

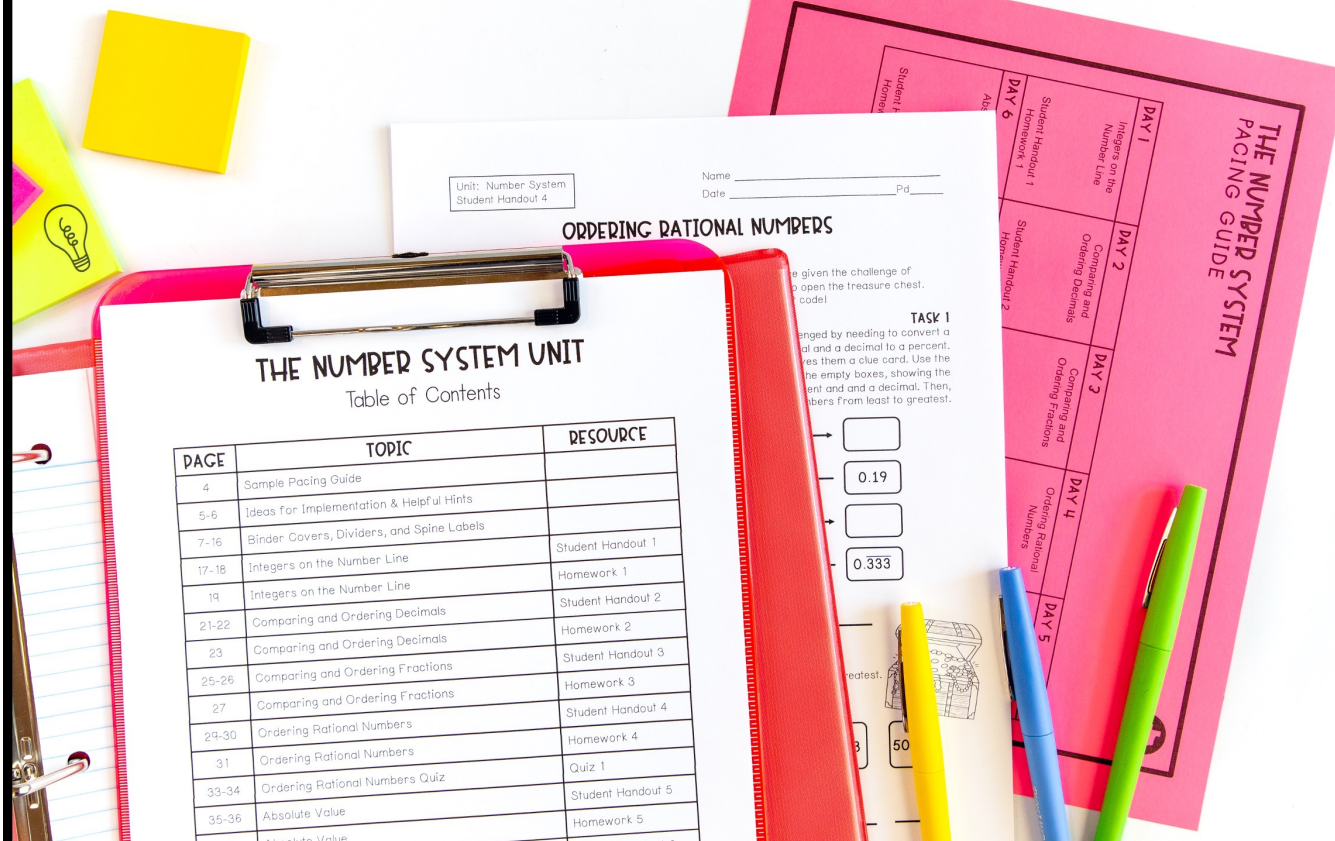
# learning focus:

- ✓ compare and order integers on a number line
- ✓ interpret statements of inequality
- ✓ understand ordering and absolute value of rational numbers

# THE NUMBER SYSTEM UNIT

## 9 DAY CCSS-ALIGNED UNIT

**6<sup>th</sup>**  
GRADE



A MANEUVERING THE MIDDLE® RESOURCE

# THE NUMBER SYSTEM



a 9 day CCSS-aligned unit

CCSS: 6.NS.5, 6.NS.7a, 6.NS.7b, 6.NS.7c, 6.NS.7d

**ready-to-go, scaffolded  
student materials**

## THE NUMBER SYSTEM UNIT

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6.NS.7d

student friendly + real-world  
application

Unit: Number System  
Student Handout 1

Name \_\_\_\_\_  
Date \_\_\_\_\_ Pd \_\_\_\_\_

### INTEGERS ON THE NUMBER LINE

**INTEGERS**

- The set of whole numbers and their \_\_\_\_\_ are called integers.
- Examples: \_\_\_\_\_

**THE NUMBER LINE**

- Integers can be \_\_\_\_\_ located to the \_\_\_\_\_ located to the \_\_\_\_\_

Use the open number line below to determine the value of each point and your plotted points.

