**Weather in our World – Unit 3**

**(As of August 5, 2014)**

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| **Title of Unit** | Weather in our World | **Grade Level** | 1st Grade |
| **Subject** | Science and ELA  | **Time Frame** | 1st Term (3 weeks) |
| **Developed By** | Dina Ciccone and Tracy Dirkes |
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| **Stage 1 - Identify Desired Results**  |
| **Established Goals: CCSS / CCCS / Big Ideas / Big Themes** |
| **Concept:** Constancy and Change**Big Ideas:** There are different types of weather and weather is always changing. Weather patterns can be observed and investigated by using tools to collect wind, temperature, and rain data. Observation of weather conditions provides evidence to make decisions about clothing and activities.**Topics:** Seasons, Weather**Reconceived Standards:*** Students will observe and document daily weather conditions using basic weather instruments (Application)
* Students will explain how the weather influences their daily life (Comprehension)
* Students will use appropriate tools and methods to answer scientific questions in relation to the four seasons and weather. (Application)

**Received Standards:*** **New Jersey Science Standards:**
	+ **5.1 Science Practices** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.
		- 5.1.4.A.2 Use outcomes of investigations to build and refine questions, models, and explanations. (Application)
		- 5.1.4.A.3 Use scientific facts, measurements, observations, and patterns in nature to build and critique scientific arguments. (Application)
		- 5.1.P.B.2 Use basic science terms and topic-related science vocabulary. (Knowledge)
		- 5.1.P.B.3 Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (Knowledge)
		- 5.1.4.B.1 Design and follow simple plans using systematic observations to explore questions and predictions. (Application)
		- 5.1.4.B.2 Measure, gather, evaluate, and share evidence using tools and technologies. (Analysis)
		- 5.1.4.B.3 Formulate explanations from evidence. (Analysis)
		- 5.1.4.B.4 Communicate and justify explanations with reasonable and logical arguments. (Application)
		- 5.1.4.C.2 Revise predictions or explanations on the basis of learning new information. (Synthesis)
		- 5.1.4.C.3 Present evidence to interpret and/or predict cause-and-effect outcomes of investigations. (Analysis)
		- 5.1.4.D.1 Actively participate in discussions about student data, questions, and understandings. (Comprehension)
		- 5.1.4.D.2 Work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories. (Synthesis)
		- 5.1.4.D.3 Demonstrate how to safely use tools, instruments, and supplies. (Application)
	+ **5.4 Earth Systems Science:** All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.
		- 5.4.2.F.1 Observe and document daily weather conditions and discuss how the weather influences your activities for the day. (Comprehension)
		- 5.4.4.F.1 Identify patterns in data collected from basic weather instruments (Analysis)
* **Common Core – ELA Standards:**

* + [CCSS.ELA-Literacy.RL.1.1](http://www.corestandards.org/ELA-Literacy/RL/1/1/)Ask and answer questions about key details in a text. (Knowledge)

* + [CCSS.ELA-Literacy.RL.1.2](http://www.corestandards.org/ELA-Literacy/RL/1/2/)Retell stories, including key details, and demonstrate understanding of their central message or lesson. (Comprehension)

* + [CCSS.ELA-Literacy.RL.1.3](http://www.corestandards.org/ELA-Literacy/RL/1/3/)Describe characters, settings, and major events in a story, using key details. (Comprehension)

* + [CCSS.ELA-Literacy.RI.1.1](http://www.corestandards.org/ELA-Literacy/RI/1/1/)Ask and answer questions about key details in a text. (Knowledge)

* + [CCSS.ELA-Literacy.RI.1.2](http://www.corestandards.org/ELA-Literacy/RI/1/2/)Identify the main topic and retell key details of a text. (Knowledge)

* + [CCSS.ELA-Literacy.RI.1.3](http://www.corestandards.org/ELA-Literacy/RI/1/3/)Describe the connection between two individuals, events, ideas, or pieces of information in a text. (Comprehension)

