

Weather Watchers

Grade Level: Kindergarten

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Length of Unit: 10 Lessons

I. ABSTRACT

Weather Watchers is a science unit that will help students learn about the four seasons and daily weather changes. Through daily observations of the weather, projects, literature and art activities, students will be able to name characteristics of several elements of weather. Through the unit, students will gain an increased awareness of local weather patterns, changing seasons, and how the elements influence our lives.

II. OVERVIEW

A. Concept Objectives:

1. Understand that the weather changes from season to season.
2. Understand that the weather changes from day to day and some changes are more common to our area.
3. Understand that weather effects everyday life.

B. Specific Content:

1. The four seasons
2. Characteristic local weather patterns during the different seasons
3. Daily weather changes: temperature, clouds, rainfall, thunderstorms, snow

C. Skills to Be Taught:

1. Graphing
2. Comparing similarities and differences
3. Distinguishing fantasy from realistic text
4. Observing weather conditions
5. Explaining observations with words and illustrations
6. Following directions.

III. BACKGROUND KNOWLEDGE

A. For Teachers

1. Hirsch, Jr. E.D. *What Your Kindergartner Needs To Know*. New York: Dell Publishing, 1996, ISBN 0-385-31841-3.
2. Kemp Henry, L. "Winter Where You Are." *The Mailbox - Kindergarten*. Vol. 13, No. 6, Greensboro, NC: The Education Center, Inc., 1999

B. For Students

1. *Rain, Rain, Go Away*
2. What plants need to grow: water

IV. RESOURCES

A. For Teachers

1. Hirsch, Jr. E.D. *What Your Kindergartner Needs To Know*. New York: Dell Publishing, 1996, ISBN 0-385-31841-3.
2. Kemp Henry, L. "Winter Where You Are." *The Mailbox - Kindergarten*. Vol. 13, No. 6, Greensboro, NC: The Education Center, Inc., 1999

V. LESSONS

Lesson One: The Four Seasons

A. Daily Objectives

1. Concept objective:
 - a. Understand that the weather changes from season to season.
 2. Lesson Content:
 - a. The Four Seasons
 3. Skill objective:
 - a. Students will compare the similarities and differences between the four seasons.
- B. *Materials*
1. 1 piece of chart paper
 2. *What Your Kindergartner Needs to Know* by E.D. Hirsch, Jr.
 3. 1 piece of poster board
 4. *The Apple Pie Tree* by Zoe Hall
 5. Appendix A
 6. crayons or markers
- C. *Key Vocabulary*
1. Seasons- the four parts of a year - spring, summer, winter and fall
- D. *Procedures and Activities*
1. Introduce the unit by completing a KWL chart on weather. On a piece of chart paper, make three columns. At the top of the first column write "What we know about weather." In the second column write "What we want to know about weather." Above the third column write "What we have learned about weather." Complete the first two columns with student responses.
 2. Explain during the next few days we will become "Weather Watchers." We will be watching the weather to learn more about how it changes from day to day and how those changes effect the decisions we make.
 3. Read and discuss pages 253-254 of *What Your Kindergartner Needs to Know* "The Four Seasons."
 4. Divide a piece of poster board into 4 parts. Ask the students to name the four seasons. As they name each season, write one season in each of the four sections. Ask the students to share things for each season that are special. It can be weather (snow) or nature (leaves changing colors) related. List each event as the students dictate.
 5. Read *The Apple Pie Tree* by Zoe Hall.
- F. *Evaluation/Assessment*
1. Using Appendix A, ask the student to draw the tree for each of the four seasons. They may draw things around the tree that are special to the season.

Lesson Two: The Changing Weather

- A. *Daily Objectives*
1. Concept objective:
 - a. Understand that the weather changes from day to day and some changes are more common to our area.
 2. Lesson Content:
 - a. Daily weather changes
 3. Skill objectives:
 - a. Students will distinguish fantasy from realistic text.
 - b. Students will make observations of the weather and illustrate the observations.
- B. *Materials*
1. *What Your Kindergartner Needs to Know* by E.D. Hirsch, Jr.
 2. *Cloudy With A Chance of Meatballs* by Judi Barrett

