### IV. RESOURCES

- A. *A Drop of Water* by Walter Wick (book for Lessons Two and Four)
- B. *Water Cycle Boogie*, by the Santa Clara Valley Water District (Lesson Two)
- C. *The Cloud Book* by Tomie de Paola (book for Lesson Three)
- D. *Drippy the Raindrop in To the Mountains and Back!* by Joel M. Kimball (Lesson Six)
- E. Water cycle charts to print in color: <http://ga.water.usgs.gov/edu/watercyclegraphic> or <http://teachervision.com>

#### V. LESSONS

##### **Lesson One: What Do We Remember? (approximately sixty minutes)**

- A. *Daily Objectives*
  1. Concept Objective(s)
    - a. Students will understand the processes of scientific investigation and communicate about such investigations.
    - b. Students recognize common forms and changes in water.
  2. Lesson Content
    - a. Matter
      - i. Water as an example of changing states of matter of a single substance. (p. 38)
      - ii. Names and common examples of three states of matter: solid, liquid, gas. (p. 38)
  3. Skill Objective(s)
    - a. Students will distinguish between solid, liquid, and gas.
    - b. Students will summarize classroom discussion, demonstrations or experiments in complete, factual sentences.
    - c. Students will formulate questions based on prior knowledge, discussions or observations.
    - d. Students will use dictionaries to help them develop a common knowledge of science terms.
- B. *Materials*
  1. A large drop, approximately 2' X 3', cut from blue paper and labeled "What We Know"

2. Sheet of Small Water Drops (Appendix A) run on blue paper, one sheet per student
  3. Journey Through the Water Cycle (Appendix B) run on blue paper, one for each student
  4. Glue stick, if using copybooks
  5. Light blue yarn or string for hanging water drops from ceiling
  6. Three clear plastic cups, label one “water”, one “ice” and leave one plain
  7. Water to fill two of the cups (# 5) half full
  8. Ice to fill the third cup (# 5) half full
  9. A hot pot or other heating device that contains the water from the plain cup
  10. Classroom dictionaries for every two students
  11. Student’s science copybooks or one blank blue sheet and 10-12 sheets of writing or notebook paper per student
  12. Teacher’s Checklist (Appendix C)
  13. Overhead projector, to be used throughout the unit
  14. One blue highlighter, to be used throughout unit
- C. *Key Vocabulary*
1. Solid—hard and firm; not a liquid or gas
  2. Liquid—a wet substance that you can pour
  3. Gas—a substance, such as air, that will spread to fill any space that contains it
- D. *Procedures/Activities*
1. Display large water drop. As a class, list all the prior knowledge students can contribute on the topic of “water.”
  2. Pass out the “right side” drops from Appendix A, two for each student. (Save “left side” drops for Lesson Seven.) Ask students to think of two questions they have about water then write one on each drop. Collect and hang the drops from the ceiling before the next lesson.
  3. Pass out Appendix B as the title page for student journals. Have students cut out the drop and glue it into their copybooks using a glue stick. If making journals, make a booklet using Appendix B as the cover with 10-12 sheets of notebook or writing paper in the middle and a blank blue sheet for the back.
  4. Write the vocabulary words on the board or overhead projector. Show students the water, ice, and hot pot containing water (plugged in). Discuss the water in relationship to the vocabulary words. Is it a solid, liquid, or gas? Do the same with the ice. By then the hot pot should be boiling, point out the water vapor. You may need to have students come up in small groups depending on your classroom conditions. Following the same pattern, question students about the water vapor. Unplug and set aside the hot pot, you will need it at the end of class.
  5. Group students into pairs and give each group a dictionary. Have each student copy the vocabulary words into their copybooks/journals, adding the definition, as they look them up together. Circulate throughout the class to assist students who still have trouble with dictionary skills.
  6. As students finish, have them return to their own seats and write three or more factual sentences about water in their journals. Let students know you will be looking for complete sentences that make sense. Remind students that a sentence must start with a capital and end with an end mark; it must have a naming part and a telling part. (Or use the standards and terms you are using in other writing projects.) An example of an acceptable sentence would be: Ice is solid water.
  7. Sing the song “Skip to My Lou” to review the tune with students. Tell them that tomorrow they will begin to learn a song about the water cycle that uses that

tune. It would be helpful to go over the tune more than once or to sing the song once and then hum it a couple of times to reinforce the tune.

- E. *Assessment/Evaluation*
1. Collect copybooks/journals and use the checklist, Appendix C, to evaluate their ability to communicate prior knowledge in sentence form.
  2. Check definitions to maintain a consistent working vocabulary. Return with a water drop drawn on the corner of each completed page with a blue highlighter.

**Lesson Two: What's Up? (approximately sixty to eighty minutes)**

- A. *Daily Objectives*
1. Concept Objective(s)
    - a. Students will understand the processes of scientific investigation and communicate about such investigations.
    - b. Students will recognize common forms and changes in water.
  2. Lesson Content
    - a. Evaporation (p. 59)
    - b. Water vapor (p. 59)
    - c. Transpiration (not included in *Core Knowledge Sequence*)
  3. Skill Objective(s)
    - a. Students will follow teacher's directions to set up and observe a scientific experiment.
    - b. Students will record observations on a chart.
    - c. Students will use songs and other mnemonic devices to reinforce learning.
    - d. Students will use dictionaries to help them develop a common knowledge of science terms.
    - e. Students will summarize classroom discussions, demonstrations or experiments in complete, factual sentences.
    - f. Students will distinguish between solid, liquid, and gas
- B. *Materials*
1. Book: *A Drop of Water* by Walter Wick
  2. Two small foam plates per group of two or three students
  3. A small non-standard measure such as a plastic bottle cap or medicine cup per group
  4. One 9" X 12" sheet of black construction paper per group
  5. Access to water in the classroom or a small cup or bottle of water per group
  6. What's Up? observation sheet (Appendix D)
  7. Transparency of observation sheet (Appendix D)
  8. Student's copybooks or journals
  9. Classroom dictionaries, one for every two students, or one per student if they will be working independently
  10. A copy of the "Water Cycle Boogie" on a transparency (you can print this page from the Santa Clara Valley Water District website, <http://www.valleywater.org/>)
  11. A bag of beads and cord to go with the above song (specified at the website)
  12. Classroom timer or stopwatch, will be used in several lessons
  13. Teacher's Checklist from Lesson One
  14. Rubric for What's Up? (Appendix E)
  15. Glue sticks
- C. *Key Vocabulary*
1. Evaporate—when a liquid evaporates, it changes into a vapor or gas
  2. Water vapor—the gas produced when water evaporates

