Grade 6 Unit 7: Rational Numbers
Lessons 1–7: Unit Negative Numbers and Absolute Value

Explore, Play, and Discuss

- I can explain what 0, positive numbers, and negative numbers mean in the context of temperature and elevation.
- I can use positive and negative numbers to describe temperature and elevation.
- I know what positive and negative numbers are.

Activity Suggestions:

- ➢ Lesson 1: Students create a list of what they notice and wonder in the warm-up and then either use the interactive digital applets or printed tasks to complete the rest of the lesson.
- ➢ Read the family materials in your curriculum for Grade 6 Unit 7 and attempt the problems shown in the first section of family materials.
- ➢ Lesson 2, Activity 1

Assessment Suggestions:

- ➢ Lesson 1 cool-down

Deep Dive

- I can determine or approximate the value of any point on a number line.
- I can represent negative numbers on a number line.
- I understand what it means for numbers to be opposites.
- I can use inequalities to compare positive and negative numbers.
- I can interpret and use negative numbers in different contexts.
- I can find the absolute values of rational numbers.

Activity Suggestions:

- ➢ Lesson 2, Activities 2 and 3: if possible, ask students to use a piece of paper to fold their own number line in Activity 3.
- ➢ Lesson 3, Activities 1 and 2: Ensure that the image in the Activity 2 synthesis is shown and discussed.
- ➢ Lesson 5, Activity 1
- ➢ Lesson 7, Activities 1 and 2

Assessment Suggestions:

- ➢ Lesson 2 cool-down
- ➢ Lesson 3 cool-down
- ➢ Lesson 3, Activity 3
- ➢ Lesson 5 cool-down
- ➢ Lesson 7 cool-down

Synthesize and Apply

- I can explain what absolute value means in situations involving elevation.
- I can use absolute values to describe elevations.
- I can use inequalities to compare rational numbers and the absolute values of rational numbers.

Activity Suggestions:

- ➢ Lesson 7, Activity 2. Provide the solutions for students to check their work after trying on their own.
- ➢ Have students collect and record real life examples of positive/negative numbers in their journal with a focus on: elevation, temperature and money. Have students order the values within these different categories and explain what the ordering means in the context (for example: greater temperature means the location is warmer than the others.)

Assessment Suggestions:

- ➢ Lesson 7 cool-down
- ➢ revisions to previous assessment prompts
- ➢ Students use learning targets to decide what additional practice they need.

Ongoing Practice

- Assign one or more of the distributed practice problem sets from Lessons 1–7 to be completed over the time period that the section is being worked on.
- These could also be lagging, so that students are working on practice problems from the previous section or unit during this section or unit.
- Specify which problems students should submit, or let them choose.
- Note: Several existing platforms already have IM's practice problems loaded so that students can complete and submit them online. Some can be autoscored.

Anytime Resources	
	• Lesson 1 contains a digital applet showing the rise and fall of temperature that can be used throughout the unit. • Lesson 6 contains a digital applet showing a jumping flea that can be used throughout the unit to think about distance and direction from 0 on the number line.

Grade 6 Unit 7: Rational Numbers
Lessons 8–10: Inequalities

Note: This section is short and could be used to make up additional time from other sections if needed.

Explore, Play, and Discuss		
	• I can graph inequalities on a number line. • I can write an inequality to represent a situation.	
	Activity Suggestions: ➢ Read the family materials for Grade 6 Unit 7 and attempt the problems shown in the second section of family materials. ➢ Lesson 8, Activity 1: Have students enter their guesses and explain their reasoning in an online discussion board, an online or paper journal, or share their reasoning with someone at home. This activity can be revisited in the deep dive after students have already generated ideas. ➢ Lesson 9, Activity 1: Students can use knowledge from Lessons 1 through 7 to generate possible values for the points.	**Assessment Suggestions:** ➢ Write three sentences describing characteristics of things around you using the terms "less than" or "greater than."

Deep Dive

- I can determine if a particular number is a solution to an inequality.
- I can explain what it means for a number to be a solution to an inequality.
- I can graph the solutions to an inequality on a number line.

Activity Suggestions:

- ➢ Lesson 8, Activities 1 and 2: Revisit student responses to Activity 1 from the Explore. Then center Activity 2 on understanding whether solutions are continuous or discrete, why open circles might be used on a number line, and how there may be infinite solutions to inequalities.
- ➢ Lesson 9, Activity 2: Discussion should center around more formal understanding of the term "solution to an inequality."

Assessment Suggestions:

- ➢ Lesson 8 cool-down
- ➢ Lesson 9 cool-down

Synthesize and Apply

- I can explain what the solution to an inequality means in a situation.
- I can write inequalities that involve more than one variable

Activity Suggestions:

- ➢ Lesson 10, Activities 2 and 3
- ➢ Have students record inequalities they encounter in real-life in their journal. Have them express them using symbols and number lines and explain what the inequality means in context.

Assessment Suggestions:

- ➢ Lesson 10 cool-down
- ➢ revisions to previous assessment prompts
- ➢ Students use learning targets to decide what additional practice they need.

