Grade: 6   FCPS 2025-2026 Math Grade 6 Topic 2

6th Grade Topic 2 : Integers and Rational Numbers	Estimate Time Frame: 22 days
Essential Standards: 6.NS.5, 6.NS.6, 6.NS.7, 6.NS.8 Supporting Standards: 6.G.3 Assessment Resource: enVision Topic 2	

FCPS Supporting Links	Additional Supporting Links
Pacing Guide 6th Grade Topic 2 Standards Resource with Sample Formative Assessments enVision 6th Grade Topic 2 Standards Crosswalk Resource FCPS P-12 Mathematics Guidance Document FCPS Achievement & Trauma-Informed Strategies in the Classroom	Kentucky Academic Standards KSA Blueprint Target of the Standards – conceptual, procedural & application Three-Reads Routine Notice and Wonder Routine **MILC Resources Topic 2: Integers and Rational Numbers** *enVision Teacher Guide: page 62A to 62D for specific Topic 2 Focus-Coherence-Rigor*

Big Ideas
Apply and extend previous understandings of numbers to the system of rational numbers.

Essential Questions	Common Preconceptions/Misconceptions
What are integers and rational numbers? How are absolute values used to describe quantities? How are points graphed on a coordinate plane? How can you find the distance between two points on a coordinate plane?	Use coordinate points in all four quadrants. Activate students' prior knowledge with negative integers to find points such as (-3, -2).

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Standards for Mathematical Practices	Kentucky Interdisciplinary Literacy Practices (KILP)
MP.1. Make sense of problems and persevere in solving them. **MP.2. Reason abstractly and quantitatively.** MP.3. Construct viable arguments and critique the reasoning of others. **MP.4. Model with mathematics.** **MP.5. Use appropriate tools strategically.** **MP.6. Attend to precision.** **MP.7. Look for and make use of structure.** MP.8. Look for and express regularity in repeated reasoning. *enVision Teacher Guide: page 62E for specific Topic 2 Math Practice suggestions*	1. Recognize that text is anything that communicates a message. 2. Employ, develop, and refine schema to understand and create text. 3. View literacy experiences as transactional, interdisciplinary and transformational. 4. Utilize receptive and expressive language arts to better understand self, others, and the world. **5. Apply strategic practices, with scaffolding and then independently, to approach new literacy tasks.** **6. Collaborate with others to create new meaning.** **7. Utilize digital resources to learn and share with others.** **8. Engage in specialized, discipline-specific literacy practices.** **9. Apply high level cognitive processes to think deeply and critically about text.** 10. Develop a literacy identity that promotes lifelong learning. *Incorporating texts into math instruction fosters interdisciplinary learning for a more engaging educational experience.*

Essential Standards	Sample Learning Intentions & Success Criteria	HQIR/Resource Considerations
Cluster: Apply and extend previous understanding of numbers to the system of rational numbers.		
KY.6.NS.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. ☐**Conceptual** ☐ Procedural ☐ Application Clarifications: For example, positive and negative temperatures or elevations, with the understanding that zero means the freezing point Celsius of water or sea level.	We are learning to understand how integers are used to describe quantities. ● I can read and write positive and negative numbers in real-world contexts. ● I can identify the opposite of a given integer. ● I can explain the meaning of 0 in real-world situations.	● Topic 2 Lesson 2-1 ● 3-Act Math Topic 2: The Ultimate Throw ● Brainingcamp Task (Lesson 2-1) "What are Negative Numbers?" ● enVision Language Support Handbook

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Coherence KY.6.NS.5→KY.7.NS.1 **MP.1. MP.2, MP.4, KILP.1, KILP.3, KILP.9**		
KY.6.NS.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes, using appropriate range and intervals, to represent points on the line and in the plane, that include negative numbers and coordinates. ☐**Conceptual**　　❏ Procedural　　❏ Application a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize 0 is its own opposite and the opposite of a negative number is a positive, and the opposite of a negative number is a positive, such as−(−3) = 3. ❏Conceptual　　☐**Procedural**　　❏ Application Clarifications: Emphasis is on students understanding that every positive location on a number line has an opposite the same distance from zero in the negative direction and vice versa. Logically following from this is the fact that zero, as it has no positive or negative sign, is its own opposite. b. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. ❏Conceptual　　☐**Procedural**　　❏ Application	We are learning to represent rational numbers as points on a number line. ● I can identify the position of an integer on a number line. ● I can plot rational numbers on a number line. ● I can recognize 0 is its own opposite. ● I can describe where opposites would be on number lines. ● I can compare and order rational numbers using a number line. ● I can compare and order rational numbers by comparing decimals. We are learning how to represent rational numbers on a coordinate plane. ● I can understand that a coordinate plane is the combination of a vertical number line and horizontal number line. ● I can tell the location of a number based on the signs of numbers in ordered pairs. ● I can graph a point with rational coordinates on a coordinate plane.	● Topic 2 Lesson 2-2 ● Topic 2: Let's Investigate! Garden Plot (do after lesson 2-2) ● Topic 2 Lesson 2-4 ● Brainingcamp Task (Lesson 2-2) "Where are Negative Numbers?" ● Brainingcamp Task (Lesson 2-4) "Where are the Buildings?" ● Brainingcamp Task (Lesson 2-4) "Complete the Rectangle" ● enVision Language Support Handbook

Clarifications: Emphasis is on generalizing patterns about where coordinates are located on a coordinate plane.

c. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize the similarity between whole numbers, their negative opposites, and their positions on a number line; ordered pairs differ only by signs and their locations on one or both axes.

☐ **Conceptual**   ☐ **Procedural**   ❏ Application

Clarifications: The intent is for students to see a coordinate axis is the combination of a vertical number line and a horizontal number line.

