

Wild Weather: At Home and Around the World

Grade Level: Kindergarten

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Length of Unit: Six Lessons

Lesson One: 20 minutes

Lesson Two: 1 hour

(Suggested that Lessons one and Two be done on consecutive days; remainder of the lessons should be taught once a week for five weeks)

Lessons 3, 4, 5, 6: 1 hour each lesson

I. ABSTRACT

- A. With the thought in mind that the typical kindergarten classroom already includes “weather” during daily calendar/circle time, this unit was designed to enhance the students’ awareness of weather by exploring exciting types of weather found not only in North America but also in a myriad of continents around the world. Additionally, this unit integrates core knowledge based lessons in Social Studies, Science, Math, Literacy, and Art, so that students will make *personal* observations of, and connections to, local *and* international weather patterns.

II. OVERVIEW

- A. Concept Objectives
1. Students will develop an awareness of weather changes.
 2. Students will become more aware of the conditions which create weather changes
 3. Students will become aware of the ways that weather can affect their own lives and the world around them
- B. Content from the *Core Knowledge Sequence*
1. Geography: Identify and locate the seven continents on a map and globe. (Core Knowledge Sequence, pg. 11)
 2. Measurement: identify familiar instruments of measurement, such as ruler, scale, thermometer. (Core Knowledge Sequence, pg. 18)
 3. Weather: daily weather changes; temperature: thermometers are used to measure temperature; clouds; rainfall: howe the condition of the ground varies with rainfall; thunderstorms: lightning and thunder, hail, safety during thunderstorms; snow and snowflakes, blizzard. (Core Knowledge Sequence, pg. 20)
 4. Writing and Spelling: use letter-sound knowledge to write simple words and messages. (Core Knowledge Sequence, pg. 8)
 5. Reading and Language Comprehension: listen to and understand a variety of texts. (Core Knowledge Sequence, pg. 8)
 6. Visual Arts: identify and use different lines: straight, zigzag, curved, wavy, thick, thin. (Core Knowledge Sequence, pg. 14)
- C. Skill Objectives
1. Students are expected to use thermometers to measure temperature. (AZ Math S4 C4 PO 1)
 2. Students are expected to identify, analyze, and apply knowledge of the purpose, structures, and elements of expository text. (AZ Reading and Writing S3 C1 Expository Text)
 3. Students are expected to communicate by drawing, telling, or writing for a purpose(AZ Writing S1 C1 PO 1)

4. Students are expected to identify thermometer as an instrument of measurement
5. Students are expected to compare objects according to temperature (hotter and colder)
6. Students are expected to identify the following aspects of weather: temperature, wind, precipitation, storms (AZ Science S6 C3 PO 1)
7. Students are expected to describe observable changes in weather, both orally and in written form(AZ Science S6 C3 PO 2)
8. Students are expected to give examples of how the weather affects people’s daily activities (AZ Science S6 C3 PO 3)
9. Students will participate in group discussions (AZ Reading and Writing LS-R5)
10. Students are expected to locate continents and oceans on a map or globe (AZ Social Studies S4 C1 PO 5)
11. Students are expected to use different types of lines (zigzag, straight, curved, wavy) to create a picture.

III. BACKGROUND KNOWLEDGE

- A. For Teachers
 1. *Core Knowledge K-8 Sequence*. Charlottesville, VA. 1-890517-20-8
 2. Hirsch, Jr. E.D. *What Your Kindergartener Needs to Know*. New York, New York: Dell Publishing, 1996. 0-385-48117-9.
 3. Osborne, M.P. *Twisters and Other Terrible Storms Magic Tree House Research Guide*. New York, New York: Random House, Inc., 2003. 0-375-81358-6.
- B. For Students
 1. Local weather patterns gathered through daily calendar/circle “weather” time
 2. Seasons

IV. RESOURCES

- A. Burby, L. *Blizzards*. New York, New York: The Rosen Publishing Group, Inc., 1999. 0-8239-5291-6. (Used in Lesson Two)
- B. Hopping, L.J. *Lightning!*. New York, New York: Scholastic Inc., 1999. 0-590-52285-X (Used in Lesson Three)
- C. Llewellyn, C. *Wild, Wet, and Windy*. Cambridge, Massachusetts: Candlewick Press, 1997. 0-7636-0304-X (Used in Lesson Four)
- D. Cole, J. *The Magic School Bus Inside a Hurricane*. New York, New York: Scholastic Inc., 1995. 0-590-44686-X. (Used in Lesson Five)
- E. Osborne, M.P. *Twisters and Other Terrible Storms Magic Tree House Research Guide*. New York, New York: Random House, Inc., 2003. 0-375-81358-6. (Used in Lesson Five)
- F. Dowswell, P. *Extraordinary Wild Weather*. New York, New York: Scholastic Inc., 2001. 0-439-28602-6. (Used in Lesson Six)
- G. Davies, N. *Deserts*. Boston, Massachusetts: Kingfisher Publications, 2005. 0-7534-5866-7. (Used in Lesson Six)
- H. Burby, L. *Heat Waves and Droughts*. New York, New York: The Rosen Publishing Group, Inc., 1999. 0-8239-5292-4 (Used in Lesson Six)

V. LESSONS

Lesson One (20 Minutes): Introduction to Wild Weather – At Home and Around the World

- A. *Daily Objectives*
 1. Concept Objectives
 - a. Students will develop an awareness of weather changes.

2. Content from the *Core Knowledge Sequence*
 - a. Geography: continents and oceans of the world
 - b. Measurement: thermometer
 3. Skill Objectives
 - a. Students are expected to use thermometers to measure temperature.
 - b. Students are expected to identify thermometer as an instrument of measurement
 - c. Students will participate in group discussions
 - d. Students are expected to locate continents and oceans on a map or globe
- B. *Materials*
1. Appendix A: Cardstock Thermometer. Print these thermometers on cardstock and then cut out so that each student has his/her own thermometer. Use a hole punch to make a hole at top and bottom of each thermometer. (See Appendix A1 for a photo example) and then lace yarn through each end of the thermometer. Half the length of the yarn should be red, the other should be white (you will have to tie yarn together) so that students can adjust their thermometers to change the temperatures.
 2. 2-pocket folders – one for each student in your class. See Appendix B: Suitcase Example Photograph. Each student should have a 2-pocket folder with a small rectangular cut-out at side so that the folder resembles a suitcase. These should be pre-made - one for each student with names written on them
 3. Appendix C: Passport to Weather and Continents Map - two Pages copied back-to-back. One for each student.
 4. Red and White Yarn
 5. KWL Chart written out on chart paper
 6. One real thermometer (large)
- C. *Key Vocabulary*
1. **Meteorologist:** a person who studies the weather
 2. **Weather:** the condition of the earth’s atmosphere
 3. **Temperature:** how hot or cold something is
 4. **Thermometer:** instrument to measure temperature
 5. **Fahrenheit:** temperature scale used on a thermometer
 6. **Continents:** One of the seven great landmasses of the Earth. The continents are Africa, Antarctica, Asia, Australia, Europe, North America, and South America.
- D. *Procedures/Activities: Section One*
1. Bring children to carpet area/reading area. Activate background knowledge by discussing local weather and the ways that you observe/track in your classroom the changes in your local weather. Give definition of the words “weather” and “meteorologists”. Explain that they are going to be meteorologists who are going to be studying wild weather at home and around the world.
 2. Show students the KWL chart. Ask students if they know any terms for wild, extreme weather known as “storms”. Give example, if necessary. Only add headings at this point. For example, add “blizzard” but no information about this topic yet, as this will be addressed in future lessons.
 3. Ask students what “temperature” means and how we measure temperature. Review how temperature changes throughout the seasons. Ask if students think that changes in temperature can create changes in weather.
 4. Show a real thermometer and show students how you use it to measure the temperature inside your classroom. Discuss the term “Fahrenheit”. Then, pass