3. 1 piece of chart paper
 4. Appendix B stapled to the front of 9 sheets of paper. This will be a weather journal.
 5. crayons or markers
- C. *Key Vocabulary*
1. Weather- The state of the atmosphere at a given time and place described by temperature, moisture, wind velocity, etc.; what it is like outside
- D. *Procedures/Activities*
1. Review the names of the four seasons.
 2. Read p. 256 of *What Your Kindergartner Needs to Know* “Talking About the Weather.”
 3. Ask students “What do we talk about when we talk about the weather?”
 4. Read *Cloudy With a Chance of Meatballs* by Judi Barrett
 5. Explain to the class fantasy means make-believe. On the chart paper, make two columns. Label the first one “real weather“, the second “fantasy weather.’ Ask students to name real weather (rain) and fantasy weather written in the story. Record the students’ answers.
- E. *Assessment/Evaluation*
- Instruct students to look outside. Their task is to illustrate today’s weather on the first page of their weather journal.

Lesson Three: Temperature

- A. *Daily Objectives*
1. Concept objective:
 - a. Understand that the weather changes from day to day and some changes are more common to our area.
 2. Lesson Content:
 - a. Temperature: thermometers are used to measure temperature
 3. Skill objectives:
 - a. Students will conclude which temperatures are warm and which are cool.
 - b. Students will graph the current temperature.
- B. *Materials*
1. Weather Journal
 2. *What Your Kindergartner Needs to Know* by E.D. Hirsch, Jr.
 3. thermometer positioned outside
 4. Appendix C Temperature Graph -1 for each student OR 1 enlarged graph OR 1 graph reproduced on a transparency
 5. Appendix D Thermometer Paper - 1 copy only, enlarged and laminated
 6. red wet erase marker
 7. Appendix E
 8. crayons or markers
- C. *Key Vocabulary*
1. Temperature- the degree of hotness or coldness of a body or environment; hot, warm, cool or cold
 2. Thermometer- an instrument used to measure the temperature
- D. *Procedures/Activities*
1. Discuss today’s weather and illustrate the weather in the Weather Journal.
 2. Read p. 256 of *What Your Kindergartner Needs to Know* “Temperature.”
 3. Introduce the thermometer positioned outside. Show students how to read the thermometer. Write ° where students can see. Discuss the meaning of the degree symbol.

4. Display the temperature graph. Show students how to place one finger on day one, another finger on the other hand on the line closest to today's temperature. Color the boxes up to the correct line for today's temperature.
 5. Using the thermometer in Appendix D, show different temperatures by coloring with the red wet erase marker. Ask if it is a hot, warm, cool or cold temperature. Ask student what clothes they would wear for each temperature.
- E. *Assessment/Evaluation*
1. Complete Appendix E. Fill in the blanks with today's temperature and if the temperature is hot, warm, cool or cold. Students will illustrate what they enjoy doing when the temperature is similar to today's.

Lesson Four: The Sun

- A. *Daily Objectives*
1. Concept objective:
 - a. Understand that the weather changes from day to day and some changes are more common to our area.
 2. Lesson Content:
 - a. The sun: source of light and warmth
 3. Skill objective:
 - a. Students will classify which colors become the warmest on a warm day.
- B. *Materials*
1. Weather Journal
 2. temperature graph
 3. 2 small rocks, stones or pieces of gravel for each student
 4. black and white paint
 5. paint brushes
 6. Appendix F
 7. crayons or markers
- C. *Key Vocabulary*
1. Sun: Gives our Earth light and warmth
- D. *Procedures/Activities*
- **Prior to today's lesson, give each student two small rocks. Instruct students to paint one rock completely white and the other completely black. Allow drying, then place both rocks in the sun one-hour before the lesson.**
1. Complete the Weather Journal and record the current temperature on the graph.
 2. Ask students to imagine being outside in the sun. How does the sun feel on their skin? Imagine they are standing on top of pavement - a black parking lot. How would their feet feel if they did not have on shoes? Let students act out how they would walk.
 3. Go outside and touch both rocks. Which rock is the warmest, black or white? What made the rocks warm? Have children hypothesize why the dark rock is the warmest. Explain that the black rock soaks up the heat, but the white rock reflects the heat.
 4. Ask students "What will become warmer -dark or light colors? Which would you wear on a hot day?"
- E. *Assessment/Evaluation*
1. Complete Appendix F by illustrating which colors the students would or would not wear on a hot day.

