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EXEMPLAR

Units *&* Lessons

ENGLISH LANGUAGE ARTS

Grade 2

Grant funded by:



Lesson 5: Weather Tools

Focus Standard(s): RI.2.3

Additional Standard(s): RI.2.1, RI.2.2, W.2.2, W.2.8, SL.2.1

Estimated Time: 1 hour and 40 minutes

Text(s): *Magic Tree House #23 Twister on Tuesday* and *Twisters and Other Terrible Storms* by Mary Pope Osborne

Resources and Materials:

- Handout 1.2: Student Progress Tracking Chart
- Handout 1.3: Exit Tickets
- Handout 1.4: Student Participation Checklist
- Handout 4.2 Summary Note Taking
- Handout 5.1: Weather Tools
- Handout 5.2: Weather Tool Procedures
 - Note:** Consider printing or adding your own pictures to represent the procedure if the text does not already include them.
- Handout 5.3: Weather Station Rubric
- Six large cards that have one of the following steps written on each:
 1. First, collect your ingredients.
 2. Spread peanut butter evenly onto one slice of bread using a knife.
 3. Spread jelly or jam evenly onto the other slice of bread.
 4. Press the two slices of bread together.
 5. Cut the sandwich.
 6. Enjoy your easy and yummy looking sandwich!
- Materials for the Weather Tool Groups
 - Note:** Have the materials ready and in a box or separate area for the students before class.
- Reader's Response Journal (RRJ)
- Video: [Weather Tools](#)

Lesson Target(s):

- Students show understanding that
 - a technical procedure explains the steps in a specialized process.
 - the key features of content-specific texts (e.g., science texts) are based on text structures (e.g., events, steps, procedures).
 - a simple transition/linking words (e.g., first, because, then, on the other hand, as a result) shows connections in informational texts.
- Students will follow a written procedure and use text features to create weather tools.
- Students will explain how they used the steps and text features to create the weather tools.
- Students will describe how a series of steps in a technical procedure are connected.

Guiding Question(s):

- What is the use of weather tools?
- How did the text features help you to understand the steps?
- How did the transition/linking words help you to follow the steps?
- How did you create the weather tools? What would you do differently next time?

Vocabulary**Academic Vocabulary:**

- Connections
- Historical events
- Nonfiction
- Scientific ideas
- Technical steps

Instructional Strategies for Academic Vocabulary:


- Introduce words with student-friendly definition and pictures
- Read and discuss the meaning of word in multiple contexts
- Write/discuss using the words

In-Context Vocabulary:

- Based on the specific needs of your students, choose words/phrases that have clear context clues in the text.

Strategies for Teaching How to Determine Meaning from Context Clues:

	<input type="checkbox"/> Use an anchor chart to model how to use context clues to determine the meaning of words
Direct Instruction Text Vocabulary: <ul style="list-style-type: none"> • Weather • Meteorologist • Temperature • Climate • Barometer • Rain Gauge • Anemometer • Wind Vane 	Instructional Strategies for Direct Instruction Text Vocabulary: <ul style="list-style-type: none"> <input type="checkbox"/> Introduce words with student-friendly definition and pictures <input type="checkbox"/> Students create pictures/symbols to represent words


Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform/read well below the grade level and/or for students who and/or a more advanced text for students who perform/read well above grade level.
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

Instructional Plan
<p>Understanding Lesson Purpose and Student Outcomes: Use the information learned through lessons 1-5 and create weather tools. Introduce the “I can” statements to the students. Display the following “I Can” Statements:</p> <ul style="list-style-type: none"> • I can read grade level text. • I can create weather tools and use them to measure weather. <p>Anticipatory Set/Introduction to the Lesson:</p> <ul style="list-style-type: none"> • Introduce weather tools and ask students what they know about them. Use a KWL chart. Fill out the K and W sections before watching the video Weather Tools. Use Handout 5.1: Weather Tools work sheet during the video to be held accountable for the

information.

Activity 1: Vocabulary

Introduce Direct Instruction words to the class. Use the “Word, Explanation, Image” strategy. Write the word on the board or chart paper, and write a student-friendly definition next to it. Finally, add an image to the word. Finish this strategy with the rest of the Direct Instruction words, and have students use this strategy in their reading response journal for the other direct instruction words.

Meteorologist	an expert in or student of meteorology; a weather forecaster	
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Activity 2: Preview Text

Project pages 20-21 of *Twisters and Other Terrible Storms* for the students and review the different weather tools. Discuss with the class what the weather tools have in common. Relate these tools to the tools shown on the video.

Activity 3: Read the Text

Read in whole group the section of weather tools from *Twisters and Other Terrible Storms!* Focus on specific paragraphs within the text while reading. Use **Handout 4.2: Summary Note Taking** to identify the main topics of paragraphs.

