Unit 5: Weather

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Title Section

Department of Curriculum and Instruction

Belleville Public Schools

Curriculum Guide

Science, GRADE K

Unit 5: Weather

Belleville Board of Education

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Unit Overview

In this unit, children will:

- use observations to describe different kinds of weather
- explore observable weather patterns
- use patterns as evidence to describe weather conditions
- ask questions to find out about different kinds of weather
- explore technologies meteorologists use to predict weather and severe weather conditions

Performance Expectations:

- ESS2-1 Use and share observations of local weather conditions to describe patterns over time.
- ESS3-2 Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather

Unit Vocabulary:

1. weather pattern
2. season
3. temperature
4. severe weather
5. weather forecast

Unit Project: Local Weather Forecasts

Lesosn 1: How Can We Observe Weather Patterns?

Lesson 2: How Can We Measure Weather?

Lesson 3: Engineer It- What Are Kinds of Severe Weather?

Lesson 4: Engineer It- How can Forecasts Help Us?

Enduring Understanding

- Weather can change from day to day.
- A weather pattern is a change in weather that repeats.
- A season is a time of year that has a certain kind of weather.
- A year has four seasons: spring, summer, fall, winter.
- The four seasons are a pattern.
- A meteorologist is a scientist that studies the weather.
- Weather can be measured using different tools.
- Temperature is how hot or cold something is.
- A thermometer measures temperature.
- Severe weather is weather that is very stormy (thunderstorm, blizzard, tornado, hurricane).
- People can plan for severe weather.

- A weather forcast is a prediction of what the weather will be like.

Essential Questions

Lesson 1:

- How can we observe weather patterns?

Lesson 2:

- How can we measure weather?

Lesson 3:

- What are kinds of severe weather?

Lesson 4:

- How can forecasts help us?

Unit Project:

- How accurate is the weather forecast?
- What parts of weather does a forecast include?
- What evidence can be collected to find out if a weather forecast is accurate?
- What pattern will occur when you compare a forecast with the actual weather?

Exit Skills

By the end of Grade K Unit 5, the student should be able to:

- describe kinds of weather and weather patterns
- explain how to measure weather
- describe patterns for different kinds of severe weather
- explain how to get ready for severe weather

New Jersey Student Learning Standards (NJSLS-S)

SCI.K-ESS3-2	Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.
SCI.K-ESS2-1	Use and share observations of local weather conditions to describe patterns over time.

Interdisciplinary Connections

Math

Language Arts

MA.K.CC.A	Know number names and the count sequence.
MA.K.CC.A.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
MA.K.CC.B.5	Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
MA.K.CC.C	Compare numbers.
MA.K.CC.C.7	Compare two numbers between 1 and 10 presented as written numerals.
LA.RI.K.1	With prompting and support, ask and answer questions about key details in a text.
MA.K.MD.A.2	Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference.
MA.K.MD.B	Classify objects and count the number of objects in each category.
LA.W.K.2	Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
LA.W.K.7	Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).
LA.SL.K.3	Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

Learning Objectives

Lesson 1:

- SWDAT analyze patterns in weather over time.

Hands-On Activity 1: SWDAT explore patterns in changes in local weather conditions.

Lesson 2:

- SWDAT measure and observe weather in order to identify patterns in local weather.

Hands-On Activity 2: SWDAT collect weather data and describe patterns when making observations.

Lesson 3:

- SWDAT determine patterns in different types of sever local weather.

Hands-On Activity 3: SWDAT mimic the sound of thunder using a model.

Lesson 4:

- SWDAT generate ways to prepare for severe weather using information from text and images.

Hands-On Activity 4: SWDAT construct a plan for a weater safety kit for severe weather.

You Solve It:

- SWDAT collect weather data.
- SWDAT analyze weather data to identify patterns over time.