- D. 3. Transpiration—the process by which plants give off moisture into the atmosphere
- Procedures/Activities*
1. Prior to lesson, practice the “Water Cycle Boogie” words with the “Skip to My Lou” tune a few times so that you can guide students in fitting these new words to the tune.
  2. Read aloud pages 22-23 of *A Drop of Water* by Walter Wick, showing photos. This short read covers evaporation and water vapor in simple to understand text and very clear photographs. Tell the students that the experiment today demonstrates these two concepts.
  3. Form groups of no more than three students per group. Give each group two foam plates, one sheet of black construction paper, a non-standard measuring unit, and water. Describe the experiment for students telling them that they will be doing an experiment to see what happens to water when it sits out in the open air. Explain that they will also be watching to see if the results are the same in the sun and the shade.
  4. Instruct each group to set their plates side by side in the sun. Next, have students fold the black paper in half crosswise and stand it up to shade one of the plates. Using non-standard measurements students should put equal amounts (1 unit) of water on each of their plates. (The small amount of water combined with a very sunny location will speed up the experiment.)
  5. When all students have returned to their seats set a timer for fifteen minutes. Hand out individual copies of the observation sheet and display a copy on the overhead. Go over the form and discuss with students exactly what is expected on each section of the chart. Tell students that each time the timer goes off they may check their experiments, return to their seats and record their results. Remind them that you will reset the timer when everyone has returned to their seats. Continue with the lesson while the timer is running, as you will have time to explain the next activity before the first check time.
  6. List the vocabulary words on the board or overhead. Form groups of no more than two students and pass out dictionaries. If students have had experience in using the dictionary and you have enough classroom copies students should work independently on this activity. Encourage students to use their best handwriting.
  7. The timer will go off during the vocabulary activity. By the time most second grade students have completed the vocabulary activity the water should have evaporated noticeably, if not completely. Allow students to check their project again. Ask students to record their observations. Tell them that they will check their experiment again at the end of class.
  8. Conduct a classroom discussion about what students observed. Be sure that students have connected the sun (heat source) to the evaporation process. Ask students where the water has gone. (Into the air.) Ask what this process is called. (Evaporation) If students are not familiar with this form of the term evaporate, tell them that the word evaporate is correct but evaporation describes the process. Ask students what water that becomes a gas might be called. (Water vapor)
  9. Continue discussion with students by pointing out that water in the air can be difficult to see, however, we can see water vapor in the air on cold days when we can “see our breath.” Explain that we will do a demonstration in which we will be able to see our breath even though it is not that cold outside. Explain that you will be passing out very cold mirrors. Tell students they should hold them on the edges only and blow gently onto the mirror, observing the results. Ask them to think about what happens for a writing activity. Retrieve mirrors from the

- refrigerator, carry them in a pan or box so that they do not warm too quickly as you pass them out. (This is NOT a job for classroom helpers.)
10. Discuss what happened when they breathed onto the mirrors. Tell students that when they breathe out there is always some water vapor present, but we cannot see the vapor unless it is cold. Ask students to write at least three complete sentences about what happened in the mirror activity. Remind them that they may want to use words from their water vocabulary in their writing and the standards you have set for correct writing.
  11. Briefly discuss the term transpiration with students. Tell them that plants give off moisture into the air just as they do when they breathe. Tell students that plants give this moisture off through their leaves and it is one of the sources of water in our air. Transpiration can be seen as a plant's form of sweating.
  12. Display the "Water Cycle Boogie" transparency with only the first two verses showing. Review the tune of "Skip to My Lou" with students. Sing the water cycle version of the song. I would suggest that you do it at least three times so that students are comfortable with using new words with an old tune.
  13. Pass out the bag of materials for the bracelet. (An alternate to having all the beads in the bag would be to only include the beads students would need each day.) Let students know that you will begin the bracelet today but they will not be able to wear them until later in the unit. Have students knot one end of the cord about five inches from the end and add the yellow and clear beads to go with the first two verses of the song. Return the partially completed bracelet to the bag, zip closed and have students put their name on the bag. Collect.
  14. Have students check their experiment for a final time and record their results. Instruct students to carefully pour the water from the plate into their measure and judge how much is left. Pour that water back onto the plate then measure the water left on the other plate in the same way. They will glue their observation charts into their copybooks/journals by folding them in half and gluing one half to the page (trim if necessary for copybooks). Students may clean up the experiment area or leave it for an end-of-day job.
  15. Continue the pattern of a daily review, including the questions from previous day's work. Today's questions might include:
    - a. What is the term for water that is in the form of a gas? (water vapor)
    - b. What is the name of the process that turns water into a gas? (evaporation)
    - c. Can people or plants put water vapor into the air? (yes)
    - d. What is it called when plants put water vapor into the air? (transpiration)
    - e. What is humidity? (a weather term for water vapor in the air)

E. *Assessment/Evaluation*

1. Collect student copybooks/journals. Check to see that the observation chart is complete using the rubric for What's Up?, Appendix E. If it is, draw a blue water drop.
2. Continue to use the checklist from Lesson One to evaluate student writing. Show that the writing is acceptably completed by adding a water drop drawn in blue highlighter.

**Lesson Three: A Cloudy Day! (approximately sixty to eighty minutes)**

A. *Daily Objectives*

1. Concept Objective(s)
  - a. Students will understand the processes of scientific investigation and communicate about such investigations.

- b. Students will recognize common forms and changes in water.
- 2. Lesson Content
  - a. Clouds: cirrus, cumulus, stratus (p. 59)
- 3. Skill Objective(s)
  - a. Students will make accurate visual representations of scientific terms.
  - b. Students will use dictionaries to help them develop a common knowledge of science terms.
  - c. Students will use songs and other pneumonic devices to reinforce learning.

B. *Materials*

- 1. Book: *The Cloud Book* by Tomie de Paola
- 2. Student's copybooks or journals
- 3. Blue construction paper, 9" X 12", three sheets per student
- 4. Cotton balls (one large bag per three students)
- 5. White poster paint, if you mix your own it would be ideal to have one batch that is the typical mixture and one batch that is thicker than usual
- 6. White craft glue, glue sticks will not work well with cotton balls
- 7. Variety of paint brushes, a few fan type will be an asset
- 8. Paint smocks, if desired
- 9. Old newspapers for ease in clean up
- 10. Cloud pictures, a minimum of five different photos of each type, these can be digital photographs, calendar photos, or photos from the internet (there are a lot of down-loadable photos out there)
- 11. Simple Cloud Identification Chart (Appendix F) on transparency
- 12. Chart paper
- 13. Rubric for Cloud Picture Activity (Appendix G)
- 14. Transparency of "Water Cycle Boogie", used in previous lesson
- 15. Bag with bracelet and beads from the previous lesson, add white bead if necessary

C. *Key Vocabulary*

- 1. Cirrus—high wispy clouds
- 2. Cumulus—low, fluffy clouds with a flat bottom that look like piles of cotton balls
- 3. Stratus—low, flat sheets of gray clouds

D. *Procedures/Activities*

- 1. Prior to this lesson obtain a variety of cloud pictures and mount them on construction paper or poster board. I found calendars and an internet search of "clouds+photos" to be my best sources of photographs.
- 2. Ideally, begin this lesson by taking students outside to observe clouds. Ask students to make observations in preparation for the rest of the lesson. As students look at the clouds, point out anything of importance they may be missing. Do not give students the names of the cloud types at this time. Ask students if they have ever wondered what it would be like to be in a cloud. Then, ask them to raise their hands if they have ever been outside when it is foggy. Tell them that fog is a cloud at ground level. Have students suggest what clouds might be made of. (very small water droplets)
- 3. Return to the classroom. Read aloud *The Cloud Book* by Tomie de Paola. Ask students for their reactions and comments about this book.
  - a. What parts are realistic?
  - b. Which parts are not true to life?
  - c. How do de Paola's illustrations add to their knowledge of clouds?

- d. Do de Paola's clouds look like the clouds they just observed?
  - e. How are they similar? How are they different?
  4. If possible, re-read this book at another time this week, such as milk break or book time.
  5. Display the cloud chart from Appendix F, using these simple drawings and the student's contributions write a student generated definition for each cloud type on chart paper. After the wording is satisfactory to the class and meets the basic criteria covered in the key vocabulary, have students write them in their copybooks/journals. Ask students to draw a representation of each cloud type next to, or under, the definition.
  6. Leave the chart on display until students are finished. Remove the chart before beginning procedure five.
  7. To begin this art activity you will want to move students to an art room if available or spread old newspapers on work surfaces. Put on paint smocks if desired. Introduce students to the supplies assembled on a separate table. Information you may want to share is: types of brushes and how to clean them, consistency of paint, and final room clean up. Let students know how much time they will have; I suggest planning on a half hour. Tell students that they will need to make one picture of each of the cloud types, leaving some space at the bottom to label the clouds after they are dry. The cloud chart should not be on display as students label their set of pictures, but students may use their dictionary entries if you choose. (Tip: Students could use free time or before school time to add labels the next day.) Optional: play music in the background to limit talking, help keep students on task and stimulate creativity. Many of the Core Knowledge music works will be good choices. As an alternative you might use classical music with a water theme, or music designed to encourage creativity.
  8. Play "What's My Name?" Using a minimum of five pictures of each type (I suggest mounting for future use) display one picture at a time and let students name the cloud. This can be played in teams or you can go down the line and ask each student in turn. Play through the pictures at least two times, more if time allows. If you add the name of the clouds to the back of the photos you can put them out for center or before school use.
  9. Display the "Water Cycle Boogie" transparency from Lesson Two with only the first two verses showing. Sing the song through once using only those verses then reveal the cloud verse and sing the song again at least twice.
  10. Pass out the bags containing bracelets and beads. Have students add the white bead to the bracelet then return it to the bag. Collect the bags.
  11. Conduct the daily oral review using questions from previous days in addition to the material covered today. New questions today might include: What kind of cloud is gray, flat and low? (stratus) What is the name of the clouds that look thin and wispy? (cirrus) What do cumulus clouds look like? (a pile of cotton balls)
- E. *Assessment/Evaluation*
1. Collect student copybooks/journals. Check definitions to make sure they were copied correctly. Add a blue water drop, drawn with a highlighter, to show completion.
  2. Check student's illustrations for accuracy. Add a blue water drop with a highlighter to show completion.

