



Saving Our Community from
Rising Water

A STEMbl Problem Based Learning Unit
For grades K-5

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Severe Weather STEMbl Unit

Problem to Solve:

Our community has problems with rising water from the nearby river/lake/ocean that will eventually flood the city. Severe storms contribute to increases in the water level.

1. What can we do to keep our community safe?
2. What do we need to know to find solutions?
3. How can we help people in our community be safe in severe weather? (severe thunderstorms, tornadoes in our area)

Questions to Guide Learning Tasks:

1. What do we need to know to make predictions about the weather?
2. Why is it important to be able to predict the weather?
3. What is severe weather?
4. How does severe weather affect humans and our environment?
5. How can people protect themselves and their communities from the effects of severe weather?
6. How can we communicate the problems and solutions to the citizens of our community?

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Overview

This severe weather PBL is designed to be implemented over several weeks. The PBL encompasses all subjects through research, reading, writing, observing, experimenting, designing, modifying, and analyzing data.

Introduction of the PBL

The Project starts with a problem:

“Our community has a problem with rising water that will eventually flood the city. Severe storms contribute to the increase in the water level.

What can we do to keep our city safe?

What do we need to know to find solutions?

How can we help people in our community be safe in severe weather events?”

After the problem is introduced the students will complete a variety of tasks which will enable them to learn about local weather, weather around the world, climate, and severe weather. Throughout the project the teacher will frontload the necessary scientific, mathematical, and ELA skills and information the students will need to be successful while completing their tasks.

Ongoing Formative Assessments:

Rubrics for student products are included to assess progress and modify as the students move through the PBL. The rubrics can also be modified and differentiated for groups of students or individual students.

Formative assessments will be completed based on student reading, writing, and completion of work products.

Summative Assessment:

Summative assessments will be conducted via completion of each task. Teachers will be able to determine level of student learning and mastery of standards based on the analysis of students' work products delivered at the end of each task.

The Heart of the Project

There are several student tasks/work products designed to ensure students are immersed in studying and solving the original problem. Students will be learning important scientific, social studies, language arts, and math standards while making important connections to the real world. Students will begin by asking questions about weather, researching the answers to those questions, and communicating with experts to find more answers. Students will also be asked to observe the local weather and record data about those observations. Students will synthesize their learning and report what they know through by designing brochures to



distribute throughout the community, writing letters to city council for their levee design and funding, writing morning announcements to educate other students in the building about severe weather safety, and finally, designing, building, and modifying their own levee system.

Project Based Learning Units lend themselves to differentiation for teachers as well as students. All of the tasks can be modified for different grade levels, different learning styles, and different skills development. The differentiation determinations are best left up to the teachers conducting this Project Based Learning Unit. However, ideas for differentiation are included in some tasks. Teachers can pick and choose tasks from the PBL to fit their needs or choose to do the whole PBL from start to finish. The hope for the project is to fully engage students in learning, awaken their senses to the needs of their own communities, develop awareness of global issues and help them develop perseverance and problem solving.

A Note on Differentiation:

The severe weather PBL lends itself very well to differentiation throughout the project. Below are just a few examples of how a teacher could differentiate the lessons:

1. The PBL nature of the unit lends itself to student choice (with the teacher's guidance). This, within itself, will lead to differentiation.
2. The students' final products can be differentiated based on interest and/or ability. For example, make a poster, brochure, power point, model, diagram, etc.
3. The nature of the PBL also lends itself to students using different materials to develop their final product.
4. Use leveled readers in small groups to further discuss weather in general or severe weather.
5. Provide different forms for research based on students' needs.
6. Provide many visuals for ELL students. PowerPoints, made by the teacher, will provide many visual examples of severe weather.
7. Differentiate the final product based on the students' individual needs. For example: If the student is making a brochure about severe weather, some students may be able to use an online program to create the brochure while others use pencil and paper to draw and write to make a brochure.
8. The Rubrics to determine a score for the final product could be differentiated to meet different needs and specifically address skills on which particular students are focused. (Rubrics that can be used or modified are included in the resource section.)



Task 1: Learn About Weather and Climate

Guiding questions: What do we need to know to make predictions about the weather?

Why is it important to be able to predict the weather?

What is severe weather?

1. Ask students what they want to learn about daily weather, climate, and severe weather.
 - A. Record ALL answers on chart paper or digital tool (ie: Flipchart, Word/Google doc, OneNote Notebook, Padlet, etc.)
 - B. Prune and combine questions to manageable number and relevancy.
 - C. Have students answer their collaborative questions in a research journal to be kept either in a paper notebook or digitally. To meet ELA writing and language standards students should answer in complete and correct sentences.
 - i. Answers could be found in texts from the school library, classroom library, online resources, and/or visiting experts
 - ii. Because student read at different reading levels, collaboration should be encouraged to help ALL students find and record answers to all the questions.
 - D. Pull out all necessary grade level specific vocabulary for students to either:
 - i. collaboratively define and record for a whole class glossary, or
 - ii. define in their personal weather journals in a personal weather glossary

Differentiation Ideas: Teachers should have specific questions and vocabulary in mind for all students to answer. However, certain students could be required to only answer the most important of those questions, or for advanced learners, come up with their own questions to research.



2. Use an Anchor Text to kick off the unit. Some suggestions are: (see resource pages for detailed information)
 - A. Texts:
 - i. A Storm Called Katrina
 - a. Read aloud version available on YouTube
 - ii. On the Same Day in March: A Tour of the World's Weather
 - a. Read aloud version available on YouTube
 - B. A list of other potential anchor texts is included on the resource section
 - C. Discovery Education has a complete unit on Severe Weather in the Science Techbook. The unit includes pieces that can be used as whole class or individual assignments
 - D. Reading Rainbow: Come a Tide on Discovery Education and YouTube.
 - E. Included in the resource section is a skeleton for a "Severe Weather PowerPoint" which can be used as for an introduction to the PBL.

Differentiation Ideas: Teachers should look for numerous books on severe weather at different reading levels and incorporate them into small group guided reading. Students could use those books to help them complete Task 2 and collaborate with their classmates to find answers. Teachers could also break the class into groups have each group research and report on one specific severe weather event. Then, using the jigsaw method, have each group report to the whole class on their findings.

Task 2: Observe the Weather

Guiding question: What do we need to know to make predictions about the weather?

One of the best ways to predict the weather is to observe the weather every day. Over time, patterns will begin to appear. These patterns will give us clues to how weather may be in the future.

Your task is to observe and record the weather in a "Weather Journal." You will use the included calendar/journal template to record your observations. Each day you will need to write down these weather observations:

1. What does the sky look like? What does the air feel like?
 - A. Draw and/or identify the clouds you see, or don't see, in the sky.
 - B. Write a short sentence telling about the precipitation you see and/or feel.
 - C. Write a short sentence about how the air feels.
 - D. Use a thermometer, weather app, or weather website to find the low and high temperatures for the day.
 - E. Use an anemometer, weather vane, weather app, or weather website to record the windspeed, gust speed, and direction.



Differentiation Ideas: Each of the aforementioned ideas could be differentiated or left out depending on grade level and/or students' skill level. Teachers may also want to invest in a classroom weather station to record on-the-spot weather observations.

2. Make predictions about the weather.

After about a week you should look back at what your observations and start to make predictions. Look at the observations from the previous day and compare and contrast the data for the next day. Look for patterns, look for cause and effect, then make a prediction about what will happen next. Continue to do this throughout the length of the project.

- A. Write your predictions in a "Weather Journal." Use correct sentence form and details to provide evidence to support your predictions.

Differentiation Ideas: A class "Weather Journal" could be kept for K – 1 students. This would serve as a way to incorporate modeled writing into the project. Older students can keep personal or small group "Weather Journals" where they will write their observations and predictions.

3. Make graphs to record and display weather conditions.

Differentiation Idea: Depending on the grade level graphs could be individual or whole-class and include:

- A. High temperature
- B. Low temperature
- C. Temperature range
- D. Clouds in the sky
- E. Amount and type of precipitation

Task 3: Ask Experts About Studying and Forecasting Weather

Guiding questions: What do we need to know to make predictions about the weather?

Why is it important to be able to predict the weather?

What is severe weather?

There are numerous local and regional experts to help students learn about weather and weather forecasting. Many of these experts could be scheduled to present to your class either in person or through video connections such as Skype. Some of these experts can be located by contacting the local and regional offices below.

1. Television station meteorologists
2. Offices of the National Weather Service
3. Offices of the National Oceanic and Atmospheric Administration
4. Universities and College professors and students
 - a. Campus Ask a Scientist chapters



Students should write specific questions to ask the expert to help them learn about weather. Questions could be from Task 2 that they have not been able to find answers to in their research. Or, questions could be new that arise through research or current events. Questions can be used to evaluate student mastery of ELA writing and speaking and listening standards.

Task 4: Design and Publish a Severe Weather Safety Brochure

Guiding questions: What is severe weather?

How does severe weather effect humans and their environment?

