Wonderful, Wild Weather

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First and Second Grade Science

Organizing Question

What is weather and how does it affect us?

Academic Expectations and Demonstrators

Academic Expectation 1--Apply Communication and Math Skills:

- 1.3 Students make sense of the various things they observe.
- 1.16 Students use computers and other kinds of technology to collect, organize, and communicate information and ideas.

Demonstrators for Academic Expectation 1.3

- Observe for a specific purpose

Demonstrators for Academic Expectation 1.16

- Gather and manipulate data using technology.
- Express information and ideas using technology.

Academic Expectation 2--Science:

- 2.2 Students identify, analyze, and use patterns such as cycles and trends to understand past and present events and predict possible future events.
- 2.3 Students identify and analyze systems and the ways their components work together or affect each other.

Demonstrators for Academic Expectation 2.2

- Use senses to observe items; communicate similarities and/or differences.
- Recognize, describe, and create patterns of objects or events.

Demonstrators for Academic Expectation 2.3

- Distinguish between systems and subsystems and describe interactions between them.

Program of Studies--Primary Science:

- S-P-SI-1 – ask simple scientific questions that can be answered through observations.
- S-P-SI-3 – use evidence (e.g., observations) from simple scientific investigations and scientific knowledge to develop reasonable explanations.
- S-P-ESS-3 – the Sun provides the light and heat necessary to maintain the temperature of the Earth.
- S-P-ESS-6 – weather changes from day to day and over the seasons.

Elementary Core Content--Science:

- SC-E-2.2.1 – The Sun provides the light and heat necessary to maintain the temperature of Earth. The Sun's light and heat are necessary to sustain life on Earth.
- SC-E-2.3.2 – Weather changes from day to day and over seasons. Weather can be described by observations and measurable quantities such as temperature, wind direction and speed, and precipitation.

Essential Questions

- What are the different types of weather?
- How do we measure weather?
- How is the weather related to the seasons?
- How are the seasons alike and different?
- How do I prepare for weather and seasons and how do they affect what I do?

Culminating Performance

Students will complete an open response question about a type of weather and preparing for that weather (see below). In groups, they will also create a presentation using a medium of their choice (draw a poster, create a multimedia presentation, make a model, perform a skit, etc.) about one of the seasons. This presentation must demonstrate an understanding of the essential questions as defined by the rubric.

Open Response Question

One morning you wake up and look through your window to see what the weather is outside. Tell what season it is and describe what the weather is like. Draw yourself dressed and ready to go outside on this day. Tell about the clothes you chose and why.

Scoring Guide/Rubric

	Open Response	Presentation Quality	Presentation Content
4	All topics are addressed and all questions answered with at least 2 supporting details about why the clothes were chosen. Picture accurately depicts the student wearing clothing appropriate for the weather. Picture accurately reflects the season they are writing about and adds to the reader's understanding of the topic	Speaks clearly and distinctly all the time. Volume is loud enough to be heard by all audience members throughout the presentation. Student uses several props (could include costume) that show considerable work/creativity and which make the presentation better.	Shows a full understanding of the essential questions. Stays on topic all of the time. Uses vocabulary appropriate for the audience.
3	All topics are addressed and all questions answered with at least 1 supporting detail about why the clothes were chosen. Picture accurately depicts the student wearing clothing appropriate for the weather. Picture accurately reflects the season they are writing about	Speaks clearly and distinctly most the time. Volume is loud enough to be heard by all audience members at least 90% of the time. Student uses 1 prop that shows considerable work/creativity and which make the presentation better.	Shows a good understanding of the essential questions. Stays on topic most of the time. Uses vocabulary appropriate for the audience.
2	All topics are addressed and all questions answered but no supporting details about why the articles were chosen. Picture inaccurately depicts the student wearing clothing appropriate for the weather. Picture somewhat reflects the season they are writing about	Speaks clearly and distinctly some of the time. Volume is loud enough to be heard by all audience members at least 80% of the time. Student uses 1 prop which makes the presentation better.	Shows a good understanding of some of the essential questions. Stays on topic some of the time. Uses vocabulary appropriate for the audience.
1	One or more topics were not addressed. Picture not understandable or not completed. Picture inaccurately reflects the season they are writing about	Often mumbles or can not be understood OR mispronounces more than one word. Volume often too soft to be heard by all audience members. The student uses no props OR the props chosen detract from the presentation.	Does not seem to understand the essential questions very well. It was hard to tell what the topic was. Uses several (5 or more) words or phrases that are not appropriate for the topic.

