



# The Great Arcade Glitch Mystery

Grade 4 math · Place value, Rounding, Multiplication, Skip counting, Division · Reading level grades 3-4

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

Someone hacked the master arcade server and stole the legendary Gold Trophy Cartridge! Work through the clues to find out who glitched the system and saved their game.

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 Pixel Glitcher is** \_\_\_\_\_

# Possible suspects

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

| NAME          | MAIN WEAPON   | SPECIAL ABILITY | CONTROLLER GRIP | GAMER HEADSET       | GLITCH REMEDY   |
|---------------|---------------|-----------------|-----------------|---------------------|-----------------|
| Sprite Sarah  | Speed Boots   | Teleport Dash   | Left Handed     | Crimson Red Headset | Cold Lemonade   |
| Combo Chris   | Power Hammer  | Shadow Cloak    | Left Handed     | Neon Blue Headset   | Cold Lemonade   |
| Loot Lucas    | Speed Boots   | Shadow Cloak    | Right Handed    | Neon Blue Headset   | Garlic Pizza    |
| Giga Gabe     | Speed Boots   | Shadow Cloak    | Left Handed     | Crimson Red Headset | Cold Lemonade   |
| Power Pam     | Shield Bubble | Shadow Cloak    | Left Handed     | Crimson Red Headset | Cold Lemonade   |
| Gamer Grace   | Speed Boots   | Shadow Cloak    | Left Handed     | Neon Blue Headset   | Cold Lemonade   |
| Turbo Toby    | Speed Boots   | Teleport Dash   | Left Handed     | Crimson Red Headset | Sour Gummy Bear |
| Voxel Vince   | Speed Boots   | Teleport Dash   | Right Handed    | Gold Yellow Headset | Garlic Pizza    |
| Pixel Pete    | Speed Boots   | Double Jump     | Right Handed    | Crimson Red Headset | Garlic Pizza    |
| Quest Quinn   | Pixel Sword   | Fireball Toss   | Right Handed    | Crimson Red Headset | Cold Lemonade   |
| Vector Vera   | Speed Boots   | Fireball Toss   | Right Handed    | Gold Yellow Headset | Sour Gummy Bear |
| Sonic Sam     | Shield Bubble | Teleport Dash   | Left Handed     | Crimson Red Headset | Garlic Pizza    |
| Draft Dani    | Speed Boots   | Time Freeze     | Right Handed    | Neon Blue Headset   | Cold Lemonade   |
| Console Leo   | Pixel Sword   | Double Jump     | Right Handed    | Gold Yellow Headset | Garlic Pizza    |
| Level Luke    | Shield Bubble | Time Freeze     | Left Handed     | Crimson Red Headset | Sour Gummy Bear |
| Byte Bella    | Speed Boots   | Double Jump     | Left Handed     | Crimson Red Headset | Cold Lemonade   |
| Retro Rachel  | Power Hammer  | Fireball Toss   | Left Handed     | Neon Blue Headset   | Sour Gummy Bear |
| Digital Daisy | Speed Boots   | Double Jump     | Left Handed     | Crimson Red Headset | Sour Gummy Bear |
| Arcade Alex   | Pixel Sword   | Teleport Dash   | Left Handed     | Crimson Red Headset | Garlic Pizza    |
| Joystick Joy  | Power Hammer  | Time Freeze     | Right Handed    | Crimson Red Headset | Garlic Pizza    |
| Glitch Gary   | Power Hammer  | Fireball Toss   | Left Handed     | Crimson Red Headset | Cold Lemonade   |

## CLUE 1 Place value

You inspect the server security logs. Finding the correct digit in the place value code reveals a hidden clue.

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

|              |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |              |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| <div>T</div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div>T</div> |
| 700          | 900         | 50          | 60          | 5000        | 70          | 70          | 2000        | 5000        | 1000        | 8000        | 300         | 50          | 4000        | 1000        | 300         | 700          |

  

|             |             |             |              |             |             |             |             |             |              |             |             |             |             |     |
|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-----|
| <div></div> | <div></div> | <div></div> | <div>T</div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div>T</div> | <div></div> | <div></div> | <div></div> | <div></div> |     |
| 800         | 4000        | 50          | 700          | 50          | 70          | 50          | 200         | 300         | 100          | 700         | 8000        | 2000        | 4000        | 900 |

What is the value of the 7 in 4,764?  → 

T

What is the value of the 4 in 54,018?  → 

S

What is the value of the 8 in 8,743?  → 

D

What is the value of the 6 in 367?  → 

V

What is the value of the 2 in 72,379?  → 

A

What is the value of the 5 in 5,290?  → 

I

What is the value of the 7 in 2,870?  → 

L

What is the value of the 3 in 388?  → 

O

What is the value of the 9 in 4,961?  → 

H

What is the value of the 1 in 71,296?  → 

N

What is the value of the 5 in 759?  → 

E

What is the value of the 1 in 8,187?  → 

R

What is the value of the 8 in 6,830?  → 

U

What is the value of the 2 in 230?  → 

P

Scratch space:

## CLUE 2 Rounding

The high score radar screen only shows rounded values. Rounding the score points pinpoints where the intruder ran.