* + [CCSS.ELA-Literacy.RI.1.5](http://www.corestandards.org/ELA-Literacy/RI/1/5/)Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text. (Application)

* + [CCSS.ELA-Literacy.RI.1.6](http://www.corestandards.org/ELA-Literacy/RI/1/6/)Distinguish between information provided by pictures or other illustrations and information provided by the words in a text. (Analysis)

* + [CCSS.ELA-Literacy.SL.1.4](http://www.corestandards.org/ELA-Literacy/SL/1/4/)Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly. (Knowledge)
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| **Cross-curricular Integration (Interdisciplinary Teaching and Learning)**Will you integrate this unit with other curricular areas? If so, what areas? In what ways will you connect the curricular areas? |
| Science and Literacy (ELA):Literacy strategies and skills will be applied as students acquire information and communicate their learning and understanding in Science. Integration of Literacy and Science is critical for student success. It is essential that literacy strategy and skill instruction be purposefully and appropriately planned and embedded within Science instruction; i.e. planning for the literacy and Science outcomes, differentiating, matching instruction to the learners, and in consideration of resources. This unit will make connections in Math for a later unit on measurement. This unit follows a Science unit that introduces argument and evidence in relation to what is science, who are scientists, and using our 5 senses. Many connections will be made. This unit will then transition into a Social Studies unit that integrates Social Studies and Literacy (ELA). The big idea of the next unit will be relationships in our world.  |
| **Enduring Understandings**If a student spends time with you during this unit, what is absolutely essential that the student understand and be able to transfer as a result of the experience (Rigor: Quadrant “D”)? | **Essential Questions**What provocative questions will foster inquiry, understanding, and transfer of learning (Relevance)?(Often, open-ended questions that stimulate reflective thought and inquiry and connect the knowledge and skills to the enduring understanding are used.) |

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| *Students will understand that...** The weather changes from day to day, week to week, and seasonally.
* Senses can be used to observe, describe, gather data and communicate changes in weather features (temperature, precipitation, wind, etc.)
* There are tools to measure changes in weather and these tools help meteorologists to make weather forecasts.
* The weather affects decisions that people make about clothing to wear and their outside activities.
* Sometimes weather can be dangerous.
* Scientists, called meteorologists, use tools to collect data to report current weather conditions and predict future weather.
 | *Content specific…*Big Idea:* How can you describe weather?
* How do the weather and the seasons change?
* How do literary and informational texts (books) teach us about the weather and the seasons?
* What happens in nature?

