



# The Great Museum Glitch

Grade 5 math · Multiplication, Fractions of a number, Order of operations, Rounding, Missing addends · Reading level grades 5-6

**Detective:** \_\_\_\_\_ **Date:** \_\_\_\_\_

A high-tech glitch has scrambled the exhibits at the Museum of Infinite Time! Historic Roman coins, legendary Chicago Cubs bats, and Michael Jackson gold records are vanishing into digital dust. The culprit is hiding among the museum staff, masked as a legendary Blook avatar. Use your detective skills and math savvy to crack the codes and restore history!

1. Solve each math problem. The answer is a number, and the letter beside it is what that number stands for.
2. In the clue boxes, write that letter in every box showing the same number, then read the secret clue.
3. Use each clue to cross suspects off the list. The one suspect left at the end is the culprit!

**My answer: the Glitch King is** \_\_\_\_\_

## Possible suspects

Cross off a row as each clue rules it out. The one left at the end is the culprit.

| NAME     | EXHIBIT SPECIALTY    | RARE ARTIFACT | THROWING ARM                | AVATAR WIG         | DEFEAT CODE         |
|----------|----------------------|---------------|-----------------------------|--------------------|---------------------|
| Harold   | Cubs Stadium Exhibit | Fedora Hat    | Right handed throwing style | Blue ivy cap       | History trivia quiz |
| Fergie   | MJ Concert Stage     | Golden Crown  | Right handed throwing style | Blue ivy cap       | History trivia quiz |
| Ernie    | Ancient Egypt Tomb   | Diamond Ring  | Right handed throwing style | Curly black hair   | History trivia quiz |
| Goldy    | Ancient Egypt Tomb   | Golden Crown  | Right handed throwing style | Curly black hair   | History trivia quiz |
| Janet    | Space Race Hangar    | Shiny Glove   | Left handed throwing style  | Blue ivy cap       | History trivia quiz |
| Buster   | Cubs Stadium Exhibit | Golden Crown  | Right handed throwing style | Curly black hair   | Pop music blast     |
| Ryne     | Ancient Egypt Tomb   | Diamond Ring  | Right handed throwing style | Blue ivy cap       | Blook blast attack  |
| Marlon   | Roman Empire Gallery | Diamond Ring  | Right handed throwing style | Blue ivy cap       | History trivia quiz |
| Abigail  | Ancient Egypt Tomb   | Shiny Glove   | Left handed throwing style  | Curly black hair   | History trivia quiz |
| Ron      | MJ Concert Stage     | Diamond Ring  | Left handed throwing style  | Powdered white wig | History trivia quiz |
| Quincy   | Cubs Stadium Exhibit | Golden Crown  | Right handed throwing style | Blue ivy cap       | History trivia quiz |
| Franklin | Ancient Egypt Tomb   | Golden Crown  | Right handed throwing style | Blue ivy cap       | Pop music blast     |
| Lincoln  | Space Race Hangar    | Fedora Hat    | Right handed throwing style | Blue ivy cap       | Pop music blast     |
| Kris     | Cubs Stadium Exhibit | Lucky Bat     | Right handed throwing style | Blue ivy cap       | History trivia quiz |
| Anthony  | MJ Concert Stage     | Shiny Glove   | Right handed throwing style | Curly black hair   | History trivia quiz |
| Yeti     | Roman Empire Gallery | Fedora Hat    | Right handed throwing style | Blue ivy cap       | Blook blast attack  |
| Harriet  | Ancient Egypt Tomb   | Golden Crown  | Left handed throwing style  | Blue ivy cap       | History trivia quiz |
| Sammy    | Space Race Hangar    | Golden Crown  | Right handed throwing style | Blue ivy cap       | Pop music blast     |
| Tito     | Roman Empire Gallery | Diamond Ring  | Left handed throwing style  | Curly black hair   | Pop music blast     |
| Clark    | Cubs Stadium Exhibit | Lucky Bat     | Left handed throwing style  | Blue ivy cap       | History trivia quiz |
| Billie   | Cubs Stadium Exhibit | Shiny Glove   | Right handed throwing style | Powdered white wig | Pop music blast     |

**CLUE 1**
**Multiplication facts (1-12)**

We find the security control room. To unlock the first clue, we must calculate the total number of Blook tokens arranged in equal rows.

