

THRILL PARK INVESTIGATIONS

THE VANISHING LEMONADE

INVESTIGATION REPORT #1

The Inventory Audit

DETECTIVE LEVEL	STANDARDS
GRADE 5	5.NBT.B.5 • 5.NBT.B.7
FIVE-SKILL FOCUS	**TIME**
Quantitative Evidence • Reasoned Inference	30 min

Mission Briefing



CASE FILE 2026-007 • THE VANISHING LEMONADE

It's 3:00 PM on Opening Day at Thrill Park. Ms. Mendoza, the food court manager, is staring at a clipboard and shaking her head. Something is wrong with the lemonade inventory.

Ms. Mendoza ordered 2,400 cups for opening day. The register tape shows 1,896 sold by 3:00 PM. But when workers counted the cups in storage, they found only 312. The math doesn't add up — and the park closes at 9:00 PM. She circles one word in red on her clipboard: DISCREPANCY.

Reese, a 5th grader at the park, watched from a nearby table.
Ms. Mendoza turned and asked: "Want to help me figure out where all that lemonade went?"

Your job

- **Run an audit on every food court item.**
- **Find which item has unexplained missing inventory.**
- **Calculate exactly how many cups (or items) are missing.**



Quick check before you start. If your math is shaky here, the audit won't hold up. If you miss any of these, your teacher will give you the matching Remediation page first.

	Check 1	Check 2	Check 3
Solve	**1.** 1,500 − 875 =	**2.** 2,103 − 947 =	3. $20.00 − $7.85 =
Answers			

How an Inventory Audit Works

An inventory audit checks whether the numbers match.

Expected = Ordered − Sold.
Discrepancy = Expected − Actual

Ms. Mendoza shows you a sample audit from the Souvenir Shop: glow-in-the-dark wristbands from this morning's inventory check.

Demo Audit — Glow Wristbands

Item	Ordered	Sold	Inventory at 3 PM
Glow wristbands	600	423	177

Walk through it:

- Expected = 600 - 423 = _____
- Discrepancy = _____ - 177 = _____

Detective's Question:

Did the wristband audit find any missing inventory? How do you know?



Now run the audit on the four other food court items. The data is split across three evidence files.

Evidence File 1 — Vendor Delivery Log (morning of Opening Day)

Recovered from the loading dock clipboard.

Item	Cups / Servings Ordered
Lemonade	**2,400 cups**
Pretzels	**1,200 servings**
Hot dogs	**950 servings**
Bottled water	**1,800 bottles**

Evidence File 2 — End-of-Day Inventory Count (3:00 PM)

Counted by the food court team at 3:00 PM.

Item	Cups / Servings in Storage
Lemonade	**312 cups**
Pretzels	**387 servings**
Hot dogs	**224 servings**
Bottled water	**658 bottles**

Evidence File 3 — Sales Register Tape (through 3:00 PM)

Total sold and revenue at each register.

Item	Cups / Servings Sold	Price Each	Revenue
Lemonade	**1,896**	**$3.50**	
Pretzels	**813**	**$5.50**	**$4,471.50**
Hot dogs	**726**	**$6.25**	
Bottled water	**1,142**	**$2.50**	**$2,855.00**



TASK 1. Find Expected Inventory. Fill in the table

Item	Ordered – Sold = Expected	Actual (from Ev. 2)	Expected
Lemonade	2,400 – 1,896 = _____	312	
Pretzels	1,200 – 813 = _____	387	
Hot dogs	950 – 726 = _____	224	
Bottled water	1,800 – 1,142 = _____	658	

TASK 2. Find The Discrepancy

Circle the item with missing inventory in the table above.

Then calculate how many are missing in the box below.

TASK 3. Calculate Revenue for Lemonade and Hot dogs :

Revenue = Sold × Price Each

Show your work.

TASK 4. Food Court

1. Find the total revenue of the Food Court: _____
2. Calculate the lemonade sales as a percent of the total food-court revenue. Hint: divide first (lemonade ÷ total), then multiply your decimal by 100 to get the percent.