out paper thermometers to all the students and have them adjust the strings so that the temperature matches that of the real thermometer. Practice reading the temperature in terms of “degrees Fahrenheit”.

5. Pass out pretend suitcases. Explain that they will be going on pretend trips around the world and they will need to keep their important science tools inside their suitcases.
6. Pass out passports and explain that when a person travels to another country, they need a passport. Have students look inside of the passport and review the seven continents of the world.
7. Have students put all items into suitcases (thermometer and passport) and tell them that they will be using these items over the upcoming weather lessons to observe wild weather at home and around the world.

E. *Assessment/Evaluation*

1. At end of lesson, before students put suitcases away, have the students tell you the name of the thermometer and review what a thermometer is meant to measure.

Lesson Two (1 Hour): Belligerent Blizzards

A. *Daily Objectives*

1. Concept Objectives
 - a. Students will develop an awareness of weather changes.
 - b. Students will become more aware of the conditions which create weather changes
 - c. Students will become aware of the ways that weather can affect their own lives and the world around them
2. Content from the *Core Knowledge Sequence*
 - a. Geography: continents and oceans of the world
 - b. Measurement: thermometer
 - c. Weather: Daily weather changes.
 - d. Writing and Spelling: Use letter-sound knowledge to write simple words and messages.
 - e. Reading: listen to and understand a variety of texts
3. Skill Objectives
 - a. Students are expected to use thermometers to measure temperature.
 - b. Students are expected to identify, analyze, and apply knowledge of the purpose, structures, and elements of expository text.
 - c. Students are expected to communicate by drawing, telling, or writing for a purpose
 - d. Students are expected to identify thermometer as an instrument of measurement
 - e. Students are expected to compare objects according to temperature (hotter and colder)
 - f. Students are expected to identify the following aspects of weather: temperature, wind, precipitation, storms
 - g. Students are expected to describe observable changes in weather, both orally and in written form
 - h. Students are expected to give examples of how the weather affects people’s daily activities
 - i. Students will participate in group discussions

- j. Students are expected to locate continents and oceans on a map or globe
- B. *Materials*
1. Book: *Blizzards*
 2. Weather “suitcases” which include thermometer and passport
 3. Appendix: E: Blizzard Journal Page copied on light blue paper. One for each student in your class.
 4. Appendix D: Thermometer Comparison Page – Should be copied on back of Blizzard Journal Page
 5. KWL Chart written out on chart paper
 6. Scraps of paper, preferably from recycling bin
 7. Images of Antarctica found on “Google.com” under the “images” tab. You can show images as overheads, on a Smartboard, or projected from the internet onto a screen.
 8. Large classroom map of the world.
 9. Red crayons
- C. *Key Vocabulary*
1. **Blizzards:** storms that cover the earth with blankets of snow
 2. **Precipitation:** the falling to earth of any form of water (rain or snow or hail or sleet or mist)
 3. **Polar winds:** extremely cold wind which comes from the North and/or South Pole
 4. **Water Vapor:** tiny water droplets in the air
 5. **Drift:** a pile of snow blown by the wind
- D. *Procedures/Activities: Section One*
1. Bring children to carpet area/reading area
 2. Show students the KWL chart. See if the topic of “blizzards” is on it (if not, add it as a topic).
 3. Add information on KWL chart under “K” and “W” about blizzards
 4. Preview key vocabulary
 5. Read *Blizzards* pgs. 5 – 11 to the students. Show pictures from book. Pause to review key vocabulary terms as you come to them. Focus on the factual information about the storm (as opposed to the destructive force aspects) so as not to make your students anxious.
 6. Tell students that you will be making a blizzard in the room using paper (preferably paper from your recycling bin).
 7. Pass out paper scraps to students.
 8. Students should throw paper around gently at first to recreate snowfall and then with more vigor to recreate a blizzard. Use key vocabulary to guide their blizzard.
 9. After the blizzard, students should help to clean up the paper and put into proper recycling receptacle.
 10. Gather students back to carpet and discuss if your local area experiences blizzards (if not, then find and show an area on U.S. map where blizzards do happen). Discuss what local conditions would help create a blizzard (winter, very cold, etc.) and what the students would wear/do during a blizzard to keep warm and safe.
 11. Discuss with students that they will be taking a “pretend” trip to a continent where there are many blizzards. Name this continent as “Antarctica”. Locate Antarctica on map. Show images of Antarctica gathered from the internet.

12. Excuse students to retrieve their weather suitcases. Students should sit at own table/desk with suitcase and should retrieve thermometer.
13. Pass out Appendix E (Blizzard Journal Page) which has been copied onto light blue paper along with Appendix D (copied on the back of the journal page). Have students adjust their thermometers to local temperature and then color the image (back of blue journal paper) of the thermometer on the left-hand side with red crayon to correspond to local temperature. Students should also record the numerical value of the local temperature in the area provided under the left thermometer image.
14. Students should then “pack up” paper and thermometer into suitcase and should then go on pretend trip to Antarctica by sitting on chairs which have been placed in a replica of an airplane or by sitting on the floor in rows of three or four, as on an airplane. Sound effects encouraged!
15. After reaching the destination, have students pull out thermometers to record the temperature on Antarctica (temperature may be found on weather.com). If weather is below -30 degrees in Antarctica, discuss that the thermometers won’t show any red because it is too cold to register; otherwise, instruct students to fill in the thermometer image on the RIGHT side of blue paper by coloring thermometer red to correspond with temperature in Antarctica. Students should also write in the name of the continent and the numerical value of the temperature in the space provided underneath the right-hand thermometer image.
16. Compare the two thermometer images and temperatures (your local area and Antarctica). Discuss which temperature is hotter and which one is colder.
17. Refer to images of Antarctica and pretend that you are now on the continent; ask students to tell you what they are experiencing on this new continent.
18. Students should color Antarctica blue (map found inside passport).
19. Take return airplane ride back to local area.
20. Gather students on carpet and fill in “L” section for blizzards.
21. Students should then be excused back to tables/desks to write journal page on blue paper (corresponds with the blue-colored Antarctica) about blizzards using words and/or pictures found inside word bank at top of journal page; all levels of writers can use this journal model! Keep journal pages inside of weather suitcase until end of unit.