3. The set of three cloud pictures will be collected when they have dried and been labeled. Evaluate according to the rubric found in Appendix G. Display the pictures in a public area of the school.

#### **Lesson Four: Changing Again? (approximately sixty to eighty minutes)**

##### **A. *Daily Objectives***

1. Concept Objective(s)
  - a. Students will understand the processes of scientific investigation and communicate about such investigations.
  - b. Students will recognize common forms and changes in water.
2. Lesson Content
  - a. Condensation (p. 59)
3. Skill Objective(s)
  - a. Students will summarize classroom discussions, demonstrations or experiments in complete, factual sentences.
  - b. Students will use dictionaries to help them develop a common knowledge of science terms.
  - c. Students will use songs and other pneumonic devices to reinforce learning.
  - d. Student will distinguish between solid, liquid, and gas.

##### **B. *Materials***

1. Three identical clear glasses, glass will work best
2. Pitcher of ice water
3. Access to a refrigerator and a freezer
4. Student's copybooks or journals
5. Classroom dictionaries
6. *A Drop of Water* by Water Wick, pages 24-25 and page 26
7. Transparency of "Water Cycle Boogie", used in previous lessons
8. Bag of bracelet and beads from previous lesson, add the light blue bead if necessary
9. Teacher's Checklist from previous lessons

##### **C. *Key Vocabulary***

1. Condense—when a gas condenses, it turns into a liquid, usually as a result of cooling
2. Condensation—the act or process of condensing something. Something that has been condensed

##### **D. *Procedures/Activities***

1. Prior to this activity place one of the glasses in the refrigerator and one in the freezer. Ten to fifteen minutes is enough time.
2. Tell students that today's lesson will demonstrate the opposite of evaporation. Set up the experiment in a central area so that all students can easily see what is going on. If you have a large class break them up into smaller groups and set up the same experiment at two or more stations. (In that case additional glasses and pitchers of ice water will be required.) Set the first glass in the center of the working area.
3. With students watching fill the glass with ice water being careful to keep the outside of the glass dry. (It will cloud the student's observation if the glass is not completely dry at the beginning of the experiment.) Wait briefly for the condensation to form on the outside of the glass. Let students look at and then touch the outside of the glass. Tell the students that the scientific name for what they just observed is condensation. Write the word on the board or display it on

the overhead projector. Discuss with the student what they have just observed. Possible questions would be:

- a. How do you think the outside of the glass got wet? (Water formed on the glass because the inside is cold and the air in the room contains water vapor.)
  - b. Where do you think the water came from? (from the air)
  - c. Do you think there must be water inside the class in order for condensation to occur? (Let students speculate on this question but do not give them the answer until after the next phase of the experiment. You might say something like “After the next experiment you should know the answer.”)
4. After the discussion ask students to write what they just observed in their copybooks/journals. Remind students that they observed more than one step in the process and that each step should be included. The number of sentences is not as important as that students tell what they have observed. Allow students adequate time to complete their writing. An example of an acceptable sentence would be: Water drops started to form on the outside of the glass.
  5. Put the glasses from the refrigerator and freezer on the table with the first glass. Ask students to observe the glasses for two or three minutes. Tell students to record what they observe comparing the glass from the refrigerator and the one from the freezer to each other as well as to the first glass. Pause again to allow students writing time.
  6. Have the students form into their groups and pass out dictionaries for the dictionary activity. Add the word *condense* to the board or overhead. Have students copy the words and definitions in their copybooks/journals. Point out to students that the term condensation has two meaning and that we will be using both.
  7. When students have finished, pull the experiments, observation and dictionary work together by reading pages 24 and 25 of *A Drop of Water* by Walter Wick. Remind them that condensation can really mean two different things. Ask students to explain those two different meanings. (It can be the process on water vapor turning back into a liquid. It is also correct to use the term condensation to name the water droplets that are formed.) Students need to understand that just as evaporation turns water into a gas, condensation turns a gas, in the form of water vapor, into a liquid. Read page 26 of *A Drop of Water* by Walter Wick.
  8. Display the transparency for the “Water Cycle Boogie” covering all the verses below the cloud verse. Guide students in singing the song through once, and then uncover the verse on condensation. (The other verses will remain covered.) Sing the four-verse portion of the song two or more times.
  9. Hand out bags holding bracelets and beads. Have students add the light blue bead. Review the colors, and order, of the beads currently on the bracelet. An example of questions would be: The first bead is yellow, what does that remind us of? (The heat of the sun dries the water and the earth.) Next we have a clear bead, what water word does this bead remind us of? (evaporation) Our third bead is white. What does the white bead help us remember? (clouds) Today we added a light blue bead. What process did we learn about today? (condensation)
  10. Review accumulated knowledge using questions from previous days.
- E. *Assessment/Evaluation*
1. Collect copybooks/journals. Using the Teacher Checklist from Lesson One, evaluate student observations. Draw a water drop with highlighter on work that has been completed satisfactorily.

2. Check definitions for accuracy and add a water drop to those that have been successfully completed.

**Lesson Five: It's Wet Out There! (approximately sixty to eighty minutes split in two parts)**

A. *Daily Objectives*

1. Concept Objective(s)
  - a. Students will understand the processes of scientific investigation and communicate about such investigations.
  - b. Students will recognize common forms and changes in water.
2. Lesson Content
  - a. Precipitation (p. 59)
3. Skill Objective(s)
  - a. Students will distinguish between solid, liquid, and gas.
  - b. Students will use dictionaries to help them develop a common knowledge of science terms.
  - c. Students will follow teacher's directions to set up and observe a scientific experiment.
  - d. Students will record observations on a chart.
  - e. Students will use songs and other pneumonic devices to reinforce learning.