Topical:* How does weather affect all living things?
* How do weather instruments help to observe and describe weather features?
* How do the senses help provide information about the weather?
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| **Knowledge:**What knowledge (topics and facts) will student acquire as a result of this unit? This content knowledge may come from the indicators, or might also address pre-requisite knowledge that students will need for this unit. | **Skills**What skills will students acquire as a result of this unit? List the skills and/or behaviors that students will be able to exhibit as a result of their work in this unit. These will come from the indicators. |
| *Students will know...** Weather is what it is like outside.
* Weather can be described in many ways: hot, cold, sunny, cloudy, clear, calm, windy, rainy, icy, snowy, foggy, etc.
* Temperature is how hot or cold something is.
* A thermometer measures the temperature.
* A wind vane or wind sock measures wind direction.
* A rain gauge measures rainfall.
* Meteorologists study weather data and make forecasts. (weather predictions).
* A season is a time of year. There are four: spring, summer, fall/autumn and winter
 | *Students will be able to…** Describe weather
* Explain how to stay safe in bad weather
* Measure weather
* Describe how weather changes from season to season
* Make observations about the weather and the seasons
* Make predictions about the weather and the seasons
* Infer why temperatures fluctuate throughout the day
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| **Stage 2 – Assessment Evidence** |
| **Performance Task** Through what authentic performance task will students demonstrate the desired understandings, knowledge, and skills? (Typically, the P.T. describes the learning activity in narrative form. The P.T. usually includes a scenario or situation that requires students to apply knowledge and skills to demonstrate their understanding in an authentic, real life situation {Relevance}. Describe your performance task scenario below)By what criteria will performances of understanding be judged? |
| **GRASPS Elements of the Performance Task**  |
| ***G*** *– Goal**What should students accomplish by completing this task?* | *Goals*:* Investigate the different types of weather (Formative)
* Explain how weather conditions can be measured and observed using tools (Formative)
* Compare and contrast the 4 seasons and how they influence people and the environment (Formative)
* Predict the types of weather students would encounter on different trips (Summative)
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| ***R*** *– Role**What role (perspective) will your students be taking?* | *Roles:** Researchers
* Observers and/or eyewitnesses
* Newscasters
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| ***A*** *– Audience**Who is the relevant audience?* | *Audiences*:* Teachers
* Peers
* Parents
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| ***S*** *– Situation**The context or challenge provided to the student.* | *Scenario*:Your family is taking two different trips this year. One trip is in January to Alaska. Your family is very busy and wants you to pack your suitcase. You need to think about the type of weather you will encounter. What do you know about Alaska? What season is it in January? What clothes do you need to pack? What will the thermometer look like? Will you find any snow or ice? How would you describe the weather?When school finishes your mom announces to your family that you are taking a trip to the beach in Florida in July! She needs you to pack your suitcase again. What do we need to know about Florida? What season is it in July? What clothes do you need to pack to go to the beach? What will the thermometer look like? Did you find any snow or ice? How would you describe the weather? How would the trip to the beach in Florida be different than the trip to Alaska? |
| ***P*** *– Product, Performance**What product/performance will the student create?* | *Products*:* Student will complete the performance task packet, which involves drawing pictures, identifying ideas, and writing to demonstrate their knowledge of the weather
* End of the unit test
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| ***S*** *– Standards & Criteria for Success**Create the rubric for the Performance Task* | *Standards*:* Grading key for “weather on a trip” project
* Grading key for test
* Teacher observation for group work and investigations
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| **Performance Evidence**Through what evidence (work samples, projects, surveys, observations, quizzes, tests, journals or other means) will students demonstrate achievement of the desired results? What formative and summative assessments will be used throughout the unit to arrive at the outcomes? | **Student Self-Assessment**In what ways will students reflect upon or self-assess their learning? |
| * Pre-assessments (Formative)
* Checks for Understanding (Formative)
* Discussion (Formative)
* Debate (Formative)
* Student questions/comments (Formative)
* Teacher questions and prompts (Formative)
* Observation/Anecdotal records (Formative)
* Interview (Formative)
* Weather on a Trip project (Summative)
* Test (Summative)
 | * Traffic light
* Use reflective questions, prompts and responses
* What do I know? What did I learn? How do changes in the weather affect me?
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| **Stage 3 – Learning Plan** What teaching and learning experiences (WHERETO) will you use to:* achieve the desired results identified in Stage 1?
* equip students to complete (with understanding) the assessment tasks identified in Stage 2?
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| **Where are your students headed? Where have they been? How will you make sure the students know where they are going?** **What experiences do the learners bring to the unit? How have the interests of the learners been ascertained? Have the learners been part of the pre-planning in any way? What individual needs do you anticipate will need to be addressed?****Learning environment: Where can this learning best occur? How can the physical environment be arranged to enhance learning?**  |
| **W****H****E****R****E****T****O** | Where – We will start the unit with students making connections about weather and their lives. After the hook activity, we will give them a pre-assessment. Have students draw a picture of what each season looks like. We will use KWL charts for each season to determine student readiness. |
| Hook – Teacher will bring in a bag of clothes with a variety of different items (coat, gloves, flip flops, tank top, etc.). At the carpet put on the different items and say that you are prepared for the wrong type of weather. Example: put on a heavy coat and say that you are going to the beach. Let students disagree with you and talk about how they know that the clothing is wrong. After a few minutes of discussion, send students to desks for the pre-assessment.  |
| Equip - * Class discussion about the weather and the seasons
* Turn and share with a neighbor your ideas about how weather and the seasons change
* Develop vocabulary to describe weather and weather tools
* Reviewing and adding to the KWL chart will help students retain information and ask new questions.
* Practice identifying the main idea and key details in stories
* Use VENN diagram to compare and contrast seasons
* Investigate types of weather using observation and tools

