



Comparing Decimals to the Thousandths

Description

This lesson deals with the rainfall data from Snow Hill, North Carolina and will help students understand the weather conditions where they live. It will help relate the content to their everyday lives. The lesson deals with comparing decimals to the thousandths. To make the content relevant to your own students please use the following link to gather rainfall data where you live. You could also place a rain gauge somewhere on your campus to collect the data yourself.

(<https://www.wunderground.com/history/>).

Introduction

Greene County North Carolina is one of the top five places in the USA to farm. Farmers need rain for many reasons whether they are a crop farmer or a hog farmer. Rain helps their crops to get water and also helps in the process of waste removal. The problem is sometimes Snow Hill, NC will get a lot of rain, which can hurt the growth of crops and sometimes they get very little. It is important for farmers to keep track of the amount of rainfall they receive daily, weekly, monthly and yearly. Throughout the following lesson students will interact with the rainfall data from Snow Hill, North Carolina going back to 2006.

Curriculum Alignment

5.NBT.3 (A,B)- Read, write, and compare decimals to thousandths.

5.NBT.7- Add, subtract, multiply and divide decimals to the thousandths.
(Extension)

5.E.1.1- Compare daily and seasonal changes in weather conditions.

Objectives

Students will be able to:

- Explain how to compare decimals
- Compare daily weather conditions
 - Explain how to add, subtract, multiply and divide decimals.
(Extension)

Time & Location

This lesson will require one math lesson of 60 or more minutes. Some classes may take more than 60 minutes depending on the level of the class.

Teacher Materials

Materials and resources needed.

- Appendix A
 - There are 5 sections to Appendix A. Students will only use one section (For example if you have 25 students then you will need 5 of each section)
- One Appendix B
- Promethean board or White board
- Extra Materials for extension
 - Plastic bottles for each student (Ask them to bring them in; Soda bottles)
 - Scissors or exacto knife (for teacher use)
 - Rulers (Could use one)

Student Materials

Materials and resources needed.

- Paper
- Pencils
- Math Notebook
- Rain gauge is collecting rainfall data on campus
- Plastic Bottles

Safety

If rainfall data is collected on campus students will need to navigate to the rain gauge carefully on campus. This should be a procedure taught to the students before the lesson is implemented. Students will also be creating rain gauges in the extension portion of the lesson and will need to understand the importance of allowing their teacher to handle the scissors or exacto knife while making their rain gauge.

Student Prior Knowledge

Students will need to know the following before being taught the new skills in order to be successful:

- Add and subtract to the thousands
- Multiply and divide to the hundreds
- Compare and order numbers to the thousands
- How to read a rain gauge

Teacher Preparations

Teachers will need to have a rain gauge at their school ready for students to be able to read if collecting rainfall data on campus. Remember to place the rain gauge in areas that will receive the most rain. Make sure that rain will not be blocked from entering the rain gauge from trees, buildings, signs or roofs. There will also need to be a poster that students can write down the rain gauge level daily. Teachers will also need to encourage students to bring in plastic bottles to be used to create their

own rain gauges. Teachers will also need to have enough Appendix A's that each student will have their own.

Activities

Day 1: Comparing Decimals to the Thousandths

Step 1: Teacher will introduce the topic by saying something similar to the following paragraph;

“Greene County North Carolina is one of the top five places in the USA to farm. Farmers need rain for many reasons whether they are a crop farmer or a hog farmer. Rain helps their crops to get water and also helps in the process of waste removal. The problem is sometimes Snow Hill, NC will get a lot of rain, which can hurt the growth of crops and sometimes they get very little. Why would too much rain hurt crops? Why would too little rain hurt crops? (Could be a group discussion or written on the board). Farmers use what they call Rain Gauges to measure the amount of rain they receive. These rain gauges help them determine if their crops need more water or if their crops are receiving too much rain. This is why farmers sometimes measure the rain by using very small decimal numbers all the way to the thousandths. By recording this data farmers are able to understand weather patterns, which in turn allow them to know when to plant certain crops. For example, Peanuts need to be planted with moist soil, so by using the weather patterns farmers have collected over the years they are able to know exactly when to plant them. Today we will be using rainfall data from Snow Hill, NC to compare decimals to the thousandths and to determine, which plants would be able to successfully grow in Snow Hill, NC.”

Today's objective should be on the board to refer back to during the lesson;

- Students will be able to:
 - **Explain how to compare decimals to the thousandths**
 - Why is it important to know this?