Note 1: You can choose an informational text regarding weather tools to give students more information if needed.

Note 2: Think about your students. If they need differentiation regarding reading aloud, read this [Edutopic](#) article for suggestions.

For students who are EL, have disabilities, or perform/read well below the grade level:

- Provide additional information regarding the weather tools with the handout provided.

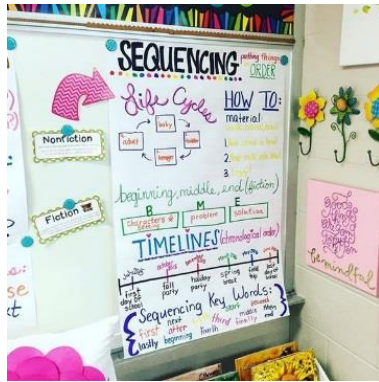
Extensions and/or a more advanced text for students who perform/read well above grade level:

- Research further the weather tools or research additional weather tools.

Activity 4: Understanding RI.2.3 and the Text

Students discuss weather tools and use **Handout 5.1: Weather Tools** used during the “Weather Tools” video to aid in a class discussion.

Explain to students that “following steps in a procedure are very important for creating new materials. However, following steps in a technical procedure text can be difficult. Therefore, it is important for readers to use text features (including the list of materials) and the connecting words in the steps to help guide them. When authors write procedural texts, they provide often provide pictures to represent each step and numbers to guide each step.” Provide a model text to give an example. Continue explaining to students that “authors of procedural texts, they write in sequence. Here is what I mean by *sequence*.” Provide an already-created or create an anchor chart like this example:



Note: Add key words such as *while*, *now*, and other words used in the steps that help students contribute to student comprehension of the sequence of the steps.

Explain the different ways authors write in sequence: connecting words (e.g., first, then, while, next, after, etc.), starting with verbs (e.g., use, locate, cut, make, stick, etc.), and pictures and other text features. Provide or display a copy of the Weather Tools procedure texts that they will use. Ask them to choose from the anchor chart which type of text they think this text is (answer: “How To” text). Also, spend some time providing examples of procedural documents and modeling how you use the connecting words, the verbs, and pictures and other text features to understand the steps.

Tell students that there is one more important thing to understand about procedural texts. Ask for five volunteers to line up in the class. Provide each student with a large card that has steps to making a peanut butter and jelly sandwich written on them (mentioned in materials and resources). Review the steps with students. Complete the following actions while asking these questions:

- Have the student holding step one sit down while the others remain standing and ask, “What would happen if you took out the first step?”
- Have the seated person come back to the front and ask students, “What is step three?”
- Have the student holding step three sit down while the others remain standing and ask, “What would happen if you didn’t complete step three?”
- Have the seated person come back to the front but switch places with step 2 and ask students, “What would happen if you did step three second instead of third?”

Explain that each step is important and the sequence of steps is important. Explain that knowing the connections between the steps is important to understand the steps.

Have students turn and talk to describe what they just learned to help them read a technical procedure steps in a text.

- ✓ Monitor students’ understanding of how connecting words and text features in a technical procedure text can help them to comprehend the steps better. Distribute **Handout 1.2: Student Progress Tracking Chart** to record your information.

Activity 5: Responding to the Text

The teacher will break up the class into groups of 3 to 4 students to create weather tools. Review directions **Handout 5.2: Weather Tools Procedures**. Have students discuss how the text features and the connecting words in the directions will help them to understand the steps of the procedural text. Remind students that the sequence of the steps is important.

Note: Consider printing or adding your own pictures to represent the procedure if the text does not already include them.

Groups create their assigned weather tool. The groups are Barometer, Rain Gauge, Anemometer, and Wind Vane.

Activity 6: Writing Opportunity:

Students write a journal entry about the process they used when making their weather tool. Ensure students describe the process they used when making their weather tool from their experience and relate it back to the directions or procedure given. Use **Handout**

5.2: Weather Tools Procedures. Model the first sentence of how to look at the directions and relate that to their own experience from making their weather tool.

Activity 7: Closing

The groups will share out their weather tools to the class. Fill in the L section of the KWL chart.

- ✓ Use **Handout 1.4: Student Participation Checklist** throughout the lesson to monitor progress.

Reflection: (Have students reflect on how they accomplished target.)

- ✓ Exit Ticket: Using **Handout 1.3: Exit Ticket** Reflect based on the lesson and target skill. As a class, discuss the essential questions for this lesson.