B. *Materials*

1. One large zip lock bag for each student
2. Access to water
3. One cup measures or non-standard measuring units that hold approximately one cup
4. Masking tape
5. Thermometers with a good range, at least one per every three students
6. Small zip lock bags of ice, prepared ahead of time, one per student—fill a sandwich size bag with approx.  $\frac{3}{4}$  cup of water and freeze sitting upright so that the ice forms at the bottom of the bag
7. It's Wet Out There! observation sheet (Appendix H) one per student
8. Optional: transparency of observation sheet (Appendix H)
9. Classroom timer or stopwatch, if the timer will not track hours use the classroom clock and track the time yourself
10. Classroom dictionaries
11. Transparency of the "Water Cycle Boogie" from previous lessons
12. Bag containing bracelets and beads, add the dark blue bead if necessary
13. Student's copybooks or journals
14. Rubric for It's Wet Out There! (Appendix I)

C. *Key Vocabulary*

1. Precipitation—the falling of water from the sky in the form of rain, sleet, hail or snow

D. *Procedures/Activities*

1. NOTE: Today's experiment will last over two hours. It will be necessary to begin the procedure, move on to other subjects, then return to finish up the class. The time breakdown will be: approximately thirty minutes to set up the experiment and make the first observation (#'s 2-4); two hours for the water temperature to raise; and approximately fifty minutes to finish the experiments, record the results and sum up the day's activities. (#'s 6-15)

2. Tell students that it is going to rain today. Wait for their reactions. Depending on the weather they may agree or strongly disagree. Tell them that the rain will occur in the classroom through a science experiment.
3. Hand out measuring cups or non-standard measuring units and large zip lock bags. Instruct students on measuring water into their bags, and sealing them. They should place one unit of water in the bag and make sure it is sealed and leak-proof before laying the bag down. Ask them to return to their seats until everyone is ready to go on. (Alternative procedure would be to fill and seal bags ahead of time.) Using masking tape, attach the bags against a sunny window or glass door with one strip of tape across the zip portion leaving some space between bags. To work well this experiment requires the bags to be low enough that students can easily see and touch the bag. Low windows or glass doors are ideal. Make sure they are in full sun. Put the student's names on the masking tape. Show the students how to take the temperature of the water by holding the bulb of the thermometer against the water portion of the bag for approximately three minutes. Have students record the starting temperature in the appropriate area of the observation chart (Appendix H). If desired help students work through the chart by having a transparency of Appendix H on the overhead while you give instructions for using the chart. Set the timer for two hours or note the time on the clock, record it on the board where the class can see it and help the class determine what time it will be when two hours are up.
4. Once the timer is running have students glue their observation sheet into their copybooks/journals. A glue stick will work best. Once again trim if necessary and fold in half before gluing.
5. NOTE: There will now be a two hour segment of time for other classroom lessons or activities.
6. Resume science with a short recap of what has taken place in the activity. Students should remember how the experiment was set up and recall the initial temperature readings they made on their observation charts. Point out that two hours have passed, ask students to predict what changes may have taken place in that length of time.
7. Have students look for changes in the bag of water and record the current temperature without moving or shaking the bag. Remind students to hold the thermometer against the bag of water about three minutes to take their reading. Students should record the changes they observe in the appropriate section on their observation charts.
8. Put the word *precipitation* on the board and tell students that they should list the definition in their copybooks/journals once they complete their observations. Have students work independently, getting a dictionary and returning it on their own. Since there is only one word for today's lesson it will not require a lot of time.
9. Begin a brief classroom discussion when all students have recorded their observations so that everyone is ready to participate in the discussion. If some students have not had a chance to do the dictionary activity re-assure them that they are not behind and will have time to do it during the next writing portion of the class. The discussion should be based on student observations. An example of questions would be: What has happened to the temperature? (it has gotten higher, hotter) Has the appearance of the bag changed in any way? (there are water drops on the upper portion of the bag) Where did the water come from? (based on their knowledge some students may use the words condense or condensation) All students should link the appearance of the water drops to the

- concept of condensation. Review condensation if necessary, telling students that the drops are condensed water vapor.
10. Pass out bags of ice to each student. Instruct them to hold the bag of ice at the top of the water bag, where the water drops are, watching to see if changes occur in the large bags. (More water vapor will begin to condense and after a few minutes the condensed vapor should begin to precipitate and run down the sides of the bag. Allow no more than six to eight minutes for this activity as students will begin to get bored. Have students place their ice bags in a sink, pan or bucket so that you can dispose of them after class rather than taking up class time. (This activity was adapted from *Build a Model of the Water Cycle*, at the Oceans Alive web page. <http://www.mos.org/oceans/planet/watercycle.html> )
  11. Ask students to make their final entry on the observation chart referring to the appropriate section to use. A transparency of the chart will be helpful at this point.
  12. Discuss student observations. Some students will link their new vocabulary and the process they have just witnessed. Other students will need help to connect the water droplets running down the inside of the bag with the term precipitation. Ask students to give the names used for precipitation that occurs in nature. (rain, hail, snow, sleet)
  13. Display the “Water Cycle Boogie” transparency with the first four verses showing. Sing the song. Uncover the fifth verse, on precipitation, and sing the song two more times.
  14. Pass out the bag containing the bracelet and beads. Have students add the dark blue bead. Ask “What does the dark blue bead remind us of?” (precipitation) Continue reviewing the colors and the water cycle steps they represent following the pattern of previous lessons.
  15. If time allows conduct a short review using questions from earlier lessons. Add questions from today’s lesson such as: What is precipitation? (water that falls from the sky) What are some forms the water can be in? (rain, snow, sleet, hail)
- E. *Assessment/Evaluation*
1. Collect the student’s copybooks/journals. Check the vocabulary words to make sure the word and definition were copied correctly, adding a water drop if it is correct.
  2. Using the rubric, (Appendix I), evaluate the student observation chart for this lesson. Apply a water drop in blue highlighter to the chart if it is completed satisfactorily.

**Lesson Six: Moving in a Cycle! (approximately sixty to eighty minutes)**

- A. *Daily Objectives*
1. Concept Objective(s)
    - a. Students will recognize common forms and changes in water.
    - b. Students will recognize and be able to communicate the cyclical nature of water on the earth.
  2. Lesson Content
    - a. The Water Cycle (p. 59)
    - b. Evaporation and condensation (p. 59)
    - c. Water vapor in the air, humidity (p. 59)
    - d. Clouds: cirrus, cumulus, stratus (p. 59)
    - e. Precipitation (p. 59)
  3. Skill Objective(s)

- a. Students will use dictionaries to help them develop a common knowledge of science terms.
  - b. Students will use songs and other mnemonic devices to reinforce learning.
  - c. Students will make accurate visual representations of scientific terms.
- B. *Materials*
- 1. *Drippy the Raindrop in To the Mountains and Back!* by Joel M. Kimball, this book can also be read online at <http://www.kimballmedia.com/Drippy>
  - 2. Classroom dictionaries
  - 3. Student's copybooks or journals
  - 4. One sheet of white construction or drawing paper per student, cut to approximately 5" X 7", adjust the size to fit copybooks if necessary
  - 5. Assorted drawing supplies such as crayons, colored pencils and markers
  - 6. Water Cycle (Appendix J) on transparency
  - 7. Transparency of the *Water Cycle Song* (Appendix K)
  - 8. Rubric for Water Cycle Picture (Appendix L)
  - 9. Glue sticks
- C. *Key Vocabulary*
- 1. Key Vocabulary words from Lessons One through Five
  - 2. Cycle—a series of events that are repeated over and over again, as in *the cycle of the seasons*
- D. *Procedures/Activities*
- 1. Ask the students what the word *cycle* means. Discuss students' concepts of a cycle. (Some students will know what cycle means.) Tell them that today they will put the information they have learned together in a cycle pattern.
  - 2. Pass out dictionaries and list the word *cycle* on the board or overhead. Have students look up and write out the definition in their copybooks/journals.
  - 3. Read aloud *Drippy the Raindrop in To the Mountains and Back!* by Joel M. Kimball. (Alternate activity: Go to the website and read the book to the students from the online book. In this case you will not need a hard copy of the book.)
  - 4. Discuss with students the trip Drippy took and the different forms that the water drop took on his journey. (ocean water, water vapor, condensation, raindrop, a stream, a river, and returning to the ocean) Tell students that the main steps of the water cycle are words they have become very familiar with: evaporation, condensation, and precipitation. Talk about how those cycles repeat over and over to form the water cycle.
  - 5. Introduce the water cycle in the form of a transparency using Appendix J. Point out the steps in the water cycle listing the appropriate words in the blanks as you discuss them. (Alternate: This water cycle will be used in a later lesson as a test. If desired you may download a different full color copy of the water cycle onto transparency film. See the resource section for sources.)
  - 6. Introduce the short water cycle song from Appendix K. Teach the students the words and motions using the transparency so that the concept of a cycle is reinforced. (Students should be standing with some arm space.) Do not leave transparency on the overhead during step eight.
  - 7. Give students sheets of construction or drawing paper. Point out the location of drawing supplies they may use for this project: pencils, crayons, colored pencils or markers.
  - 8. Tell students that they should draw the water cycle as they understand it. Using their copybooks/journals for help if necessary they should label the main steps in the water cycle. Let students know that the rubric for this activity will include

- neatness, accuracy, factual information and the three main processes in the water cycle.
9. When pictures are completed to the student's satisfaction have them glue them into their copybooks/journals using a glue stick. (Art supplies won't leak through and mistakes can be corrected or redone if pictures are not glued in until completed.
  10. Review this lesson by singing the *Water Cycle Song*.
  11. Continue reviewing the previous lessons using one or more questions from each.
- E. *Assessment/Evaluation*
2. Collect copybooks/journals. Evaluate the water cycle picture based on the rubric found in Appendix L. Add the blue water drop to the page if everything is correct.
  3. Check that the definition is correct and add a water drop on that page if it is.