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| Rethink – Provide opportunities for students to discuss what they know and think. Ask students lots of questions to help them articulate their ideas. |
| Evaluate – Students will consider where they are in this world and how weather affects them. Students will evaluate why knowing about the weather and the seasons and how they change is important.  |
| Tailor – If needed, students will receive extra support in on the weather trip project. Students who are ready for enrichment may learn about the water cycle and/or types of clouds.  |
| Organization –* Plan science centers
* Set up lab experiements
* Collect items for hook

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| **In what ways will you engage students at the beginning of the unit?**  |
| Conduct the hook activity and make connections to the data recording done every morning as part of morning meeting.  |
| **What activities / events will help students experience and explore the enduring understandings and essential questions in the unit? How will you equip them with needed skills and knowledge?** |
| **#** | **Lesson Title** | **Lesson Activities** | **Cross-curricular** | **Resources** |
| 1 | Hook | Conduct Hook activity. Administer pre-assessment. After students finish the pre-assessment, create K-W-L chart about weather and seasons. Brainstorm what we know and what questions they have about the weather. | Yes | Interactive Science by Pearson*What will the weather be like today?* by Paul Rogers*Think About the Weather* by Cynthia Reed and Janet Rothman*Cloudy with a Chance of Meatballs* by Judy Barrett*Bringing the Rain to Kapiti Plain* by Verna AardemaPaperWorksheetsPlanning a Trip activity Possible resources: Scholastic NewsReading A to Z booksScience A to Z books |
| 2 | Weather | Read *Think About the Weather* by Cynthia Reed and Janet Rothmanin Shared Reading. Have a conversation about weather terms. Discuss the differences between hot or cold, clear or cloudy, calm or windy, rainy or icy. Discuss what the weather looks like today. Review vocabulary cards. Students will draw a picture of key terms and label their picture. | Yes |
| 3 | Weather | Read Science text – What is the weather? P 212 – 213Complete the Engage activity – Tell what it is like in the picture. What weather words can we use? How do you know?Complete the Explain activity – Discuss how you would dress for the different types of weather to activate prior knowledge. Use digital presentation and read page 213 to students and discuss what you know. Note the highlighted bold word in the text for students. Important words to know are always highlighted and bolded. Now read the Did you Know? and discuss.Apply – what is today’s weather like? How does weather affect what you can do each day? Talk about with your table about this.  | Yes |
| 4 | Safety in Bad Weather | Read Science text – Safety in Bad Weather 214-215Describe what happens during a thunderstorm. How can you stay safe in most types of bad weather? Would it be worse to be caught in a thunderstorm or a hurricane? Why?Watch Discovery Education video about storms. *Weather Start: Storms* Metstorm, 2010. Full Video.*Discovery Education*. Web. 4 August 2014. <http://www.discoveryeducation.com/>.Read *Bringing the Rain to Kapiti Plain* by Verna Aardema and explore how a drought can be dangerous weather. Complete Exit Ticket – how do you stay safe from storms? | Yes |
| 5 | Weather Tools | Read Science text – 217-219 and use the online presentation for interactive demonstrationsHave students make a wind gauge and go outside and test it. Complete matching worksheet on weather tools. Set up a rain gauge to observe rain collection.Complete the What Will the Wind Blow? experiment in small groups. | Yes |