Lesson Five: Clouds

- A. *Daily Objectives*
1. Concept objective:

- a. Understand that the weather changes from day to day and some changes are more common to our area.
 - 2. Lesson Content:
 - a. Clouds
 - 3. Skill objective:
 - a. Students will observe cloud conditions and illustrate their observations.
- B. *Materials*
 - 1. Weather Journal
 - 2. temperature graph
 - 3. *What Your Kindergartner Needs to Know* by E.D. Hirsch, Jr.
 - 4. *It Looked Like Spilt Milk* by Charles G. Shaw
 - 5. 1 piece of white paper per student
 - 6. 1 piece of blue construction paper per student
 - 7. glue
- C. *Key Vocabulary*
 - 1. Clouds- a visible mass in the air consisting of tiny drops of water or bits of ice
- D. *Procedures/Activities*
 - 1. Complete the Weather Journal and record the current temperature on the graph.
 - 2. Read pg. 256 - 257 of *What Your Kindergartner Needs to Know* "Clear or Cloudy?"
 - 3. Look out the window or go outside. Take a few minutes to watch the clouds
 - 4. Read *It Looked Like Spilt Milk* by Charles G. Shaw. Ask the students to describe the clouds they observed today.
- E. *Assessment/Evaluation*
 - 1. Have students tear the white paper into small pieces. Glue the torn white paper on the blue paper to look like the clouds they observed today.

Lesson Six: Rain

- A. *Daily Objectives*
 - 1. Concept objective:
 - a. Understand that the weather changes from day to day and some changes are more common to our area.
 - 2. Lesson Content:
 - a. Rainfall: how the condition of the ground varies with rainfall; rainbows
 - 3. Skill objective:
 - a. Students will identify the effects of rain, both favorable and unfavorable.
- B. *Materials*
 - 1. Weather Journal
 - 2. temperature graph
 - 3. *What Your Kindergartner Needs to Know* by E.D. Hirsch, Jr.
 - 4. *Rain Talk* by Mary Serfozo
 - 5. prism
 - 6. Appendix G
 - 7. crayons or markers
- C. *Key Vocabulary*
 - 1. Rain- drops of water that fall to the earth
- D. *Procedures/Activities*
 - 1. Complete the Weather Journal and record the current temperature on the graph.
 - 2. Read *Rain Talk* by Mary Serfozo
 - 3. Ask students "What parts of the story were caused by the rain?"(the girl uses her umbrella, she goes inside, the rainbow, etc.)

4. Read pages 259 - 260 of *What Your Kindergartner Needs to Know* "Rain"
 5. Ask the following questions:
 - "What does the sky look like when it rains?"
 - "What does a plant look like with out water?" "What does a healthy plant look like?"
 - "What else needs water or rain?"
 6. Show students a prism to illustrate rainbow. Ask class "What colors do you see in a rainbow?"
 7. Recite *Rain, Rain, Go Away*. Ask "What are some other things you cannot do in the rain?"
- E. *Assessment/Evaluation*
1. Complete Appendix G. Students should complete the sentence with what they like to do and don't like to do on a rainy day.

Lesson Seven: Snow

- A. *Daily Objectives*
1. Concept objective:
 - a. Understand that the weather changes from day to day and some changes are more common to our area.
 2. Lesson Content:
 - a. snow and snowflakes; blizzard
 3. Skill objectives:
 - a. Students will estimate and observe the temperature of ice.
 - b. Students will recognize and illustrate events unique to a snowy day.
- B. *Materials*
1. Weather Journal
 2. temperature graph
 3. *What Your Kindergartner Needs to Know* by E.D. Hirsch, Jr.
 4. *I Am Snow* by Jean Marzollo
 5. 3 thermometers
 6. ice in a container
 7. refrigerated water in a container
 8. tap water in a container
 9. 1 piece of blue construction paper per student
 10. several round balloons, half full of air and tied
 11. white paint
 12. materials suitable to decorate snow people
 13. Appendix H - This may be enlarged or duplicated on a transparency.
 14. crayons or markers
 15. Appendix I
- C. *Key Vocabulary*
1. Snow- frozen particles of water that fall to the earth
- D. *Procedures/Activities*
1. Complete the Weather Journal and record the current temperature on the graph.
 2. Read p 260 of *What Your Kindergartner Needs to Know* "Snow"
 3. Ask students "Does our area see a lot of snow? How often do we see a blizzard?"
 4. How cold does the temperature need to be to freeze water? Have students estimate the temperature water needs to reach. Then, use a thermometer to test tap water, refrigerated water and ice. Use Appendix H to record the temperatures.
 5. Read *I Am Snow* by Jean Marzollo. List the activities in the story that can only