E. *Assessment/Evaluation*

1. Filling out “L” section on KWL chart after lesson
2. Appendix E: Blizzard Journal Page
3. Appendix D: Thermometer Comparison Page

Lesson Three (1 Hour): Luminous Lightning

A. Daily Objectives

1. Concept Objectives
 - a. Students will develop an awareness of weather changes.
 - b. Students will become more aware of the conditions which create weather changes
 - c. Students will become aware of the ways that weather can affect their own lives and the world around them
2. Content from the *Core Knowledge Sequence*
 - a. Geography: continents and oceans of the world
 - b. Measurement: thermometer
 - c. Weather: Daily weather changes.

- d. Writing and Spelling: Use letter-sound knowledge to write simple words and messages.
 - e. Reading: listen to and understand a variety of texts
 - f. Art: line
3. Skill Objectives
- a. Students are expected to use thermometers to measure temperature.
 - b. Students are expected to identify, analyze, and apply knowledge of the purpose, structures, and elements of expository text.
 - c. Students are expected to communicate by drawing, telling, or writing for a purpose
 - d. Students are expected to identify thermometer as an instrument of measurement
 - e. Students are expected to compare objects according to temperature (hotter and colder)
 - f. Students are expected to identify the following aspects of weather: temperature, wind, precipitation, storms
 - g. Students are expected to describe observable changes in weather, both orally and in written form
 - h. Students are expected to give examples of how the weather affects people's daily activities
 - i. Students will participate in group discussions
 - j. Students are expected to locate continents and oceans on a map or globe
 - k. Students are expected to use different types of lines (zigzag, straight, curved, wavy) to create a picture.

B. *Materials*

- 1. Book: Lightning!
- 2. Weather "suitcases" which include thermometer and passport
- 3. Appendix F: Lightning journal page copied on yellow paper – one for each student in your class.
- 4. Appendix D: Thermometer Comparison Page – Should be copied on back of Lightning Journal Page
- 5. KWL Chart (in progress)
- 6. Black and red crayons
- 7. Watercolor paper
- 8. Images of South America found on "Google.com" under the "images" tab. You can show images as overheads, on a Smartboard, or projected from the internet onto a screen.
- 9. Large classroom map of the world.

C. *Key Vocabulary*

- 1. **Lightning:** a brilliant electric spark discharge in the atmosphere
- 2. **Thunder:** a loud, explosive, resounding noise produced by the explosive expansion of air heated by a lightning discharge.
- 3. **Equator:** An imaginary line around Earth that separates it into two parts: North and South; this area is always hot

D. *Procedures/Activities*

- 1. Bring children to carpet area/reading area
- 2. Show students the KWL chart. See if the topic of "lightning" is on it; if not, add it in.
- 3. Add information on KWL chart under "K" and "W" about lightning

4. Preview key vocabulary
5. Read *Lightning!* pgs. 30 - 36 to the students. Review key vocabulary words as you come to them. Also, show pictures from the book “Extraordinary Wild Weather”, front cover and page 7, for more lightning examples. Point out what the sky looks like, the shape of the lightning, and the colors shown while reviewing pictures. Focus on the factual information about the storm (as opposed to the destructive force aspects) so as not to make your students anxious
6. Read *Lightning!* Pg. 48 and discuss the Lightning Safety Tips which are found on that page.
7. Tell students that you will be making lightning pictures. Explain about concept of wax resist (paint won’t sink in any place where crayon has been). Demonstrate a drawing using zigzag lines for the lightning, curved lines for the clouds, straight lines for the horizon, and wavy lines for pools of water or the ocean waves.
8. Excuse students back to tables. Hand out supplies (watercolor paper, black crayon). Students should draw their lightning/storm pictures.
10. Hand out painting supplies and have students use the colors they saw in the illustrations to paint over the crayon.
11. Gather students back to carpet and read *Lightning!* pgs. 16 – 17 about Lightning “hot spots”. Also show U.S. map on page 18 which show U.S. “hot spots”. Find your area on the map on page 18 and discuss if your local area experiences many lightning storms; show U.S. “hot spots” on map. Discuss what seasons your local area usually experiences thunderstorms and what they wear during rainy weather. Review safety tips.
12. Complete steps #11 – 21 from the previous lesson on blizzards; substitute South America as the continent and the Appendix F: Lightning Journal Page should be copied onto yellow paper. South America should thus be colored “yellow” on the passport.

E. *Assessment/Evaluation*

1. Filling out “L” section on KWL chart after lesson
2. Appendix F: Lightning Journal Page
3. Appendix D: Thermometer Comparison Page

Lesson Four (1 Hour): Terrible Tornadoes

A. *Daily Objectives*

1. Concept Objectives
 - a. Students will develop an awareness of weather changes.
 - b. Students will become more aware of the conditions which create weather changes
 - c. Students will become aware of the ways that weather can affect their own lives and the world around them
2. Content from the *Core Knowledge Sequence*
 - a. Geography: continents and oceans of the world
 - b. Measurement: thermometer
 - c. Weather: Daily weather changes.
 - d. Writing and Spelling: Use letter-sound knowledge to write simple words and messages.
 - e. Reading: listen to and understand a variety of texts
 - f. Art: line
3. Skill Objectives

- a. Students are expected to use thermometers to measure temperature.
 - b. Students are expected to identify, analyze, and apply knowledge of the purpose, structures, and elements of expository text.
 - c. Students are expected to communicate by drawing, telling, or writing for a purpose
 - d. Students are expected to identify thermometer as an instrument of measurement
 - e. Students are expected to compare objects according to temperature (hotter and colder)
 - f. Students are expected to identify the following aspects of weather: temperature, wind, precipitation, storms
 - g. Students are expected to describe observable changes in weather, both orally and in written form
 - h. Students are expected to give examples of how the weather affects people’s daily activities
 - i. Students will participate in group discussions
 - j. Students are expected to locate continents and oceans on a map or globe
- B. *Materials*
1. Book: Wild, Wet, and Windy
 2. Weather “suitcases” which include thermometer and passport
 3. Appendix G: Tornado journal page copied on light green paper – one for each student in the class.
 4. Appendix D: Thermometer Comparison Page – Should be copied on back of Tornado Journal Page
 5. KWL Chart (in progress)
 6. Red crayons
 7. Images of Tornadoes which can be found on the website:
www.mesoscale.ws/pictures/tornadic/
 8. Map and images of “Tornado Alley” which can be found at the website:
<http://www.tornadochaser.net/tornadoalley.jpg>
 9. 5 - 6 Tornado Bottles pre-made by using 1 liter water bottles, filling them half-way with water and adding 1 tsp. of dish soap, 1 tsp vinegar, small amount of glitter, and a few drops of food coloring (use a light color for best visibility). Make sure lid is placed on tightly!
 10. Large classroom map of the world.
- C. *Key Vocabulary*
1. **Vortex:** a whirling mass of air, especially one in the form of a visible column or spiral
 2. **Tornado:** vortex born out of a large thunderstorm
 3. **Twister:** another name for a tornado
 4. **Tornado Alley:** a term used in reference to the area of the United States in which tornadoes are most frequent
 5. **Hail:** showery precipitation in the form of irregular pellets or balls of ice
- D. *Procedures/Activities*
1. Show students the KWL chart. See if the topic of “tornadoes” is on it; if not, add it in.
 2. Add information on KWL chart under “K” and “W” about tornadoes.
 3. Preview key vocabulary