| 6 | Meteorologist | Read *Cloudy with a Chance of Meatballs* by Judy Barrettin Shared Reading. Review story elements. Discuss if this story is fiction or non-fiction. How do we know? What can we learn from this story? Make a connection to the way the weather is described and the job of meteorologists.What is a meteorologist? Go outside and observe the weather. Complete meteorologist worksheet describing yesterday, today’s, and tomorrow’s weather. Show video of kids playing after the rainstorm but do not have the sound on. In groups, students narrate the video and describe like a meteorologist what happened. Next, prompt students with questions and key words to describe what happened in the video. Lastly, play the video with sound and make connections to what groups said. <https://www.youtube.com/watch?v=UChcQ-mwO7I> <https://www.youtube.com/watch?v=1ghQX8LvP_U> <http://192.168.100.12/SAFARI/montage/play.php?keyindex=23505&location=local&chapterskeyindex=34819&play=1>Kid meteorologist: http://www.pbslearningmedia.org/resource/ess05.sci.ess.watcyc.kidmeteor/kid-meteorologist/Try to schedule a visit with a local meteorologist.  | Yes |
| 7 | Seasons | Read Science text – What are the 4 seasons? p 221-223 and use the online presentation for interactive demonstrations.Have students use post-its to write down 2 characteristics about any season. Then students will place it in the appropriate category around the room (4 corners). As a class, discuss characteristics and overlaps in seasonal traits. Review the sequence of seasons and how it corresponds to the months of the year. Show Brainpop jr. videos on Seasons to review information. | Yes |
| 8 | Weather in our World | Read *What will the weather be like today?* by Paul Rogers and discuss how weather changes around the world. Begin the Weather on a Trip project. Learn about Alaska - <http://camera.touchngo.com/>Learn about Florida - <http://weather.weatherbug.com/FL/Orlando-weather/weather-cams/local-cams.html> or read *What will the weather be?* guided reading book | Yes |
| 9 | Review | Brainstorm ways to describe weather and write words on the board. Students work in groups. Cut and organize photographs. Students can categorize the photographs anyway they decide. They paste them on construction paper and label their groups. Then students present their poster. How did you group your pictures? Pick one photo and explain why it’s in the group. (Formative) | Yes |
|  | Centers | Read the RoomIllustrate Vocabulary Word on Rain DropSort – cut and paste activityArt craft – creating season trees (could be done in Computers or Art class)So many great apple ideas and printables[http://www.weatherwizkids.com/weather-experiments. htm](http://www.weatherwizkids.com/weather-experiments.htm) |  |
| **Special Considerations:*** Each lesson will begin and end with an essential question
* Several of the above lessons will be 2 to 3 periods long
* Some of the instruction will occur during morning meeting, a Shared Reading block and/or during another Social Studies literacy block
* Some of the teaching and work will be completed in small group during centers
* Additional resources will be added
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| **Assess and Reflect (Stage 4)** |
| **Reflections / Considerations (Self-assessment)** | **Comments** |
| **Unit and Areas of Study:****Did I maintain alignment and integrity between and among Stage 1, Stage 2, and Stage 3?**  |  |
| **Adaptive Dimension:** **Did I make purposeful adjustments to the curriculum content (not outcomes), instructional practices, and/or the learning environment to meet the learning needs and diversities of all my students?** | For struggling students:For students who need a challenge: |
| **Instructional Approaches:** **Did I use a variety of teacher directed and student centered instructional approaches?** |  |
| **Resource-based Learning:****Did the students have access to various resources on an ongoing basis?** |  |
| **Content and Perspectives/Gender Equity/Multicultural Education:** **Have I nurtured and promoted diversity while honoring each child’s identity?**  |  |

Adapted from: Wiggins, Grant and J. McTighe. (1998). *Understanding by Design*, Association for Supervision and Curriculum Development.