Rates and Unit Rates

Flagship

Lesson 4-1-flagship

Name: _____ Date: _____ Class: _____

ARCADE BUILDER MISSION

Best Booth in the Arcade

You are the new operations manager at NeonPlex Arcade. Two ticket booths are competing for players — Booth A charges $3 for 5 games, Booth B charges $5 for 8 games. Players want the best deal, and your job is to crown the winning booth by mastering unit rates.

Key Vocabulary

Level 1 support

Picture first, then the word, then a plain-language meaning. Say each word out loud.

$12 for 4 games is a rate

Rate

A ratio comparing two amounts with different units, like miles per hour.

$3 per 1 game

Unit Rate

A rate for just 1 of something, like cost for 1 item.

60 miles per hour means 60 miles for every 1 hour

Per

For each one. Example: 5 dollars per book.

5 to 3 or 5:3

Ratio

A way to compare two amounts.

Pack A: $0.50 per pencil vs Pack B: $0.40 per pencil — Pack B is the better buy

Better Buy

The choice that costs less for each item.

$12 ÷ 4 games = $3 per game

Divide

Splitting a total into equal groups.

Key Ideas & Notes

- You're comparing ticket prices at different game booths in the arcade.
- Booth A charges $3 for 5 games, and Booth B charges $5 for 8 games.
- Which booth gives you a better deal?
- To find out, you need to figure out the cost per game — that's the unit rate!
- Calculate the unit rate (cost per game) for each arcade booth. Divide the total cost by the number of games.

Think About It

- What two quantities are being compared at each booth?
- Which booth seems like a better deal at first glance?
- How can you compare prices when the number of games is different?

My Notes

Guided Examples

Example 1

A booth charges $4.50 for 9 games. What is the unit rate?

Solution: $4.50 ÷ 9 = $0.50 per game.

Answer: A. $0.50 per game

Example 2

A car travels 180 miles using 6 gallons of gas. What is the unit rate in miles per gallon?

Solution: 180 miles ÷ 6 gallons = 30 miles per gallon.

Answer: A. 30 miles per gallon

Example 3

A pack of 8 markers costs $6.00. What is the cost per marker?

Solution: $6.00 ÷ 8 = $0.75 per marker.

Answer: A. $0.75

Write About the Math

The Writing Revolution

I can explain my choice using the words rate, unit rate, per, and better buy.

1. Kernel Sentence

subject + verb

Model: Rate is a ratio comparing two amounts with different units, like miles per hour.
Tasa es una razón que compara dos cantidades con unidades distintas, como millas por hora.

Write a kernel sentence about rate. Use a subject and a verb.
Escribe una oración base sobre tasa. Usa un sujeto y un verbo.

2. Sentence Expansion

because · but · so

Kernel: Rate matters in math
Tasa importa en matemáticas

Expand the kernel three ways. Add a reason, a contrast, and a result.

because *porque*

Rate matters in math because ____.
Tasa importa en matemáticas porque ____.

but *pero*

Rate matters in math, but ____.
Tasa importa en matemáticas, pero ____.

so *entonces*

Rate matters in math, so ____.
Tasa importa en matemáticas, entonces ____.

3. Sentence Types

4 ways to write a math idea

Statement
Afirmación

Tell one true fact about rate.
Di un hecho verdadero sobre rate.

Rate ____.

Question
Pregunta

Ask a question about rate.
Haz una pregunta sobre rate.

How does ____ ?
¿Cómo ____ ?

Exclamation
Exclamación

Show excitement about rate.
Muestra entusiasmo sobre rate.

Wow, ____ !
¡Guau, ____ !

Command
Mandato

Tell a partner what to do with rate.
Dile a un compañero qué hacer con rate.

First, ____ .
Primero, ____ .

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4. Explain Your Reasoning

use a sentence starter

I know ____ because ____.
Sé que ____ porque ____.

First I ____, then I ____.
Primero ____, luego ____.

This is important because ____.
Esto es importante porque ____.

Try It

Solve on your own. Check the answer key when you are done.

1. Which token pack from the table above is the best deal?

A. Pack A

B. Pack B

C. Pack C

D. They are all the same

Show your work:

2. Runner A completes 4 laps in 12 minutes. Runner B completes 5 laps in 14 minutes. Who runs more laps per minute?

A. Runner B

B. Runner A

C. Same rate

D. Cannot determine

Show your work:

Stretch Your Thinking

Level 2 enrichment

Challenge task — explain your reasoning in full sentences.

An arcade sells tokens in three packs: 25 tokens for $5, 60 tokens for $10.80, and 100 tokens for $19. A student says the 100-token pack is always the best deal because you get the most tokens. Is the student correct? Find all three unit rates and explain.

Sentence starter: The student is ____ because the best deal is the ____ pack with a unit rate of $____ per token.

Show your work:

Reflect — Exit Ticket

A store sells 6 pencils for $1.50 and 10 pencils for $2.80. Which is the better buy?

A. 6 for $1.50 — $0.25 each

B. 10 for $2.80 — $0.28 each

C. They cost the same per pencil

D. Not enough information

Your answer:

Answer Key & Teacher Guide

1. **Try It 1:** B. Pack B — *Pack B has a unit rate of $0.20 per token, which is the lowest cost per token.*
2. **Try It 2:** A. Runner B — *Runner A: 4÷12 ≈ 0.33 laps/min. Runner B: 5÷14 ≈ 0.36 laps/min. Runner B runs slightly more laps per minute.*
3. **Exit Ticket:** A. 6 for $1.50 — $0.25 each — *$1.50 ÷ 6 = $0.25 per pencil. $2.80 ÷ 10 = $0.28 per pencil. $0.25 < $0.28, so 6 for $1.50 is the better buy.*

Writing (TWR) — what to look for

- **Kernel sentence:** A complete sentence needs a subject and a verb. Example: Rate is a ratio comparing two amounts with different units, like miles per hour.
- **Expansion:** *because* gives a reason, *but* shows a contrast or exception, *so* shows a result. Answers vary; each must keep the kernel idea and add the correct kind of detail.
- **Sentence types:** Statement ends with a period, question with "?", exclamation with "!", and a command starts with an action verb (a "bossy" verb).