- be performed in the snow.
- E. *Evaluation/Assessment*
 - 1. Complete Appendix I by illustrating the things they observe only in the snow.
- F. Extension:
 - 1. Make balloon snow people. Give each child 1 piece of blue construction paper. Working one-on-one with a child, dip the bottom portion of a half blown round balloon in white paint. Gently press the balloon onto the bottom of the paper to make the bottom of a snowman. Repeat twice, making each circle smaller. This may be performed while the remainder of the class is completing Appendix H. Allow the paint to dry. Then let students decorate their snow people with yarn, sequins, buttons, fabric scraps, etc.

Lesson Eight: Thunderstorms

- A. *Daily Objectives*
 - 1. Concept objective:
 - a. Understand that the weather changes from day to day and some changes are more common to our area.
 - 2. Lesson Content:
 - a. thunderstorms; lightning and thunder
 - 3. Skill objectives:
 - a. Students will predict the plot of a story.
 - b. Students will evaluate the safety of their actions during thunderstorms.
- B. *Materials*
 - 1. Weather Journal
 - 2. temperature graph
 - 3. *What Your Kindergartner Needs to Know* by E.D. Hirsch, Jr.
 - 4. *Thunder Cake* by Patricia Polacco
 - 5. 1 piece of chart paper
 - 6. Appendix J
 - 7. crayons or markers
- C. *Key Vocabulary*
 - 1. lightning- streaks of light in the sky caused by static electricity
 - 2. thunder- loud noises occurring after lightning
 - 3. thunderstorm- a weather event including lightning and thunder.
- D. *Procedures/Activities*
 - 1. Complete the Weather Journal and record the current temperature on the graph.
 - 2. Read p 262 of *What Your Kindergartner Needs to Know* "Storms"
 - 3. Ask students "Raise your hand if you have seen and heard a thunderstorm. If you like thunderstorms, put your thumb up. If you do not like thunderstorms, put your thumb down." Ask students why they like or do not like thunderstorms.
 - 4. Show the students the book *Thunder Cake* by Patricia Polacco. Ask students to predict what the story will be about.
 - 5. Read *Thunder Cake*. Ask, "How did the little girl feel about storms at the beginning of the story? How did she feel at the end? Why did her feelings change?"
 - 6. Ask students to dictate their activities during a thunderstorm. Have the class decide if it is safe or unsafe.
- E. *Evaluation/Assessment*
 - 1. Complete Appendix J by having students illustrate their own safe activity during a thunderstorm.

Lesson Nine: Wind

- A. *Daily Objectives*
 - 1. Concept objective:
 - a. Understand that weather effects everyday life.
 - 2. Lesson Content:
 - a. daily weather changes
 - 3. Skill objective:
 - a. Students will give an example of how the wind can make activities hard or easy to perform.
- B. *Materials*
 - 1. Weather Journal
 - 2. temperature graph
 - 3. *What Your Kindergartner Needs to Know* by E.D. Hirsch, Jr.
 - 4. soap and wand to blow bubbles
 - 5. Appendix K
 - 6. crayons or markers
- C. *Key Vocabulary*
 - 1. Wind: moving air
- D. *Procedures/Activities*
 - 1. Complete the Weather Journal and record the current temperature on the graph.
 - 2. Read p 257 of *What Your Kindergartner Needs to Know*, “*The Wind.*”
 - 3. Ask, “What are some things the wind helps us to do? What things are hard to do in the wind?”
 - 4. Go on a walk. Ask, “What are some things we see moving in the wind?”
 - 5. Blow bubbles to see the direction of the wind. Try to blow them when the wind is at variable speeds. Ask, “What happens when the bubbles are blown when the wind is blowing harder? How about softer?”
- E. *Evaluation/Assessment*
 - 1. Complete Appendix K by illustrating windy day activities

