

Treasure Map Escape

Integers, Absolute Value & the Coordinate Plane: Use positive and negative numbers to represent real-world quantities, explain opposites on the number line, compare and order rational numbers, and graph points on the coordinate plane to solve problems.

Learning target: I can use integers to describe real-world situations, compare them, find absolute value, and graph points in all four quadrants.

Success looks like: Students use the vocabulary correctly, complete the escape room, and score 80% or higher on the evidence-based exit ticket.

Materials: Student devices, the printed lesson worksheet (one per student), projector for the mini-lesson presenter.

LESSON AT A GLANCE

60 minutes

Time	Part	Teacher does	Students do
0:00-0:08	Warm-up	Project the warm-up. Circulate, then call on 2-3 students. Save question 3 for the debrief.	Answer Part 2 of the lesson worksheet; share with a partner.
0:08-0:20	Mini-lesson	Teach with the 4-step presenter. Run each quick check with the whole class.	Complete worksheet Parts 4-11 as each slide appears; answer checks with fingers.
0:20-0:48	Escape Room	Launch Treasure Map Escape. Assign mission levels; circulate with the answer key.	Play solo or in pairs; record code pieces; complete any written evidence task.
0:48-0:52	Debrief	Ask 2 debrief questions and revisit warm-up question 3.	Finish worksheet Part 13 (prediction check + one thing learned).
0:52-1:00	Exit ticket	Hand out the exit ticket. Collect and sort with the mastery guide.	Answer with evidence independently.

Key vocabulary

Word	Student-friendly definition
Integer	Whole numbers and their opposites (...-2, -1, 0, 1, 2...).
Opposite	A number the same distance from 0 on the other side (5 and -5).
Absolute value	A number's distance from 0, always positive or zero. $ -7 = 7$.
Quadrant	One of four regions of the coordinate plane, numbered I-IV counterclockwise.
Ordered pair	(x, y): move along the x-axis first, then the y-axis.

1. WARM-UP

0:00–0:08 · 8 min

Warm-up expectations (post these): Answer in Part 2 of the lesson worksheet (or on this sheet). Number each answer to match the question. Answer in complete sentences. For math, show your work. Work silently for 5 minutes, then share with a partner for 2 minutes. Be ready to share one answer with the class.

#	Question	Look for
1	What is the opposite of "5 degrees above zero"? Write both as integers.	5 degrees below zero; +5 and -5.
2	Which is colder: -8 °F or -3 °F? How do you know?	-8 °F, because it is farther below zero (farther left on the number line).
3	Plot (3, 2) in your notes. Which way did you move first?	Right 3 (x first), then up 2.

2. MINI-LESSON

0:08–0:20 · 12 min

Project the Lesson presenter from the room page. It runs the whole hour: target and agenda, warm-up with timer, hook vote, 4 teaching steps (key idea, interactive tool, turn and talk, check for understanding), I do / we do / you do, a work-time screen with a timer and expectations, debrief, and the exit ticket. Press N for teacher notes, T to pause the timer, and P to pick a student.

Hook (1 min): It was -8 °F in Fort Wayne and -3 °F in Evansville. Which city was colder? Class vote: Fort Wayne / Evansville / Same

Step 1 (3 min): Opposites in real life

Teach	Positive and negative numbers describe opposites: above/below sea level, gain/loss, deposit/withdrawal.
Interactive tool	Visual: Opposites are the same distance from 0
Students do	Write an integer for 20 feet below sea level and for a \$15 deposit.
Turn and talk	Name a real situation where 0 is not "nothing" but a starting point.
Worksheet Part 5A	Positive and negative numbers describe OPPOSITES, like gain and LOSS.
Check for understanding	Write an integer for "a loss of 12 yards." Answer: -12

Step 2 (3 min): Compare integers

Teach	On a number line, numbers increase to the right. $-3 > -8$ because -3 is farther right.
Interactive tool	Board and notes
Students do	Order -5, 2, -9, 0 from least to greatest.

Turn and talk	Why is -2 greater than -20, even though 20 is bigger than 2?
Worksheet Part 6A	Numbers increase to the RIGHT. -3 is GREATER than -8.
Check for understanding	Which statement is true? Answer: (C) $-3 > -8$

Step 3 (3 min): Absolute value

Teach	Absolute value is distance from zero, so it is never negative: $ -12 = 12$.
Interactive tool	Board and notes
Students do	Find $ -7 $, $ 7 $, and $ 0 $.
Turn and talk	Why can distance never be negative?
Worksheet Part 7A	ABSOLUTE VALUE is distance from zero. It is never NEGATIVE.
Check for understanding	$ -150 = ?$ Answer: 150

Step 4 (3 min): The coordinate plane

Teach	(x, y): x tells left/right, y tells up/down. Quadrants I (+,+), II (-,+), III (-,-), IV (+,-). Same x or same y? Same signs: subtract absolute values. Opposite signs: add them.
Interactive tool	Visual: Points A and B share a y-coordinate
Students do	Plot (-3, 4) on a sketch and name its quadrant.
Turn and talk	Why do you add absolute values when two points are on opposite sides of an axis?
Worksheet Part 8A	In (x, y), x moves LEFT OR RIGHT and y moves UP OR DOWN.
Check for understanding	What is the distance from A (-3, 4) to B (2, 4)? Answer: 5

I do: worked example (shown one step at a time)

1. Problem: plot (-3, 4), then find its distance to (5, 4).
2. Step 1: Start at the origin. $x = -3$, so move 3 left.
3. Step 2: $y = 4$, so move 4 up. That is Quadrant II.
4. Step 3: Both points have $y = 4$. Opposite signs, so add: $|-3| + |5| = 8$.
5. Answer: 8 units apart.