4. Read *Wild, Wet, and Windy* pgs. 8 and 9 to the students. Also, show pictures gathered from the websites found in the “materials” section. Review key vocabulary words as you come to them. Focus on the factual information about the storm (as opposed to the destructive force aspects) so as not to make your students anxious.
5. Tell students that they will be creating and observing tornadoes in the “tornado bottles” which you have pre-made. Students should work in groups of 4-5 students per bottle. Demonstrate how bottles work (see instructions below).
6. Excuse students back to tables to work in groups. Bottles should be shaken for about 15 seconds to form foam. Then, bottles should be tipped upside-down so that the opening is now at the bottom (with the cap securely tightened). The foam at the top of the bottle resembles the thunderclouds. Students should then spin the bottle and then stop suddenly; a small vortex will appear for a few seconds at the bottom of the bottle, near the bottle opening. Students may need some help and/or practice to create the vortex.
7. Gather students back to carpet and show map of “tornado alley” in the continent of North America. Discuss if your state is located within “tornado alley”. If so, discuss which season your areas experiences tornadoes and the tornado safety tips found on pages 64-65 of the book *Twisters and other Terrible Storms: Magic Tree House Research Guide*
8. Complete steps #11 – 21 from the previous lesson on blizzards; substitute North America as the continent (get temperature from a state like Kansas or Nebraska from Tornado Alley) and the Appendix G: Tornado Journal Page should be copied onto light green paper. Tornado Alley in North America should thus be colored “green” on the passport.

B. Assessment/Evaluation

1. Filling out “L” section on KWL chart after lesson
2. Appendix G: Tornado Journal Page
3. Appendix D: Thermometer Comparison Page

Lesson Five (1 Hour): Hurricanes Huge and Horrible

A. Daily Objectives

1. Concept Objectives
 - a. Students will develop an awareness of weather changes.
 - b. Students will become more aware of the conditions which create weather changes
 - c. Students will become aware of the ways that weather can affect their own lives and the world around them
2. Content from the *Core Knowledge Sequence*
 - a. Geography: continents and oceans of the world
 - b. Measurement: thermometer
 - c. Weather: Daily weather changes.
 - d. Writing and Spelling: Use letter-sound knowledge to write simple words and messages.
 - e. Reading: listen to and understand a variety of texts
3. Skill Objectives
 - a. Students are expected to use thermometers to measure temperature.
 - b. Students are expected to identify, analyze, and apply knowledge of the purpose, structures, and elements of expository text.

- c. Students are expected to communicate by drawing, telling, or writing for a purpose
- d. Students are expected to identify thermometer as an instrument of measurement
- e. Students are expected to compare objects according to temperature (hotter and colder)
- f. Students are expected to identify the following aspects of weather: temperature, wind, precipitation, storms
- g. Students are expected to describe observable changes in weather, both orally and in written form
- h. Students are expected to give examples of how the weather affects people's daily activities
- i. Students will participate in group discussions
- j. Students are expected to locate continents and oceans on a map or globe

B. *Materials*

- 1. Book: *The Magic School Bus Inside a Hurricane*
- 2. Book: *Magic Tree House Research Guide: Twister and Other Terrible Storms*
- 3. Weather "suitcases" which include thermometer and passport
- 4. Appendix H: Hurricane Journal Page copied on pink paper – one for each student.
- 5. Appendix D: Thermometer Comparison Page – Should be copied on back of Hurricane Journal Page
- 6. KWL Chart (in progress)
- 7. A spinning top (toy)
- 8. Red crayons
- 9. 4 hula-hoops
- 10. A large classroom map of the world
- 11. Images of Asia found on "Google.com" under the "images" tab. You can show images as overheads, on a Smartboard, or projected from the internet onto a screen.

C. *Key Vocabulary*

- 1. **Hurricane:** Severe storm which originates from a warm ocean with winds over 75 m.p.h. (also known as a cyclone or a typhoon).
- 2. **Eye of the Hurricane:** The circular area of relative calm at the center of a hurricane.
- 3. **Equator:** An imaginary line around Earth that separates it into two parts: North and South; this area is always hot
- 4. **Evaporation:** a change from liquid to vapor form

D. *Procedures/Activities*

- 1. Bring children to carpet area/reading area
- 2. Show students the KWL chart. See if the topic of "hurricanes" is on it; if not, add it on.
- 3. Add information on KWL chart under "K" and "W" about hurricanes
- 4. Preview key vocabulary
- 5. Read *Magic School Bus Inside a Hurricane* pgs. 13 - 18 to the students and/or *Magic Tree House Research Guide: Twisters and other Terrible Storms* pgs. 71 – 74. Specifically concentrate on maps which show where hurricanes are most typically found and also map of equator and how it relates to hurricane

prone areas. Review key vocabulary as you come to the words. Focus on the factual information about the storm (as opposed to the destructive force aspects) so as not to make your students anxious.

6. Gather students in a circle and spin a top in the middle of the circle to demonstrate the way a hurricane moves, both spinning around and moving forward.
7. Explain to students that they are going to be demonstrating a hurricane themselves.
8. Place four hula-hoops in middle of circle. Select four students – one to step inside each of the four hula-hoops. Tell those students that they are a group of thunderstorms above a warm ocean.
9. Students stand on a warm “ocean” and lift hoops (evaporation of water from ocean) and begin to slowly spin individually.
10. Students now start to move in a larger circle all together, leaving a space at the center of the hoops to be the “eye” of the hurricane.
11. Repeat as necessary so that all students have a turn to demonstrate.
12. Gather students back to carpet and discuss if they live in an area prone to hurricanes. Discuss what conditions must be met for your local area to have a hurricane (near an ocean, what season, etc). Look on map in book and see what areas in North America are prone to hurricanes. Locate them on map.
13. Complete steps #11 – 21 from the previous lesson on blizzards; substitute Asia as the continent (use Japan for a temperature reading) and the Appendix: H Hurricane Journal Page which should be copied onto pink paper. Asia should thus be colored “pink” on the passport. Discuss that hurricanes are called Typhoons in Japan. While on the pretend airplane ride, experience “turbulence” as you fly through the hurricane with a calm period as you fly through the “eye” of the hurricane.