Solve each problem, then write its letter in every clue box that shows the same number.

|              |    |    |    |    |    |     |              |    |    |    |    |    |    |    |    |              |
|--------------|----|----|----|----|----|-----|--------------|----|----|----|----|----|----|----|----|--------------|
| <div>T</div> |    |    |    |    |    |     | <div>T</div> |    |    |    |    |    |    |    |    | <div>T</div> |
| 88           | 84 | 81 | 20 | 66 | 20 | 108 | 81           | 44 | 88 | 49 | 21 | 81 | 20 | 30 | 21 | 88           |

  

|    |    |    |              |    |    |    |    |    |    |    |    |    |    |              |
|----|----|----|--------------|----|----|----|----|----|----|----|----|----|----|--------------|
|    |    |    | <div>T</div> |    |    |    |    |    |    |    |    |    |    | <div>T</div> |
| 21 | 35 | 30 | 88           | 84 | 81 | 55 | 81 | 49 | 21 | 50 | 54 | 84 | 54 | 88           |

$11 \times 8 = \square \rightarrow \text{T}$

$12 \times 7 = \square \rightarrow \text{H}$

$9 \times 9 = \square \rightarrow \text{E}$

$11 \times 4 = \square \rightarrow \text{C}$

$10 \times 5 = \square \rightarrow \text{R}$

$5 \times 11 = \square \rightarrow \text{F}$

$3 \times 7 = \square \rightarrow \text{O}$

$5 \times 6 = \square \rightarrow \text{N}$

$7 \times 5 = \square \rightarrow \text{W}$

$9 \times 6 = \square \rightarrow \text{A}$

$6 \times 11 = \square \rightarrow \text{U}$

$7 \times 7 = \square \rightarrow \text{D}$

$5 \times 4 = \square \rightarrow \text{S}$

$9 \times 12 = \square \rightarrow \text{P}$

Scratch space:

## Fractions of a number

Inside the vintage Cubs dugout, a box of baseballs is partially used. Finding the fractional share of clean baseballs unlocks the next trace.

Solve each problem, then write its letter in every clue box that shows the same number.

A number line from 0 to 100 with increments of 5. The number 34 is highlighted in orange and labeled with a 'T'.

$2/4$  of 68 =   $\rightarrow$  **T**

$\frac{1}{4}$  of 104 =   $\rightarrow$  **D**

$3/6$  of  $74 = \boxed{\phantom{000}} \rightarrow \boxed{\text{W}}$

$$5/10 \text{ of } 58 = \boxed{\phantom{00}} \rightarrow \boxed{\text{H}}$$

$2/8$  of 68 =   $\rightarrow$  **A**

$3/4$  of 24 =   $\rightarrow$  **G**

$$2/6 \text{ of } 21 = \boxed{\phantom{00}} \rightarrow \boxed{\text{N}}$$

$1/10 \text{ of } 40 = \boxed{\phantom{00}} \rightarrow \boxed{\text{E}}$

$$\frac{1}{4} \text{ of } 160 = \boxed{\phantom{000}} \rightarrow \boxed{\text{O}}$$

$$2/10 \text{ of } 165 = \boxed{\phantom{00}} \rightarrow \boxed{\text{R}}$$

$2/6$  of  $27 = \boxed{\phantom{000}} \rightarrow \boxed{\text{S}}$

$\frac{1}{3}$  of 15 =   $\rightarrow$

$\frac{1}{4}$  of 64 =   $\rightarrow$  **F**

Scratch space:

## CLUE 3

## Order of operations

We reach the historic music studio. A complex control board requires a precise order of mathematical operations to play the correct song.

Solve each problem, then write its letter in every clue box that shows the same number.

|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| T  |    |    | T  |    |    |    |    |    |    |    |    |    | T  |    |    |    |    |    |    |
| 45 | 31 | 23 | 45 | 31 | 53 | 23 | 14 | 40 | 64 | 76 | 76 | 79 | 45 | 64 | 76 | 71 | 54 | 23 | 19 |
|    |    |    |    | T  |    |    |    | T  |    |    |    |    |    |    |    |    |    |    |    |
| 64 | 31 | 53 | 71 | 45 | 79 | 19 | 21 | 45 | 19 | 53 | 66 | 53 | 64 | 43 | 75 | 53 | 68 |    |    |