How can people protect themselves & their communities from the effects of severe weather?

How can we communicate the problems and solutions to the citizens of our community?

Students take what they have learned in tasks 1 – 3 and convert that information into a brochure to be distributed. Students should work in groups of about 3 or 4. Each student should work on the design and writing of the brochure. Each group will create a brochure about one severe weather event. Students will use a digital composition tool to create the brochure: ie: Word, Google Docs, Publisher, etc.

The choices could be based on the severe weather events that occur in the local area. However, student groups could also select severe weather events that have appeared in current events.

The list below provides examples for students to choose from:

1. Thunderstorms
2. Tornadoes
3. Snow/ice storms
4. Blizzards
5. Hurricanes
6. Flooding
7. Forest Fires
8. Drought
9. Any other severe weather events the teacher/class choose

Suggested brochure criteria:

1. Define the severe weather event using complete and correct sentences.
2. Include accurate pictures of the severe weather event, ways to prepare, keep safe, and help during and after the event.
3. Tell the effects of the severe weather event on people and communities.
 - a. Dangers to people (including access to clean water and food)
 - b. Effects on buildings and infrastructure (roads, electrical grid, communications grid, etc.)
4. Tell what people can do to prepare themselves for the severe weather event.
5. Tell how people can prepare buildings and infrastructure for the severe weather event.
6. Tell how people can keep themselves safe during the severe weather event.
7. Tell how people can help their neighbors after the severe weather event.
8. Tell people how to contact local and national relief organizations: ie: Red Cross



Task 5: Write Severe Weather Facts to Broadcast Over School Announcements

Guiding questions: What is severe weather?

Why is it important to be able to predict the weather?

How does severe weather effect humans and their environment?

How can people protect themselves & their communities from the effects of severe weather?

How can we communicate the problems and solutions to the citizens of our community?

***Differentiation Ideas:** This task could be done in lieu of Task 4 or in addition to Task 4. Students could work in small groups to write and present the scripts. Students could also film the delivery of the scripts and upload them to a cloud drive to share with the school.*

Students should write scripts for broadcasting over school announcements. These announcements will tell facts about the different types of severe weather.

Announcement criteria:

1. Name and define the severe weather event
2. Tell at least 5 facts about the event
 - a. What causes the event
 - b. What the effects of the event are on people and communities
 - c. The season the event usually occurs
 - d. Ways to stay safe during the event

Task 6: Design and Test Levee Models to Prevent Flooding of the Community

How can we communicate the problems and solutions to the citizens of our community?

How can people protect themselves & their communities from the effects of severe weather?

This task will help students solve the problem posed at the beginning of the unit. Students will need to research levee designs and materials used for construction. Students can construct a small model of a city from everyday materials such as: Legos, boxes, paper, etc.

Each student group should have a plastic tub in which to construct and test their levee designs.

There are a few different locations on the web to begin looking into STEM lessons focused on levee construction and testing:

https://www.teachengineering.org/activities/view/cub_weather_lesson05_activity1

http://teachingcommons.cdl.edu/ngss/engineering_design/documents/MunnLeveeAct.pdf

<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=7&cad=rja&uact=8&ved=0ahUKEwjD7PfZ45jXAhXOxyYKHbdbA->



[UQFghGMAY&url=http%3A%2F%2Fatlantasciencefestival.org%2Fsites%2Fdefault%2Ffiles%2F5th_6th_Levees.pdf&usg=AOvVaw3DHTeBBPAFQESax4kDteRI](http://atlantasciencefestival.org/sites/default/files/5th_6th_Levees.pdf&usg=AOvVaw3DHTeBBPAFQESax4kDteRI)

Teachers Pay Teachers has some levee building resources

Differentiation Ideas: Using information from the lessons above and the background information in the resources tab find the lesson construction that works best for you and your class.

Math and Social Studies Standards Integration Extensions: This task could be used to integrate mathematics standards as well as social studies standards around supply and demand. The teacher could set up a supply depot from which student groups purchase materials to construct their levees. The teacher would set the prices and provide the money necessary for students to begin purchasing materials. Discussing on how the local government must pay for supplies to purchase needed community assets and making a budget for those purchases would enable students to learn a real-life lesson on how communities function.

Task 7: Write a Persuasive Letter to Local Government Urging Construction of a New Levee.

How can we communicate the problems and solutions to the citizens of our community?

How can people protect themselves & their communities from the effects of severe weather?

This task is the culmination of the project and will require students to their write their local government leaders about the need for a new levee to save the community from the rising water levels. Students will need to write a convincing argument as to why this is needed using facts they've learned from research and design process throughout the project.

Differentiation Ideas: Depending on grade level and student skill levels, Teachers could have the students write as individuals, small groups, or as a whole class. Students could also make a presentation to show at a "city council" meeting to help convince the government of the need.

Extension Idea: Invite local government leaders and local weather experts to come into the school to hear the students read their letters or show their presentations.



Grade K-4 Standards Potentially Covered by this PBL

New TN Science Standards

Kindergarten:

K.ESS2: Earth's Systems:

- 1) Analyze and interpret weather data (precipitation, wind, temperature, cloud cover) to describe weather patterns that occur over time (hourly, daily) using simple graphs, pictorial weather symbols, and tools (thermometer, rain gauge).
- 2) Develop and use models to predict weather and identify patterns in spring, summer, autumn, and winter.

K.ESS3: Earth and Human Activity

- 1) Use a model to represent the relationship between the basic needs (shelter, food, water) of different plants and animals (including humans) and the places they live.
- 2) Explain the purpose of weather forecasting to prepare for, and respond to, severe weather in Tennessee.
- 3) Communicate solutions that will reduce the impact from humans on land, water, air, and other living things in the local environment.

K.ETS1: Engineering Design

- 1) Ask and answer questions about the scientific world and gather information using the senses.
- 2) Describe objects accurately by drawing and/or labeling pictures.

K.ETS2: Links Among Engineering, Technology, Science, and Society

- 1) Use appropriate tools (magnifying glass, rain gauge, basic balance scale) to make observations and answer testable scientific questions.

Second Grade:

2.ESS1: Earth's Place in the Universe

- 1) Recognize that some of Earth's natural processes are cyclical, while others have a beginning and an end. Some events happen quickly, while others occur slowly over time.

2.ESS2: Earth's Systems

- 1) Compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
- 2) Observe and analyze how blowing wind and flowing water can move Earth materials (soil, rocks) from one place to another, changing the shape of a landform and affecting the habitats of living things.



- 3) Compare simple maps of different land areas to observe the shapes and kinds of land (rock, soil, sand) and water (river, stream, lake, pond).
- 4) Use information obtained from reliable sources to explain that water is found in the ocean, rivers, streams, lakes, and ponds, and may be solid or liquid.

2.ETS1: Engineering Design

- 1) Define a simple problem that can be solved through the development of a new or improved object or tool by asking questions, making observations, and gather accurate information about a situation people want to change.
- 2) Develop a simple sketch, drawing, or physical model that communicates solutions to others.
- 3) Recognize that to solve a problem, one may need to break the problem into parts, address each part, and then bring the parts back together
- 4) Compare and contrast solutions to a design problem by using evidence to point out strengths and weaknesses of the design.

2.ETS2: Links Among Engineering, Technology, Science, and Society

- 1) Use appropriate tools to make observations, record data, and refine design ideas.
- 2) Predict and explain how human life and the natural world would be different without current technologies.

Third Grade:

3.ESS2: Earth's Systems

- 1) Explain the cycle of water on Earth.
- 2) Associate major cloud types (nimbus, cumulus, cirrus, stratus) with weather conditions.
- 3) Use tables, graphs, and tools to describe precipitation, temperature, and wind (direction and speed) to determine local weather and climate.
- 4) Incorporate weather data to describe major climates (polar, temperate, tropical) in different regions of the world.

3.ESS3: Earth and Human Activity

- 1) Explain how natural hazards (fires, landslides, earthquakes, volcanic eruptions, floods) impact humans and the environment.
- 2) Design solutions to reduce the impact of natural hazards (fires, landslides, earthquakes, volcanic eruptions, floods) on the environment.

3.ETS1: Engineering Design

- 1) Design a solution to a real-world problem that includes specified criteria for constraints.



2) Apply evidence or research to support a design solution.

3.ETS2: Links Among Engineering, Technology, Science, and Society

1) Identify and demonstrate how technology can be used for different purposes.