**Lesson Seven: Down to Earth! (approximately sixty to eighty minutes)**

- A. *Daily Objectives*
1. Concept Objective(s)
    - a. Students will recognize common forms and changes in water.
    - b. Students will recognize and be able to communicate the cyclical nature of water on the earth.
  2. Lesson Content
    - a. Most of the earth's surface is covered by water (p. 59)
    - b. Groundwater (p. 59)
    - c. Runoff (not found in the *Core Knowledge Sequence*)
  3. Skill Objective(s)
    - a. Students will summarize classroom discussion, demonstrations or experiments in complete, factual sentences.
    - b. Students will use songs and other mnemonic devices to reinforce learning.
    - c. Students will make accurate visual representations of scientific terms.
- B. *Materials*
1. Classroom globe, if not available a large world map will do
  2. Student's copybooks or journals
  3. Jar lids or other circular object for students to trace around, approximately 3" diameter
  4. Crayons or colored pencils, one blue and one brown per student
  5. Small pieces of drawing or white construction paper, large enough for circle
  6. One large paper circle for fraction demonstration
  7. Glue sticks
  8. Water Cycle transparency from Lesson Six
  9. Chart paper
  10. Transparency of the "Water Cycle Boogie" from previous lessons
  11. Bag of bracelet and beads, add the brown and green beads if necessary
  12. "Left side" water drops from Appendix A, Lesson One
  13. Teacher's Checklist from Lesson One
- C. *Key Vocabulary*
1. Groundwater—water in a liquid form that seeps into the ground and collects in underground rivers or lakes
  2. Runoff—water that does not seep into the ground but runs off the surface of the land and into streams, rivers, ponds and lakes to evaporate or eventually run to the ocean

D. *Procedures/Activities*

1. Prior to class remove water drops from ceiling to return to students.
2. Begin by asking students how much of the earth is covered with water. Let everyone contribute answers. Show the class a globe. Ask students if more of the globe is blue (water) or colored (land). All students should be able to recognize that most of the globe is blue.
3. Pass out crayons or colored pencils, one each of blue and brown to each student. Also pass out jar lids or other circular object to trace around. If students do not have experience in tracing around objects demonstrate on the board or chart paper. Give students the small pieces of drawing paper and instruct them to draw a circle on the paper and then cut it out.
4. Using the larger paper circle demonstrate for students how to fold the circle into fourths. Tell students that three-fourths of the earth's surface is covered with water. Ask how we might show this using a circle where each part is one-fourth. Many students will see that three sections of the circle represent water. Explain this representation if students have not had experience with fractions. Have students color three of the sections blue for water and the remaining section brown for dry ground. Have students glue the completed circle in their copybooks/journals.
5. Conduct a quick review. Ask: Is the earth covered with more dry land or more water? (dry land) About how much of the earth's surface is water? (three-fourths)
6. Tell students that they will be writing two or more complete sentences about the earth's surface. Let them know that you will be looking for complete sentences and at least two facts about the earth's surface from today's lesson. Have them write their sentences under the "earth" they have just glued into their books.
7. Write the word *groundwater* on the board. Display the transparency of the water cycle from Lesson Six. Point out the groundwater area on the water cycle. Tell students that groundwater is water in a liquid form but that it is under the ground in the form of rivers and lakes. Ask if any of the students have well water. Explain that when people dig wells to get water the hole they are digging goes down to one of these underground rivers or lakes. Water is then pumped up to be used. Ask students where the ground water might come from. If they cannot guess, tell them that some of the water on the surface seeps down into the ground just like the water seeps down when they water plants. This water may begin as precipitation that seeps in or come from water sitting in a lake or pond. Have students contribute to an acceptable classroom definition of the word *groundwater* and write it on chart paper or the board so that everyone can copy it into their copybooks/journals.
8. Write the word *runoff* on the board. Quickly review that much of the water which evaporates on the earth each day comes from the oceans. Ask the students why the oceans don't become dry. Some students may believe the oceans will one day dry up. Others will mention that it rains over the oceans as well as over dry land. If students do not make the connection of rivers flowing into the ocean bring that to their attention. Ask: Where does the water in the rivers come from? Students may go back to streams and brooks but guide them through the water cycle transparency to show that all of these forms of surface water are replenished by precipitation that runs off the land. Although runoff can take place in many different areas it is easiest for students to visualize water running off mountains and into rivers then to the ocean. Have students contribute in

- developing an acceptable classroom definition for *runoff* and write it on chart paper or the board. Allow students time to copy it into their copybooks/journals.
9. Display the transparency of the “Water Cycle Boogie” from previous lessons. Sing the song two times through showing only the first five verses since students did not sing it in Lesson Six. Reveal verse six and sing the song.
  10. Leave the transparency on display as you review the concept of *transpiration*. Begin by asking if anyone remembers the word transpiration and what it means. Remind students that just as we sweat, plants give off water vapor from their leaves and that is one source of humidity in the air. Uncover the last verse of the “Water Cycle Boogie” and sing it through completely at least one more time.
  11. Pass out the bag of bracelet materials and have students add the brown and then the green bead. Help students to knot the end of the bracelet about five inches from the last bead, and then put them on to wear home. If desired, trim the length of the cord.
  12. Using questions from all the lessons and adding questions of your own, do a final oral review of the water cycle unit. Encourage students to use their new vocabulary in the review process. Ask open-ended questions as well as questions with one specific answer. In some cases reverse the question and answer so more students may participate. For example: What is the name of water that falls to earth in the form of rain, snow, hail and sleet? (precipitation) Give me two examples of precipitation. (rain, snow, hail and sleet)
  13. Hand out water drops with student’s questions on the front. Ask students to re-read the questions they listed on their water drops the first day of the unit while you pass out the “left side” water drops. Have students write the answers they learned on a left drop and glue it to the back of the corresponding right drop. If any students have drops without an answer have them read the question out loud. Ask other students to help answer the question. If no one can offer an answer to the question you may choose to answer it for the students or help them brainstorm ways to come up with an answer. Hang the completed drops from the ceiling after class or let students take them home.

E. *Assessment/Evaluation*

1. Collect student’s copybooks/journals. Check the earth circle to make sure that students have shown three-fourths blue and one-fourth brown. Add a water drop drawn in blue highlighter to show successful completion of the task.
2. Using the checklist from previous lessons to evaluate the sentences students wrote about the earth. If correct, add a water drop.
3. Check student’s definitions for accuracy and add a water drop.

**VI. CULMINATING ACTIVITY**

- A. The students will take a written test as the culminating assessment of this unit. This includes the written test and the Water Cycle sheet with blanks to fill in. (Appendix M) (Appendix J)
- B. OPTIONAL: The students will participate in a water cycle game. This game involves being outdoors and getting wet so will not be appropriate for all times of the year. (Appendix N)
- C. OPTIONAL: A movie on the water cycle can be shown as a review of the water cycle unit after the test.