Coherence KY.5.G.1→KY.6.NS.6→KY.7.NS.1

MP.2, MP.4, KILP.6, KILP.8

KY.6.NS.7 Understand the ordering and absolute value of rational numbers. ☐ **Conceptual** ☐ **Procedural** ❏ Application a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. ☐ **Conceptual** ❏ Procedural ❏ Application Clarifications: Interpret two numbers, including two negatives, as one is to the left or right (or above or below) the other on a number line diagram.	We are learning how to describe the position of numbers on a number line. ● I can interpret statements of inequality. ● I can describe inequality statements of two numbers using words such as left, right, above, or below on a number line. We are learning how to order rational numbers in real-world contexts. ● I can write rational numbers in order. ● I can interpret and explain the context of ordering rational numbers in the real-world.	● Topic 2 Lesson 2-2 ● Topic 2 Lesson 2-3 ● [Brainingcamp Task (Lesson 2-3) "Absolute Value"](#) ● [enVision Language Support Handbook](#)

b. Write, interpret and explain statements of order for rational numbers in real-world contexts. ☐**Conceptual** ☐ **Procedural** ❑ Application Clarifications: Understand, as with 6.NS.7a, positive and negative rational numbers represent real-life situations and can be compared. c. 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. *The intent is for students to see a coordinate axis is the combination of a vertical number line and a horizontal number line.* ☐**Conceptual** ❑ Procedural ❑ Application Clarifications: Interpret a positive or negative direction from zero as an absolute value, or magnitude, to describe a real-life situation. d. Distinguish comparisons of absolute value from statements about order. ☐**Conceptual** ☐**Procedural** ❑ Application Clarifications: Recognize a number's distance from zero can be compared to another number's distance from zero with a "less than" or "greater than" distinction. Coherence KY.5.NBT.3→KY.6.NS.7→KY.7.NS.1 **MP.1. MP.2, MP.4, KILP.1, KILP.6, KILP.8**	We are learning about the absolute value of rational numbers. ● I can explain what absolute value is. ● I can interpret the absolute value in real-world situations. ● I can use the absolute value of a number to describe its distance from 0. ● I can find absolute value using a number line. ● I can recognize that a number's distance from zero can be compared to another number's distance from zero with a "less than" or "greater than" distinction. ● I can compare absolute values. ● I can order numbers including absolute value.	
KY.6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate	We are learning to solve mathematical and real-world problems by graphing in all four	● Topic 2 Lesson 2-5 ● Topic 2 Lesson 2-6

plane. Include the use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

☐**Conceptual**   ☐**Procedural**   ☐**Application**

Clarifications: For example, represent the vertices of a rectangle in the coordinate plane and find distances between horizontal and vertical vertices accurately.

Given a vertex of (–2, 3), a length of 5 and a width of 11, locate the other three vertices of the rectangle.

Coherence KY.5.G.2→KY.6.NS.8

MP.5, MP.7, KILP.1, KILP.6, KILP.8

Supporting Standard: KY.6.G.3

quadrants of the coordinate plane.
- I can graph ordered pairs in all four quadrants.
- I can label a point on a graph with rational coordinates.
- I can use absolute value to find the distance between points on a coordinate plane.
- I can solve problems using the distance between points on a coordinate plane.

- [Brainingcamp Task (Lesson 2-5) "The Space Between"](#)
- [Brainingcamp Task (Lesson 2-5) "What is the Perimeter of the Figure?"](#)
- [enVision Language Support Handbook](#)

Attending to the Standards for Mathematical Practice

Students use vertical and horizontal number lines to visualize integers and better understand their connection to whole numbers. They divide number line intervals into sub-intervals of tenths to determine the correct placement of rational numbers (MP.7). Students may represent a decimal as a fraction or a fraction as a decimal to better understand its relationship to other rational numbers to which it is being compared (MP.2). To explain the meaning of a quantity in a real-life situation (involving elevation, temperature, or direction), students draw a diagram and/or number line to illustrate the location of the quantity in relation to zero or an established level that represents zero in that situation (MP.4). Students understand the placement of negative numbers on a number line by observing the patterns that exist between negative and positive numbers with respect to zero (MP.7). They recognize two numbers are opposites if they are the same distance from zero and zero is its own opposite. Students extend their understanding of the number line structure to the coordinate plane to determine a point's location. They recognize the relationship between the signs of a point's coordinates and the quadrant in which the point lies.

Supporting Standards

KY.6.G.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

☐ **Conceptual**   ☐ **Procedural**   ☐ **Application**

MP.4, MP.5, MP.6

Vocabulary

absolute value – The distance of a number from zero.
coordinate plane – The plane determined by a horizontal number line, called the x-axis, and a vertical number line, called the y-axis, intersecting at a point called the origin. Each point in the coordinate plane can be specified by an ordered pair of numbers, (x, y), which gives its location relative to each axis.
integers – Integers are the set of positive whole numbers, their opposites, and 0.
opposites – Numbers located on opposite sides of 0 on the number line and are the same distance from 0.
rational number – Any number that can be written as the quotient of two integers.
quadrant – One of the quarters of the plane of the Cartesian coordinate system.
quantities – a property which exists as magnitude or multitude; a specified or indefinite number or amount.

*Disclaimer: Success Criteria is the evidence students must produce to demonstrate learning. This example is not comprehensive.
** Mathematical Practices (A.MP.1- 8) should be evidenced at some point throughout each unit, depending on the explored tasks. It is important to note that MP. 2 should support learning in every lesson.
*** Modeling Standards: Modeling is best interpreted not as a collection of isolated topics but rather in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by a star symbol (★). The star symbol sometimes appears on the heading for a group of standards; in that case, it should be understood to apply to *all* standards in that group.