Old TN Science Standards

0307.8.1 Recognize that there are a variety of atmospheric conditions that can be measured.

0307.8.2 Use tools such as the barometer, thermometer, anemometer, and rain gauge to measure atmospheric conditions.

0307.8.3 Identify cloud types associated with particular atmospheric conditions.

0307.8.4 Predict the weather based on cloud observations.

New TN Social Studies Standards

K-2 Social Studies Process Standards

SSP.01: Gather information from a variety of sources, including:

- Printed materials (e.g., literary texts, newspapers, political cartoons, autobiographies, speeches, letters, personal journals)
- Graphic representations (e.g., maps, timelines, charts, artwork)
- Artifacts
- Media and technology sources

SSP.02: Critically examine a primary or secondary source in order to:

- Summarize significant ideas and relevant information
- Distinguish between fact and opinion
- Draw conclusions
- Recognize author's purpose and point of view

SSP.03: Organize data from a variety of sources in order to:

- Compare and contrast multiple sources
- Recognize differences between multiple accounts
- Frame appropriate questions for further investigation

SSP.04: Communicate ideas supported by evidence to:

- Demonstrate an understanding of ideas
- Compare and contrast viewpoints
- Predict outcomes
- Illustrate cause and effect

SSP.05: Develop historical awareness by:

- Sequencing past, present, and future in chronological order



- Understanding that things change over time

SSP.06: Develop geographic awareness by:

- Identifying geographic symbols on maps and globes
- Understanding relationships between people, places, and resources

3-5 Social Studies Process Standards

SSP.01: Gather information from a variety of primary and secondary sources, including:

- Printed materials (e.g., literary texts, newspapers, political cartoons, autobiographies, speeches, letters, personal journals)
- Graphic representations (e.g., maps, timelines, charts, artwork)
- Artifacts
- Media and technology sources

SSP.02: Critically examine a primary or secondary source in order to:

- Summarize significant ideas and relevant information
- Distinguish between fact and opinion
- Draw inferences and conclusions
- Recognize author's purpose, point of view, and reliability

SSP.03: Organize data from a variety of sources in order to:

- Compare and contrast multiple sources
- Recognize differences between multiple accounts
- Frame appropriate questions for further investigation

SSP.04: Construct and communicate arguments supported by evidence to:

- Demonstrate and defend an understanding of ideas
- Compare and contrast viewpoints
- Illustrate cause and effect
- Predict likely outcomes
- Devise new outcomes or solutions

SSP.05: Develop historical awareness by:

- Recognizing how and why historical accounts change over time
- Recognizing how past events and issues might have been experienced by the people of that time, with historical context and empathy rather than present-mindedness
- Identify patterns of continuity and change over time, making connections to the present



SSP.06: Develop geographic awareness by:

- Determining relationships among people, resources, and ideas based on geographic location (local, national, global)
- Determining the use of diverse types of maps based on the purpose
- Analyzing the spatial relationships between people, circumstances, and resources
- Analyzing interaction between humans and the physical environment
- Examining how geographic regions and perceptions of the regions change over time

Economic Standards:

Kindergarten:

K.06 Recognize and describe different types of jobs, including work done in the home, school, and community.

K.07 Give examples of how people use money to make purchases.

First Grade:

1.04 Give examples of products (goods) that people buy and use.

1.05 Give examples of services (producers) that people provide.

1.06 Distinguish how people are consumers and producers of goods and services.

Second Grade:

2.04 Examine different types of producers and consumers in the U.S.

2.05 Recognize major U.S. industries and their products, including: agriculture, manufacturing, tourism, transportation, etc.

2.06 Analyze how supply and demand influence production.

2.10 Describe the purpose of a budget.

Third Grade:

3.17 Compare and contrast how goods and services are exchanged on local and regional levels.

3.18 Analyze how people interact with their environment to satisfy basic needs and wants, including: housing, industry, transportation, and communication.

Geography Standards

Kindergarten:

K.08 Use personal directions such as: up, down, near, far, left, right, in front of, and behind.

K.09 Explain what a map and globe represent.

K.10 Recall the student's and/or school's street address, city/town, and state.



First Grade:

1.10 Recognize basic map symbols, including: cities, land, roads, and water.

1.12 Use cardinal directions on a map.

1.13 Distinguish the difference between a lake, mountain, ocean, and river.

Second Grade:

2.15 Use legends and cardinal directions to determine locations on physical and political maps.

2.16 Compare physical features of the earth, including:

Island	Lake	Mountain	Ocean	Peninsula
Plain	Plateau	River	Valley	

2.18 Analyze how the location of regions affects the way people live, including their: food, clothing, shelter, transportation, and recreation.

Third Grade:

3.02 Use cardinal directions, intermediate directions, map scales, legends, and grids to locate major cities in Tennessee and the U.S.

3.03 Examine major physical features on globes and maps, including:

Basin	Bay	Canal	Canyon	Delta	Desert	Gulf	Island
Isthmus	Mountain		Ocean	Peninsula		Plain	Plateau
River	Sea	Strait	Stream	Valley			

3.04 Examine major political features on globes and maps, including: boundaries, cities, highways, railroads, and roads.

3.05 Use different types of maps (e.g., political, physical, population, resource, and climate), graphs, and charts to interpret geographic information.

3.13: Explain how geographic challenges are met with:

Bridges	Canals	Dams	Freshwater supply
Irrigation systems		Landfills	Tunnels

Government and Civics Standards

Kindergarten:

K.11 Give examples of the following concepts: authority, fairness, responsibility, and rules.

K.15 Describe roles of authority figures in the home, school, and community, including: caregivers, teachers, school principal, police officers, and fire/rescue workers.

First Grade:

1.20 Recognize that a mayor is the leader of a town/city, and explain his/her role.



History Standards:

Kindergarten:

K.17 Use correct words and phrases related to chronology and time, including:

- Now
- Long ago
- Before
- After
- Morning
- Afternoon
- Night
- Today
- Tomorrow
- Yesterday
- Last
- Next
- Week
- Month
- Year

K.18 Identify days of the week and months of the year.

First Grade:

1.20 Recognize that a mayor is the leader of a town/city, and explain his/her role.

Second Grade:

2.30 Describe periods of time in terms of:

- Days
- Weeks
- Months
- Years
- Decades
- Centuries

2.31 Analyze and interpret events placed chronologically on a timeline.

Current TN Social Studies Standards

Economics:

Kindergarten:

K.8 Explain why people work and recognize different types of jobs, including work done in the home, school, and community.

First Grade:

1.8 Give examples of products (goods) that people buy and use.

1.9 Give examples of services (producers) that people provide.

1.10 Explain differences between goods and services and describe how people are consumers and producers of goods and services.

1.13 With prompting and support, read informational texts about major products and industries found in Tennessee, to include mining, music, tourism, automobile manufacturing, and agriculture.

1.14 Examine and analyze economic concepts including basic needs vs. wants and the factors that could influence a person to use money or save money.

Second Grade:

2.12 Describe the purpose of a budget and create a simple budget using money to buy goods and services.

Geography:

Kindergarten:

K.11 Use correct words and phrases that indicate location and direction, including up, down, near, far, left, right, straight, back, in front of, and behind.



K.12 Explain that a map is a drawing of a place to show where things are located and that a globe is a round model of the Earth.

First Grade:

1.15 Recognize basic map symbols, including references to land, water, cities, and roads.

1.18 Use cardinal directions on maps.

1.21 Describe how the location of his/her community, climate, and physical surroundings affect the way people live, including their food, clothing, shelter, transportation and recreation.

1.24 Summarize in their own words, that a map is a representation of a space, such as the classroom, the school, the neighborhood, town, city, state, country or world.

Second Grade:

2.13 Compare how maps and globes depict geographical information in different ways.

2.16 Utilize legends, cardinal directions, and grids to determine locations on different types of maps.

2.18 Compare physical features of the earth, including islands, lakes, mountains, oceans, peninsulas, plains, plateaus, rivers, and valleys.

Third Grade:

3.1 Process and report information identifying, locating, comparing, and contrasting the major continents and oceans: North America, South America, Europe, Africa, Australia, Asia, Antarctica, Arctic, Atlantic, Indian, Pacific, and Southern using maps, globes, and other technologies.

3.2 Interpret maps and globes using common terms, including country, region, mountain, hemisphere, latitude, longitude, north pole, south pole, equator, time zones, elevation, approximate distances in miles, isthmus, and strait.

3.3 Use cardinal directions, map scales, legends, titles, and longitude and latitude to locate major cities and countries in the world.

3.4 Examine major physical and political features on globes and maps, including mountains, plains, plateaus, mesas, buttes, deserts, deltas, islands, peninsulas, basins, canyons, valleys, bays, streams, gulfs, straits, canals, seas, boundaries, cities, highways, roads, and railroads.

3.5 Explain the difference between relative and absolute location.

3.6 Use different types of maps (political, physical, population, resource, polar projection, and climate) and globe skills to interpret geographic information from a graph or chart.

3.7 Explain how specific images contribute to and clarify geographical information (diagrams, landforms, satellite photos, GPS system, maps, and charts).

3.8 Interpret digital sources and informational text to describe how humans interact with their environment.

3.12 Discuss how unique weather forces impact the geography and population of a region or continent (hurricanes, earthquakes, floods, tornadoes, drought).

3.13 Summarize how people interact with their environment to satisfy basic needs and how geographic challenges are resolved, including housing, industry, transportation, communication, bridges, dams, tunnels, canals, freshwater supply, irrigation systems, and landfills.