Step 2: Introduce Comparing

Using the promethean board, document camera or a whiteboard write up the rainfall from January 2007- 2.25 and February 2007 – 2.35. Using this information go step by step explaining the process of comparing numbers (see below) . During this time students should also be putting the steps into their notebooks.

1. Line up the numbers by the decimals
2. Start looking at the numbers all of the way to the left.
 - a. If one is bigger than the other then you have found the greater number.

- b. If not go on to the number to the right.
2. Continue this process of comparing the numbers until you have found your greater number.
3. Circle the number that is greater and place the correct sign (Greater than, less than or equal to).

*Continue to use numbers from the chart below for student practice.

2007

2008

January	2.253	January	0.646
February	2.354	February	3.728
March	1.703	March	4.093
April	5.258	April	6.064
May	2.252	May	2.579
June	3.756	June	1.317
July	6.005	July	2.927
August	2.141	August	4.037
September	2.154	September	8.528
October	2.157	October	1.105
November	.004	November	5.609
December	5.592	December	2.299
Total		Total	

Reference: Snow Hill NRCS

*Once you feel students have a good understanding move on to the group work.

Group Work Activity; Crop Comparing Worksheet

1. Have students number off by 5. (Student A- 1, Student B- 2 and so on).
2. Explain to students the problem;
 - A. "All crops in North Carolina need a certain amount of rain in order to grow. You are going to be local farmers today and your job will be to determine which crops would be the best to grow in your field in Snow Hill , NC. Each of you will be given a specific year to work with. (Pass out the "Yearly Rain Data Sheet" for each year. Group 1- 2010, Group 2- 2011, Group 3 – 2012, Group 4- 2013, Group 5- 2014). I will also be placing a list on the board that has seven different crops and the amount of rain they need monthly to properly grow. Using the

data from these charts and the amount of rain needed for each crop you will need to determine the top three crops that would successfully grow in your field. You will do this by comparing each crop to each month in your specific year. For example, if Tobacco can grow successfully in 8 months and Cotton can only grow for 4 months, then Tobacco will be a better crop to plant in your field. After you have compared each crop with each month write a paragraph explaining the top three crops that would grow in your field. You will also need to explain what crop would grow the best and why. (All of these questions are listed on their "Yearly Rain Data Sheet".

B. All work will be completed on a separate sheet of paper.

3. Students will then be given 20 to 30 minutes to complete their findings.

4. Once students have completed their assignment give them the baggies needed to create their own rain gauge.

5. Once all students have completed their assignment or the designated time is finished please have students report their findings and conclude the lesson by explaining the following;

Conclusion

"As you can see it is important for a farmer to know how much rain falls during each month and year. How much money they make depends on how much crops actually grow. If no crops grow then they may not get much money. For this reason farmers are always seeing how much rain is coming so that they can grow as much crops as possible and make as much money as they can."

Assessment

Students will be assessed by their answer to questions 1-4 on their "Yearly Data Sheets".

Extension

This section is to be used to continue investigating rainfall data in your area and if the plants students choose would be able to survive your weather. In order to do so students will need to create a rain gauge using the following materials and instructions.

Materials:

- Plastic Soft drink bottle
- Stones or pebbles
- Tape
- Marker
- Ruler

Instructions

- Cut off the top of the bottle and add pebbles or stones to the bottom.
- Use the ruler to scale the bottle

- Pour water in the bottle until it reaches the beginning of the scale. You have now created a rain gauge that you can use to measure rainfall data.

You can use one rain gauge at school for everyone or have students create their own to take home to measure the rain at their homes. This would be a great opportunity to talk about how it can rain more or less at different places within in the same community. You could also compare these numbers as practice. Using the rainfall data students can then determine if their plants would be able to survive each month. To take the lesson even further students could divide how much water their plants needed by the number of days in the month to see how much rain the crops should receive daily to meet their needs. Using the rainfall data from each day they could compare the numbers and record their answers in a journal.

Critical Vocabulary

- Base Ten- decimals system. (3.21)
- Place Value – the value of a number.
- Decimal number- a number with a decimal. Fraction of a whole.
- Tenth- the value of the digit to the right of the decimal. (.08)
- Hundredth- the value of the digit two spots to the right of the decimal (.08)
- Thousandths- the value of the digit three spots to the right of the decimal (.008)
- Expanded form-a way to write numbers by adding the value of its digits.
- Word form- writing a number in words.
- Compare- Greater than, less than or equal to.
- Order- to place numbers in greatest to least or least to greatest.