Evaluation Component

The open response question will be used as the unit assessment. Student performance on this question will determine the effectiveness of the unit. It is hoped that a majority of students will achieve a Distinguished or Proficient rating on the open response, thus indicating that the unit was successful.

Knowledge (Core Content)

Elementary Core Content--Science:

SC-E-2.2.1 – The Sun provides the light and heat necessary to maintain the temperature of Earth. The Sun's light and heat are necessary to sustain life on Earth.

SC-E-2.3.2 – Weather changes from day to day and over seasons. Weather can be described by observations and measurable quantities such as temperature, wind direction and speed, and precipitation.

Technology Standards

- T4.4 Locate information using the Internet
- T5.2 Evaluate information using electronic references
- T5.3 Evaluate information from the Internet
- T5.6 Enter and edit word processing information
- T5.7 Enter and edit spreadsheet information
- T6.1 Select appropriate software for a task.
- T6.5 Create a presentation or product using application software.

Skills/Abilities

- Read weather instruments
- Identify characteristics of different types of weather
- Identify characteristics of different seasons
- Record and graph weather data
- Interpret graphs
- Work cooperatively in groups
- Surf Internet for information
- Use graphing software
- Use presentation software

Instructional Assessment/Activities

Timeline for Unit

Week 1	Science – Whole class KWL chart, Identify characteristics of seasons, Weather instruments, Recording weather (on-going) Language Arts - Weather-related journal topics (on-going)
Week 2	Science – Read weather instruments, Different kinds of weather Math – Graphing weather (on-going) Language Arts – Weather Vocabulary Social Studies – How seasons affect activities, How weather affects our lives
Week 3	Science – Weather research for final project Social Studies – Weather related jobs, Practical Living – How weather affects health
Week 4	Science – Work on final project, Present projects, Morning News Weather Report

Lesson Goals

Unit Introduction (Week 1 and 2)

Objective: Students will learn the basic concepts surrounding seasons and weather.

Description:

Activity 1: Students will be able to choose from a wide variety of books about weather and scan for interesting information or something they do not know. Class will write down questions or facts onto a strip of paper and staple to bulletin board as a shared writing activity.

Activity 2: Groups will pick a season and identify as many characteristics about a chosen season.

1. Draw a big circle.
2. Write *Spring, Summer, Fall,* and *Winter* on the circle.
3. Cut out pictures showing things that happen in a season.
4. Match each picture to a season. Some clues are:
    a. kinds of clothes
    b. games
    c. holidays
5. Glue the pictures on the circle.

Activity 3: Classes will walk around the school grounds taking pictures with a digital camera of seasonal changes and weather-related items. As the students are walking they will record casual observations onto a clipboard about the weather (hot, cold,

windy, etc.). This will lead into journals about weather topics during language arts time.

Assessment: Class will then complete a KWL Chart on seasons and weather.

Share the Poster of circles –

- Describe the clues that match each picture to a season.
- Tell a story about your favorite season.

Journal Entries

Recording the Weather (Week 1 and 2)

Objective: Students will learn about the weather instruments and how to record and chart the weather.

Description:

Activity 1: Class will create a weather word wall and/or weather dictionary to learn about different terms and objects related to weather.

Activity 2: For each day the class will draw a picture of the weather condition and record it on their weather chart. The teacher will also record the data on a larger weather chart. The students will transfer the data onto a paper bar graph. At the end of the three weeks use Graph Club to record and interpret the data.

Activity 3: Class will visit www.weather.com to find the weather forecast and current temperature at Lexington. Compare this with the observed conditions.

Assessment: Use of vocabulary in journal entries.

Graph Club results and interpretation of the data.

Draw current temperature into thermometers.