Government & Civics:

Kindergarten:

K.15 Give examples that show the meaning of the following concepts: authority, fairness, justice, responsibility, and rules.

K.20 Identify roles of authority figures at home, at school, and in government to include parents, school principal, volunteers, police officers, fire and rescue workers, mayor, governor, and president.

K.21 Explain the purpose of rules and laws.

First Grade:

1.32 Recognize that communities in Tennessee have a local government and compare/contrast this to our state and national government.

History:

Kindergarten:

K.24 Use correct words and phrases related to chronology and time (now, long ago, before, after; morning, afternoon, night; today, tomorrow, yesterday, last or next week, month, year; and present, past, and future tenses of verbs).

K.25 Identify days of the week and months of the year.

K.28 Use a combination of drawing, dictating, and writing to narrate a single event or several related events.

First Grade:

1.36 Produce complete sentences to describe people, places, things and events with relevant details that relate to time, including the past, present, and future.

Second Grade:

2.35 Select major events from texts to place sequentially on a timeline to show the sequence and main ideas of events in history.

2.37 Narrate a perspective of a historical event in the United States using details to describe actions, thoughts, and feelings, using temporal words to signal event order and provide a sense of closure.

English Language Arts Standards:

Foundational Literacy: Print Concepts: (FL.PC.1)

K.FL.PC.1 Demonstrate understanding of the organization and basic features of print.

a. Follow words from left to right, top to bottom, and page-by-page.

b. Recognize that spoken words are represented in written language by specific sequences of letters.



- c. Understand that words are separated by spaces in print; demonstrate one-to-one correspondence between voice and print.
- d. Recognize and name all upper and lowercase letters of the alphabet in isolation and in connected text.
- e. Distinguish between pictures and words.

1.FL.PC.1 Demonstrate understanding of the organization and basic features of print. a. Recognize the distinguishing features of a sentence, such as first word, capitalization, and ending punctuation.

Foundational Literacy: Fluency (FL.F.5):

K.FL.F.5 Read with sufficient accuracy and fluency to support comprehension. a. Read emergent-reader texts with purpose and understanding.

1.FL.F.5 Read with sufficient accuracy and fluency to support comprehension.

- a. Read grade-level text with purpose and understanding.
- b. Read grade-level text orally with accuracy, appropriate rate, and expression on successive readings.
- c. Use context to confirm or self-correct word recognition and understanding of words; reread as necessary.

2.FL.F.5 Read with sufficient accuracy and fluency to support comprehension.

- a. Read grade-level text with purpose and understanding.
- b. Read grade-level text orally with accuracy, appropriate rate, and expression on successive readings.
- c. Use context to confirm or self-correct word recognition and understanding of words; reread as necessary.

3.FL.F.5 Read with sufficient accuracy and fluency to support comprehension.

- a. Read grade-level text with purpose and understanding.
- b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
- c. Use context to confirm or self-correct word recognition and understanding of words; reread as necessary.

4.FL.F.5 Read with sufficient accuracy and fluency to support comprehension.

- a. Read grade-level text with purpose and understanding.
- b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
- c. Use context to confirm or self-correct word recognition and understanding of words; reread as necessary.



Foundational Literacy: Sentence Composition (FL.SC.6):

K.FL.SC.6 Demonstrate command of the conventions of standard English grammar and usage when speaking and conventions of standard English grammar and usage, including capitalization and punctuation, when writing with adult support.

- a. With modeling or verbal prompts, orally produce complete sentences.
- b. Follow one-to-one correspondence between voice and print when writing a sentence.
- c. Use frequently occurring nouns and verbs when speaking and in shared language activities.
- d. Form regular plural nouns when speaking and in shared language activities.
- e. Understand and use question words (interrogatives) when speaking and in shared language activities.
- f. Use the most frequently occurring prepositions when speaking and in shared language activities.
- g. Produce and expand complete sentences in shared language activities.
- h. Capitalize the first word in a sentence and the pronoun I.
- i. Recognize and name end punctuation.

1.FL.SC.6 Demonstrate command of the conventions of standard English grammar and usage when speaking and conventions of standard English grammar and usage, including capitalization and punctuation, when writing.

- a. Use common, proper, and possessive nouns.
- b. Use singular and plural nouns with correct verbs in basic sentences.
- c. Use personal, possessive, and indefinite pronouns.
- d. Use verbs to convey a sense of past, present, and future.
- e. Use frequently occurring adjectives.
- f. Use frequently occurring conjunctions.
- g. Use articles and demonstratives.
- h. Use frequently occurring prepositions such as during, beyond, and toward.
- i. Produce and expand simple and compound declarative, interrogative, imperative, and exclamatory sentences in response to prompts.
- j. Capitalize names of people and dates.
- k. End sentences with correct punctuation. l. Use commas in dates and to separate single words in a series.

2.FL.SC.6 Demonstrate command of the conventions of standard English grammar and usage when speaking and conventions of standard English grammar and usage, including capitalization and punctuation, when writing.

- a. Use collective nouns.
- b. Form and use frequently occurring irregular plural nouns.
- c. Use reflexive pronouns such as myself and ourselves.
- d. Form and use the past tense of frequently occurring irregular verbs.
- e. Use adjectives and adverbs correctly.
- f. Produce, expand, and rearrange simple and compound sentences.



- g. Use common coordinating conjunctions.
- h. Capitalize holidays, product names, and geographic names.
- i. Use commas in the greeting and closing of a letter.
- j. Use an apostrophe to form contractions and frequently occurring possessives.
- k. With prompting and support, link sentences into a simple, cohesive paragraph with a main idea or topic.

3.FL.SC.6 Demonstrate command of the conventions of standard English grammar and usage when speaking and conventions of standard English grammar and usage, including capitalization and punctuation, when writing.

- a. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs as used in general and in particular sentences.
- b. Form and use regular and irregular plural nouns.
- c. Use abstract nouns.
- d. Form and use regular and irregular verbs.
- e. Form and use simple verb tenses.
- f. Ensure subject-verb and pronoun-antecedent agreement.
- g. Form and use comparative and superlative adjectives and adverbs correctly.
- h. Use coordinating and subordinating conjunctions.
- i. Produce simple, compound, and complex sentences.
- j. Capitalize appropriate words in titles.
- k. Use commas in addresses.
- l. Use commas and quotation marks in dialogue.
- m. Form and use possessives.
- n. Write a cohesive paragraph with a main idea and detailed structure.

4.FL.SC.6 Demonstrate command of the conventions of standard English grammar and usage when speaking and conventions of standard English grammar and usage, including capitalization and punctuation, when writing.

- a. Use relative pronouns and relative adverbs.
- b. Form and use progressive verb tenses.
- c. Use auxiliary verbs such as can, may, and must to clarify meaning.
- d. Form and use prepositional phrases.
- e. Produce complete sentences; recognize and correct inappropriate fragments and run-ons.
- f. Use correct capitalization.
- g. Use commas and quotation marks to mark direct speech and quotations from a text.
- h. Use a comma before a coordinating conjunction in a compound sentence.
- i. Write several cohesive paragraphs on a topic.

Foundational Literacy: Vocabulary Acquisition (FL.VA.7):

K.FL.VA.7a Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on Kindergarten conversations, reading, and content.

- i. Identify new meanings for familiar words and apply them accurately.



ii. Use the most frequently occurring inflections and affixes as a clue to the meaning of an unknown word.

K.FL.VA.7b With guidance and support from adults, explore word relationships and nuances in word meanings.

i. Sort common objects into categories to gain a sense of the concepts the categories represent.

ii. Demonstrate understanding of frequently occurring verbs and adjectives by relating them to their opposites.

iii. Make real-life connections between words and their use.

iv. Distinguish shades of meaning among verbs describing the same general action.

K.FL.VA.7c Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

1.FL.VA.7a Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 1 reading and content, choosing flexibly from an array of strategies.

i. Use sentence-level context as a clue to the meaning of a word or phrase.

ii. Use frequently occurring affixes as a clue to the meaning of a word.

iii. Identify frequently occurring root words and their inflectional forms.

1.FL.VA.7b With guidance and support from adults, demonstrate understanding of word relationships and nuances in word meanings.

i. Sort words into categories to gain a sense of the concepts the categories represent.

ii. Define words by category and by one or more key attributes.

iii. Identify real-life connections between words and their use.

iv. Distinguish shades of meaning among words by defining or choosing them or by acting out the meanings.

1.FL.VA.7c Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships.

2.FL.VA.7a Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 2 reading and content, choosing flexibly from an array of strategies.

i. Use sentence-level context as a clue to the meaning of a word or phrase.

ii. Determine the meaning of the new word formed when a known prefix is added to a known word.

iii. Use a known root word as a clue to the meaning of an unknown word with the same root.

iv. Use knowledge of the meaning of individual words to predict the meaning of compound words.

v. Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases.

2.FL.VA.7b Demonstrate understanding of word relationships and nuances in word meanings.

i. Identify real-life connections between words and their use.

ii. Distinguish shades of meaning among closely related words.

2.FL.VA.7c Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe.