Ongoing Practice	
	• Assign one or more of the distributed practice problem sets from Lessons 10–12 to be completed over the time period that the section is being worked on. • These could also be lagging, so that students are working on practice problems from the previous section or unit during this section or unit. • Specify which problems students should submit, or let them choose. • Note: Several existing platforms already have IM's practice problems loaded so that students can complete and submit them online. Some can be autoscored.

Anytime Resources	
	• The family support materials from this unit provide high-level guidance on the content of this unit and sample problems with answers. • Delve into one of the culminating lessons from earlier units.

Grade 6 Unit 7: Rational Numbers
Lessons 11–15: The Coordinate Plane

Explore, Play, and Discuss

- I can describe a coordinate plane that has four quadrants.
- I can plot points with negative coordinates in the coordinate plane.
- I know what negative numbers in coordinates tell us.

Activity Suggestions:

- ➢ Lesson 11, Activity 1: This activity can be accessed through knowledge of grade 5 standards. Using your answers to the activity, where do you think the points (-1,2), (2, -1) and (-3,-4) might be plotted?
- ➢ Read the family materials for Grade 6 Unit 7 and attempt the problems shown in the third section of family materials.

Assessment Suggestions:

- ➢ Create a set of coordinates that produces a shape (like a square or rectangle) in the first quadrant of the coordinate plane.

Deep Dive

- When given points to plot, I can construct a coordinate plane with an appropriate scale and pair of axes.
- I can find horizontal and vertical distances on a coordinate plane.

Activity Suggestions:

- ➢ Lesson 11, Activity 2: This activity introduces the four quadrants.
- ➢ Lesson 13, Activity 1: Focus on the location of points with decimal or fraction coordinates.
- ➢ Lesson 14, Activity 3: This activity focuses on distance on the coordinate plane.

Assessment Suggestions:

- ➢ Lesson 11 cool-down
- ➢ Lesson 12 cool-down
- ➢ Lesson 14 cool-down

Synthesize and Apply

- I can explain what points in a four-quadrant coordinate plane represent in a situation.
- I can plot points in a four-quadrant coordinate plane to represent situations and solve problems.

Activity Suggestions:

- ➢ Lesson 11, Activity 3
- ➢ Lesson 12, Activity 3
- ➢ Lesson 13, Activities 2 and 3: These focus more on situations and context.

Assessment Suggestions:

- ➢ Lesson 13 cool-down
- ➢ revisions to previous assessment prompts
- ➢ Students use learning targets to decide what additional practice they need.

Ongoing Practice

- Assign one or more of the distributed practice problem sets from Lessons 10–12 to be completed over the time period that the section is being worked on.
- These could also be lagging, so that students are working on practice problems from the previous section or unit during this section or unit.
- Specify which problems students should submit, or let them choose.
- Note: Several existing platforms already have IM's practice problems loaded so that students can complete and submit them online. Some can be autoscored.

Anytime Resources

- Lesson 14 contains a digital applet allowing students to graph on the coordinate plane. This applet can be used throughout the unit.
- Lesson 15 brings together the work on the coordinate plane with prior work on polygons. It features several digitally interactive activities that students can try on their own.

Grade 6 Unit 7: Rational Numbers
Lessons 16–18: Common Factors and Common Multiples

Explore, Play, and Discuss

- I can explain what a common factor is.
- I can explain what a common multiple is.

Activity Suggestions:

- ➢ Read the family materials for Grade 6 Unit 7 and attempt the problems shown in the fourth section of family materials.
- ➢ Lesson 16, Activity 1: Have students enter their ideas in an online discussion board, an online or paper journal, or share their reasoning with someone at home. This activity can be revisited in the deep dive after students have already generated ideas.
- ➢ Lesson 17, Activity 1: Have students enter their ideas in an online discussion board, an online or paper journal, or share their reasoning with someone at home. This activity can be revisited in the deep dive after students have already generated ideas.

Assessment Suggestions:

- ➢ Have students draw an image that shows why 15 is a multiple of 3 or why 4 is a factor of 16.

Deep Dive

- I can find the greatest common factor of two whole numbers.
- I can find the least common multiple of two whole numbers.

Activity Suggestions:

- ➢ Lesson 16, Activities 2 and 3. Use the context of Activity 2 to introduce greatest common factor.
- ➢ Lesson 17, Activities 2 and 3. Use the context of Activity 2 to introduce least common multiple.

Assessment Suggestions:

- ➢ Lesson 16 cool-down
- ➢ Lesson 17 cool-down

Synthesize and Apply

- I can solve problems using common factors and multiples.

Activity Suggestions:

- ➢ Lesson 18, Activities 1 and 2

Assessment Suggestions:

- ➢ Lesson 18 cool-down
- ➢ revisions to previous assessment prompts
- ➢ Students use learning targets to decide what additional practice they need.

Ongoing Practice

- Assign one or more of the distributed practice problem sets from Lessons 10–12 to be completed over the time period that the section is being worked on.
- These could also be lagging, so that students are working on practice problems from the previous section or unit during this section or unit.
- Specify which problems students should submit, or let them choose.
- Note: Several existing platforms already have IM's practice problems loaded so that students can complete and submit them online. Some can be autoscored.

Anytime Resources