Different Kinds of Weather (Week 2)

Objective: Students will learn about different types of weather.

Description:

Activity 1: Class will use computer and SmartBoard to group/match descriptions of weather to labels. This could use SmartNotebook or Kidspiration.

Activity 2: Read Franklin and the Thunderstorm. Class will create a storm mini-book and read that with a partner. There will be at least one journal entry about storms.

Assessment: Matching answers

Journal entries

How Weather Affects Us (Week 2)

Objective: Students will learn how they need to prepare for different types of weather.

Description:

Activity 1: Students will group different pictures of clothing based upon the daily weather. They will then make their own groups and have other students try to determine the grouping criteria.

Activity 2: Students will draw a seasonal weather condition out of a hat. They will either draw clothing onto a paper person or make clothing out of construction paper.

Activity 3: Students will compare climate and weather of different parts of the country. The teacher will use the projector and www.weather.com to display different weather conditions. Groups will record data for their particular location. Whole class comparisons will be made between weather/climate of different locations. The groups will come up with some ideas of how weather affects living in certain places.

Assessment: clothing groups

Color/cover paper person

Persuasive piece on living (or not living) in a particular location

Weather drill

Weather Related Jobs (Week 3)

Objective: Students will learn about different weather related jobs.

Description: A meteorologist will come in to talk about weather jobs.

Assessment: Students will have questions to ask the presenter and write a thank you note to send.

How Weather Affects Health (Week 3)

Objective: Students will learn how the weather can affect our health.

Description:

Activity 1: Class will cover some weather safety rules. Class will practice a severe weather drill.

Activity 2: A presenter (school nurse possibly) will come to the class to talk about how we need to prepare for the weather to keep healthy.

Assessment: Weather Drill

Journal entry

Weather Research (Week 3)

Objective: Students will gather information on a weather topic.

Description: Students will identify weather terms related to their particular topic. They will gather information that has been previously covered in class and separate the information they need. Students may also find additional information from outside sources if they wish. If they are doing a multimedia presentation, they need to find appropriate pictures or clipart on the computer as well.

Assessment: Collection of information

Final Project (Week 4)

Objective: Students will demonstrate what they have learned about seasons and weather.

Description:

Activity 1: Create Final Project

Activity 2: Present Final Project

Assessment: Final Project and Open Response

Weather Report (Week 4)

Objective: Students will demonstrate what they know about weather.

Description: Groups of students will give the weather report on the WJRE morning news show. The time frame will depend upon the taping schedule for the morning news program and will be finalized at a later date.

Assessment: Weather report

Critical Resources

- www.weather.com
- www.weatherunderground.com
- http://www.makingfriends.com/f_Friends.htm
- http://www.teachersfleamarket.com/lessons/science/weather/PDF_Files/weather.pdf
- http://www.nationalgeographic.com/xpeditions/lessons/07/gk2/weathertoday.html
- http://www.whnt19.com/kidwx
- http://www.ems.psu.edu/WeatherWorld/kidstuff
- http://www.wiarton-willia.org/kids.htm
- http://www.nwlink.com/~wxdude
- Katy No-Pocket by Emily Payne
- A Pair of Socks by Stuart Murphy
- The Mitten by Jan Brett
- Caps, Hats, Socks, Mittens by L. Borden
- The Jacket I Wear in the Snow by Nietzel
- Uncle Nacho's Hat by H. Rohmer
- Seasons by Gail Gibbons
- A Busy Year by Leo Lionni
- Little Cloud by Eric Carle
- The Cloud Book by Tomie dePaola
- The Wind Blew by Pat Hutchins
- The Snowy Day by Ezra Jack Keats
- Amy Loves a Rainy Day by
- It Looks Like Spilt Milk by
- Cloudy w/a Chance of Meatballs by

- The Rain Came Down by
- Franklin and the Thunderstorm by
- Thunder Cake by Patricia Polaco
- Digital Camera
- Laptop/Projector
- SmartBoard and SmartNotebook
- PowerPoint
- Kidspiration
- GraphClub
- Internet
- Meteorologist
- School Nurse
- TRT