Lesson Ten: Weather Watchers Watch Local Weather

- A. *Daily Objectives*
 - 1. Concept objective:
 - a. Understand that weather effects everyday life.
 - 2. Lesson Content:
 - a. Characteristic local weather patterns during the different seasons
 - 3. Skill objective:
 - a. Students will identify ways recent local weather has affected their choices.
- B. *Materials*
 - 1. Weather Journal
 - 2. temperature graph
 - 3. *Froggy Gets Dressed* by Jonathan London
 - 4. Appendix L
 - 5. crayons or markers
- C. *Key Vocabulary*
 - 1. Meteorologist: a person who studies the weather
- D. *Procedures/Activities*
 - 1. Complete the Weather Journal and record the current temperature on the graph.
 - 2. Read *Froggy Gets Dressed* by Jonathan London
 - 3. Ask “Why did Froggy wear the clothing in the story? Look at the Weather Journals and the temperature graph. Ask, “How did the weather help us make choices?” (no recess, played in the snow, wore a sweater, flew a kite, etc.)

4. Explain, "People watch a meteorologist to find out about the weather. A meteorologist is someone who studies the weather. What are some reasons people need to know about the weather?" (picnic, garden needs rain, etc.)
- E. *Evaluation/Assessment*
1. Complete Appendix L by filling in the blank with the students' favorite element of weather and illustrating the things a student may do in that particular weather.

VI. Culminating Activity

- A. Arrange for a visit from a local meteorologist or a field trip to a local weather station. Center the experience on the need for the meteorologist to observe weather conditions and the instruments the meteorologist uses to make these observations. Encourage students to develop questions before the encounter.

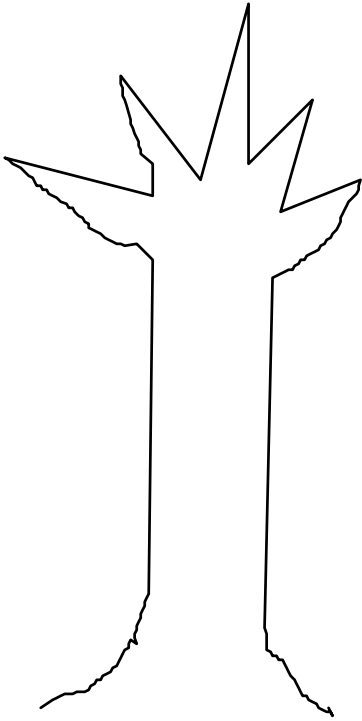
VII. Handouts/Worksheets

- A. Appendices A - L

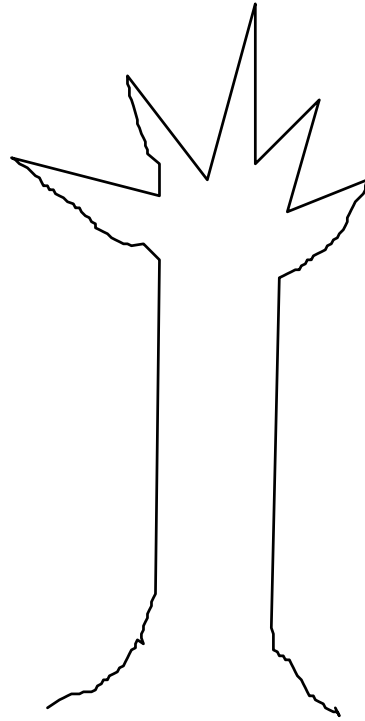
VIII. Bibliography

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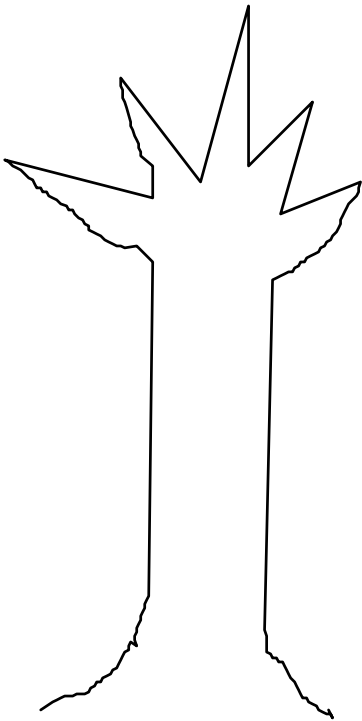
Appendix A
The Four Seasons



