

GROW YOUR PALS PROGRAM GUIDE



THE NATIONAL FFA MENTORING PROGRAM

Sponsored by



LESSON 1.30

Weather Tracker – What is going on outside?

Unit:
**MATHEMATICAL
APPLICATIONS**

PRECEPTS

E - Awareness

E1. Address issues important to the community

NATIONAL STANDARDS

CS.01.05.01.a. Discuss trends and issues important to the community.

NM-NUM.PK-2.1 Understand Numbers, Ways of Representing Numbers, Relationships Among Numbers, and Number Systems

NM-NUM.PK-2.3 Compute Fluently and Make Reasonable Estimates

NM-MEA.PK-2.1 Understand Measurable Attributes of Objects and the Units, Systems, and Processes of Measurement

NM-MEA.PK-2.2 Apply Appropriate Techniques, Tools, and Formulas to Determine Measurements

NS.K-4.1 Science as Inquiry

NS.K-4.3 Life Science

NS.K-4.4 Earth and Space Science



Lesson Type:
Large Group

STUDENT LEARNING OBJECTIVES

As a result of this lesson, the student will ...

- Define *weather*, *climate* and *precipitation*.
- Explain the major parts of a *weather* report.
- Track the rainfall and *weather* patterns over time.
- Name three local crops and the rain required for those crops.





TIME

Instruction time for this lesson: **50 minutes.**



RESOURCES

The *Weather* Channel Kids! www.theweatherchannelkids.com

National FFA Organization. (2003). LifeKnowledge Precepts and Signs of Success.



TOOLS, EQUIPMENT AND SUPPLIES

- ✓ **PALS1.30.LG.ASSESS.A** - one per student
- ✓ **PALS1.30.LG. AS.A** - one per student
- ✓ **PALS1.30.LG.TM.A** - one set printed off or ready on an overhead projector
- ✓ **Computer with Internet access** (*if forecast website is incorporated into the lesson*)
- ✓ **One clear jar per student**
- ✓ **One ruler per student**
- ✓ **One permanent marker per student**



KEY TERMS

The following terms are presented in this lesson and appear in ***bold italics***:

Weather

Precipitation

Climate



CONTENT OUTLINE

Objective 1. | Elements of a *weather report*.

- A. High temperature: The highest temperature reached during the day
- B. Low temperature: The lowest temperature reached during the day
- C. Chance of rain: A percentage noting the chance that the conditions will cause it to rain or snow
- D. Amount of *precipitation*: Amount of moisture that actually fell

Objective 2. | Tracking and monitoring *weather patterns and rainfall*.

- A. *Weather* collection chart
 - 1. Used to collect the information each day
- B. Rain gauge
 - 1. Tool used to collect and measure the amount of rainfall
- C. Students build rain gauge and collect *weather* data
- D. Students note the *weather* trends from their data
- E. Why are *weather* reports not always right?
 - 1. They are based on what usually happens. They have watched the *weather* for years and they make educated forecasts based on that

Objective 3. | Plants that require water – seasonal rainfall.

- A. Farmers plant their crops during certain times of the year because of rain
- B. There are four seasons, and there are different rain amounts each season
- C. Some areas get more rain than other places because of their location
- D. Students can research how much rain crops in their area require

INTEREST APPROACH

*Before this lesson, print off the **weather** report for the day of the lesson. You could use one of the recent newspapers, pull it up on a projector or print off the forecast for each of the students.*

*If **weather** permits, this is a lesson that would be well presented outside in a playground or picnic area. This would allow you to draw from the experience of being outside while teaching about **weather**.*



Hello everyone! How many of you have ever seen a weatherperson on TV? Great. Who can tell me what the weatherperson tells us?

Elicit responses from the students. Expand on the answers if needed.



The news gives us a lot of information about the **weather**. What exactly is **weather**? **Weather** refers to what is going on around our planet that causes rain, clouds, temperature and sunshine. Raise your hand if you have seen your parents look up the **weather** on their computer, on the TV or in the newspaper? That is a lot of you. The **weather** is really important to all of us and especially farmers that need the rain to produce our food.

*Hand out or show the **weather** report.*



Here is today's **weather** report. Who can tell me what this means about our **weather** today?

*Allow students to tell you what they know about the **weather** report.*



You are right. There are pictures, temperatures, rain clouds and other things that tell us about the **weather**. Does the **weather** outside match the **weather** report today?

