

The Smoothie Shop Lockdown

Ratios, Rates & Percents: Convert between fractions, decimals, and percents; understand unit rates; make tables of equivalent ratios; and solve real-world rate and ratio problems using tables, tape diagrams, double number lines, and equations.

Learning target: I can use ratios, unit rates, and percents to solve real-world problems.

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 The Smoothie Shop Lockdown. 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
Ratio	A comparison of two quantities (3 to 2, 3:2, $\frac{3}{2}$).
Rate	A ratio comparing quantities with different units (miles per hour).
Unit rate	A rate per 1 unit (\$2 per pound).
Equivalent ratios	Ratios that make the same comparison ($2:3 = 4:6$).
Percent	A ratio out of 100 ($45\% = 45/100$).

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	There are 12 boys and 15 girls in a class. Write the ratio of boys to girls.	12:15, or 4:5.
2	Which is the better buy: 3 pencils for \$1.50 or 5 pencils for \$2.00? Show work.	5 for \$2.00 (\$0.40 each vs. \$0.50 each).
3	What is 10% of 80?	8.

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): A 12-pack of juice costs \$6. A 20-pack costs \$9. Which is the better deal? Class vote: 12-pack / 20-pack / Same price per juice

Step 1 (3 min): Ratios compare

Teach	A ratio compares two quantities: 3 to 2, 3:2, or $\frac{3}{2}$. Order matters: dogs to cats is 3:2, cats to dogs is 2:3.
Interactive tool	Visual: 3 cups strawberries for every 2 cups yogurt
Students do	Write two ratios from the tape diagram (strawberries to yogurt, yogurt to strawberries).
Turn and talk	Why does 3:2 mean something different from 2:3?
Worksheet Part 5A	A RATIO compares two quantities. ORDER matters.
Check for understanding	What is the ratio of yogurt to strawberries? Answer: (C) 2:3

Step 2 (3 min): Equivalent ratios

Teach	Multiply or divide both parts by the same number. Tables and double number lines help.
Interactive tool	Visual: A double number line
Students do	Finish the double number line: 12 strawberries → ? yogurt.

Turn and talk	How can a double number line help you check a ratio?
Worksheet Part 6A	To make an EQUIVALENT RATIO, multiply or divide BOTH parts by the same number.
Check for understanding	Strawberries 12 cups: how many cups of yogurt? Answer: 8

Step 3 (3 min): Unit rates

Teach	A unit rate is the amount for 1. Divide: $\$6 \div 12 \text{ juices} = \$0.50 \text{ per juice}$.
Interactive tool	Board and notes
Students do	Find the price per item: 3 pens for \$2.40 and 5 pens for \$3.50.
Turn and talk	Why is the unit rate the fairest way to compare two deals?
Worksheet Part 7A	A UNIT RATE is the amount for ONE. To find it, divide.
Check for understanding	4 smoothies cost \$18. Price per smoothie? Answer: 4.50

Step 4 (3 min): Percents

Teach	Percent means per hundred. $20\% \text{ of } 60 = 20/100 \times 60 = 12$. Or 10% of 60 is 6, so 20% is 12.
Interactive tool	Visual: $35\% = 35 \text{ out of } 100$
Students do	Find 35% of 200 using 10% first.
Turn and talk	How can knowing 10% help you find 15% or 35% in your head?
Worksheet Part 8A	Percent means per HUNDRED. 10% of a number is that number divided by 10.
Check for understanding	What is 25% of 80? Answer: 20

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

1. Problem: 12 for \$6 or 20 for \$9?
2. Step 1: Unit rate for the 12-pack: $\$6 \div 12 = \$0.50 \text{ per juice}$.
3. Step 2: Unit rate for the 20-pack: $\$9 \div 20 = \$0.45 \text{ per juice}$.
4. Step 3: Compare: $\$0.45 < \$0.50$.
5. Answer: the 20-pack is the better deal, by 5 cents a juice.

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

We do: guided practice

A recipe uses 2 cups of rice for 5 people. How much rice for 20 people?

1. Ratio: 2 cups : 5 people.
2. 20 people is 4 times as many as 5.
3. Multiply both parts by 4: 8 cups : 20 people.
4. Check with a unit rate: $2 \div 5 = 0.4 \text{ cup per person}$; $0.4 \times 20 = 8$.

Answer: 8 cups

You do: independent check (2 min)

A shirt costs \$40 and is 15% off. How much is the discount?

Answer: 6. Students who miss it: 3-minute reteach at the teacher table, then start the room at the Explorer level.

Misconception: "Ratio order doesn't matter." 3:2 and 2:3 are different comparisons.

Misconception: "Add the same number to both parts to make equivalent ratios." You must multiply or divide.

Misconception: "Percents can never be more than 100." 150% of something is more than the whole.

3. ESCAPE ROOM: THE SMOOTHIE SHOP LOCKDOWN

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. When is a unit rate more useful than a total price?
2. What strategy did you use most for percents?
3. Where do you see ratios in sports or cooking?

Close the loop: return to warm-up question 3. Answer: 8.

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.
Mini-lesson presenter	Projectable, step-by-step interactive lesson with tools and quick checks (room page).

Resource	How it fits the lesson
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.
The Smoothie Shop Lockdown (.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 units on ratios, rates, and percents. https://im.kendallhunt.com/
Khan Academy: 6th Grade Math (extra)	Ratio and percent practice. https://www.khanacademy.org/math/cc-sixth-grade-math
Desmos Classroom (extra)	Free activities on ratio tables and unit rates. https://teacher.desmos.com/
Open Middle (extra)	Ratio and percent puzzles. https://www.openmiddle.com/

ANSWER KEY: THE SMOOTHIE SHOP LOCKDOWN

Lock 1: Ratio Language (code piece: R)

1. What is the ratio of yogurt to strawberries? -> 2:3
2. What fraction of the smoothie is strawberries? -> $\frac{3}{5}$
3. The shop has 12 boys and 16 girls on its summer team. Write the ratio of boys to girls in simplest form (like 1:2). -> 3:4
4. The blender holds 5 equal cups. Shade the fraction of the smoothie that is strawberries. -> Shade $\frac{3}{5}$ of the model

Lock 2: The Recipe Table (code piece: A)

1. How many cups of yogurt go with 9 cups of strawberries? -> 6 cups
2. How many cups of strawberries go with 10 cups of yogurt? -> 15 cups
3. Which ratio is NOT equivalent to 3:2? -> 5:4

Lock 3: Unit Rates (code piece: T)

1. A family buys 4 smoothies for \$18. What is the price per smoothie? -> 4.50 dollars
2. Which is the better deal? -> 24 oz for \$5.40
3. The shop makes 45 smoothies in 3 hours. How many smoothies per hour? -> 15
4. Mark the price of ONE smoothie on the number line (4 smoothies cost \$18). -> Point at 4.5

Lock 4: Percents (code piece: I)

1. What is 25% of 80? -> 20
2. Of 40 smoothies sold this morning, 30 were Strawberry Splash. Shade the 100-grid to show that percent. -> Shade 75% of the 100-square grid
3. A customer leaves a 15% tip on a \$20 order. How much is the tip? -> 3 dollars

Lock 5: The Party Order (code piece: O)

1. How many cups of fruit are needed for 24 smoothies? -> 18 cups
2. How much fruit is in ONE smoothie? -> $\frac{3}{4}$ cup

Final code: RATIO