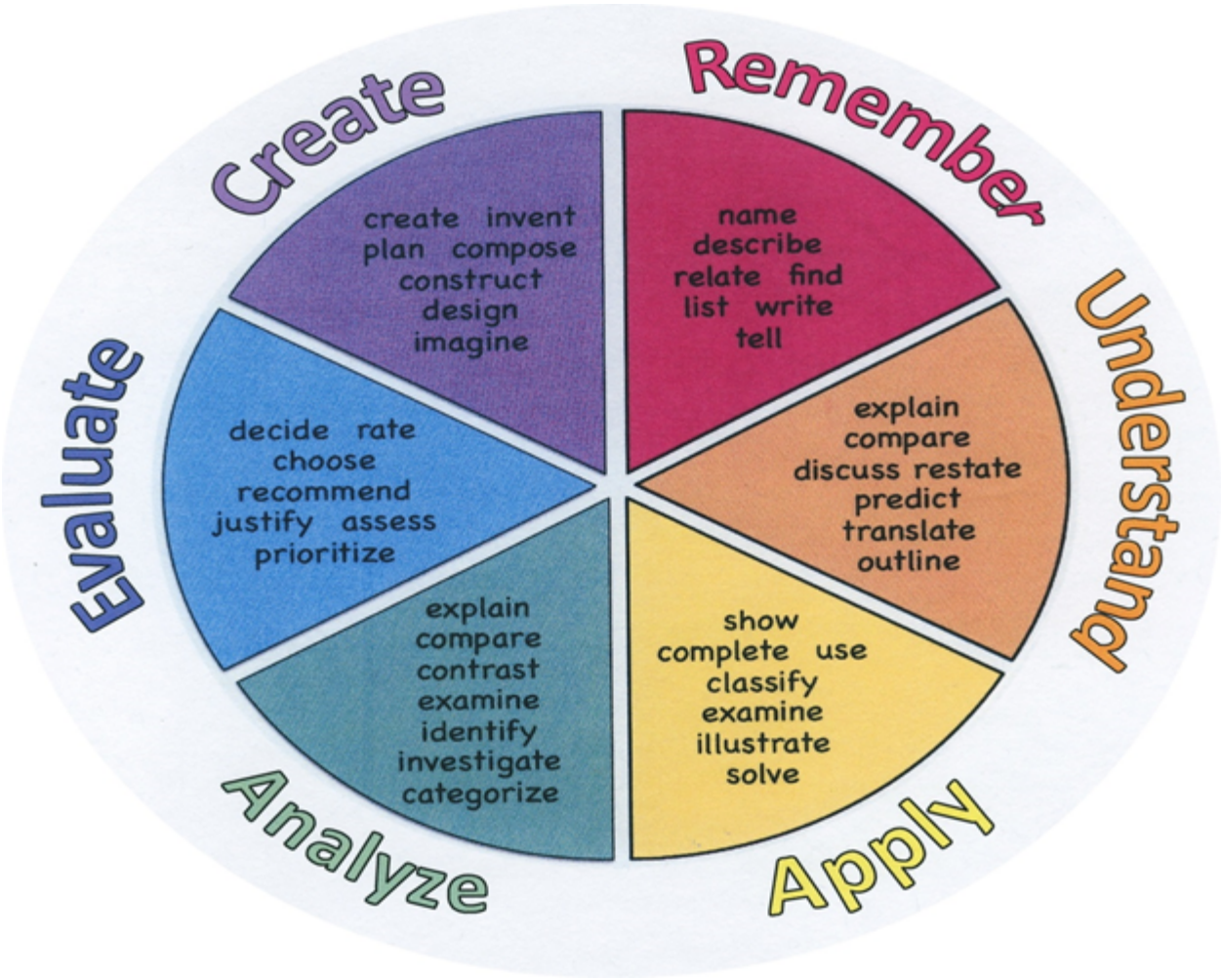
- SWDAT make decisions about problems based on patterns in weather.

Unit Project:

- SWDAT compare local weather forecasts with the actual weather to determine when the forecasts are accurate and when they are not.
- SWDAT construct an argument to support a claim.

Action Verbs: Below are examples of action verbs associated with each level of the Revised Bloom's Taxonomy.

Remember	Understand	Apply	Analyze	Evaluate	Create
Choose	Classify	Choose	Categorize	Appraise	Combine
Describe	Defend	Dramatize	Classify	Judge	Compose
Define	Demonstrate	Explain	Compare	Criticize	Construct
Label	Distinguish	Generalize	Differentiate	Defend	Design
List	Explain	Judge	Distinguish	Compare	Develop
Locate	Express	Organize	Identify	Assess	Formulate
Match	Extend	Paint	Infer	Conclude	Hypothesize
Memorize	Give Examples	Prepare	Point out	Contrast	Invent
Name	Illustrate	Produce	Select	Critique	Make
Omit	Indicate	Select	Subdivide	Determine	Originate
Recite	Interrelate	Show	Survey	Grade	Organize
Select	Interpret	Sketch	Arrange	Justify	Plan
State	Infer	Solve	Breakdown	Measure	Produce
Count	Match	Use	Combine	Rank	Role Play
Draw	Paraphrase	Add	Detect	Rate	Drive
Outline	Represent	Calculate	Diagram	Support	Devise
Point	Restate	Change	Discriminate	Test	Generate
Quote	Rewrite	Classify	Illustrate		Integrate
Recall	Select	Complete	Outline		Prescribe
Recognize	Show	Compute	Point out		Propose
Repeat	Summarize	Discover	Separate		Reconstruct
Reproduce	Tell	Divide			Revise
	Translate	Examine			Rewrite
	Associate	Graph			Transform
	Compute	Interpolate			
	Convert	Manipulate			
	Discuss	Modify			
	Estimate	Operate			
	Extrapolate	Subtract			
	Generalize				
	Predict				



Suggested Activities & Best Practices

Vocabulary Game - Act it Out!

Hands-On Activites - Observing Patterns in Weather; Measuring Weather with Tools; Model Thunder; Plan a Severe Weather Safety Kit

You Solve It Virtual Lab - Plan a Trip!