*Be flexible with this – discuss with the students the fact that a **weather** report is just an educated guess at the **weather** based on what happened in the past.*



Today we get to play weatherperson! We are going to learn what the **weather** report means, we are going to collect rain and **weather** data ourselves, and then we're going to look at how farmers use the **weather** reports to grow our food!

SUMMARY OF CONTENT AND TEACHING STRATEGIES

OBJECTIVE 1. | Explain what each major part of the *weather* report means.



*Prior to the lesson, it is important to save a number of newspapers so that there is one newspaper containing a **weather** report for each pair of two students.*



First, it is important for us to learn how to read the **weather** report. I'm going to help all of you find a partner and then I will give you a newspaper. When you hear FIND IT, your job is to find the **weather** report and put your finger on it to show you found it.

Hand out the newspapers and pair the students as you move around the room.

FIND IT!



Every time that we see a weather report, we can look for four important pieces. First, we look for the high temperature. This is the highest temperature for the day. When I say HOT, you and your partner will try to find the high temperature in your newspaper. When you have found it, raise your hand.

HOT!

Walk around the room and help the students find the high temperature.



Great job! Now let's look for the low. When I say LOW work with your partner to find the low temperature in your paper. Raise your hand when you found it.

LOW!

Help the students find the low temperatures in the newspaper.



The low temperature is the lowest the temperature will get in that day. Today, the high is _____ degrees and the low is _____ degrees. Let's move on to the next part of the **weather** report.

The next important part of the **weather** report is the chance that it will rain. This part of the **weather** report will be a percent. It will look like this: 20%.

Draw what a percent looks like on the board or on a large piece of paper.

When I say RAIN, look at your **weather** report and find the chance of rain.

RAIN!

Help the students find the percent chance of rain.



It looks like you all found it. You all could be **weather** reporters! What does this percentage mean?

Take volunteers.



Those are some good ideas. The percentage tells us the chance that it will rain. Every day, **weather** men and women record the **weather** and see what happens. This is really a guess based on what the wind, temperature, jet streams and clouds are doing. It shows us the chance that it could rain. If it is 0% that means it will not rain. If it is 100% you better bring your umbrella because when the **weather** is like it is that day, it has always rained in the past! If it is 20%, it may or may not rain. Today's percentage chance of rain is _____%. What does that mean?

Take answers from the students.



One last thing is called **precipitation**. Turn to your partner and say **precipitation** five times really fast. That is a really big word. What does it mean?

See what students come up with. This could be humorous.



That really big word means how much it rained that day. If it didn't rain at all it will say 0, but if it rained a lot it might say 2". It is measured in inches of rain fallen. When you hear RAIN, look in your paper for the amount it rained today. Put your finger on it so I can make sure you have found it.

RAIN!

Help the student groups find the amount of rain in their paper.



Great. Today, the **weather** report shows we have gotten _____ inches of rain today.



Give your partner a high five and tell them they are a great **weather** reader! Now you can show your parents what the **weather** means when you see it on TV or in the newspaper.

OBJECTIVE 2. | Track the rainfall and *weather* patterns over time.



Now that you know how to read the ***weather*** report, we can all begin monitoring the ***weather*** on our own. Here is a ***weather*** tracker that you can use to check on the ***weather*** each day.

Have one copy of PALS1.30.LG.AS.A for each student in the class.



Your job is to track the ***weather*** over the next three weeks and then bring back your ***weather*** report the next time we meet. We are all going to do the first day together. Let's go back to today's ***weather*** report.

Refer to the website, overhead or newspaper you are using for the daily report.



You can see four different spaces on your ***weather*** report sheet. These are the four things we just talked about: high temperature, low temperature, chance of rain and ***precipitation***. We know these already.

Looking at our ***weather*** forecast today, who will tell me the high?

Take student responses.



Exactly right. Everyone write that down under "HIGH." What is the low today?

Take student responses.



That is right, let's all write that under "LOW." Did anybody see the percentage chance of rain today? Wow! You found it. We can all write _____% under "CHANCE OF RAIN."

Have an area with jars and permanent markers ready for students. These jars could be any clear jar that has straight edges and a wide mouth. Also have a number of rulers ready for students. It would be helpful to have others to help you with this project.

Measuring the Rain – Making a Rain Gauge Activity.