A: -8      B: 5

a. Which point in the set above has the largest value?  
b. Which point in the set above has the smallest value?

Use your understanding of integers to answer the questions below.

1. Georgie is asked to plot the number -3 on the number line below. Where should Georgie plot the number?

Write the symbol and an example for each comparison.

**GREATER THAN**

use of grade level modeling

Use your understanding of comparing integers to answer the questions below.

3. Use the symbols  $<$ ,  $>$ , or  $=$  to make each statement true for questions 3-5.

a.  $-19$  \_\_\_\_\_  $20$   
b.  $8$  \_\_\_\_\_  $-8$   
c.  $0$  \_\_\_\_\_  $-7$   
d.  $-13$  \_\_\_\_\_  $-12$

4. Three students compared integers. Determine which student completed the task correctly.

TY:  $-6 > -5$       NICO:  $3 > -4$       PAUL:  $0 < -1$

5. Beatrice places four different points on a number line. What value best represents the value of point B?

Brainstorm real-world terms and phrases for each point.

**NEGATIVE**

7. Several clues are given to describe each integer.

A: A football player caught a 57-yard pass.	B: The temperature dropped overnight.
E: Carbon has 6 protons.	F: Las Vegas, an average temperature of $10^{\circ}$ above zero.

Unit: Number System  
Homework 1

Name \_\_\_\_\_  
Date \_\_\_\_\_ Pd \_\_\_\_\_

### INTEGERS ON THE NUMBER LINE

Use your understanding of locating, comparing, and ordering integers to answer the questions.

1. Place the following points on the number line below.

A. an integer 3 to the left of 0      E. any negative integer less than -5  
B. six more than -1      F. the most positive integer on the number line  
C. neither positive nor negative      G. any positive integer greater than 6  
D. six less than 9      H. the most negative integer on the number line

2. Mrs. French asks students to correctly order various sets of integers from least to greatest. Determine which students completed the task correctly and find the mistakes made by the incorrect students.

JOELLE: $-6, -8, -14, 21, 32$	ERMA: $28, 14, 12, 4, -2, -1$	HUGH: $13, -19, 25, -33$
DAMON: $-2, -7, -11, -16$	EPONY: $-19, -11, -7, -3, -1$	HOLLY: $-9, -4, -2, 14, 21$

3. Corey is playing a game in which he selects all of the numbers that are less than -5 but greater than -20. Shade the values that Corey should choose.

-9	7	-5
6	-3	-11
-15	18	0

4. What integer is missing from the number line below?

skill application

# THE NUMBER SYSTEM



a 9 day CCSS-aligned unit


CCSS: 6.NS.5, 6.NS.7a, 6.NS.7b, 6.NS.7c,  
6.NS.7d

**streamline your planning  
process with unit overviews**

- ✓ key vocabulary
- ✓ vertical alignment

sample  
pacing  
calendar

### THE NUMBER SYSTEM OVERVIEW



**STANDARDS**

**6.NS.5** Understand that positive and negative numbers are used together to describe quantities having opposite direction or values. Use positive and negative numbers to represent quantities in real world contexts, explaining the meaning in each situation.

**6.NS.7** Understand ordering and absolute value of rational numbers.

**6.NS.7a** Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.

**6.NS.7b** Write, interpret, and explain statements of order for rational numbers in real world contexts.

**6.NS.7c** Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real world situation.

**6.NS.7d** Distinguish comparisons of absolute value from statements about order.


**DIG IDEAS**

- Numbers can be represented on a number line.
- Numbers can be represented on a coordinate plane.
- The number system is a way to describe quantities.

**ESSENTIAL QUESTIONS:**


- How is a number different from zero?
- What process can you use to compare two numbers?
- How can you determine the order of two numbers?