- 3.FL.VA.7a** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 3 reading and content, choosing flexibly from a range of strategies.
- Use sentence-level context as a clue to the meaning of a word or phrase.
 - Determine the meaning of the new word formed when a known affix is added to a known word.
 - Use a known root word as a clue to the meaning of an unknown word with the same root.
 - Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases.
- 3.FL.VA.7b** Demonstrate understanding of word relationships and nuances in word meanings.
- Distinguish the literal and nonliteral meanings of words and phrases in context.
 - Identify real-life connections between words and their use.
 - Distinguish shades of meaning among related words that describe states of mind or degrees of certainty.
- 3.FL.VA.7c** Acquire and use accurately grade-appropriate conversational, general academic, and domain specific words and phrases, including those that signal spatial and time relationships.
- 4.FL.VA.7a** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.
- Use context as a clue to the meaning of a word or phrase.
 - Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word.
 - Consult reference materials, both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.
- 4.FL.VA.7b** Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
- Explain the meaning of simple similes and metaphors in context.
 - Recognize and explain the meaning of common idioms and proverbs.
 - Demonstrate understanding of words by relating them to their opposites and to words with similar but not identical meanings
- 4.FL.VA.7c** Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic.

Reading Standards: Key Ideas and Details (R.KID.1/R.KID.2/R.KID.3)

- K.RL.KID.1** With prompting and support, ask and answer questions about key details in a text.
- K.RI.KID.1** With prompting and support, ask and answer questions about key details in a text.
- K.RL.KID.2** With prompting and support, orally retell familiar stories, including key details.
- K.RI.KID.2** With prompting and support, orally identify the main topic and retell key details of a text.
- K.RL.KID.3** With prompting and support, orally identify characters, setting, and major events in a story.
- K.RI.KID.3** With prompting and support, orally identify the connection between two individuals, events, ideas, or pieces of information in a text.



1.RL.KID.1 Ask and answer questions about key details in a text.

1.RI.KID.1 Ask and answer questions about key details in a text.

1.RL.KID.2 Retell stories, including key details, and demonstrate understanding of their central message or lesson.

1.RI.KID.2 Identify the main topic and retell key details of a text

1.RL.KID.3 Using graphic organizers or including written details and illustrations when developmentally appropriate, describe characters, settings, and major events in a story using key details.

1.RI.KID.3 Using graphic organizers or including written details and illustrations when developmentally appropriate, describe the connections between two individuals, events, ideas, or pieces of information in a text.

2.RL.KID.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

2.RI.KID.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

2.RL.KID.2 Recount stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral.

2.RI.KID.2 Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within a text.

2.RL.KID.3 Describe how characters in a story respond to major events and challenges.

2.RI.KID.3 Describe the connections between a series of historical events, scientific ideas, or steps in a process in a text.

3.RL.KID.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as a basis for the answers.

3.RI.KID.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as a basis for the answers.

3.RL.KID.2 Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.

3.RI.KID.2 Determine the main idea of a text; recount the key details and explain how they support the main idea.

3.RL.KID.3 Describe characters in a story and explain how their actions contribute to the sequence of events.

3.RI.KID.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect

4.RL.KID.1 Refer to details and examples in a text when explaining what the text says explicitly; refer to details and examples in a text when drawing inferences from the text.

4.RI.KID.1 Refer to details and examples in a text when explaining what the text says explicitly; refer to details and examples in the text when drawing inferences from the text.



4.RL.KID.2 Determine a theme of a story, drama, or poem from details in the text; summarize the text.

4.RI.KID.2 Determine the main idea of a text and explain how it is supported by key details; summarize a text.

4.RL.KID.3 Describe in depth a character, setting, or event in a story or drama, drawing on specific details in a text, such as a character's thoughts, words, or actions.

4.RI.KID.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in a text.

Reading Standards – Craft and Structure (R.CS.4/R.CS.5/R.CS.6)

K.RL.CS.4 With prompting and support, ask and answer questions about unknown words in text.

K.RI.CS.4 With prompting and support, determine the meaning of words and phrases in a text relevant to a Kindergarten topic or subject area.

K.RL.CS.5 Recognize common types of texts.

K.RI.CS.5 Know various text features.

K.RL.CS.6 With prompting and support, define the role of authors and illustrators in the telling of a story.

K.RI.CS.6 With prompting and support, define the role of an author and illustrator in presenting the ideas or information in a text.

1.RL.CS.4 Identify words and phrases in stories and poems that suggest feelings or appeal to the senses.

1.RI.CS.4 Determine the meaning of words and phrases in a text relevant to a grade 1 topic or subject area.

1.RL.CS.5 Explain major differences between books that tell stories and books that give information, drawing on a wide range of text types.

1.RI.CS.5 Know and use various text features to locate key facts or information in a text.

1.RL.CS.6 Identify who is telling the story at various points in a text.

1.RI.CS.6 Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.

2.RL.CS.4 Describe how words and phrases supply meaning in a story, poem, or song.

2.RI.CS.4 Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.

2.RL.CS.5 Describe the overall structure of a story, including how the beginning introduces the story and the ending concludes the action.

2.RI.CS.5 Know and use various text features to locate key facts or information in a text efficiently.

2.RL.CS.6 Determine when characters have different points of view.

2.RI.CS.6 Identify the main purpose of a text, including what an author wants to answer, explain, or describe.



- 3.RL.CS.4** Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language (e.g., feeling blue versus the color blue).
- 3.RI.CS.4** Determine the meaning of words and phrases in a text relevant to a grade 3 topic or subject area.
- 3.RL.CS.5** Refer to parts of stories, dramas, and poems, using terms such as chapter, scene, and stanza; describe how each successive part of a text builds on earlier sections
- 3.RI.CS.5** Use text features to locate information relevant to a given topic efficiently.
- 3.RL.CS.6** Distinguish reader perspective from that of the narrator or the perspectives of the characters and identify the point of view of a text.
- 3.RI.CS.6** Distinguish reader point of view from that of an author of a text.

- 4.RL.CS.4** Determine the meaning of words and phrases as they are used in a text, including those that refer to significant characters and situations found in literature and history.
- 4.RI.CS.4** Determine the meaning of words and phrases as they are used in a text relevant to a grade 4 topic or subject area, including figurative, connotative, and technical meanings.
- 4.RL.CS.5** Explain major differences between poems, drama, and stories, and refer to the structural elements when writing or speaking about a text.
- 4.RI.CS.5** Describe the overall structure of events, ideas, and concepts of information in a text or part of a text.
- 4.RL.CS.6** Compare and contrast the point of view from which different stories are narrated.
- 4.RI.CS.6** Compare and contrast two accounts of the same event or topic; describe the differences in focus and the information provided.

Reading Standards: Integration of Knowledge and Ideas (R.IKI.7/R.IKI.8/R.IKI.9)

- K.RL.IKI.7** With prompting and support, orally describe the relationship between illustrations and the story in which they appear.
- K.RI.IKI.7** With prompting and support, orally describe the relationship between illustrations and the text in which they appear.
- K.RI.IKI.8** With prompting and support, identify the reasons an author provides to support points in a text.
- K.RL.IKI.9** With prompting and support, orally compare and contrast the adventures and experiences of characters in familiar stories.
- K.RI.IKI.9** With prompting and support, orally identify basic similarities and differences between two texts on the same topic.
- 1.RL.IKI.7** Either orally or in writing when appropriate, use illustrations and words in a text to describe its characters, setting, or events.
- 1.RI.IKI.7** Either orally or in writing when appropriate, use the illustrations and words in a text to describe its key ideas.
- 1.RI.IKI.8** Identify the reasons an author provides to support points in a text.
- 1.RL.IKI.9** Compare and contrast the adventures and experiences of characters in stories including written details and illustrations when developmentally appropriate.
- 1.RI.IKI.9** Identify basic similarities and differences between two texts on the same topic including written details and illustrations when developmentally appropriate.



- 2.RL.IKI.7** Use information gained from illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.
- 2.RI.IKI.7** Identify and explain how illustrations and words contribute to and clarify a text.
- 2.RI.IKI.8** Describe how reasons support specific points an author makes in a text.
- 2.RL.IKI.9** Compare and contrast two or more versions of the same story by different authors or different cultures.
- 2.RI.IKI.9** Compare and contrast the most important points presented by two texts on the same topic
- 3.RL.IKI.7** Explain how illustrations in a text contribute to what is conveyed by the words.
- 3.RI.IKI.7** Use information gained from illustrations and the words in a text to demonstrate understanding of a text.
- 3.RI.IKI.8** Explain how reasons support specific points an author makes in a text.
- 3.RL.IKI.9** Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters.
- 3.RI.IKI.9** Compare and contrast the most important points and key details presented in two texts on the same topic.
- 4.RL.IKI.7** Make connections between the print version of a story or drama and a visual or oral presentation of the same text.
- 4.RI.IKI.7** Interpret information presented visually, orally, or quantitatively and explain how the information contributes to an understanding of the text in which it appears.
- 4.RI.IKI.8** Explain how an author uses reasons and evidence to support particular points in a text.
- 4.RL.IKI.9** Compare and contrast the treatment of similar themes, topics, and patterns of events in stories from different cultures.
- 4.RI.IKI.9** Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.