What about the last one – ***PRECIPITATION***? Remember that means rain. How much has it rained today? We are going to figure this one out on our own. When you hear GET IT, come and grab one jar and a marker.

GET IT!



Great, if you hear me, hold your jar up in the air. You guys look silly. Bring your jars down and listen carefully so you can learn how to make your own rain gauge!

It is critical with a large group that you model each step so the students can follow what you're doing. If there are a number of presenters, have them around helping the students.



First, take your jar and set it on the ground like this. Next, put the ruler next to the jar like this. You can see on the ruler there are big numbers. These numbers are inches. We are going to make a big mark at every inch line. Follow me. Here is the first inch – put a mark like this.

Make a line at the one-inch line.



Now write a big 1 next to that line. Let's do the second inch. Mark it like this.

Demonstrate until all the marks are complete.



Now you all can measure the rainfall on your own! If you put this rain gauge outside in an open area, you will be able to check it each day and see how much it rained! Then you can add that to your **weather**-tracking chart.

Do we know how much it has rained today?

*Use your **weather** report for the day to capture a first day rain amount.*



You are ready to track the **weather** now! Everyone raise your right hand and repeat after me. I promise (*students repeat*) to check the **weather** (*students repeat*) every day (*students repeat*) and write it on my **weather**-tracking sheet (*students repeat*) for three weeks (*students repeat*). OK, now you have promised so I can't wait to see your reports in three weeks.

*Note to the presenter: At this point, you have the option of wrapping up the lesson and letting the students record their **weather** for three weeks. Suggest they report back to you each week. After three weeks, you can continue using the data from the collection to discuss **climate** in your area and crop water requirements. The other option is to collect **weather** data from your area over the past three weeks. You can finish this lesson using that information, and then check the students' **weather** report over the next three weeks.*



OBJECTIVE 3. | Name three local crops and the rain required for those crops.



Why is it important that we track our **weather**?

Elicit student responses.



The **weather** is very important to farmers and ranchers because the **weather** is very important for crops and animals to live. Farmers look at the **weather** every day to make decisions about how to grow your food. The **weather** in our area is called our **climate**. What is the **climate** where we live?

Elicit responses. This will require a lot of help from you with probing questions like, “Does it rain a lot here?”, “How hot is it here?”, “Do we have a very cold winter here?”, etc.



In some places, it is very hot. Some places get a lot of rain, certain areas get a lot of snow, and places like deserts get very little **precipitation**.

Have real examples of three different agricultural products from your specific area. Prior to the lesson, research on the Internet the amount of rain required for that crop and note that below. You simply search the crops’ water requirements.

Crop #1	Amount of rain needed	_____ inches
Crop #2	Amount of rain needed	_____ inches
Crop #3	Amount of rain needed	_____ inches

These three crops are grown in our area because our **climate** is good for them. Who knows what this is?

Allow students to guess.

That is right. This crop requires _____ inches of rain a year to grow. What about this crop? What is it?

Students guess.



Correct. Who will guess how much rain it requires? It takes over _____ inches of rain a year to grow this crop. One more. What crop is this?

Students guess.



Yes! This crop is important for (describe crop use) and it requires _____ inches of rain.



Farmers track the **weather** just like you are doing so they can take care of their crops.



REVIEW / SUMMARY

Have PALS1.30.LG.TM.A printed on large pieces of paper or ready on an overhead. You can even have a pointer to make it more fun and realistic.



You have all done a great job becoming **weather** forecasters! To finish today, we are going to pretend we are **weather** forecasters on the TV. As you can see I have a chart of different **weather** forecasts. When I show the **weather** picture, if you know what it means, raise your hand. When I call on you, you come to the front, act like you are a **weather** man or woman, and tell your friends what the picture means. What questions are there? OK, get ready. Here is the first one.

*Flip over different images from the **weather** forecast and let the students come up and explain what it means. Do as many as you have time for. If you want to expand this review you could find many other **weather** symbols.*

APPLICATION



Small Group Idea

In a small group, take a number of weather forecasts and help work with students more individually to explain what the weather report means. You could have each student do a weather report based on a forecast you give him or her.



One-on-One Suggestion

If working One-on-one with a student, research homemade weather stations that can monitor wind, rain and temperature and help the student set up their own station. “The Kid’s Book of Weather Forecasting: Build a Weather Station,” by Kathleen Friestad, gives a number of great student projects around weather concepts.