Unit Project - Local Weather Forecasts

Performance Task - Changing Temperatures

Take it Further - Tools Used to Predict Weather

Assessments

- Pre-Assessment
- Formative: interactive workbook, apply what you know, lesson check/self check
- Summative: assessment guide, lesson quizes, unit test
- Online Assessment

Evidence of Student Learning - Checking for Understanding (CFU)

- Admit Tickets
- Anticipation Guide
- Common benchmarks
- Compare & Contrast
- Create a Multimedia Poster
- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar
- Study Guide
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit tests

Primary Resources & Materials

HMH Science Dimensions- Teacher Edition, Student workbook, online resources (including professional development videos)

HMH Online Handbook

Equipment Kits

Safety Kit

HMH Science Dimensions leveled readers

Ancillary Resources

online resources

Science Weekly

Scholastic News

National Geographic Kids

Technology Infusion

HMH Science Dimensions digital component

Computer based assessments

Alignment to 21st Century Skills & Technology

Mastery and infusion of **21st Century Skills & Technology** and their Alignment to the core content areas is essential to student learning. The core content areas include:

- English Language Arts;
- Mathematics;
- Science and Scientific Inquiry (Next Generation);
- Social Studies, including American History, World History, Geography, Government and Civics, and Economics;
- World languages;
- Technology;

- Visual and Performing Arts.

21st Century Skills/Interdisciplinary Themes

- Communication and Collaboration
- Creativity and Innovation
- Critical thinking and Problem Solving
- ICT (Information, Communications and Technology) Literacy
- Information Literacy
- Life and Career Skills
- Media Literacy

21st Century Skills

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy
- Global Awareness
- Health Literacy

Differentiation

Leveled Readers (On Level, Extra Support, Enrichment)

Reinforce Vocabulary- Help students connect vocabulary to real world examples.

RTI/Extra Support- Provide additional opportunites for hands-on discovery.

Extension Activity for enrichment

ELL- Provide hands-on examples of important concepts (ELL support resources include a glossary in English and Level Readers in Spanish and English)

Differentiations:

- Small group instruction
- Small group assignments
- Extra time to complete assignments
- Pairing oral instruction with visuals
- Repeat directions
- Use manipulatives
- Center-based instruction
- Token economy
- Study guides
- Teacher reads assessments allowed
- Scheduled breaks
- Rephrase written directions
- Multisensory approaches
- Additional time
- Preview vocabulary
- Preview content & concepts
- Story guides
- Behavior management plan
- Highlight text
- Student(s) work with assigned partner
- Visual presentation
- Assistive technology
- Auditory presentations
- Large print edition
- Dictation to scribe

- Small group setting

Hi-Prep Differentiations:

- Alternative formative and summative assessments
- Choice boards
- Games and tournaments
- Group investigations
- Guided Reading
- Independent research and projects
- Interest groups
- Learning contracts
- Leveled rubrics
- Literature circles
- Multiple intelligence options
- Multiple texts
- Personal agendas
- Project-based learning
- Problem-based learning
- Stations/centers
- Think-Tac-Toes
- Tiered activities/assignments
- Tiered products
- Varying organizers for instructions

Lo-Prep Differentiations

- Choice of books or activities
- Cubing activities
- Exploration by interest
- Flexible grouping
- Goal setting with students
- Jigsaw
- Mini workshops to re-teach or extend skills
- Open-ended activities
- Think-Pair-Share
- Reading buddies
- Varied journal prompts
- Varied supplemental materials

Intervention Strategies

- allowing students to correct errors (looking for understanding)
- teaching key aspects of a topic. Eliminate nonessential information

- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning
- allowing students to select from given choices
- allowing the use of note cards or open-book during testing
- collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test.
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- marking students' correct and acceptable work, not the mistakes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using authentic assessments with real-life problem-solving
- using true/false, matching, or fill in the blank tests in lieu of essay tests
- using videos, illustrations, pictures, and drawings to explain or clarify

Special Education Learning

- printed copy of board work/notes provided
- additional time for skill mastery
- assistive technology
- behavior management plan
- Center-Based Instruction
- check work frequently for understanding
- computer or electronic device utilizes
- extended time on tests/ quizzes
- have student repeat directions to check for understanding
- highlighted text visual presentation
- modified assignment format
- modified test content
- modified test format
- modified test length
- multiple test sessions
- multi-sensory presentation

- preferential seating
- preview of content, concepts, and vocabulary
- reduced/shortened reading assignments
- Reduced/shortened written assignments
- secure attention before giving instruction/directions
- shortened assignments
- student working with an assigned partner
- teacher initiated weekly assignment sheet
- Use open book, study guides, test prototypes

English Language Learning (ELL)

- teaching key aspects of a topic. Eliminate nonessential information
- using videos, illustrations, pictures, and drawings to explain or clarif
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning;
- allowing students to correct errors (looking for understanding)
- allowing the use of note cards or open-book during testing
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using computer word processing spell check and grammar check features
- using true/false, matching, or fill in the blank tests in lieu of essay tests

Sample Lesson