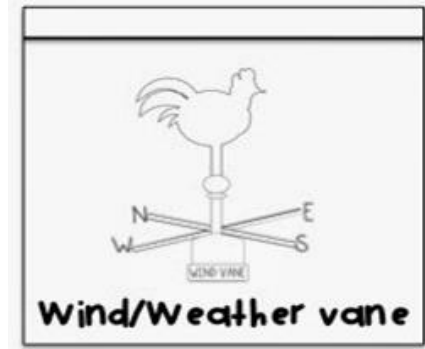
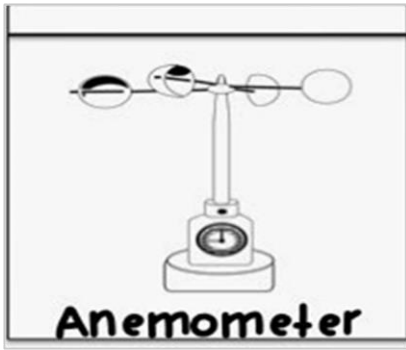
Homework

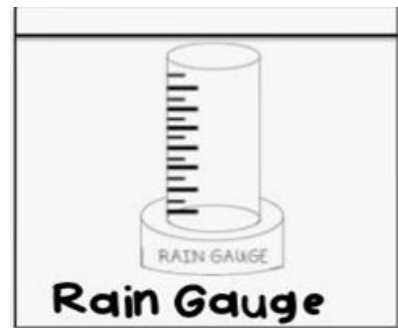
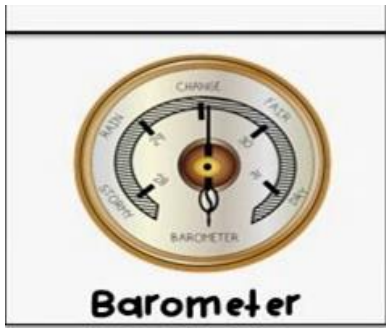
Research a weather tool of their choice. Bring the research with them to school to share out. Answer these questions.

Answer these questions:

1. How would you use this tool in your everyday life?
2. Would you change this tool to better serve you?

Handout 5.1: Weather Tools





Handout 5.2: Weather Tools Procedures

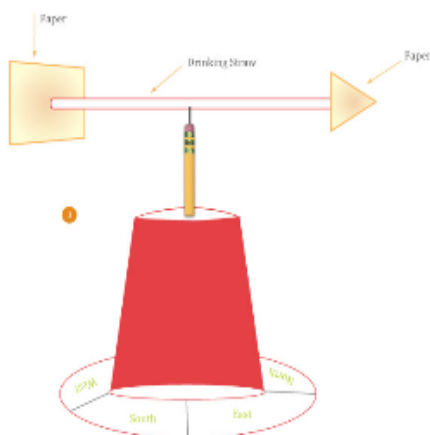
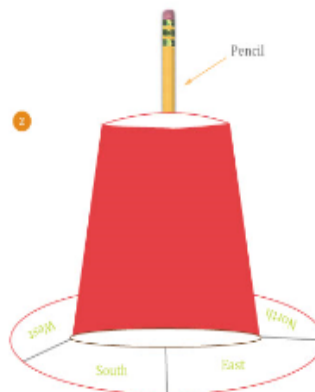
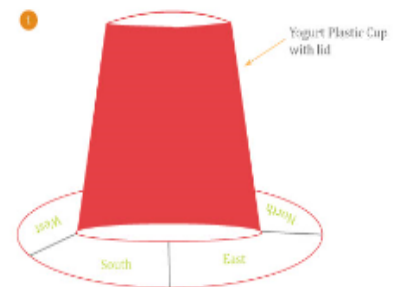
1. Wind Vane

Supplies:

- Round plastic drinking cup with lid, or round food storage container with lid
- Pebbles or sand
- Sharpened pencil
- Drinking straw (a straight one, no bendies!)
- Straight pin
- Poster board or card stock paper
- Black permanent marker
- Compass

How to:

1. Start by putting the lid on the plastic container, and turn the container upside down. Trace around the lid, and then make another circle around the outer edge, at least 2 inches wider than the first one.
2. Use a ruler to divide the lid in half along its diameter, and then divide each of those halves in half. Have your child write the words for the four parts of the compass along the outer edge of each of the four sides. Moving from the top, clockwise, she should write "North, East, South, and West."
3. Now open the container. Stick a blob of modeling clay or putty on the bottom of the container, and then fill the remainder to the top with pebbles or sand. Snap the container lid on and tape it, if necessary, to keep it secure.
4. Glue the container, upside down, onto the cardboard compass base you just made.
5. Take the sharpened pencil, and poke it through the center of the plastic container so that the eraser is on top, and the point is held by the putty and sand.
6. Now, cut a broad triangle and a square, both about 3 inches across from your construction paper. Cut a slit in each end of the straw. Slide the triangle onto one end and the square onto the other. Use a bit of glue if they seem to slip. Push the pin through the center of the straw and attach it to the top of the pencil eraser. If you flick the straw, or blow on either



end, it should move freely.