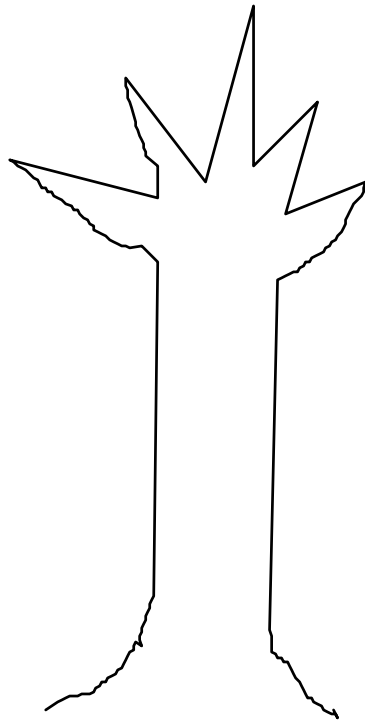
Winter



Spring



Summer

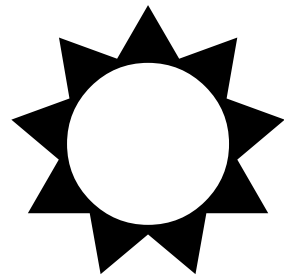


Fall

Appendix B



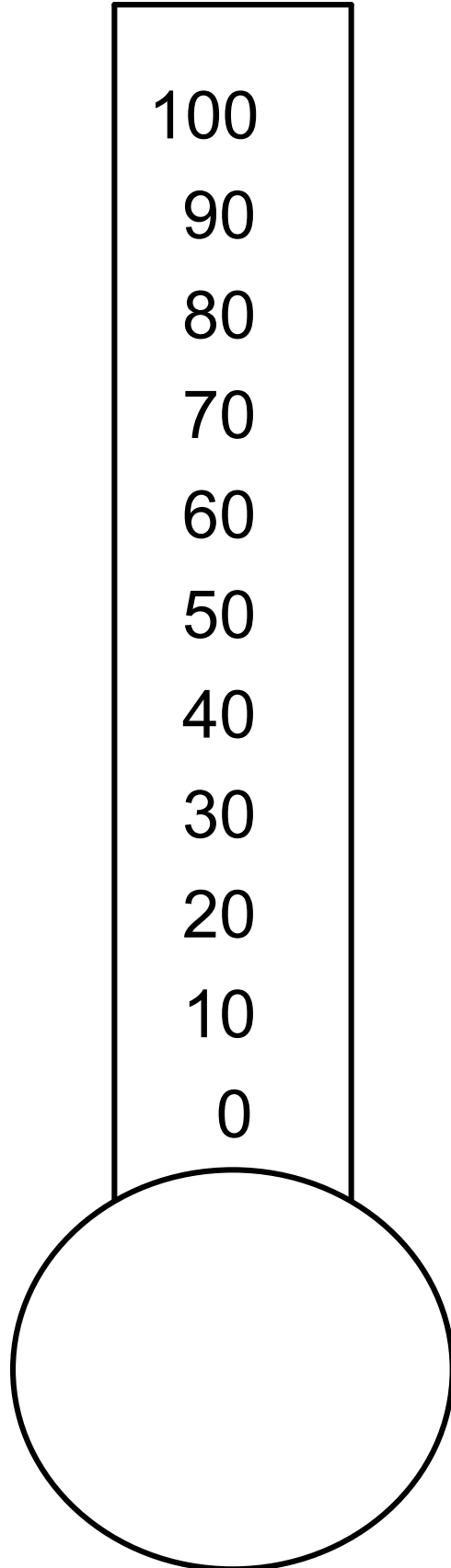
My Weather Journal



Appendix C

110								
105								
100								
95								
90								
85								
80								
75								
70								
65								
60								
55								
50								
45								
40								
35								
30								
25								
20								
15								
10								
5								
0								
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8

Appendix D



Appendix E

It is _____° today. This is what I like to do
when the weather is _____.

Appendix F

On a hot day, these are the colors I would wear.

I would not wear these colors.