$6 \times 9 - 9 = \square \rightarrow \boxed{\text{T}}$

$13 + 7 \times 9 = \square \rightarrow \boxed{\text{N}}$

$28 + 5 \times 5 = \square \rightarrow \boxed{\text{I}}$

$8 \times 11 - 9 = \square \rightarrow \boxed{\text{O}}$

$8 \times 5 - 19 = \square \rightarrow \boxed{\text{Y}}$

$9 + 2 \times 5 = \square \rightarrow \boxed{\text{R}}$

$9 \times 9 - 6 = \square \rightarrow \boxed{\text{U}}$

$34 + 4 \times 5 = \square \rightarrow \boxed{\text{W}}$

$4 \times 6 - 1 = \square \rightarrow \boxed{\text{E}}$

$7 + 4 \times 9 = \square \rightarrow \boxed{\text{Q}}$

$7 \times 11 - 13 = \square \rightarrow \boxed{\text{A}}$

$46 + 5 \times 4 = \square \rightarrow \boxed{\text{V}}$

$34 + 2 \times 3 = \square \rightarrow \boxed{\text{C}}$

$11 \times 8 - 20 = \square \rightarrow \boxed{\text{Z}}$

$15 + 2 \times 8 = \square \rightarrow \boxed{\text{H}}$

$9 \times 2 - 4 = \square \rightarrow \boxed{\text{F}}$

$36 + 5 \times 7 = \square \rightarrow \boxed{\text{S}}$

Scratch space:

## CLUE 4 Rounding

The museum radar detects a high speed glitch. The distance readout is fuzzy, so we must round the speed to the nearest hundred to lock its path.

Solve each problem, then write its letter in every clue box that shows the same number.

|      |      |      |     |     |     |     |      |      |      |     |      |      |     |     |      |  |
|------|------|------|-----|-----|-----|-----|------|------|------|-----|------|------|-----|-----|------|--|
| T    |      |      | T   |     |     |     |      |      |      |     |      |      |     |     |      |  |
| 20   | 370  | 500  | 20  | 370 | 30  | 500 | 7000 | 200  | 430  | 900 | 1100 | 1100 | 500 | 200 | 5000 |  |
|      |      |      |     |     |     |     |      |      |      |     |      |      |     |     |      |  |
| 1700 | 3000 | 1300 | 500 | 30  | 110 | 290 | 50   | 5000 | 1100 |     |      |      |     |     |      |  |

Round 20 to the nearest ten  → **T**

Round 373 to the nearest ten  → **H**

Round 7,113 to the nearest thousand  → **F**

Round 1,062 to the nearest hundred  → **P**

Round 531 to the nearest hundred  → **E**

Round 434 to the nearest ten  → **R**

Round 53 to the nearest ten  → **C**

Round 1,725 to the nearest hundred  → **B**

Round 935 to the nearest hundred  → **O**

Round 1,343 to the nearest hundred  → **U**

Round 114 to the nearest ten  → **V**

Round 293 to the nearest ten  → **Y**

Round 184 to the nearest hundred  → **D**

Round 3,182 to the nearest thousand  → **L**

Round 33 to the nearest ten  → **I**

Round 4,955 to the nearest thousand  → **A**

Scratch space:

**CLUE 5****Missing addends - the last clue**

At the ancient Roman gate, some stone bricks are missing. Solving for the missing weight needed to balance the scale reveals the final clue.

First solve each problem. Then find each answer in the numbered list below and cross that sentence out. One sentence will be left - that is exactly what the villain did!

**Step 1 - solve these:**

$40 + \underline{\quad} = 48$

$22 + \underline{\quad} = 26$

$39 + \underline{\quad} = 40$

$22 + \underline{\quad} = 34$

$10 + \underline{\quad} = 15$

$24 + \underline{\quad} = 30$

$40 + \underline{\quad} = 47$

$15 + \underline{\quad} = 24$

$13 + \underline{\quad} = 23$

$4 + \underline{\quad} = 15$

$8 + \underline{\quad} = 10$

**Step 2 - cross out the sentence with each answer:**

1. The villain dances across the MJ Concert Stage, then steals the Golden Crown of Rome.
2. The villain marches through the Roman Empire Gallery, then grabs the famous Shiny Glove.
3. The villain sneaks onto the Cubs Stadium Exhibit, then escapes with the Lucky Bat.
4. The villain sneaks onto the Cubs Stadium Exhibit, then steals the Golden Crown of Rome.
5. The villain sneaks into the Ancient Egypt Tomb, then swipes the iconic Fedora Hat.
6. The villain dances across the MJ Concert Stage, then grabs the Diamond Ring and flees.
7. The villain sneaks onto the Cubs Stadium Exhibit, then grabs the famous Shiny Glove.
8. The villain marches through the Roman Empire Gallery, then grabs the Diamond Ring and flees.
9. The villain marches through the Roman Empire Gallery, then escapes with the Lucky Bat.
10. The villain sneaks into the Ancient Egypt Tomb, then escapes with the Lucky Bat.
11. The villain flies through the Space Race Hangar, then steals the Golden Crown of Rome.
12. The villain dances across the MJ Concert Stage, then grabs the famous Shiny Glove.