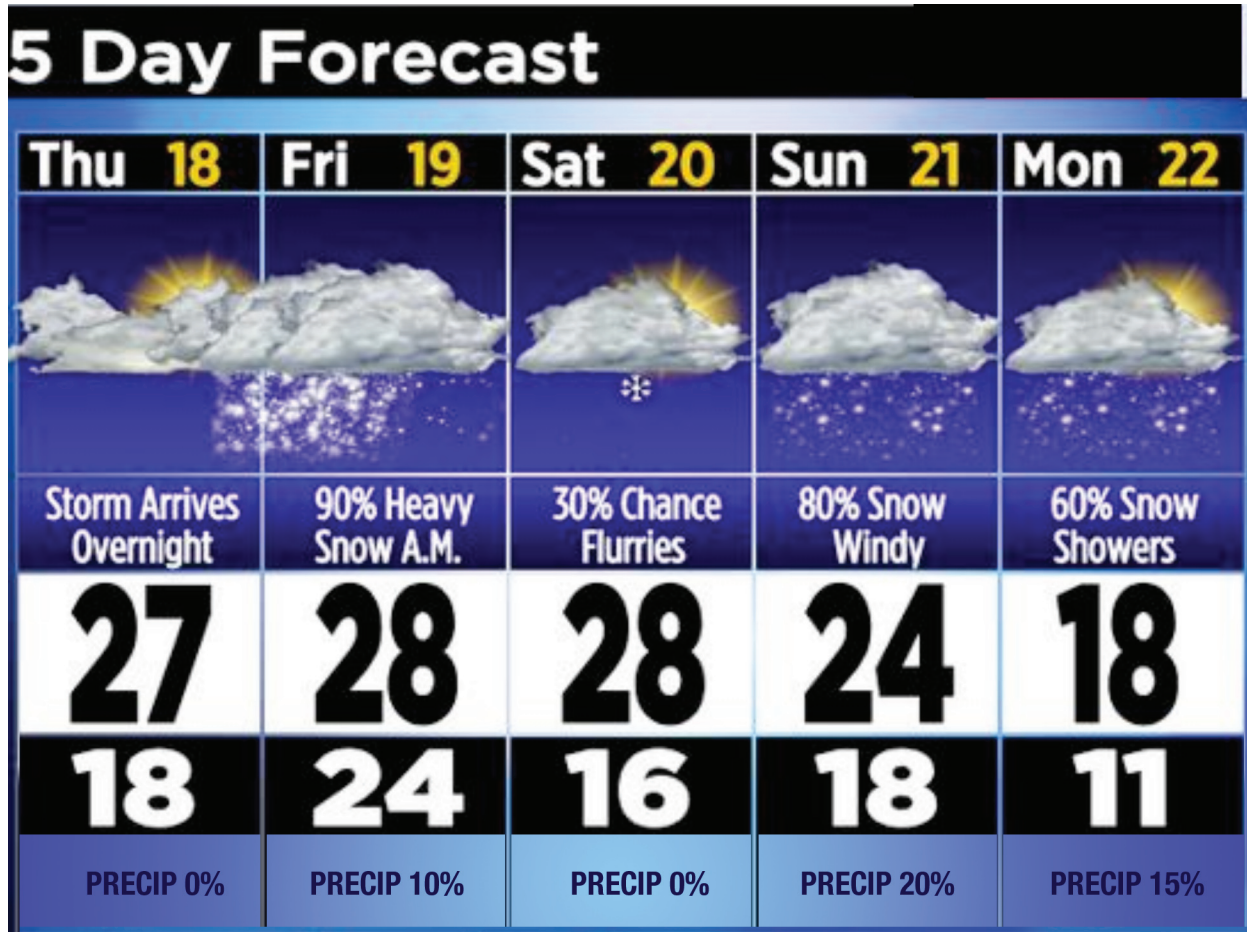
PALS1.30.LG.ASSESS.A | EVALUATION ANSWER KEY

Look at the assessment to ensure the students drew arrows from the words to the appropriate areas of the forecast.

PALS1.30.LG.ASSESS.A

Weather Matching

Draw an arrow from the words below to the correct area of the weather forecast



Temperature High

Temperature Low

Chance of Rain

Precipitation

PALS1.30.LG.AS.A

Weather Tracking Sheet

Over the next three weeks, use this tracking sheet to keep a record of the weather.

[illegible]

PALS1.30.LG.TM.A