**VII. HANDOUTS/WORKSHEETS**

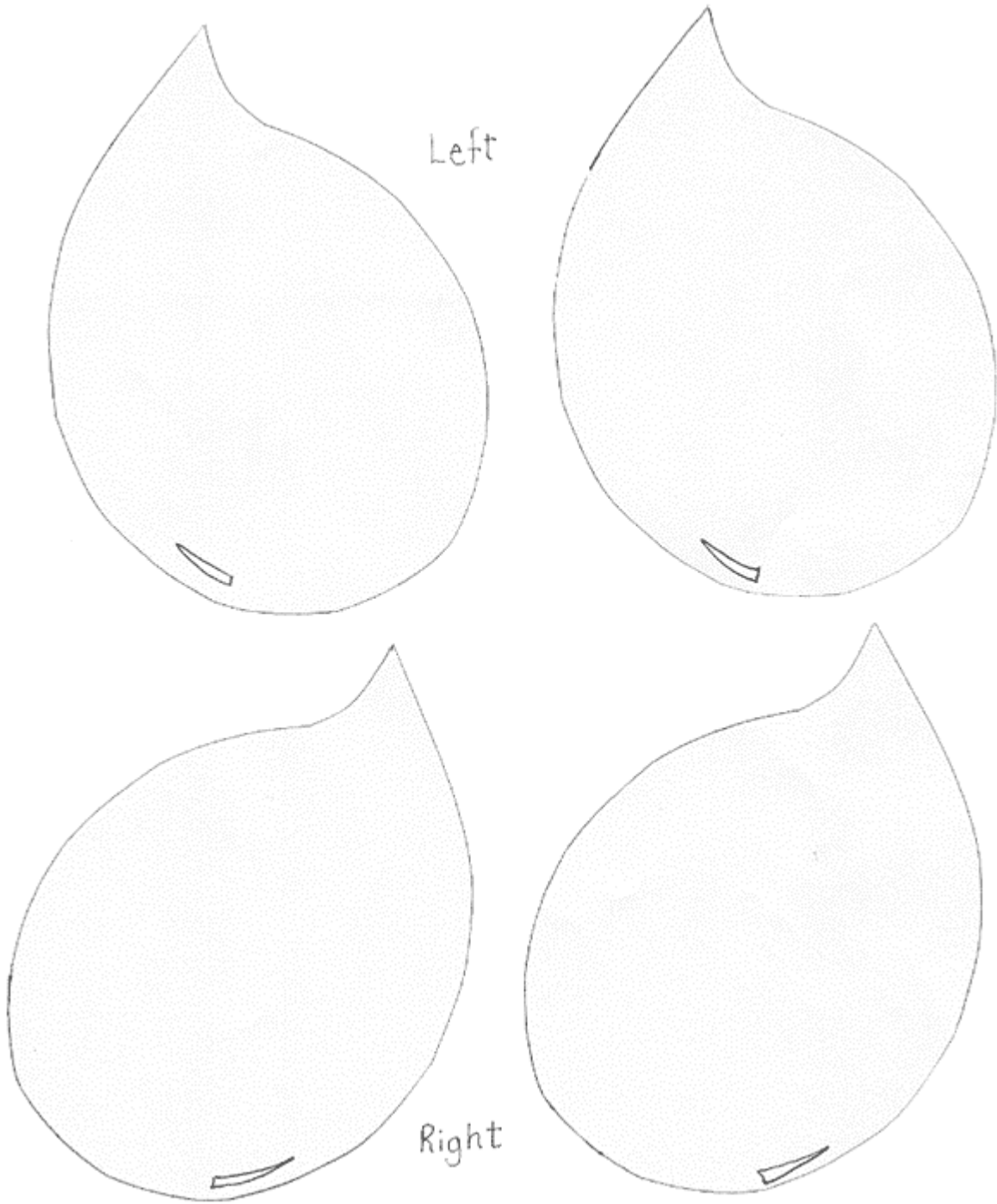
- A. Appendix A: Small Water Drops (Lesson One)
- B. Appendix B: Journey Through the Water Cycle (All lessons)

- C. Appendix C: Teacher's Checklist (Lessons One, Two, Four and Seven)
- D. Appendix D: What's Up? (Lesson Two)
- E. Appendix E: Rubric for What's Up? (Lesson Two)
- F. Appendix F: Simple Cloud Identification Chart (Lesson Three)
- G. Appendix G: Rubric for Cloud Picture Activity (Lesson Three)
- H. Appendix H: It's Wet Out There! (Lesson Five)
- I. Appendix I: Rubric for It's Wet Out There! (Lesson Five)
- J. Appendix J: Water Cycle (Lesson Six and Final Test)
- K. Appendix K: Water Cycle Song (Lesson Six)
- L. Appendix L: Rubric for Water Cycle Picture (Lesson Six)
- M. Appendix M: Final Test
- N. Appendix N: Final Test Key
- O. Appendix O: Water Cycle Game

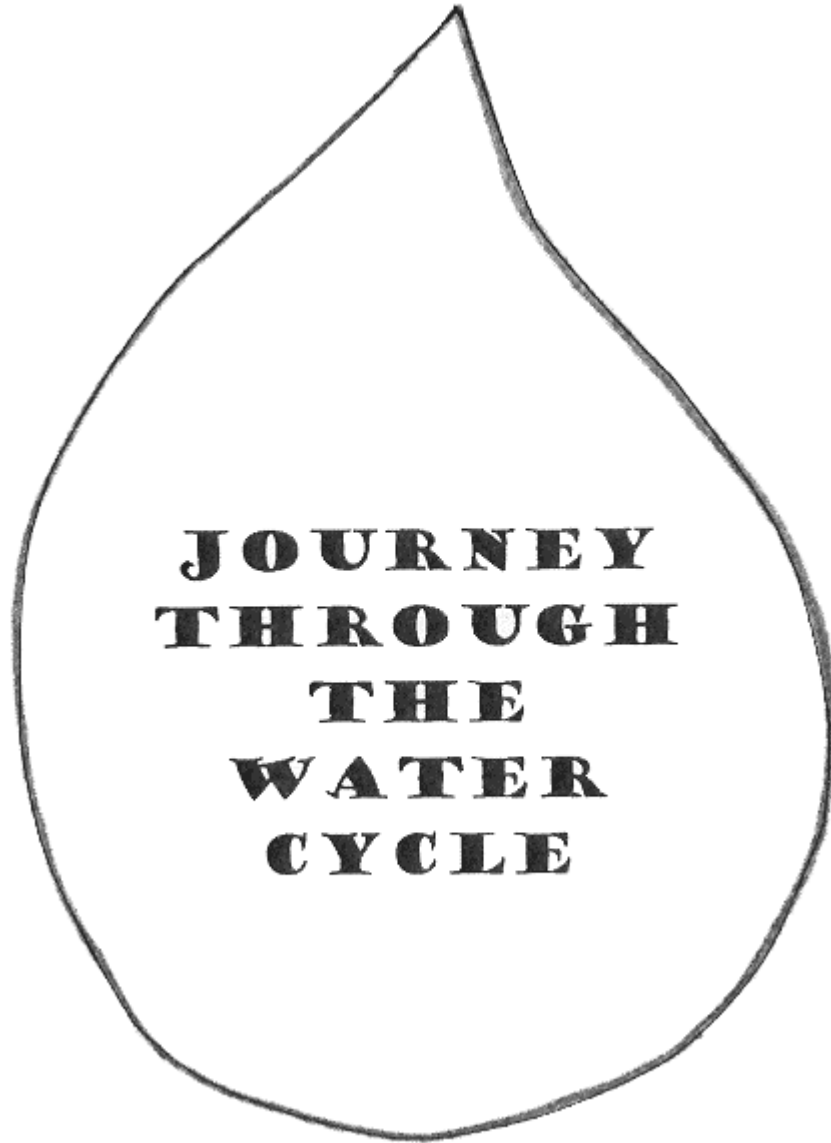
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**Appendix A**  
**Small Water Drops**