### THE NUMBER SYSTEM PACING GUIDE



DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Integers on the Number Line	Comparing and Ordering Decimals	Comparing and Ordering Fractions	Ordering Rational Numbers	Ordering Rational Numbers Quiz
Student Handout 1 Homework 1	Student Handout 2 Homework 2			
DAY 6	DAY 7			
Absolute Value	Statements of Inequality			
Student Handout 5 Homework 5	Student Handout 6 Homework 6			

### THE NUMBER SYSTEM OVERVIEW



TOPIC	TEACHING TIPS
The Number Line	• Consider introducing both a horizontal and a vertical number line. Seeing the vertical number line (which is more intuitive to how we count) next to a horizontal vertical line may help students to make connections and provides another visual model.
Ordering Integers and Decimals	• Use masking tape to mark off a number line on the floor from -10 to 10. Assign five students a number and have them order themselves without talking, but allow the class to help. Repeat and make the numbers increasingly more difficult.
Ordering Rational Numbers	• Use the number line from the day before, but repeat with a slightly different variation. Use three different colored papers or markers for fractions, decimals, and percents. Teach students to order like forms of numbers by passing out the cards, then asking students to order themselves on the number line.
Absolute Value	• At the beginning of class, play a game of Simon Says. In this math twist, ask students to do the opposite of what you say. Then, give them a number and ask for the opposite of the number. Ask students to keep that in mind as you continue to learn about absolute value. By the end, students should be able to differentiate between the opposite of a number and its absolute value.
Statements of Inequality	• Students need to be able to read and write inequality statements comparing two different numbers. This can be difficult! These steps might be helpful for students who struggle. <ol style="list-style-type: none"><li>1. Both numbers need to be in the same form.</li><li>2. Both numbers need to have the same number of digits behind the decimal.</li><li>3. Sketch a number line and place numbers on the line.</li><li>4. The inequality sign will always be "less than" if the number line is correctly sketched.</li></ol>

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teaching  
ideas

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## unit study guide + assessments

✓ quizzes

✓ editable unit test

Unit: Number System  
Quiz 1

Name \_\_\_\_\_  
Date \_\_\_\_\_ Pd \_\_\_\_\_

### QUIZ: ORDERING RATIONAL NUMBERS

Use the table below to answer questions 1-4.

CHILD	HEIGHT (INCHES)
Ellis	58
John	52
Julia	55
Kevin	50

1. Who is the tallest?  
2. Which child is shorter than Ellis?  
3. Which children are taller than 35.5 inches?  
4. Order the children from shortest to tallest.

Answer the questions below. Be sure to show your work.

5. Andrew is working to place the following numbers in order from least to greatest. Explain whether or not he is correct.

-9    -17    1/2

6. Over the year, the water level of various lakes changed. The initial water level fell 7% in the fall and  $\frac{1}{12}$  in the spring. Which list represents the numbers in order from least to greatest?

A.  $7\%$ ,  $\frac{1}{12}$ ,  $18\%$ ,  $\frac{1}{25}$    B.  $\frac{1}{25}$ ,  $7\%$ ,  $18\%$ ,  $\frac{1}{12}$   
C.  $\frac{1}{25}$ ,  $7\%$ ,  $18\%$ ,  $\frac{1}{12}$    D.  $\frac{1}{12}$ ,  $7\%$ ,  $18\%$ ,  $\frac{1}{25}$

Unit: Number System  
Review

Name \_\_\_\_\_  
Date \_\_\_\_\_ Pd \_\_\_\_\_

### THE NUMBER SYSTEM UNIT STUDY GUIDE

Solve each of the problems below. These represent the types of questions on your test. Be sure to ask questions if you need more help with a topic.

#### I CAN USE INTEGERS TO REPRESENT REAL WORLD SITUATIONS.

1. You earn \$45 for mowing the neighbor's lawn.	2. The temperature on July 4th was $-10^\circ\text{F}$ .	3. In a board game, your score goes from 18 to $-4$ .
4. Water boils at $212^\circ\text{F}$ .	5. The elevation of a city is $-150$ feet below sea level.	

#### I CAN IDENTIFY A NUMBER, ITS OPPOSITE, AND ITS ABSOLUTE VALUE.

7. Place the following points on the number line.

A: the opposite of 7  
B: the opposite of  $-3$   
C: the absolute value of  $-5$

8. Isabel draws a mystery number from a bag. Read the clues below and write the number on the number line.

a.  $-8$    b.  $11$    c.  $15$    d.  $-21$

I. The absolute value of the number is 15.  
II. The number is negative.

9. \_\_\_\_\_   10. \_\_\_\_\_

11. \_\_\_\_\_   12. \_\_\_\_\_

13. \_\_\_\_\_   14. \_\_\_\_\_

15. \_\_\_\_\_   16. \_\_\_\_\_

17. \_\_\_\_\_   18. \_\_\_\_\_

19. \_\_\_\_\_   20. \_\_\_\_\_

SIXTH GRADE CURRICULUM

# THE NUMBER SYSTEM

UNIT THREE: ANSWER KEYS

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answer keys included