This is what you tell Ms. Mendoza. Use the evidence and show the math that proves your answer.

The Question: Which item has unexplained missing inventory, and how big is the loss?

Your Verdict:

Item with missing inventory: _____

Number of items missing: _____

Your Argument (cite the Evidence File you used, the calculation that proves it, and why this shows missing inventory):

Mathematical Proof (write the calculation that proves your verdict):

🔑 Case File Master Key

THE 5-DIGIT CODE

The full Vanishing Lemonade Case File at the end of all 5 Investigations is locked with a 5-digit code. **Each Investigation Report gives you one digit.**

YOUR DIGIT FROM INVESTIGATION #1:

The ones digit of the lemonade revenue dollar amount.

(Example: if revenue is $4,231, the ones digit is 1.)

➜ My digit: _____

Record this on your Case File Tracking Sheet. If your math is wrong, the final case file won't open.

TEACHER GUIDE & ANSWER KEY

Skills Check

1. 1,500 − 875 = 625
2. 2,103 − 947 = 1,156
3. $20.00 − $7.85 = $12.15

Pre-Investigation Briefing — Glow Wristbands Demo

- Expected = 600 − 423 = 177
- Discrepancy = 177 − 177 = 0
- Conclusion: glow wristbands pass the audit; no missing inventory.

Investigation Tasks

Task	Answer
Task 1: Expected	Lemonade: 2,400 − 1,896 = 504 | Pretzels: 1,200 − 813 = 387 | Hot dogs: 950 − 726 = 224 | Water: 1,800 − 1,142 = 658
Task 2a: which item	Lemonade (Expected 504; Actual 312).
Task 2b: size	504 − 312 = 192 cups.
Task 3: Revenue (Lemonade + Hot dogs)	Lemonade: 1,896 × $3.50 = $6,636.00. Hot dogs: 726 × $6.25 = $4,537.50. (Pretzels $4,471.50 and Water $2,855.00 are pre-filled as scaffolding anchors in Evidence File 3.)
Task 4: Food court total + percent	Total = $18,500. Lemonade share: $6,636 ÷ $18,500 = 0.3587 ≈ 0.36 (rounded to nearest hundredth); 0.36 × 100 = 36%. Lemonade was about 36% of food-court revenue — over a third of the whole food court.
Master Key Digit	6 (ones of $6,636).
Five-Skill coverage	Quantitative Evidence: Tasks 1-2. Reasoned Inference: Task 2. Mathematical Proof: Detective's Reasoning.

Detective's Reasoning — Expected Verdict Lemonade. 192 cups missing.

Sample student argument:
Lemonade: 2,400 ordered (Ev. 1) - 1,896 sold (Ev. 3) = 504 expected. Ev. 2 shows 312 in storage. Discrepancy = 504 - 312 = 192 cups. Pretzels, hot dogs, and water cleared with 0 discrepancy. Lemonade is the only missing-inventory item.

Standards Alignment

Standard	Where it's hit
5.NBT.B.5 — Multi-digit multiplication	Task 3 (1,896 × 3.50)
5.NBT.B.5 / B.6 — Multi-digit subtraction	Skills Check 1-2, Tasks 1-2
5.NBT.B.7 — Decimal operations	Skills Check 3, Tasks 3-4

Differentiation

Below-Grade Bridge: Pre-fill Expected (504, 387, 224, 658). Student does Task 2 only. Calculator allowed for Task 3 (Lemonade + Hot dogs revenue — Pretzels and Water already scaffolded in Evidence File 3).

On-Grade: Full IR as written.

Stretch: Add: "192 cups × $3.50 = revenue lost. What % of food-court revenue?" (Answer: $672 lost; ~3.6%.)

Connection to Series Arc

Establishes 192 cups missing. IR2 ("Sales Records") checks register-tape accuracy. IR3 ("Mixing Recipes") checks whether storage cups were full or partial. Each IR contributes one Master Key Digit; all five unlock the Case File.