Reading Standards: Range of Reading and Level of Text Complexity (R.RRTC.10)

K.RL.RRTC.10 With prompting and support, read stories and poems of appropriate complexity for Kindergarten.

K.RI.RRTC.10 With prompting and support, read informational texts of appropriate complexity for Kindergarten.

1.RL.RRTC.10 With prompting and support, read stories and poems of appropriate complexity for grade 1.

1.RI.RRTC.10 With prompting and support, read informational texts of appropriate complexity for grade 1.



2.RL.RRTC.10 Read and comprehend stories and poems throughout the grades 2-3 text complexity band proficiently, with scaffolding at the high end as needed.

2.RI.RRTC.10 Read and comprehend stories and informational texts throughout the grades 2-3 text complexity band proficiently, with scaffolding at the high end as needed.

3.RL.RRTC.10 Read and comprehend stories and poems at the high end of the grades 2-3 text complexity band independently and proficiently.

3.RI.RRTC.10 Read and comprehend stories and informational texts at the high end of the grades 2-3 text complexity band independently and proficiently.

4.RL.RRTC.10 Read and comprehend stories and poems throughout the grades 4-5 text complexity band proficiently, with scaffolding at the high end as needed.

4.RI.RRTC.10 Read and comprehend stories and informational texts throughout the grades 4-5 text complexity band proficiently, with scaffolding at the high end as needed.

Speaking & Listening Standards – Comprehension & Collaboration (SL.CC.1/SL.CC.2/SL.CC.3):

K.SL.CC.1 Participate with varied peers and adults in collaborative conversations in small or large groups about appropriate Kindergarten topics.

K.SL.CC.2 Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

K.SL.CC.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

1.SL.CC.1 Participate with varied peers and adults in collaborative conversations in small or large groups about appropriate 1st grade topics and texts.

1.SL.CC.2 Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

1.SL.CC.3 Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

2.SL.CC.1 Participate with varied peers and adults in collaborative conversations in small or large groups about appropriate 2nd grade topics and texts.

2.SL.CC.2 Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

2.SL.CC.3 Ask and answer questions about what a speaker says in order to gather information or clarify something that is not understood.

3.SL.CC.1 Prepare for collaborative discussions on 3rd grade level topics and texts; engage effectively with varied partners, building on others' ideas and expressing their own ideas clearly.

3.SL.CC.2 Determine the main ideas and supporting details of a text presented in diverse media such as visual, quantitative, and oral formats.



3.SL.CC.3 Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.

4.SL.CC.1 Prepare for collaborative discussions on 4th grade level topics and texts; engage effectively with varied partners, building on others' ideas and expressing their own ideas clearly.

4.SL.CC.2 Paraphrase portions of a text presented in diverse media such as visual, quantitative, and oral formats.

4.SL.CC.3 Identify the reasons and evidence a speaker provides to support particular points.

Speaking & Listening Standards: Presentation of Knowledge & Ideas (SL.PKI.4/SL.PKI.5/SL.PKI.6):

K.SL.PKI.4 Describe familiar people, places, things, and events, and, with prompting and support, provide additional detail.

K.SL.PKI.5 Add drawings or other visual displays of descriptions as desired to provide additional detail.

K.SL.PKI.6 With guidance and support, express thoughts, feelings, and ideas through speaking.

1.SL.PKI.4 Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.

1.SL.PKI.5 Add drawings or other visual displays to descriptions, when appropriate, to clarify ideas, thoughts, and feelings.

1.SL.PKI.6 With prompting and support, speak in complete sentences when appropriate to task and situation.

2.SL.PKI.4 Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.

2.SL.PKI.5 Add audio or visual elements to stories or recounts of experiences, when appropriate, to clarify ideas, thoughts, and feelings.

2.SL.PKI.6 Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.

3.SL.PKI.4 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.

3.SL.PKI.5 Add audio or visual elements when appropriate to emphasize or enhance certain facts or details.

3.SL.PKI.6 Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.

4.SL.PKI.4 Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

4.SL.PKI.5 Add multimedia such as audio and visual elements to presentations when appropriate to enhance the development of main ideas or themes.



4.SL.PKI.6 Recognize that different situations call for formal vs. informal English, and use formal English when appropriate.

Writing Standards –Text Types and Protocols (W.TTP.1/W.TTP.2/W.TTP.3)

K.W.TTP.1 With prompting and support, use a combination of drawing, dictating, and/or writing to compose opinion pieces.

K.W.TTP.2 With prompting and support, use a combination of drawing, dictating, and/or writing to compose informative/explanatory texts.

K.W.TTP.3 With prompting and support, use a combination of drawing, dictating, and/or writing to narrate a single event.

1.W.TTP.1 With prompting and support, write opinion pieces introducing the topic or text, stating an opinion, supplying a reason for the opinion, and providing some sense of closure.

1.W.TTP.2 With prompting and support, write informative/explanatory texts, naming a topic, supplying some facts about the topic, and providing some sense of closure.

1.W.TTP.3 With prompting and support, write narratives recounting an event, including some details to describe actions, thoughts, and feelings; use time order words to signal event order and provide some sense of closure.

2.W.TTP.1 Write opinion pieces on topics or texts.

- a. Introduce topic or text.
- b. State an opinion.
- c. Supply reasons to support the opinion.
- d. Use linking words to connect the reasons to the opinion.
- e. Provide a concluding statement or section.

2.W.TTP.2 Write informative/explanatory texts.

- a. Introduce a topic.
- b. Use facts and definitions to provide information.
- c. Provide a concluding statement or section.

2.W.TTP.3 Write narratives recounting an event or short sequence of events.

- a. Include details to describe actions, thoughts, and feelings.
- b. Use time order words to signal event order.
- c. Provide a sense of closure.

3.W.TTP.1 Write opinion pieces on topics or texts, supporting a point of view with reasons.

- a. Introduce a topic or text.
- b. Develop an opinion with reasons that support the opinion.
- c. Create an organizational structure that lists supporting reasons.
- d. Provide a concluding statement or section.
- e. Use linking words and phrases to connect opinion and reasons.
- f. Apply language standards addressed in the Foundational Literacy standards.

3.W.TTP.2 Write informative/explanatory texts to examine a topic and convey ideas and information.



- a. Introduce a topic.
- b. Group related information together, including illustrations when needed to provide clarity to the reader.
- c. Develop the topic with facts, definitions, and details.
- d. Provide a conclusion.
- e. Use linking words and phrases to connect ideas within categories of information.
- f. Use precise language to inform about or explain the topic.
- g. Apply language standards addressed in the Foundational Literacy standards.

3.W.TTP.3 Write narratives to develop real or imagined experiences or events using an effective technique, such as descriptive details and clear event sequences.

- a. Establish a situation by using a narrator, including characters, and organizing an event sequence that unfolds naturally.
- b. Use dialogue and/or descriptions of actions, thoughts, and feelings to develop experiences and events, or to show the response of characters to situations.
- c. Use temporal words and phrases to signal event order.
- d. Provide a sense of closure.
- e. Apply language standards addressed in the Foundational Literacy standards.

4.W.TTP.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

- a. Introduce a topic or text.
- b. Develop an opinion with reasons that are supported by facts and details.
- c. Create an organizational structure in which related ideas are grouped to support the writer's purpose.
- d. Provide a concluding statement or section related to the opinion presented.
- e. Link opinion and reasons using words and phrases.
- f. Apply language standards addressed in the Foundational Literacy standards.

4.W.TTP.2 Write informative/explanatory texts to examine a topic and convey ideas and information.

- a. Introduce a topic.
- b. Group related information in paragraphs and sections.
- c. Include formatting, features, illustrations, and multimedia when needed to provide clarity to the reader.
- d. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
- e. Provide a conclusion related to the information or explanation presented.
- f. Link ideas within categories of information using words and phrases.
- g. Use precise language and domain-specific vocabulary to inform about or explain the topic.
- h. Apply language standards addressed in the Foundational Literacy standards.

4.W.TTP.3 Write narratives to develop real or imagined experiences or events using an effective technique, such as descriptive details and clear event sequences.



- a. Orient the reader by establishing a situation, using a narrator and/or introducing characters.
- b. Organize an event sequence that unfolds naturally and logically.
- c. Use dialogue and description to develop experiences and events or show the responses of characters to situations.
- d. Use a variety of transitional words and phrases to manage the sequence of events.
- e. Provide a conclusion that follows from the narrated experiences or events.
- f. Use precise words and phrases and use sensory details to convey experiences and events.
- g. Apply language standards addressed in the Foundational Literacy standards.

Writing Standards – Production & Distribution of Writing (W.PDW.4/W.PDW5/WPDW6):

K.W.PDW.4 With guidance and support, produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

K.W.PDW.5 With guidance and support from adults, respond to questions and suggestions from others and add details to strengthen writing as needed.

