KUTZTOWN UNIVERSITY

ELEMENTARY EDUCATION DEPARTMENT

LESSON PLAN FORMAT

Teacher Candidate: Alix Landes and Katie Loughran Date: 4/3/2015

Cooperating Teacher: Coop. Initials

Group Size: 22 Allotted Time 50 min Grade Level 1st

Subject or Topic: Science: Weather Instruments Section

**STANDARD:**

3.3.1.A5: Become familiar with weather instruments. Collect, describe, and record basic information about weather over time.

1. Performance Objectives (Learning Outcomes):
	1. The first grade students will identify and describe weather instruments by making creating their own weather instruments
	2. The first grade students will analyze and describe weather data over a time by graphing data and discussing the results.
2. Instructional Materials
	1. Envelopes
	2. Matching cards
	3. Book (The Magic School Bus- Wet All Over)
	4. Pre- made labeled graph templates
	5. Internet access
	6. Poster board
	7. Chart paper
	8. Plastic water bottles
	9. Water
	10. Rubbing alcohol
	11. Straws
	12. Modeling clay
	13. Food coloring
	14. Tape
	15. Ruler
	16. Markers
	17. Stones/ pebbles
	18. Plates
	19. Pencils and erasers
	20. Pen cap
	21. Hole puncher
	22. Plastic cups
	23. 1 straight pin
3. Subject Matter/Content (prerequisite skills, key vocabulary, big idea, outline of additional content)
	1. Prerequisite skills
		1. The students need to know about the different types of precipitation, clouds, and storms.
	2. Key Vocabulary
		1. Thermometer: A tool that measure temperature
		2. Wind Vane: A tool that measures the direction the wind is blowing
		3. Rain Gauge: A tool that measures the amount of rain that has fallen over a time period
		4. Anemometer: A tool that measures the speed of wind.
		5. Meteorology: The study of atmosphere used for weather forecasting. Scientists who study this are called meteorologists.
	3. Big Idea
		1. What are the different types of weather instruments and how are they used.
	4. Additional content
		1. No additional content
4. Implementation
	1. Introduction
		1. The teacher will begin with a review of all the storms learned yesterday since there will be a quiz at the end of this lesson on storms and weather instruments. <http://exchange.smarttech.com/details.html?id=4b5625fc-535c-4e7a-8bc1-6ab9bdad5d01>
		2. The teacher will start the lesson by reading the book, *What Will the Weather Be?* By: Lynda DeWitt. Before the teacher reads, she will tell her students to pay attention on how they determine the weather.
		3. The teacher will then have a discussion about the book highlighting the new information. They will chart everything they learned from the book and brainstorm other things they know that meteorologists use or do to determine the weather.
	2. Development
		1. The teacher will tell the students that today we are going to learn about the different weather instruments. She will tell them that meteorologists use these instruments when determining the weather. We are going to be meteorologists for the day!
		2. The teacher will have the students do an activity as a pre-assessment to see how much they already know about the different weather instruments. The students will be given an envelope filled with picture cards of a weather instrument and cards that say what it measures and a picture of the type of weather it is used for. The students will dump out all the cards in the envelope and match them up on what they think is correct. They will do this activity independently. The teacher will walk around to monitor and see what the students already know. *(see attached)* **(performance assessment) (formative assessment)**
5. The teacher will number the cards, making the two cards that match have the same number. After the students matched them up, they can check the numbers to see if they are correct.
6. The teacher will also use a rubric to assess the students on this activity.
	* 1. Next the teacher will use a SMARTboard lesson to teach the different instruments. As the teacher is going through the lesson, the students will fill in a guided notes sheet to go in their science journals. *(see attached)* [http://express.smarttech.com/?url=http://exchangedownloads.smarttech.com/public/content/ac/ac078a3c-1b70-4bee-8deb-11b02fb8e12c/Patriots%20TV%20Weather%20Tools%20PBL.notebook#](http://express.smarttech.com/?url=http://exchangedownloads.smarttech.com/public/content/ac/ac078a3c-1b70-4bee-8deb-11b02fb8e12c/Patriots%20TV%20Weather%20Tools%20PBL.notebook)
		2. Then the teacher will play a weather instruments song to reinforce all the instruments the students just learned. <https://www.youtube.com/watch?v=kBfaAN_tWW4>
		3. The students will create their own weather instrument. Each table will make a different weather instrument. The teacher will randomly select which table makes what instrument. The teacher will assist each table and give assistance when needed.
			1. One table will make a thermometer and have all the materials needed on their table.

They will fill one fourth of the water bottle with water using a measuring cup. They also need to put equal amount of rubbing alcohol which the teacher will assist them with.

Then the students will add a few drops of food coloring to the bottle

Next, the students will put the straw in the bottle without it touching the bottom

The students will then use modeling clay to cover the top of the bottle to keep the straw in place.

Then the students will hold the bottom of the bottle and watch the mixture move up through the straw.

* + - * 1. Another table will create their own rain gauge and have all the materials needed on their table.

The teacher will give the students a plastic bottle with the top already cut off. The bottle will be labeled like a ruler on the side.