C. *Assessment/Evaluation*

1. Filling out “L” section on KWL chart after lesson
2. Appendix H: Hurricane Journal Page
3. Appendix D: Thermometer Comparison Page

Lesson Six (1 Hour): Extreme Heat - Deserts and Drought

A. *Daily Objectives*

1. Concept Objectives
 - a. Students will develop an awareness of weather changes.
 - b. Students will become more aware of the conditions which create weather changes
 - c. Students will become aware of the ways that weather can affect their own lives and the world around them
2. Content from the *Core Knowledge Sequence*
 - a. Geography: continents and oceans of the world
 - b. Measurement: thermometer
 - c. Weather: Daily weather changes.
 - d. Writing and Spelling: Use letter-sound knowledge to write simple words and messages.
 - e. Reading: listen to and understand a variety of texts
3. Skill Objectives
 - a. Students are expected to use thermometers to measure temperature.

- b. Students are expected to identify, analyze, and apply knowledge of the purpose, structures, and elements of expository text.
- c. Students are expected to communicate by drawing, telling, or writing for a purpose
- d. Students are expected to identify thermometer as an instrument of measurement
- e. Students are expected to compare objects according to temperature (hotter and colder)
- f. Students are expected to identify the following aspects of weather: temperature, wind, precipitation, storms
- g. Students are expected to describe observable changes in weather, both orally and in written form
- h. Students are expected to give examples of how the weather affects people's daily activities
- i. Students will participate in group discussions
- j. Students are expected to locate continents and oceans on a map or globe

B. *Materials*

- 1. Book: Heat Waves and Droughts
- 2. Book: Deserts
- 3. Book: Extraordinary Wild Weather
- 4. Weather "suitcases" which include thermometer and passport
- 5. Appendix I: Desert Journal Page copied on orange paper – one for each student
- 6. Appendix D: Thermometer Comparison Page – Should be copied on back of Desert Journal Page
- 7. KWL Chart (in progress)
- 8. Brown Construction Paper
- 9. Paint Brushes and bowls to hold water for painting
- 10. Goose-necked lamp
- 11. Red crayons
- 12. Large classroom map of the world
- 13. Images of Africa and Australia found on "Google.com" under the "images" tab. You can show images as overheads, on a Smartboard, or projected from the internet onto a screen.

C. *Key Vocabulary*

- 1. **Desert:** A dry, often sandy region of little rainfall, extreme temperatures, and sparse vegetation
- 2. **Drought:** a long period of dry weather with little or no rain
- 3. **Evaporate:** change from liquid state of water to water vapor
- 4. **Sun:** as a source of light and warmth

D. *Procedures/Activities*

- 1. Bring children to carpet area/reading area
- 2. Show students the KWL chart. See if the topic of "drought and deserts" is on it; if not, add it on.
- 3. Add information on KWL chart under "K" and "W" about droughts and deserts
- 4. Preview key vocabulary
- 5. Discuss the fact that the sun is the source of light and warmth. Ask the students what kinds of weather happen when there is too much sun? What happens to the land? Read *Heat Waves and Droughts* pgs. 5 - 7 to the students. Concentrate on showing dry riverbed and discuss that droughts happen where there was once

water. Read *Desserts* pgs. 6 – 9 and *Extraordinary Wild Weather* pgs. 18 – 19 which shows pictures of a sandstorm. Compare and contrast areas of drought to desert areas, helping the students make connection that periods of sun/heat without water creates both condition. Concentrate on concept of “evaporation” caused by sun and heat. Focus on the factual information about these weather conditions (as opposed to the destructive force aspects) so as not to make your students anxious.

6. Tell students that they will be experiencing evaporation by making “disappearing art”.
7. Excuse students back to tables. Pass out brown construction paper, paint brushes, and water in bowls. Instruct students to “Paint” on the paper using only water.
8. If it is a warm enough day, place papers outside until water evaporates and then bring in for students to see. If it is not a warm day, use lamp to heat the paper and make water evaporate. (With close teacher supervision due to heat from light bulb!)
9. Gather students back to carpet area. Discuss the concept of evaporation and what made the water evaporate. Discuss your local weather patterns. What season is it hot enough to make water evaporate? What do you wear during this season? What do you do to protect yourself from the heat? Show areas on the map of the U.S. where there are deserts.
10. Complete steps #11 – 21 from the previous lesson on blizzards; substitute Africa AND Australia as the continents (use Africa to get a temperature reading); the Appendix I: Deserts Journal Page should be copied onto orange paper. Corresponding desert regions in Africa and Australia should thus be colored “orange” on the passport (look in book to find desert regions in these two continents).

E. *Assessment/Evaluation*

1. Filling out “L” section on KWL chart after lesson
2. Appendix I: Deserts Journal Page
3. Appendix D: Thermometer Comparison Page

IV. CULMINATING ACTIVITY

1. See Appendix K: Culminating Activity Script (Two Pages)
2. Music needed:
 - a. Vivaldi: *The Four Seasons: Winter*
 - b. Strauss: *Alpine Symphony, Op. 64: Thunder and Storm, Descent*
 - c. Grofe: *Grand Canyon Suite: On the Trail*
3. New Vocabulary
 - a. Camel
 - b. Burro
4. Assessment/Evaluation
 1. Appendix J: Wild Weather Quiz
 2. Appendix L: Europe Home Extension Project. This is a final journal page to be sent home with the completed Wild Weather Suitcase for students who would like to research the weather in the final continent: Europe. Students may decide what color they would like to use for Europe on the passport map. Students may also create their own “Word Bank” for this journal page and may bring it back in to share with the rest of the class.