What to say on every slide is in the presenter script PDF.

We do: guided practice

What is the distance between (-4, 3) and (5, 3)?

1. Both points have $y = 3$, so they are on the same horizontal line.
2. The x-values -4 and 5 have opposite signs.
3. Add the absolute values: $|-4| + |5| = 4 + 5$.
4. Distance = 9 units.

Answer: 9 units

You do: independent check (2 min)

Which is the coldest temperature? (A) -4°F (B) 0°F (C) 6°F (D) -14°F

Answer: (D) -14°F . Students who miss it: 3-minute reteach at the teacher table, then start the room at the Explorer level.

Misconception: "-8 is greater than -3 because $8 > 3$." On the number line, -8 is farther left.

Misconception: "Absolute value makes a number the opposite." It is distance, so $|5|$ is still 5.

Misconception: "(3, 2) and (2, 3) are the same point." Order matters: x first, then y.

3. ESCAPE ROOM: TREASURE MAP ESCAPE

0:20–0:48 · 28 min

Launch: project the start screen, read the story aloud, and assign mission levels (Explorer = extra support, Agent = on level, Legend = challenge). Students can open Supports any time for read-aloud, bigger text, a word bank, and a scratch pad.

- Locks open in order, so every student moves through the same sequence. Circulate and listen for which lock is causing a traffic jam.
- Pairs work well: one student reads the clue card aloud, the other controls the device. Switch roles at every lock.
- If a group is stuck for more than 3 minutes, ask "What does the clue card say about this?" before giving the hint.

Students turn in: the completion code plus their copied "turn in your work" block (Canvas Text Entry).

4. DEBRIEF

0:48–0:52 · 4 min

1. Give a real-world example of a negative number.
2. How is absolute value useful when finding distance?
3. What trick helps you remember which quadrant is which?

Close the loop: return to warm-up question 3. Answer: Right 3 (x first), then up 2.

5. EXIT TICKET

0:52–1:00 · 8 min

Print the exit ticket PDF (page 2 is the key and mastery guide). Every item requires evidence: Part A asks students to justify each choice, Part B asks for an explanation, and Part C applies the standard to a new situation using Solve-Show-Explain. Sort results into Mastered, Approaching, and Beginning to plan tomorrow's groups.

LESSON RESOURCES

Resource	How it fits the lesson
Warm-up worksheet (PDF)	Optional standalone warm-up (also Part 2 of the lesson worksheet), with a key.

Resource	How it fits the lesson
Mini-lesson presenter	Projectable, step-by-step interactive lesson with tools and quick checks (room page).
Lesson worksheet (PDF + key)	One printable packet students complete during the whole lesson: short fill-ins and quick checks in 13 small parts that match the presenter slides.
Treasure Map Escape (.html)	The escape room for Canvas, with differentiated levels, supports, and a turn-in.
Exit ticket (PDF + key)	Evidence-based check with a rubric and a mastery sorting guide.
Illustrative Mathematics (extra)	Free Grade 6 rational numbers unit. https://im.kendallhunt.com/
Khan Academy: 6th Grade Math (extra)	Integer and coordinate plane practice. https://www.khanacademy.org/math/cc-sixth-grade-math
Desmos Classroom (extra)	Coordinate plane activities like "Polygraph: Points." https://teacher.desmos.com/
Which One Doesn't Belong? (extra)	Number and graph warm-ups that spark discussion. https://wodb.ca/

ANSWER KEY: TREASURE MAP ESCAPE

Lock 1: The Four Quadrants (code piece: P)

- Which quadrant is each point in? -> Quadrant I: (3, 5), (1, 1) | Quadrant II: (-4, 2) | Quadrant III: (-6, -1), (-2, -9) | Quadrant IV: (2, -7)
- In an ordered pair (x, y), which number do you move along first? -> x, left or right
- Mark the old cannon at (-3, 4). Remember: x first, then y. -> Point at (-3, 4)

Lock 2: Plot the Path (code piece: L)

- Follow the captain: start at the palm tree (0, 0), walk 4 paces left and 3 paces down. Mark where you end up. -> Point at (-4, -3)
- Which point lies on the y-axis? -> (0, 5)
- Are (3, 2) and (2, 3) the same point? -> No, the order of x and y matters

Lock 3: The Mirror Rocks (code piece: A)

- Reflect the rock at (3, 6) across the x-axis. Mark its mirror image. -> Point at (3, -6)
- Reflect (-4, -1) across the y-axis. -> (4, -1)
- A point is reflected across BOTH axes. (2, 5) becomes... -> (-2, -5)

Lock 4: Pacing the Distance (code piece: N)

- What is the distance from (-6, 2) to (4, 2)? -> 10 units
- What is the distance from (2, -6) to (2, 3)? -> 9 units
- What is the distance from (-7, -1) to (-2, -1)? -> 5 units

Lock 5: The Treasure Rectangle (code piece: E)

- What is the width of the rectangle (from $x = -2$ to $x = 4$)? -> 6 units
- What is the height (from $y = -1$ to $y = 3$)? -> 4 units
- What is the area of the treasure rectangle? -> 24 square units
- What is the perimeter? -> 20 units

Final code: PLANE