The students can place some stones in the bottle.

Then the students will take the top of the bottle that was cut off and put in upside down. They will tape it to the bottle the teacher may need to help with this.

Then the students will look at the bottle and find the line. The students will pour water up to that line.

* + - * 1. The next table will create their own wind vane using the materials given to them on their table.

The students will be given an arrow to cut out of poster board or thicker paper. After they cut the arrow out the students will tape on side of it to one side of a pen cap.

The students will then make a ball with the modeling clay. They will then put the clay ball on a paper plate in order to place the pencil eraser side down into the clay so it can stand up

Next, the students will set the pen cap on the pencil point so the arrow can move freely. The teacher might need to assist the students with this step.

Lastly, the students will label the plate north, south, east, and west.

* + - * 1. The last table will create their own anemometer using the materials on their table.

The students will be given four small size plastic cups with one hole punched in each about one half below the rim. The fifth cup will have four equally below the rim and one hole in the center of the bottom of the cup.

The students will color the bottom of one of the four cups with a permanent marker.

Next the students will push a straw through the hole of one of the cups. Then fold the end of the straw inside and tape it to the inside of the cup on the opposite side of the hole.

With the cup attached, push the straw through two of the holes in the fifth cup and attach another cup to the opposite end. It is important the students make sure the cup openings are facing opposite directions. The teacher may need to help with this step so they can get the hang of it so they can do it for the other steps.

The students will repeat the previous step with the two other cups.

The teacher will help the students push the pin through the straws and the bottom of the cup into the eraser of the pencil.

The students will make a ball out of modeling clay and place it on a plate. Then they will stick the pencil into the clay so it can stand up.

* + 1. After each table makes an instrument, each table will be given data from one week. This data would be from the same instrument they made  **(formative assessment)**
			1. The students will also be given a graph with the x and y axis already labeled. *(see attached)*
			2. The students will work together to create the graph on chart paper.
			3. The teacher will walk around as they are working and assist them if needed.
			4. Then the teacher will put all the graphs on the board and they will discuss and interpret each graph.
		2. The teacher will do a quick review on the material learned. Then the students will complete a quiz that covers the weather instruments and storms which was taught in the previous lesson. (see attached)
	1. Closure
		1. To wrap up the lesson, the teacher will review the weather instruments one more time to stress how they are used to determine the weather.
		2. The teacher will tell the students to look for these instruments on a daily basis. The teacher will explain that these instruments are talked about on the news every day.
		3. The teacher will have the students share something they learned together or an interesting fact they did not know before.
	2. Accommodations/Differentiation
		1. To accommodate Jimmy who has ADHD, the teacher will make sure Jimmy is sitting close to the SMARTboard so he is able to focus and pay attention without getting distracted. The teacher will allow him to take breaks when he needs or stand up and walk around.
		2. All students will be able to take a break for a couple minutes
		3. All students will get a copy of the notes
	3. Assessment/Evaluation Plan

1. Formative

1. The teacher will use a checklist to assess if they remembered what they learned about storms during the quick storms review.

2. Summative

1. The students will take a quiz at the end of this lesson that covers the weather instruments learned today and the material on storms learned yesterday.
2. Reflective Response
	1. Report of Student Performance in Terms of Stated Objectives (Reflection on student performance written after lesson is taught, includes remediation for students who fail to meet acceptable level of achievement)

Remediation Plan

* 1. Personal Reflection (Questions written before lesson is taught. Reflective answers to question recorded after lesson is taught)
		1. How could this lesson be improved?
		2. Are the students appropriately reflecting in their journal?
		3. After the completion of the lesson are the students able to restate and identify what they just learned?
1. Resources (in APA format)

<http://www.weatherwizkids.com/weather-forecasting.htm> (content)

<http://www.sciencekids.co.nz/sciencefacts/careers/meteorologist.html> (content)

<http://www.weatherwizkids.com/weather-experiments.htm> (instruments activity)

<https://www.teacherspayteachers.com> (guided note sheet)

<http://exchange.smarttech.com/details.html?id=4b5625fc-535c-4e7a-8bc1-6ab9bdad5d01> (storms quick review)

[http://express.smarttech.com/?url=http://exchangedownloads.smarttech.com/public/content/ac/ac078a3c-1b70-4bee-8deb-11b02fb8e12c/Patriots%20TV%20Weather%20Tools%20PBL.notebook#](http://express.smarttech.com/?url=http://exchangedownloads.smarttech.com/public/content/ac/ac078a3c-1b70-4bee-8deb-11b02fb8e12c/Patriots%20TV%20Weather%20Tools%20PBL.notebook) (presentation on weather instruments)

<http://www.wunderground.com/history/airport/KRDG/2015/4/7/DailyHistory.html?req_city=Kutztown&req_state=PA&req_statename=Pennsylvania&reqdb.zip=19530&reqdb.magic=1&reqdb.wmo=99999&MR=1> (weather data)

DeWitt, L., & Croll, C. (1991). *What will the weather be?* New York: HarperCollins.