TEACHER NOTES

Use Skills Check results to assign Remediation BEFORE the inventory audit. All 3 SC problems (5.NBT.B.5 + 5.NBT.B.7) → Rem A1 Multi-Digit Operations. The Glow Wristbands demo uses a different vendor so the food court isn't pre-spoiled.

Task 3 scaffolding: Evidence File 3 pre-fills Pretzels ($4,471.50) + Water ($2,855.00) as anchors; students calculate only Lemonade (1,896 × $3.50) and Hot dogs (726 × $6.25). Use anchors as self-check before Task 4.

Task 4 percent: Technically Grade 6 (6.RP.A.3.c) but uses a decimal scaffold (divide first, then × 100) — the only meaningful way to express 6,636/18,500 for a 5th grader. Stretch also uses percent. Accept 36%, ~36%, or "about a third."

Vocabulary cards: DISCREPANCY (#1, load-bearing). Supporting: SUM (#25), DIFFERENCE (#26), ROUNDING (#27), ESTIMATE (#28).

Detective Skill Tracker: Students complete the standalone tracker after this IR — per-section self-reflection (Skills Check, Remediation, Audit, Detective's Reasoning, Master Key). Remediation row stays blank if not assigned.

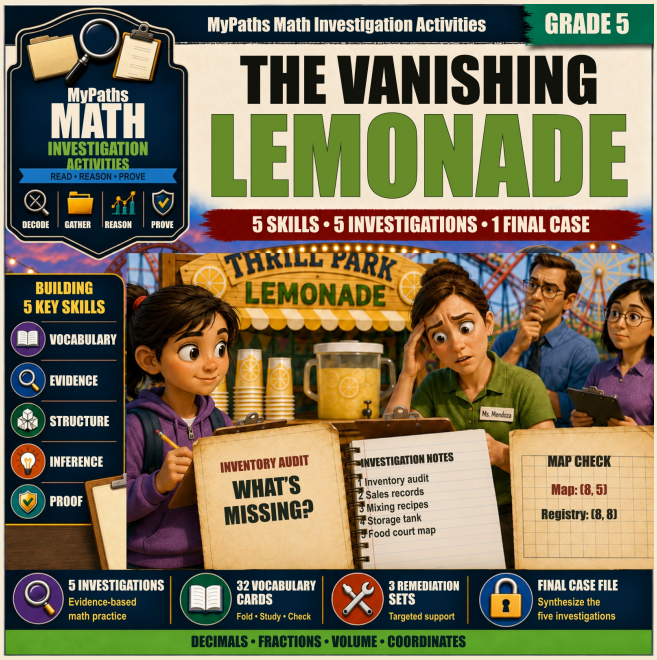
DETECTIVE SKILL TRACKER

Skill	How did I do?	What will I do differently next time?
	☐ I got it ☐ Almost there ☐ I need help	
	☐ I got it ☐ Almost there ☐ I need help	
	☐ I got it ☐ Almost there ☐ I need help	
	☐ I got it ☐ Almost there ☐ I need help	
	☐ I got it ☐ Almost there ☐ I need help	

READY FOR THE REST OF THE CASE?

Grade 5 | The Vanishing Lemonade

You have tried Investigation 1. Continue with the complete set.



- **5 connected investigations**
- **1 final Case File challenge**
- **32 vocabulary cards**
- **3 remediation sets**
- **Teacher guide + answer keys**
- **Reflection + standards tracking**

EXPLORE THE COMPLETE GRADE 5 SET

Full sets and bundles are sold separately from this free sample.

CHOOSE YOUR GRADE

Grade 3 Grade 4 Grade 5 Grade 6 Grade 7 Grade 8

TEACHING ACROSS GRADES? EXPLORE A BUNDLE.

Grades 3-5 Grades 6-8 Grades 3-8

Also from MyPaths: Reading Mysteries - Science + Social Studies

Follow MyPaths for more classroom resources.

© 2026 MyPaths | For single-classroom use.