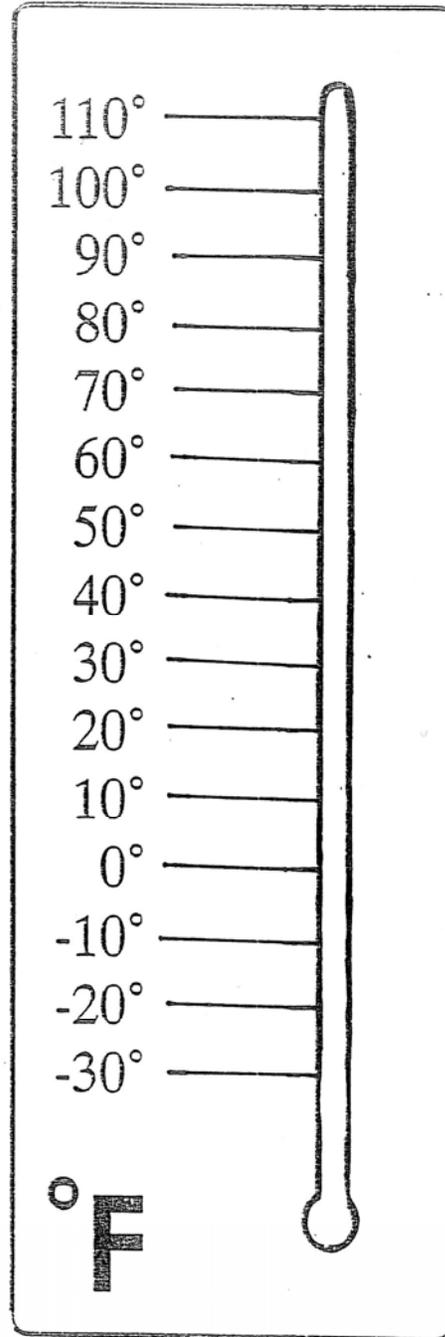
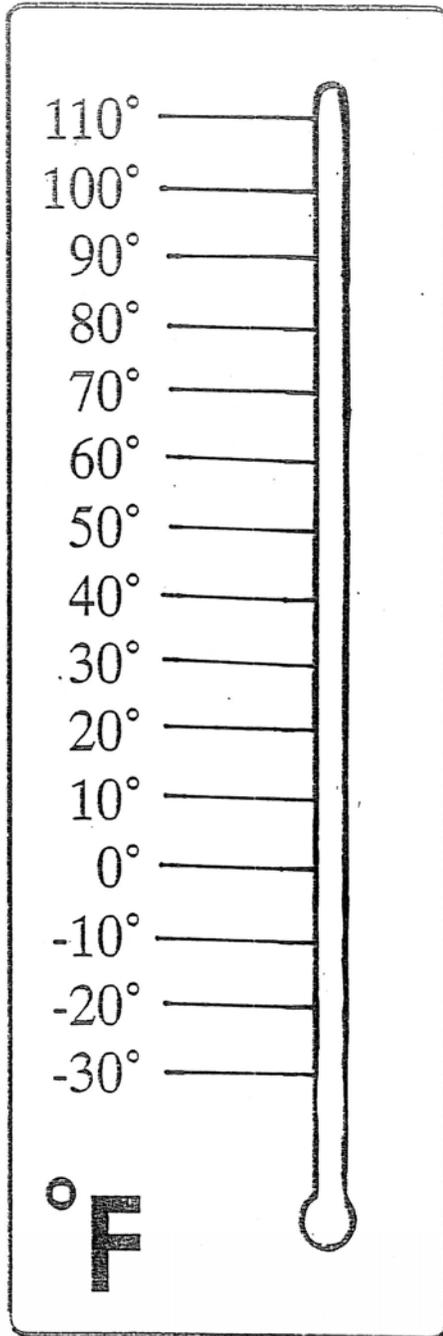
VI. HANDOUTS/WORKSHEETS

- A. Appendix A: Cardstock Thermometer
- B. Appendix A1: Completed Thermometer Sample Photograph
- C. Appendix B: Suitcase Example Photograph
- D. Appendix C: Passport to Weather
- E. Appendix C1: Map (Copy on the reverse side of Passport to Weather)
- F. Appendix D: Thermometer Comparison: For Back of Journal Pages
- G. Appendix E: Blizzard Journal Page
- H. Appendix F: Lightning Journal Page
- I. Appendix G: Tornado Journal Page
- J. Appendix H: Hurricane Journal Page
- K. Appendix I: Desert Journal Page
- L. Appendix J: Wild Weather Quiz
- M. Appendix K: Culminating Activity Script (Two Pages)
- N. Appendix L: Europe Home Extension Project

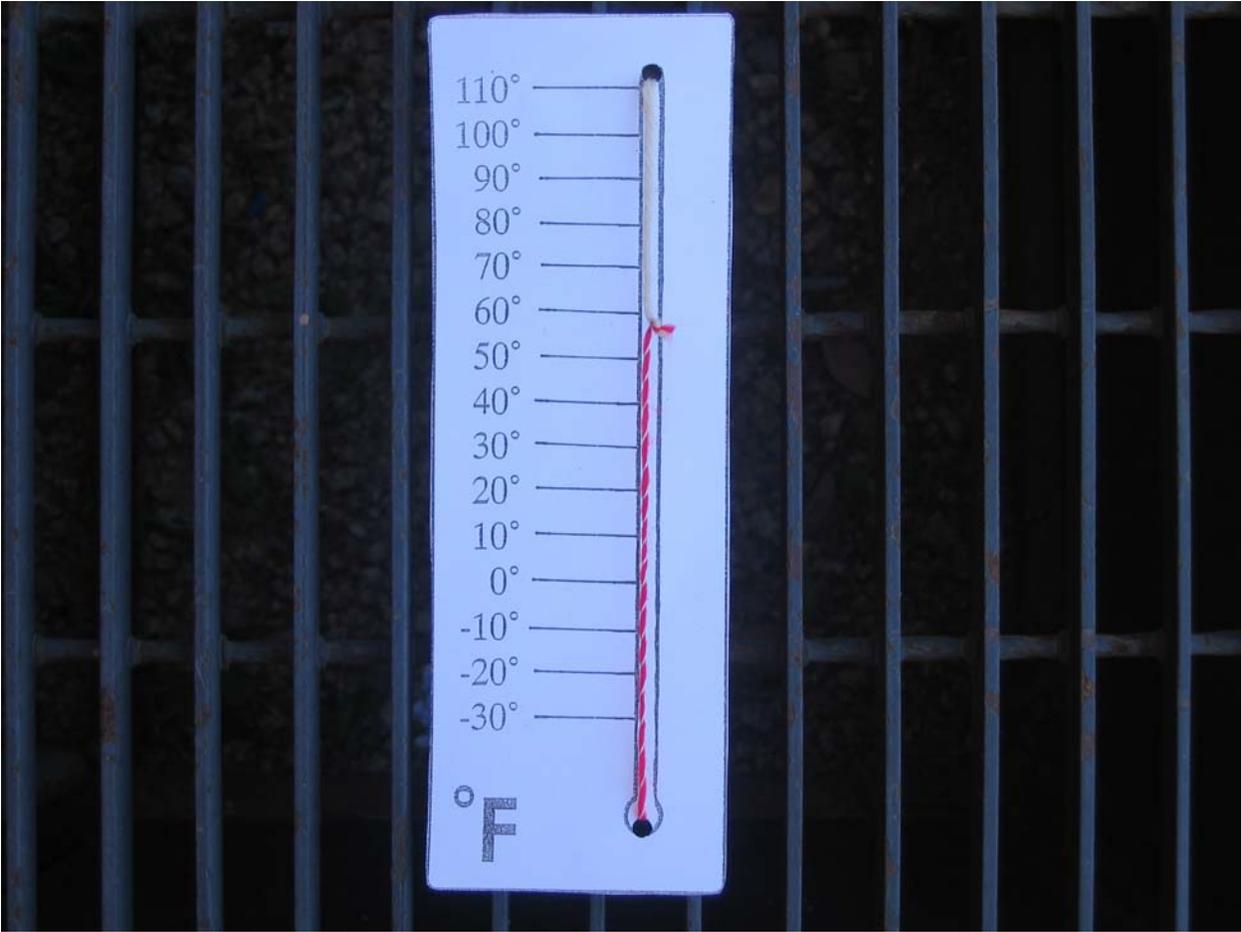
VII. BIBLIOGRAPHY

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Appendix A
Cardstock Thermometer