Appendix G

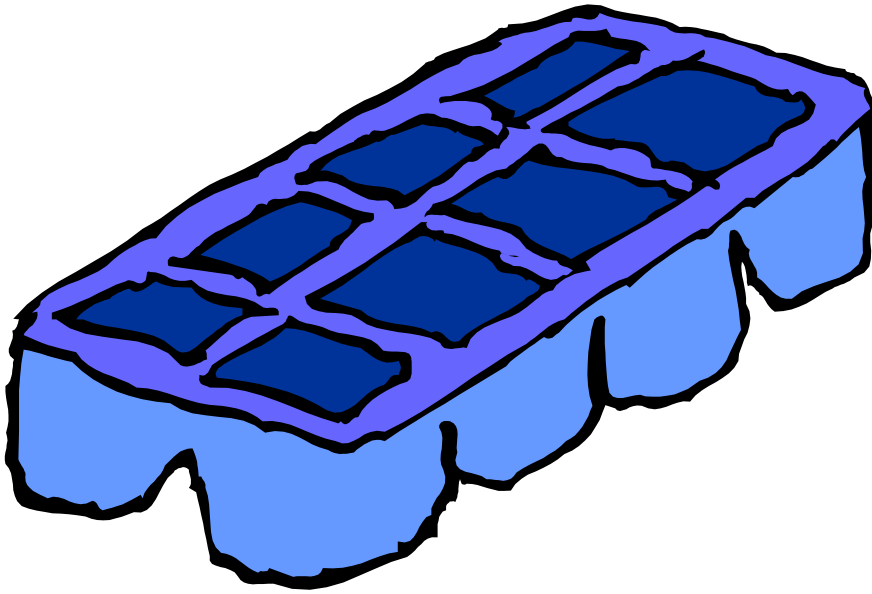
On a rainy day I like to _____

_____.

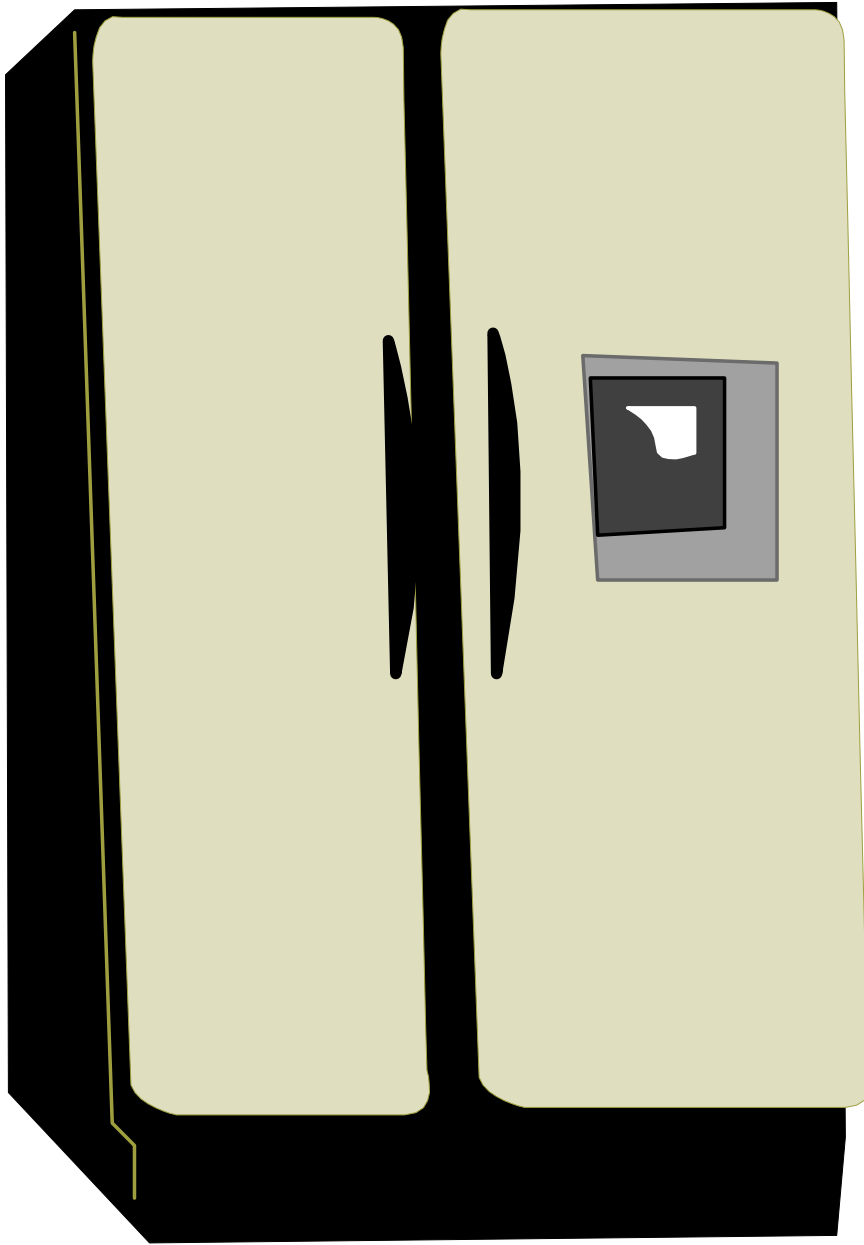
I don't like to _____

_____.

Appendix H

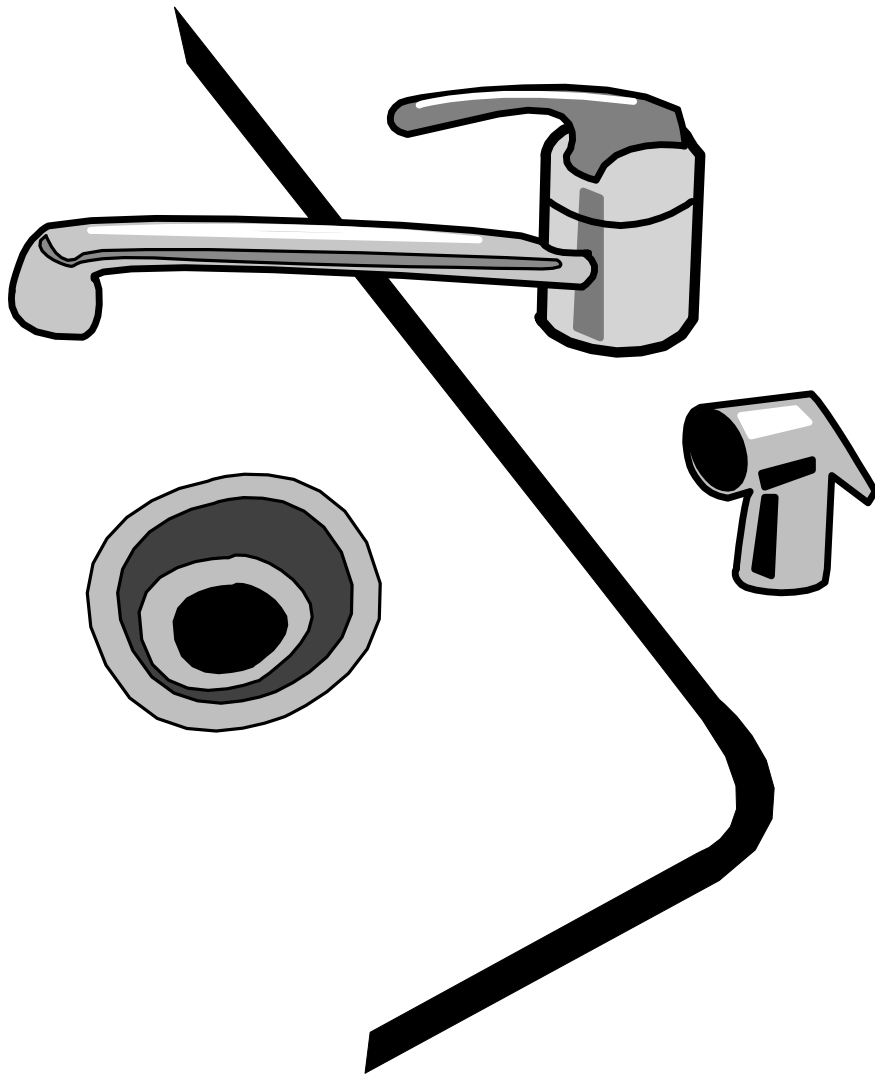


Ice is _____.



Refrigerated water

is _____.



Tap water is _____.

Appendix I

I see a lot of things on a snowy day.

Appendix J

During a storm I _____

_____.

Appendix K

On a windy day, I can _____

_____.

Appendix L

My favorite weather day is a _____
day.