# Answer Key

## The Great Museum Glitch

### Culprit: Kris

Cubs Stadium Exhibit · Lucky Bat · Right handed throwing style · Blue ivy cap · History trivia quiz

Trail: Start 21 → Clue 1 18 → Clue 2 12 → Clue 3 7 → Clue 4 4 → Clue 5 1

### Clue 1 (Multiplication facts (1-12)): "THE SUSPECT DOES NOT OWN THE FEDORA HAT"

$11 \times 8 = 88$  (T) ·  $12 \times 7 = 84$  (H) ·  $9 \times 9 = 81$  (E) ·  $11 \times 4 = 44$  (C) ·  $10 \times 5 = 50$  (R) ·  $5 \times 11 = 55$  (F) ·  $3 \times 7 = 21$  (O) ·  $5 \times 6 = 30$  (N) ·  $7 \times 5 = 35$  (W) ·  $9 \times 6 = 54$  (A) ·  $6 \times 11 = 66$  (U) ·  $7 \times 7 = 49$  (D) ·  $5 \times 4 = 20$  (S) ·  $9 \times 12 = 108$  (P)

### Clue 2 (Fractions of a number): "THE THIEF SHOWS A RIGHT HANDED THROW"

$\frac{2}{4}$  of 68 = 34 (T) ·  $\frac{1}{4}$  of 104 = 26 (D) ·  $\frac{3}{6}$  of 74 = 37 (W) ·  $\frac{5}{10}$  of 58 = 29 (H) ·  $\frac{2}{8}$  of 68 = 17 (A) ·  $\frac{3}{4}$  of 24 = 18 (G) ·  $\frac{2}{6}$  of 21 = 7 (N) ·  $\frac{1}{10}$  of 40 = 4 (E) ·  $\frac{1}{4}$  of 160 = 40 (O) ·  $\frac{2}{10}$  of 165 = 33 (R) ·  $\frac{2}{6}$  of 27 = 9 (S) ·  $\frac{1}{3}$  of 15 = 5 (I) ·  $\frac{1}{4}$  of 64 = 16 (F)

### Clue 3 (Order of operations): "THE THIEF CANNOT ANSWER A HISTORY TRIVIA QUIZ"

$6 \times 9 - 9 = 45$  (T) ·  $13 + 7 \times 9 = 76$  (N) ·  $28 + 5 \times 5 = 53$  (I) ·  $8 \times 11 - 9 = 79$  (O) ·  $8 \times 5 - 19 = 21$  (Y) ·  $9 + 2 \times 5 = 19$  (R) ·  $9 \times 9 - 6 = 75$  (U) ·  $34 + 4 \times 5 = 54$  (W) ·  $4 \times 6 - 1 = 23$  (E) ·  $7 + 4 \times 9 = 43$  (Q) ·  $7 \times 11 - 13 = 64$  (A) ·  $46 + 5 \times 4 = 66$  (V) ·  $34 + 2 \times 3 = 40$  (C) ·  $11 \times 8 - 20 = 68$  (Z) ·  $15 + 2 \times 8 = 31$  (H) ·  $9 \times 2 - 4 = 14$  (F) ·  $36 + 5 \times 7 = 71$  (S)

### Clue 4 (Rounding): "THE THIEF DROPPED A BLUE IVY CAP"

Round 20 to the nearest ten = 20 (T) · Round 373 to the nearest ten = 370 (H) · Round 7,113 to the nearest thousand = 7000 (F) · Round 1,062 to the nearest hundred = 1100 (P) · Round 531 to the nearest hundred = 500 (E) · Round 434 to the nearest ten = 430 (R) · Round 53 to the nearest ten = 50 (C) · Round 1,725 to the nearest hundred = 1700 (B) · Round 935 to the nearest hundred = 900 (O) · Round 1,343 to the nearest hundred = 1300 (U) · Round 114 to the nearest ten = 110 (V) · Round 293 to the nearest ten = 290 (Y) · Round 184 to the nearest hundred = 200 (D) · Round 3,182 to the nearest thousand = 3000 (L) · Round 33 to the nearest ten = 30 (I) · Round 4,955 to the nearest thousand = 5000 (A)

### Clue 5 (Missing addends): surviving statement is box 3 → Kris

$40 + \underline{\quad} = 48 = 8$  ·  $22 + \underline{\quad} = 26 = 4$  ·  $39 + \underline{\quad} = 40 = 1$  ·  $22 + \underline{\quad} = 34 = 12$  ·  $10 + \underline{\quad} = 15 = 5$  ·  $24 + \underline{\quad} = 30 = 6$  ·  $40 + \underline{\quad} = 47 = 7$  ·  $15 + \underline{\quad} = 24 = 9$  ·  $13 + \underline{\quad} = 23 = 10$  ·  $4 + \underline{\quad} = 15 = 11$  ·  $8 + \underline{\quad} = 10 = 2$