Appendix A1
Completed Thermometer Sample Photograph

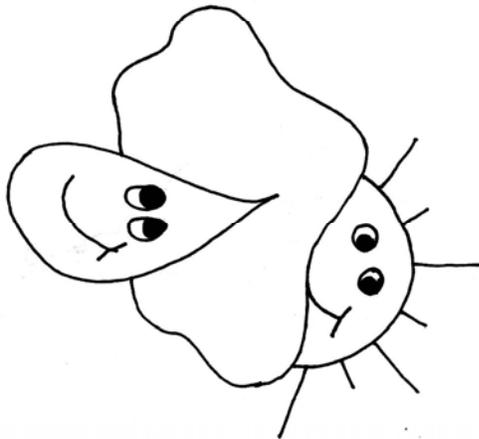


Appendix B
Suitcase Example Photograph



Appendix C
Passport to Weather

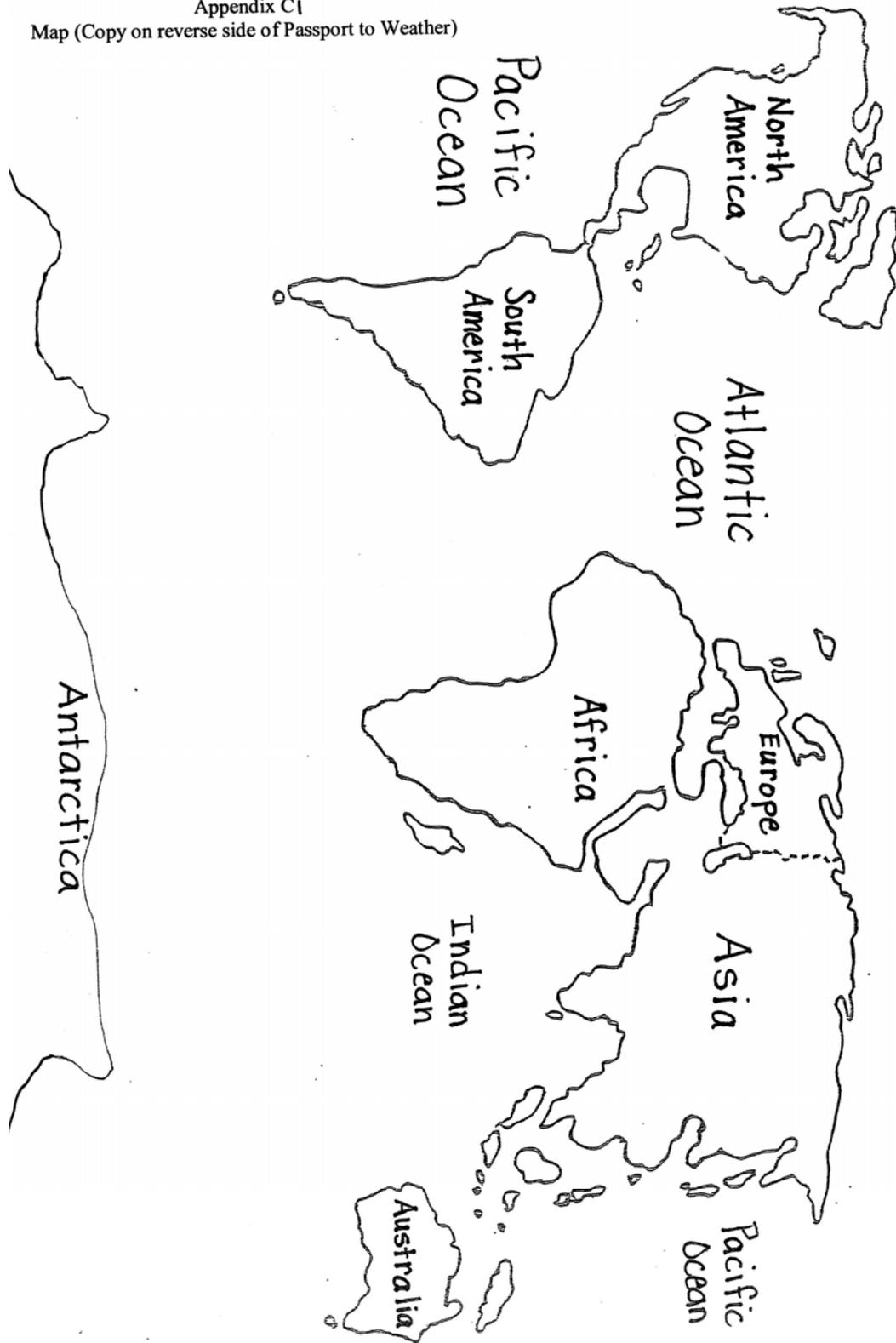
PASSPORT
TO
WEATHER



Name _____

Appendix C1

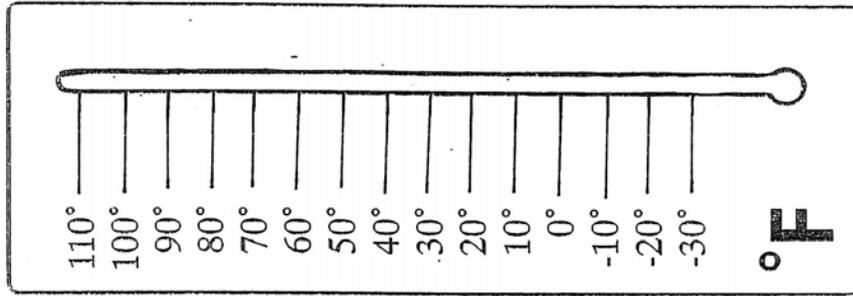
Map (Copy on reverse side of Passport to Weather)



Appendix D
Thermometer Comparison: For Back of Journal Pages

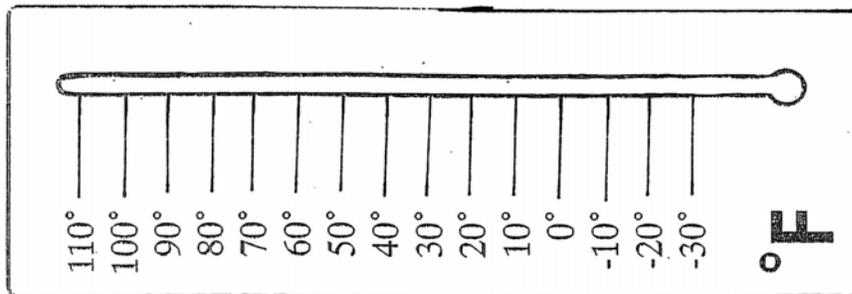
location

temperature



location

temperature

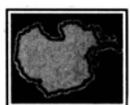


Appendix E
Blizzard Journal Page

Name: _____ Date: _____

Write three facts that you learned today about blizzards.