7. Take your wind vane outside to a place where the wind is not highly obstructed. Help your child find north, south, east, and west on a real compass, and line up the wind vane accordingly. Wait for the next breeze; the arrow will point to where it's coming from.

2. Rain Gauge

Supplies:

- A plastic (soft drink) bottle
- Some stones or pebbles
- Tape
- Marker (felt pen)
- A ruler

How To:

1. First, cut the top off the bottle.
 2. Place some stones in the bottom of the bottle. Then, turn the top upside down and tape it to the bottle.
 3. Next, use a ruler and marker pen to make a scale on the bottle.
 4. Pour water into the bottle until it reaches the bottom strip on the scale.
- Congratulations, you have finished your rain gauge.

Put your rain gauge outside where it can collect water when it starts raining. After a rain-shower has finished, check to see how far up the scale the water has risen.

3. Barometer

Supplies:

- A glass jar
- A balloon
- A few rubber bands
- Straws
- Tape
- Thick paper
- A ruler
- Scissors

How To:

1. Tightly cover the top of the jar with plastic wrap, using a rubber band to hold the plastic wrap in place.
2. Next, make sure the cover is tight, making the can airtight.
3. Place the straw horizontally or sideways on the plastic wrap so that two-thirds of the straw is on the can.
4. Tape the straw to the middle of the plastic wrap so that it will not fall off.
5. After taping the straw, tape an index card to the can behind the straw. The straw will act as a pointer on the card.
6. Carefully record the location of the straw on the index card with a pencil. If desired, marks can be drawn on the index card to make observing the changes easier.
7. After 15 minutes, record the new location of the straw on the index card. Continue checking and recording the straw location as often as you want.

EXPLANATION:

High pressure will make the plastic cave in and the straw go up. Low pressure will make the plastic puff up and the straw go down. If possible, check your measurements with a real barometer.

4. Anemometer

Supplies:

- 5 small paper cups
- Hole punch
- Scissors
- Duct tape
- 3 thin wooden dowels
- Empty water bottle
- Stopwatch

How To:

1. Use the hole punch to make a hole in the side of each of the 4 paper cups.
2. Use the hole punch to make 4 holes spaced evenly around the rim of the last cup. This will be the center of the anemometer.
3. Now, slide 2 of the wooden dowels through the holes in the center cup. They should cross in an "X."
4. Insert the ends of the dowels into the holes of the other cups and tape them into place. Make sure the cups are all facing the same direction.
5. Take the last wooden dowel and make a hole in the bottom of the center cup.
6. After making a hole, push the dowel up until it meets the X and tape everything together. This will be your rotation axis.
7. Finally, put the center dowel into an empty water bottle and begin testing!

To calibrate your anemometer:

1. On a windless day, have an adult drive you down the street at 10 miles per hour.
2. Hold the anemometer out the window and count the number of rotations in 30 seconds.
3. However, many times your anemometer spins in 30 seconds will correspond roughly to wind blowing at 10 miles per hour.

Handout 5.3: Weather Station Rubric

WEATHER STATION RUBRIC

NAME: _____

CHAPTER: _____

		3	2	1
Research for Weather Guide Topic Sheet	Research	Student stays focused on reading in group. Records detailed notes from chapter.	Student stays mostly focused on reading in group. Records some notes from chapter.	Student struggles to focus on reading in group. Does not record notes from chapter.
	Weather Guide Topic Sheet	Student works with group to fill out neat, detailed Topic Sheet.	Student works with group to fill out Topic Sheet.	Student does not work with group to fill out Topic Sheet.
	Cooperation	Student cooperates with group for duration of the project.	Student cooperates with group during some of the project.	Student does not cooperate with group during the project.
Weather Instruments	Research	Student stays focused on reading detailed directions provided. Discusses with group.	Student stays mostly focused on reading detailed directions provided. Attempts to discuss with group.	Student does not stay focused on reading directions provided. Does not discuss with group.
	Construction	Student works with group to carefully construct accurate instruments.	Student attempts to work with group to construct instruments.	Student does not attempt to work with group to construct instruments.
	Time on Task	Student focuses on work for duration of the project.	Student focuses on work during some of the project.	Student does not focus on work during most of the project.
Weather Log	Recording Skills	Student keeps detailed records on a daily basis.	Student keeps detailed records several days a week.	Student keeps records on a weekly basis.

TOTAL: ____/21= ____

COMMENTS:

For training or questions regarding this unit,
please contact:

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