K.W.PDW.6 With guidance and support from adults, and in collaboration with peers, explore a variety of digital tools to produce and share writing.

1.W.PDW.4 With guidance and support, produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

1.W.PDW.5 With guidance and support from adults, focus on a topic, respond to questions and suggestions from others, and add details to strengthen writing as needed.

1.W.PDW.6 With guidance and support from adults, and in collaboration with peers, explore a variety of digital tools to produce and publish writing.

2.W.PDW.4 With guidance and support, produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

2.W.PDW.5 With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers, and strengthen writing as needed by revising and editing.

2.W.PDW.6 With guidance and support from adults, and in collaboration with peers, use a variety of digital tools to produce and publish writing.

3.W.PDW.4 With guidance and support, produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

3.W.PDW.5 With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 3.)



3.W.PDW.6 With guidance and support from adults, use technology to produce and publish writing, as well as to interact and collaborate with others; demonstrate sufficient command of technological skills to type a complete product in a single sitting as defined in W.1-3.

4.W.PDW.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

4.W.PDW.5 With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 4.)

4.W.PDW.6 With some guidance and support from adults, use technology, including the Internet, to produce and publish writing, as well as to interact and collaborate with others; demonstrate sufficient command of technology skills to type a complete product in a single sitting as defined in W.1-3.

**Writing Standards – Research to Build and Present Knowledge (W.RBPK.7/W.RBPK.8/
W.RBPK.9)**

K.W.RBPK.7 Participate in shared research and writing projects, such as reading a number of books by a favorite author and expressing opinions about them.

K.W.RBPK.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

K.W.RBPK.9 No standard at this grade

1.W.RBPK.7 Participate in shared research and writing projects, such as exploring a number of “how to” books on a given topic and using them to write a sequence of instructions.

1.W.RBPK.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

1.W.RBPK.9 No standard at this grade

2.W.RBPK.7 Participate in shared research and writing projects, such exploring a number of books on a single topic or engaging in science experiments to produce a report.

2.W.RBPK.8 Recall information from experiences or gather information from provided sources to answer a question.

2.W.RBPK.9 No standard at this grade

3.W.RBPK.7 Conduct short research projects that build general knowledge about a topic.

3.W.RBPK.8 Recall information from experiences or gather information from print and digital sources, with support; take brief notes on sources and sort evidence into provided categories.

3.W.RBPK.9 Include evidence from literary or informational texts, applying grade 3 standards for reading.

4.W.RBPK.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic.



4.W.RBPK.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes, categorize information, and provide a list of sources.

4.W.RBPK.9 Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade 4 standards for reading.

Writing Standards – Range of Writing (W.RW.10)

K.W.RW.10 With guidance and support from adults, engage routinely in writing activities to promote writing fluency and build writing stamina.

1.W.RW.10 With guidance and support from adults, engage routinely in writing activities to promote writing fluency and build writing stamina.

2.W.RW.10 With guidance and support from adults, engage routinely in writing activities to promote writing fluency.

3.W.RW.10 Write routinely over extended time frames for a range of discipline-specific tasks, purposes, and audiences; promote writing fluency.

4.W.RW.10 Write routinely over extended time frames for a range of discipline-specific tasks, purposes, and audiences; promote writing fluency.



Severe Weather PBL Resources:

PowerPoint Outline

Include pictures/videos of each of these severe weather events between each section. Suggestions include: pictures of the sky and ground, before and after shots, the effects on people, etc. Add severe weather events that effect your local community or have been in the current events.

Severe Weather

- Hurricanes
- Tornadoes
- Thunder & Lightning Storms
- Blizzards
- Floods
- Droughts

Hurricanes

What is a hurricane?
A hurricane is a huge rotating storm. It forms in warm ocean water. They produce strong winds, heavy rain and large waves, powerful waves.

Hurricane season in the Atlantic Ocean runs from June 1 to November 30.

Other names for hurricanes: typhoons and cyclones

Tornadoes

What is a tornado?
A tornado is a whirling, violent windstorm accompanied by a funnel cloud that travels a narrow path over land. They can destroy large buildings, uproot trees and throw vehicles hundreds of yards. They can also drive straw into trees. In an average year, 1,000 tornadoes are reported nationwide.

Thunder & Lightning Storms

Lightning is a bright flash of electricity produced by a thunderstorm. All thunderstorms produce lightning and are very dangerous. Thunder is caused by lightning. When a lightning bolt travels from the cloud to the ground it actually opens up a little hole in the air, called a channel. Once the light is gone the air collapses back in and creates a sound wave that we hear as thunder. The reason we see lightning before we hear thunder is because light travels faster than sound!

Blizzards

A blizzard is snowstorm that lasts more than 3 hours with winds blowing at 35 miles per hour or higher. One of the reasons why blizzards are so dangerous is the reduced visibility due to snow flying everywhere from the fast wind.

Floods

A flood results from days of heavy rain and/or melting snows, when rivers rise and go over their banks. Flash floods are the #1 weather-related killer in the U.S. Nearly 80% of flash flood deaths are auto related.

Droughts

When a place is in a drought, it is dry and hot, often dusty, cracks may appear in the soil, and rivers, lakes, streams, and other sources of water can go dry. A drought means that a place has less precipitation (rain or snow) than normal over a few months or even longer. Drought has many causes. It can be caused by not receiving rain or snow over a period of time.

Potential Anchor and Research Texts:

In no particular order: Available on Amazon.com

A Storm Called Katrina: by Myron Uhlberg, Colin Bootman

If You Were a Kid Surviving a Hurricane: by Josh Gregory

Marvelous Cornelius: Hurricane Katrina and the Spirit of New Orleans: by Phil Bildner, John Parra

What Was Hurricane Katrina? by Robin Koontz



Al Roker's Extreme Weather: Tornadoes, Typhoons, and Other Weather Phenomena: by Al Roker

The Cloudspotter's Guide: The Science, History, and Culture of Clouds: by Gavin Pretor-Pinney

The Cloud Collector's Handbook: by Gavin Pretor-Pinney

The Cloud Book: by Tomie dePaola

Explore My World Clouds: by Marfe Ferguson Delano

The Weather Wizard's Cloud Book: A Unique Way to Predict the Weather Accurately and Easily by Reading the Clouds: by Jim Duncan, Rubin Sr., Louis D.

Tornado: by Betsy Byars, Doron Ben-Ami

Tornado!: The Story Behind These Twisting, Turning, Spinning, and Spiraling Storms (National Geographic Kids): by Judy Fradin, Dennis Fradin

When the Sky Breaks: Hurricanes, Tornadoes, and the Worst Weather in the World (Smithsonian): by Simon Winchester

The Everything KIDS' Weather Book: From Tornadoes to Snowstorms, Puzzles, Games, and Facts That Make Weather for Kids Fun! by Joseph Snedeker

Flash, Crash, Rumble, and Roll: by Franklyn M. Branley, True Kelley

Tornadoes! by Gail Gibbons

Hurricanes! by Gail Gibbons

Tornadoes and Hurricanes! (TIME FOR KIDS® Nonfiction Readers): by Teacher Created Materials; Cy Armour

The Kids' Book of Weather Forecasting (Williamson Kids Can! Series): by Breen, Mark

Extreme Weather: Surviving Tornadoes, Sandstorms, Hailstorms, Blizzards, Hurricanes, and More! (National Geographic Kids): by Thomas M. Kostigen

National Geographic Kids Everything Weather: Facts, Photos, and Fun that Will Blow You Away: by Kathy Furgang

The Weather Wizard's 5-Year Weather Diary: by Jim Duncan, Rubin Sr., Louis D.

Calendar Template Idea

Project Calendar

Monday	Tuesday	Wednesday	Thursday	Friday

Journal Template Idea

The journal template is enclosed in a hand-drawn, irregular border. At the top, there is a horizontal line. Below this line, the page is divided into three main sections. The top-left section is a large, empty rectangular box intended for a drawing or illustration. To its right is a smaller rectangular box containing seven horizontal lines for writing. Below these two boxes is a large rectangular area filled with ten horizontal lines, providing space for a full page of text. In the bottom right corner of the template, there is a small rectangular box containing the text "Page ____" for page numbering.