Word Bank

snow (precipitation)	blizzard
	
polar winds	Antarctica
	
snow drifts	
	

Handwriting practice lines consisting of multiple sets of solid top and bottom lines with a dashed midline.

Appendix F
Lightning Journal Page

Name: _____ Date: _____

Write three facts that you learned today about lightning.

Word Bank

lightning 	safety 
thunderstorm 	South America 
rain (precipitation) 	

Handwriting practice lines consisting of multiple sets of three horizontal lines (top, middle dashed, bottom) for writing.

Appendix G
Tornado Journal Page

Name: _____ Date: _____

Write three facts that you learned today about tornadoes.

Word Bank

tornado		hail	
vortex		North America	
Tornado Alley			

Handwriting practice lines consisting of multiple sets of three horizontal lines (top, middle dashed, bottom) for writing.

Appendix H
Hurricane Journal Page

Name: _____ Date: _____

Write three facts that you learned today about hurricanes.

Word Bank

<p>hurricane</p> 	<p>evaporation</p> 
<p>ocean</p> 	<p>Asia</p> 
<p>eye</p> 	

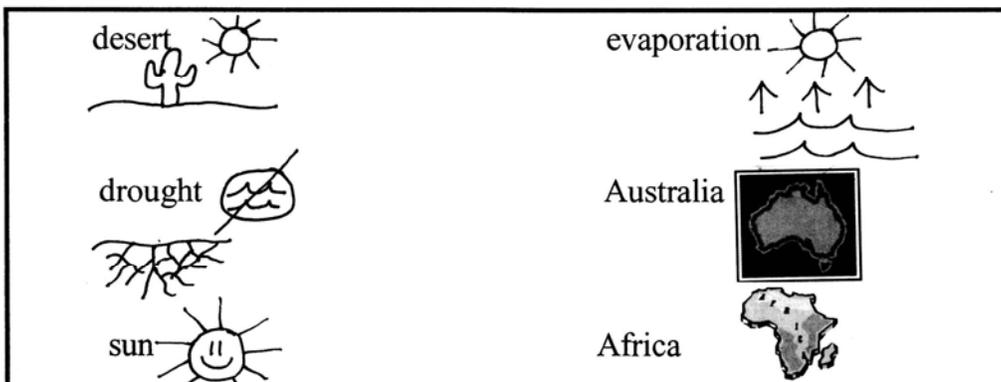
Handwriting practice lines consisting of 10 sets of three horizontal lines (top, middle dashed, bottom).

Appendix I
Desert Journal Page

Name: _____ Date: _____

Write three facts that you learned today about deserts and drought.

Word Bank



Handwriting practice lines consisting of multiple sets of three horizontal lines (top, middle dashed, bottom).

Appendix J
Wild Weather Quiz

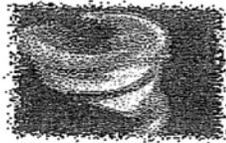
Name _____ Date _____

Wild Weather Quiz

1. Circle the blizzard.



2. Circle the lightning storm.



3. Where should you be during a thunder and lightning storm?



4. What would the thermometer look like on a hot day?



Culminating Activity

Wild Weather Around the World: An Activity of Movement and Music

Narrator: Welcome to Wild Weather Around the World. We open in Antarctica where a blizzard is raging. The extremely cold polar temperatures have frozen the water vapor in the air and the fierce winds are blowing the snowflakes around and around.

*(Cue: music from Vivaldi “*The Four Seasons: Winter*”)

*Students dance around like snowflakes in a blizzard.

Narrator: Next we move to the continent of South America near the equator where a thunderstorm is brewing. I wonder if there will lightning?

*Students sit in circle on floor and make “rain sounds” with their bodies:

Step one: students gently rub fingers together

Step two: students start to snap slowly and then get faster (raindrops)

Step three: students add clucking noise with mouth (larger raindrops)

Step four: students slap hands on lap, slowly at first and then faster and faster

Step five: students keep slapping hands on lap while also kicking feet on floor (thunder)

Step six: teacher turns lights on and off (lightning)

Narrator: We now move to another thunderstorm in North America, right in the middle of tornado alley. What’s this we see? A funnel cloud is starting to form in the clouds. If that vortex touches the ground, we’ve got a tornado on our hands!

*(Cue: music from Strauss “*Alpine Symphony, Op. 64: Thunder and Storm, Descent*”)

*Students remain sitting in circle with arms overhead, waving around like wind or wiggling fingers like rain; also can be making wind noises with mouths. One student goes to the middle of the circle to spin around and touch the ground like a tornado.

Pause music.

Narrator: We now travel to the Pacific Ocean just off the coast of Asia. The ocean has been heating up and a group of thunderstorms is sucking up the water from the ocean. Just look at that evaporation! Oh no, now the storms are moving together to form one big storm...looks like a hurricane, folks!

*Students re-enact the hurricane movement activity from the Hurricane lesson while music from the “Alpine Symphony” resumes.

Appendix K
Culminating Activity Script – Page Two

Narrator: I don't know about you, but I'd like a break from all this water! Let's join some travelers as they move from desert to desert. Here they are walking through a sandstorm in the deserts in the continent of Australia.

*Students walk back to their chairs as if in a fierce windstorm.

Narrator: Now our travelers have found some camels to take them through the deserts on the continent of Africa. Look at how hot and thirsty they look.

*Students sit on chairs and pretend to ride camels through the desert, pretending to be hot and thirsty.

Narrator: Oh, now they are riding burros through the Grand Canyon in the desert of Arizona in North America.

*(Cue music from Grofe *Grand Canyon Suite: On the Trail*)

*Students listen to music and act out on their chairs a burro trip to the bottom of the Grand Canyon. At sounds of tinkling rain, narrator says: "That rain is a welcome relief for our hot explorers. Too bad that rain won't stay long. With this heat, the water will evaporate quickly".

Narrator: Well, our weary explorers are riding those burros back to their homes. Thank you for traveling with us to explore the Wild Weather around the World!