**Appendix B**  
**Journey Through the Water Cycle**



**Appendix C**  
**Teacher's Checklist**

Name: \_\_\_\_\_

<b>Checklist Questions:</b>	<b>YES</b>	<b>NO</b>
<b>Lesson One: What Do We Remember?</b>		
- Did the student use complete sentences?		
- Did the student use capitals to begin each sentence?		
- Did each sentence end with the correct end mark?		
- Were sentences factual?		
- Were there a minimum of three sentences?		
- Was handwriting neat?		
- Did the work show evidence of new knowledge?		
<b>Lesson Two: What's Up?</b>		
- Did the student use complete sentences?		
- Did the student use capitals to begin each sentence?		
- Did each sentence end with the correct end mark?		
- Were sentences factual?		
- Were there a minimum of three sentences?		
- Was the handwriting neat?		
- Did the student include words from their water vocabulary?		
- Did the work show evidence of new knowledge?		
<b>Lesson Four: Changing Again?</b>		
- Did the student use complete sentences?		
- Did the student use capitals to begin each sentence?		
- Did each sentence end with the correct end mark?		
- Were sentences factual?		
- Was the handwriting neat?		
- Did the student include words from their water vocabulary?		
- Was each step of the process represented in the student's writing?		
- Did the work show evidence of new knowledge?		
<b>Lesson Seven: Down to Earth!</b>		
- Did the student use complete sentences?		
- Did the student use capitals to begin each sentence?		
- Did each sentence end with the correct end mark?		
- Were sentences factual?		
- Was the handwriting neat?		
- Did the work show evidence of new knowledge?		

**Appendix D**  
**What's Up?**

Draw a picture to show how you set up the experiment:

The first time you checked what did you see? Show the sun and the shade plates.

The second time you checked what did you see? Show the sun and the shade plates.

The third time you checked what did you see? Show the sun and the shade plates.

At the end the sun plate had \_\_\_\_\_ units of water. The shade plate had \_\_\_\_\_.

**Appendix E**  
**Rubric for What's Up?**

Name \_\_\_\_\_

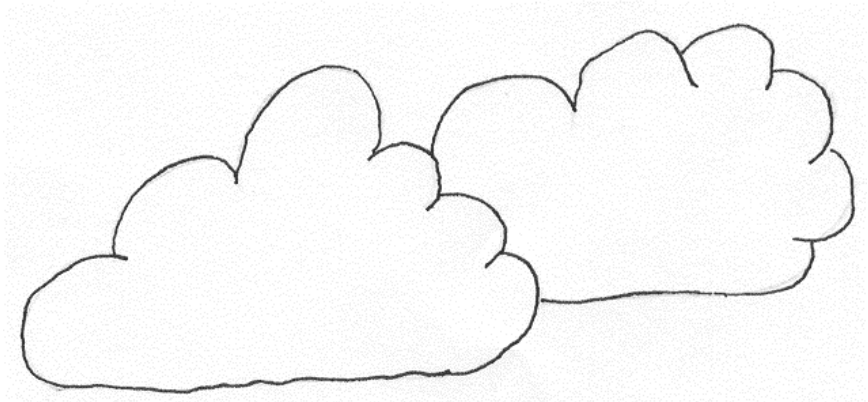
<b>Questions:</b>	<b>1</b>	<b>2</b>	<b>3</b>
The initial drawing shows how the experiment was set up.			
<b>Observation #1:</b>			
-Student shows both sun and shade plates.			
-Student shows identity of plates.			
-Student shows water on both plates.			
-Student shows differences in water amounts.			
<b>Observation #2:</b>			
-Student shows both sun and shade plates.			
- Student shows identity of plates.			
- Student shows water on both plates.			
- Student shows differences in water amounts.			
<b>Observation #3:</b>			
- Student shows both sun and shade plates.			
- Student shows identity of plates.			
- Student shows water on both plates.			
- Student shows differences in water amounts.			
Final observation includes a water measurement for each plate. (Since students have had limited experience in measuring this is an estimate only. Example: About one half of the water in the shade was left. Or: Almost all the water in the sun was gone; there were only a few drops.)			
<b>Total points:</b>			

**Appendix F**  
**Simple Cloud Identification Chart**

**CIRRUS**



**CUMULUS**



**STRATUS**



**Appendix G**  
**Rubric for Cloud Picture Activity**

<b>Questions:</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>Picture # 1:</b>			
-Student completed picture.			
-Cloud type is easily identifiable.			
-Picture is labeled neatly.			
-Picture is labeled correctly.			
-Label is spelled correctly.			
(Students were allowed to use their vocabulary.)			
<b>Picture # 2:</b>			
-Student completed picture.			
-Cloud type is easily identifiable.			
-Picture is labeled neatly.			
-Picture is labeled correctly.			
-Label is spelled correctly.			
(Students were allowed to use their vocabulary.)			
<b>Picture # 3:</b>			
-Student completed picture.			
-Cloud type is easily identifiable.			
-Picture is labeled neatly.			
-Picture is labeled correctly.			
-Label is spelled correctly.			
(Students were allowed to use their vocabulary.)			
<b>Total points for three picture set:</b>			

**Appendix H**  
**It's Wet Out There!**

Tell or draw what you saw each time you observed your experiment:

#1 temperature \_\_\_\_\_ I saw:

#2 temperature \_\_\_\_\_ I saw:

#3 temperature \_\_\_\_\_ I added ice and then:

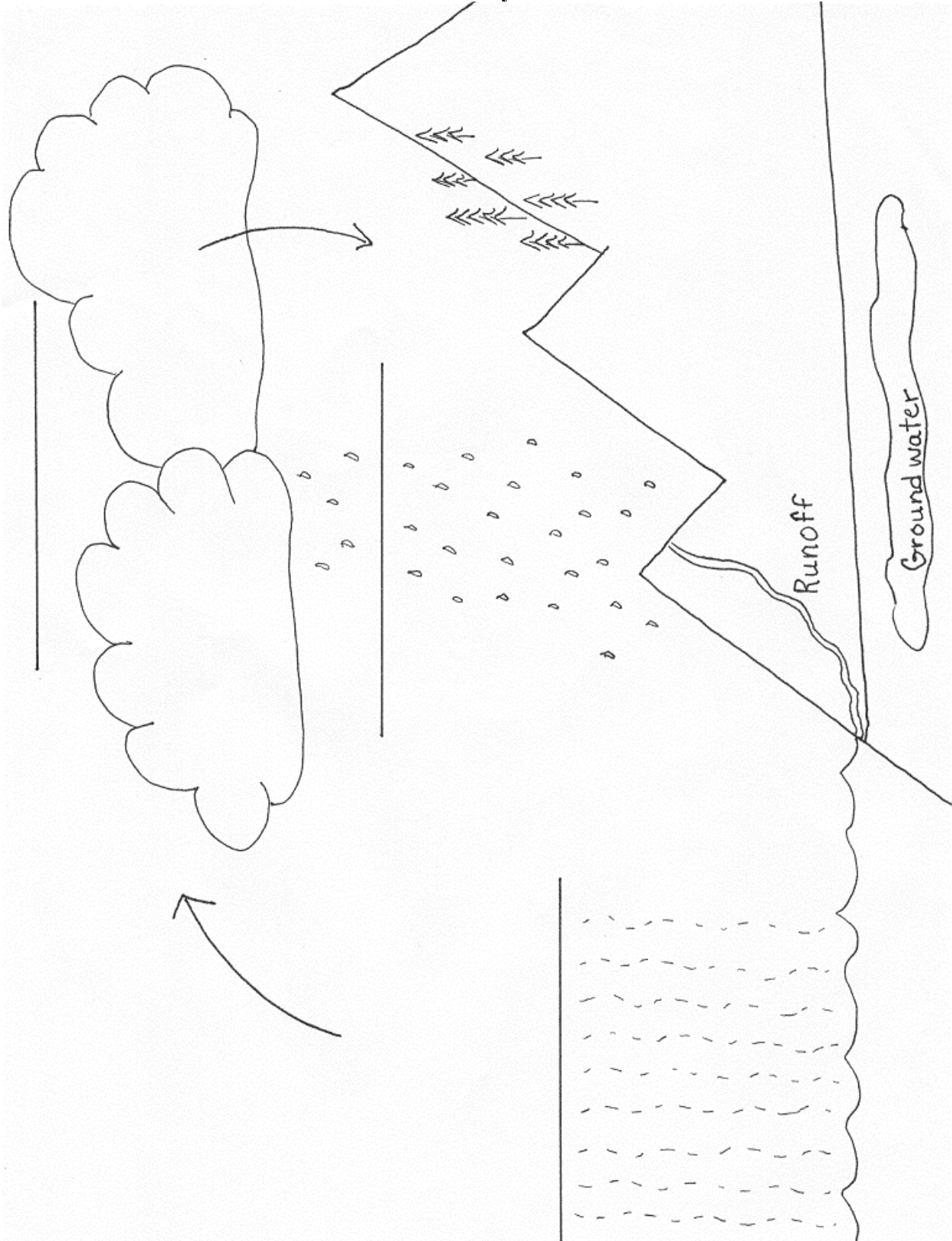
**Appendix I**  
**Rubric for It's Wet Out There!**