Knoxville/Oak Ridge Area Experts to Contact

1. Meteorologist- WATE, WBIR, WVLT
Contact information:
WBIR TV-10: <http://www.wbir.com/contact-us>
WATE 6 On You Side: <http://wate.com/contact-us/>
WVLT Local 8: <http://www.local8now.com/station>
2. Red Cross Volunteer-Oak Ridge office
Contact information: <http://www.redcross.org/local/tennessee/local-chapters>
3. Water treatment plant engineer-contact:
Contact information: <https://www.oakridgetn.gov/department/PublicWorks/Divisions/Water-Treatment>
4. NOAA-Oak Ridge office
Contact information: <http://www.atdd.noaa.gov/about-us/contact-info/>
5. TEMA- office in Knoxville, Aderson county
Contact information: <http://tn.gov/tema>
6. Ask a Scientist- " Ask a Scientist" is an outreach program that promotes interest in science by answering questions from the public as a way to engage them on scientific issues.
Contact information: email: askasci@utk.edu
7. TVA- field trip to see a levee or dam.
8. National Weather Service: <http://www.weather.gov/mrx/>
[US Department of Commerce](#)
[National Oceanic and Atmospheric Administration](#)
[National Weather Service](#)
Morristown, TN
5974 Commerce Blvd.
Morristown, TN 37814
(423)586-3771

Levee Science and Engineering Background Information:

http://www.rpi.edu/news/levees/Floodwall_and_Levee_Performance_Analysis.pdf

http://www.water.ca.gov/floodsafe/leveedesign/ULDC_May2012.pdf

<http://www.tamworth.nsw.gov.au/ArticleDocuments/848/Dixon%20-%20Investigation%20and%20design%20levees.pdf.aspx>



Potential Rubrics and Assessments:

Multimedia Project : Severe Weather Brochure

Teacher Name:

Student Name: _____

Table with 5 columns: CATEGORY, 4, 3, 2, 1. Rows include Presentation, Attractiveness, Organization, Content, and Mechanics with detailed descriptions for each score level.

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Multimedia Project : Severe Weather Facts (announce over PA)

Teacher Name:

Student Name: _____

Table with 5 columns: CATEGORY, 4, 3, 2, 1. Rows include Oral Presentation, Mechanics, and Content with detailed descriptions for each score level.



Multimedia Project : Severe Weather Persuasive letter

Teacher Name:

Student Name: _____

CATEGORY	4	3	2	1
Oral Presentation	Interesting, well-rehearsed with smooth delivery that holds audience attention.	Relatively interesting, rehearsed with a fairly smooth delivery that usually holds audience attention.	Delivery not smooth, but able to hold audience attention most of the time.	Delivery not smooth and audience attention lost.
Mechanics	No misspellings or grammatical errors.	Three or fewer misspellings and/or mechanical errors.	Four misspellings and/or grammatical errors.	More than 4 errors in spelling or grammar.
Content	Covers topic in-depth with details and examples. Subject knowledge is excellent.	Includes essential knowledge about the topic. Subject knowledge appears to be good.	Includes essential information about the topic but there are 1-2 factual errors.	Content is minimal OR there are several factual errors.
Organization	Content is well organized. Paragraphing is utilized correctly throughout the letter.	Content is logically organized for the most part. Paragraphing is attempted and utilized correctly during most of the letter.	Content is not logically organized for the most part. Paragraphing is attempted and utilized correctly in at least one part of the letter.	There was no clear or logical organizational structure, just lots of facts. Paragraphing is not attempted.

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Weather Assessment

Part A: Vocabulary (10pts)

Look in the Word Box. Choose the word that matches each definition. Write the letter on the line.

Definitions

- ___ 1. storm with a funnel-shaped cloud made of swirling winds
- ___ 2. to change from a gas to a liquid (water vapor to water droplets)
- ___ 3. the state of the atmosphere at a certain time or place
- ___ 4. layer of air around the earth
- ___ 5. billions of tiny water droplets that come together in the sky
(hint: we learned about 5 different types of them)
- ___ 6. air that is moving
- ___ 7. falling water, such as rain, snow, or sleet
- ___ 8. scientist who studies weather
- ___ 9. huge storm with strong winds and heavy rain
- ___ 10. tool for measuring temperature

Word Box

- A. atmosphere
- B. condense
(condensation)
- C. cloud
- D. meteorologist
- E. precipitation
- F. thermometer
- G. tornado
- H. weather
- I. wind
- J. hurricane

Part B: Multiple Choice – Weather Concepts (13pts)

Write the letter of the best answer.

- ___ 11. When water evaporates, it _____.
- a. disappears forever
 - b. turns into water vapor
 - c. turns into tiny ice crystals
 - d. makes a rainbow

___ 12. Clouds form when _____.

- a. water vapor condenses
- b. water evaporates
- c. precipitation falls
- d. snowflakes melt

___ 13. The United States of America measures temperature using the _____ temperature scale.

- a. Kelvin
- b. Celsius
- c. Fahrenheit
- d. Fujita

___ 14. Cirrus, cumulus, and stratus are kinds of _____.

- a. weather satellites
- b. severe storms
- c. precipitation
- d. clouds

___ 15. Hurricanes and tornadoes are alike because both _____.

- a. bring snow and sleet
- b. are funnel clouds
- c. last at least two days
- d. have very dangerous winds

___ 16. When water drops in clouds get too heavy, they fall to the Earth as _____.

- a. evaporation,
- b. condensation
- c. precipitation
- d. the water cycle

___ 17. When the part of Earth where you live is tilted toward the sun, the season is _____.

- a. summer
- b. winter
- c. spring
- d. fall

___ 18. The energy that powers the water cycle comes from _____.

- a. plants
- b. the sun
- c. the wind
- d. the soil

___ 19. Water can evaporate from _____.

- a. puddles
- b. rivers
- c. lakes
- d. all of the above

___ 20. What are the three stages of the water cycle?

- a. evaporation, condensation, precipitation
- b. condensation, precipitation, hibernation
- c. precipitation, dehydration, evaporation
- d. transpiration, dehydration, condensation

___ 21. Where is water vapor found?

- a. in the air around you
- b. in your breath
- c. in steam from boiling water
- d. all of the above

___ 22. The center of a hurricane is called the _____.

- a. middle
- b. point
- c. eye
- d. bottom

___ 23. The seasons rotate in the following order:

- a. winter, fall, spring, summer
- b. winter, spring, summer, fall
- c. fall, summer, winter, spring
- d. summer, spring, winter, fall

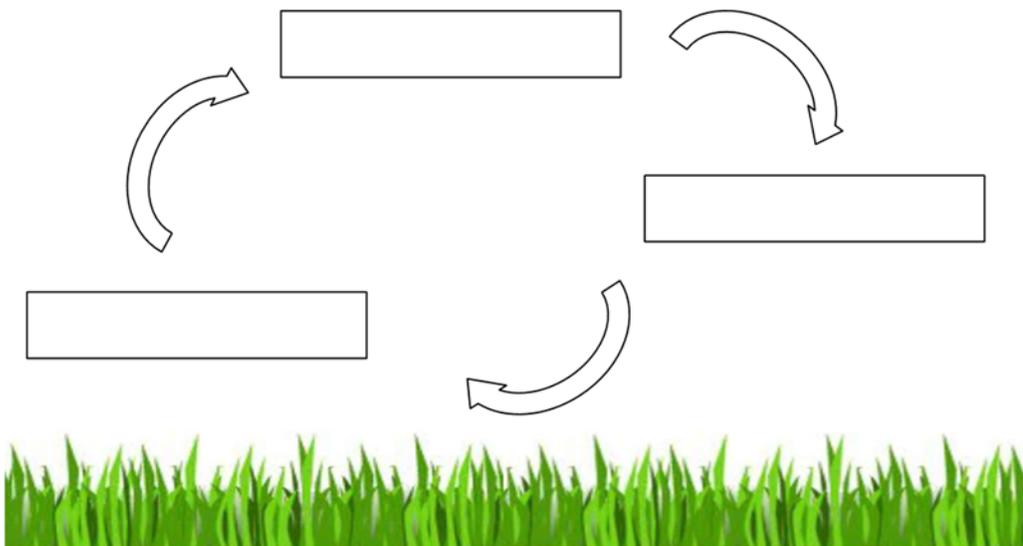
Part C: Matching (5pts)

Draw a line to match the word with its description.

- 24. cumulonimbus clouds
 - white, puffy, or billowy; they are big clouds—up to 12,000 feet from bottom to top. They bring fair, sunny weather.
- 25. stratus clouds
 - a heavy layer of low, thick, shapeless, very dark stratus clouds. They bring heavy and steady rainfall.
- 26. cirrus clouds
 - white, feathery, wispy curls high in the sky; They may mean that rain or snow is on the way.
- 27. cumulus clouds
 - low, layered, grayish-white clouds that can cover the whole sky, making it appear gloomy; near the ground, these are called fog. They bring overcast weather and sometimes a slight drizzle.
- 28. nimbostratus clouds
 - heaped, dark gray clouds. They can grow very tall. They bring lightning, high winds, and heavy rain. They may also bring hail and tornadoes.

Part D: The Water Cycle (5pts)

Fill in the parts of the Water Cycle and complete the drawing with the appropriate illustrations.



Part E: Written Response (4pts)

Read the passage below. Answer the questions in complete sentences.

Early one morning, Daniel looks outside. He notices that the grass looks frosty, as though it is covered in tiny snowflakes. An hour later, after the sun has come up, Daniel looks outside again. The grass in the sunshine is now covered with tiny drops of water. The grass in the shade still looks frosty.

1. Where did the drops of water on the grass come from?

1. Why does the grass in the shade look frosty instead of wet?