Author Information

Kenan Fellow:

Mr. Phil Cook

Assistant Principal West Greene Elementary, Snow Hill, NC

Past: 5th grade teacher for 6 years.

philcook@greene.k12.nc.us

Mentor:

Mr. Carl Kirby

NRCS (Natural Resource Conservation Services)

carl.kirby@nc.usda.gov

Appendix A: Yearly Rainfall Data

2010

January	5.1 (2.0 Ice)
February	3.523
March	4.943
April	.721
May	4.198
June	2.203
July	5.146
August	4.318
September	12.293
October	1.468
November	.730
December	3.143 (2.1 Ice)
Total	

1. What three crops would grow the best in your field?
 - a.
 - b.
 - c.
2. Out of all of the crops _____ would grow the best in my field. Explain why this crop would grow the best.
3. What months would the crop you choose successfully grow?
4. What months would the crop not grow successfully?
5. What can we do to successfully allow each crop to grow during every month?
6. What will happen if Ice/Snow gets on the plants? How can we fix this problem?
7. We have learned about run-off in science class. How would run-off affect the crops?

8. Do you think there is a time some crops may get too much rain? What could happen? How could you fix this?

Reference: Snow Hill NRCS

2011

January	.902
February	3.442
March	4.473
April	4.582
May	1.557
June	3.797
July	8.123
August	17.779
September	3.103
October	1.883
November	3.233 (3.2 Ice)
December	.610
Total	

1. What three crops would grow the best in your field?
 - a.
 - b.
 - c.
2. Out of all of the crops _____ would grow the best in my field. Explain why this crop would grow the best.
3. What months would the crop you choose successfully grow?
4. What months would the crop not grow successfully?
5. What can we do to successfully allow each crop to grow during every month?
6. What will happen if Ice/Snow gets on the plants? How can we fix this problem?

7. We have learned about run-off in science class. How would run-off affect the crops?
8. Do you think there is a time some crops may get too much rain? What could happen? How could you fix this?

Reference: Snow Hill NRCS

2012

January	3.851
February	3.689
March	5.026
April	2.593
May	9.317
June	1.493
July	7.868
August	5.632
September	2.802
October	4.722
November	.596
December	3.222
Total	

1. What three crops would grow the best in your field?
 - a.
 - b.
 - c.
2. Out of all of the crops _____ would grow the best in my field. Explain why this crop would grow the best.
3. What months would the crop you choose successfully grow?
4. What months would the crop not grow successfully?
5. What can we do to successfully allow each crop to grow during every month?
6. What will happen if Ice/Snow gets on the plants? How can we fix this problem?

7. We have learned about run-off in science class. How would run-off affect the crops?
8. Do you think there is a time some crops may get too much rain? What could happen? How could you fix this?

Reference: Snow Hill NRCS

2013

January	1.902
February	4.145
March	1.352
April	4.278
May	2.262
June	10.778
July	5.100
August	4.131
September	3.028
October	1.784
November	2.455
December	3.842
Total	

1. What three crops would grow the best in your field?
 - a.
 - b.
 - c.
2. Out of all of the crops _____ would grow the best in my field. Explain why this crop would grow the best.
3. What months would the crop you choose successfully grow?
4. What months would the crop not grow successfully?
5. What can we do to successfully allow each crop to grow during every month?
6. What will happen if Ice/Snow gets on the plants? How can we fix this problem?

7. We have learned about run-off in science class. How would run-off affect the crops?
8. Do you think there is a time some crops may get too much rain? What could happen? How could you fix this?

Reference: Snow Hill NRCS

2014

January	6.9 31(3.1Ice)
February	2.427
March	4.792
April	7.022
May	3.811
June	3.916
July	9.262
August	5.867
September	7.894
October	1.948
November	3.327
December	4.807
Total	

1. What three crops would grow the best in your field?
 - a.
 - b.
 - c.
2. Out of all of the crops _____ would grow the best in my field. Explain why this crop would grow the best.
3. What months would the crop you choose successfully grow?
4. What months would the crop not grow successfully?
5. What can we do to successfully allow each crop to grow during every month?
6. What will happen if Ice/Snow gets on the plants? How can we fix this problem?
7. We have learned about run-off in science class. How would run-off affect the crops?

8. Do you think there is a time some crops may get too much rain? What could happen? How could you fix this?

Reference: Snow Hill NRCS

Appendix B: Crop Rain Data

Crop	How much rain a month it needs
Tobacco	3.543
Cotton	3.329
Soybeans	5.905
Corn for Grain	2.132
Wheat	4.843
Peanuts	6.325
Sweet Potatoes	4.769

Reference: Snow Hill NRCS