Name \_\_\_\_\_

<b>Questions:</b>	<b>1</b>	<b>2</b>	<b>3</b>
Observation #1			
-Student took a beginning temperature.			
-Student recorded beginning temperature.			
-Student recorded how the bag looked.			
Observation #2			
-Student took second temperature.			
-Student recorded second temperature.			
-Student recorded changes in bag.			
-Student sited rise in temperature.			
-Student noted presence of condensation.			
-Student used term <i>condensation</i> .			
Observation # 3			
-Student recorded increased condensation.			
-Student noted precipitation.			
-Student used the term <i>precipitation</i> .			
<b>Total points from all three observations:</b>			

Comments based on student's participation in classroom discussions:

**Appendix J  
Water Cycle**



## Appendix K Water Cycle Song

(Song is sung to the tune of *She'll Be Coming Around the Mountain*)

Water travels in a cycle, yes it does.  
Water travels in a cycle, yes it does.

*Extend arm, rotate in clockwise motion.*

It goes up as evaporation,

*Raise arms as if encouraging people to rise.*

Forms clouds as condensation,

*With arms still raised bring hands towards middle to show cloud shape..*

Comes down as precipitation,

*Use fingers to create rain as hands and arms lower.*

Yes it does!

**Appendix L**  
**Rubric for Water Cycle Picture**

Name: \_\_\_\_\_

<b>Questions:</b>	<b>1</b>	<b>2</b>	<b>3</b>
Picture is complete.			
Picture shows visual representation of:			
Evaporation			
Condensation			
Precipitation			
Picture has accurate labels for:			
Evaporation			
Condensation			
Precipitation			
Processes are in order.			
Evaporation process includes the sun.			
Land is shown.			
Large body of water is present.			
Clouds help identify condensation.			
<b>Total points for this activity:</b>			

**Appendix M, page 1**  
**Final Test**

Name: \_\_\_\_\_

Circle the correct answer:

Evaporation, condensation, and precipitation are all parts of the \_\_\_\_\_.  
cycle of seasons  
fog cycle  
water cycle

When a gas changes to a liquid it is called \_\_\_\_\_.  
precipitation  
condensation  
evaporation

An example of evaporation is when \_\_\_\_\_.  
a puddle dries up  
a puddle freezes  
a puddle seeps into the ground

Fog is \_\_\_\_\_.  
a really high cloud  
a really low cloud  
ice in the air

Three types of clouds are \_\_\_\_\_.  
fluffy, lumpy, and skinny  
big, little, and middle  
cirrus, stratus, and cumulus

Mark each answer true or false:

\_\_\_\_\_ Condensation is part of the water cycle.

\_\_\_\_\_ Moisture that falls from the sky is called fog.

\_\_\_\_\_ When a liquid changes to a gas it is called precipitation.

**Appendix M, page 2**

Fill in the blanks using the Word Bank below:

When hard round water falls from the sky it is called \_\_\_\_\_.

When moisture condenses in the sky it forms \_\_\_\_\_.

Clouds that look like a pile of cotton balls are called \_\_\_\_\_.

A large moving body of water that flows toward the ocean is called a \_\_\_\_\_.

Transpiration is when \_\_\_\_\_ put water vapor into the air.

Most of the earth is covered with \_\_\_\_\_.

Water that is under the ground in large pools or lakes is called \_\_\_\_\_.

hail	groundwater	plants	river
cumulus	clouds	water	

In your own words tell about the three main processes in the water cycle. Use complete sentences.

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On the next page label all the parts of the water cycle.

**Appendix N, page 1**  
**Final Test Answer Key**

Name: **Key**

Circle the correct answer:

Evaporation, condensation, and precipitation are all parts of the \_\_\_\_\_.

cycle of seasons

fog cycle

**water cycle**

When a gas changes to a liquid it is called \_\_\_\_\_.

precipitation

**condensation**

evaporation

An example of evaporation is when \_\_\_\_\_.

**a puddle dries up**

a puddle freezes

a puddle seeps into the ground

Fog is \_\_\_\_\_.

a really high cloud

**a really low cloud**

ice in the air

Three types of clouds are \_\_\_\_\_.

fluffy, lumpy, and skinny

big, little, and middle

**cirrus, stratus, and cumulus**

Mark each answer true or false:

**True** Condensation is part of the water cycle.

**False** Moisture that falls from the sky is called fog.

**False** When a liquid changes to a gas it is called precipitation.

**Appendix N, page 2**

Fill in the blanks using the Word Bank below:

When hard round water falls from the sky it is called **hail**.

When moisture condenses in the sky it forms **clouds**

Clouds that look like a pile of cotton balls are called **cumulus**.

A large moving body of water that flows toward the ocean is called a **river**.

Transpiration is when **plants** put water vapor into the air.

Most of the earth is covered with **water**

Water that is under the ground in large pools or lakes is called **groundwater**.

hail	groundwater	plants	river
cumulus	clouds	water	

In your own words tell about the three main processes in the water cycle. Use complete sentences. **(Answers will vary.)**

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On the next page label all the parts of the water cycle.

## Appendix O Water Cycle Game

### Materials:

- Large playing area
- One large bucket of water for each team
- One zip-log bag with holes (for storing vegetables) for each team

### Procedure:

1. Divide class into teams of four.
2. Line each team up in a row with about fifteen feet between each person.
3. Leave at least ten feet of space between each row.
4. Assign roles to the players on each team. The first person is a cloud. The second person is the rain. The third person is the river. The fourth person is the ocean. (It will help if you make role tags that visually remind everyone of their role. Don't forget to laminate them!)
5. Place a large bucket at the starting point of each row, by the cloud.
6. At the signal to start each cloud fills their plastic bag with water. (zipping it shut while in the bucket holds in more water) The cloud twirls the bag while running toward the rain. The rain runs with the bag to the river. The river takes the bag and winds (zigzag fashion) to the ocean. The ocean takes the bag and waves it as he/she runs past their team mates to the bucket to re-fill. While the new cloud is filling the bag everyone else shifts down. (the previous cloud becomes the rain, the previous rain becomes the river, the previous river becomes the ocean)
7. Play can end when the first team runs out of water or when the first cloud has finished their turn as the ocean.

### Notes:

- A. Be sure to clear this with administrator and parents ahead of time.
- B. Send a note home requesting "old clothes" or swimsuits to be worn for this activity.
- C. Be prepared! There is no way you will not get wet.
- D. HAVE FUN!