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

|          |     |    |     |     |      |      |      |     |          |     |    |     |     |    |
|----------|-----|----|-----|-----|------|------|------|-----|----------|-----|----|-----|-----|----|
| <b>W</b> |     |    |     |     |      |      |      |     | <b>W</b> |     |    |     |     |    |
| 4300     | 170 | 70 | 30  | 430 | 2000 | 2000 | 2000 | 200 | 4300     | 200 | 90 | 430 | 290 | 70 |
|          |     |    |     |     |      |      |      |     |          |     |    |     |     |    |
| 1700     | 200 | 30 | 370 | 430 | 370  | 2300 | 700  | 170 | 50       |     |    |     |     |    |

Round 4,328 to the nearest hundred  → **W**

Round 230 to the nearest hundred  → **A**

Round 166 to the nearest ten  → **I**

Round 426 to the nearest ten  → **E**

Round 27 to the nearest ten  → **N**

Round 292 to the nearest ten  → **F**

Round 1,657 to the nearest hundred  → **H**

Round 46 to the nearest ten  → **P**

Round 738 to the nearest hundred  → **R**

Round 71 to the nearest ten  → **T**

Round 89 to the nearest ten  → **L**

Round 366 to the nearest ten  → **D**

Round 2,262 to the nearest hundred  → **G**

Round 2,364 to the nearest thousand  → **S**

Scratch space:

**CLUE 3**
**Multiplication facts (1-12)**

The arcade cabinets stand in neat rows. Multiplying the screens in each row reveals a secret message.

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

|   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| T |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 3 | 72 | 36 | 54 | 15 | 40 | 40 | 33 | 15 | 56 | 20 | 40 | 36 | 63 | 20 | 35 | 22 | 18 |

  

|     |    |    |    |    |    |    |    |    |    |    |    |  |
|-----|----|----|----|----|----|----|----|----|----|----|----|--|
|     |    |    |    |    |    |    |    |    |    |    |    |  |
| 108 | 22 | 40 | 63 | 40 | 36 | 18 | 22 | 56 | 33 | 63 | 36 |  |

|                                              |                                              |                                              |                                             |
|----------------------------------------------|----------------------------------------------|----------------------------------------------|---------------------------------------------|
| $1 \times 3 = \square \rightarrow$ <b>T</b>  | $9 \times 7 = \square \rightarrow$ <b>D</b>  | $3 \times 11 = \square \rightarrow$ <b>A</b> | $6 \times 3 = \square \rightarrow$ <b>M</b> |
| $9 \times 12 = \square \rightarrow$ <b>C</b> | $10 \times 2 = \square \rightarrow$ <b>F</b> | $5 \times 7 = \square \rightarrow$ <b>R</b>  |                                             |
| $8 \times 5 = \square \rightarrow$ <b>L</b>  | $6 \times 9 = \square \rightarrow$ <b>V</b>  | $6 \times 12 = \square \rightarrow$ <b>H</b> | $5 \times 3 = \square \rightarrow$ <b>I</b> |
| $11 \times 2 = \square \rightarrow$ <b>O</b> | $8 \times 7 = \square \rightarrow$ <b>N</b>  | $9 \times 4 = \square \rightarrow$ <b>E</b>  |                                             |

Scratch space:

## CLUE 4 Skip counting

Glowing footprints flash across the carpet. Skip counting the pixel steps helps you track the villain.

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

|    |    |     |    |     |    |     |     |     |     |    |     |     |     |    |     |    |
|----|----|-----|----|-----|----|-----|-----|-----|-----|----|-----|-----|-----|----|-----|----|
| C  |    |     |    |     |    |     |     |     |     |    |     |     |     |    |     |    |
| 30 | 45 | 22  | 55 | 80  | 14 | 33  | 45  | 100 | 28  | 12 | 100 | 110 | 28  | 80 | 100 | 39 |
|    |    |     | C  |     |    |     |     |     |     |    |     | C   |     |    |     |    |
| 26 | 22 | 100 | 30 | 100 | 27 | 100 | 140 | 39  | 110 | 39 | 80  | 30  | 100 | 33 | 100 |    |

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, \_\_, 35, 40  → **C**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, \_\_, 28, 30  → **P**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, \_\_, 24, 26  → **I**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, \_\_, 120, 130  → **A**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, \_\_, 150, 160  → **F**

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, \_\_, 60, 65  → **M**

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, \_\_, 50, 55  → **R**

Skip-count by 3s. Fill the blank: 3, 6, 9, \_\_, 15, 18  → **H**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, \_\_, 30, 32  → **D**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, \_\_, 36, 39  → **N**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, \_\_, 90, 100  → **S**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, \_\_, 110, 120  → **E**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, \_\_, 30, 33  → **L**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, \_\_, 16, 18  →

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, \_\_, 42, 45  →

Scratch space:

**CLUE 5****Division facts (1-12) - the last clue**

Your gamer guild shares the energy tokens equally. Splitting them into equal groups gives the final hint.

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:**

$15 \div 3 = \boxed{\phantom{00}}$

$99 \div 9 = \boxed{\phantom{00}}$

$6 \div 2 = \boxed{\phantom{00}}$

$90 \div 10 = \boxed{\phantom{00}}$

$77 \div 11 = \boxed{\phantom{00}}$

$6 \div 6 = \boxed{\phantom{00}}$

$40 \div 5 = \boxed{\phantom{00}}$

$10 \div 5 = \boxed{\phantom{00}}$

$24 \div 4 = \boxed{\phantom{00}}$

$10 \div 1 = \boxed{\phantom{00}}$

$144 \div 12 = \boxed{\phantom{00}}$

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

1. The villain sliced through the code with a pixel sword, then faded into darkness with a shadow cloak.
2. The villain sliced through the code with a pixel sword, then vanished instantly with a teleport dash.
3. The villain outran the security guards in speed boots, then faded into darkness with a shadow cloak.
4. The villain smashed the high scores with a power hammer, then blasted past the guard with a fireball toss.
5. The villain trapped the server in a shield bubble, then faded into darkness with a shadow cloak.
6. The villain trapped the server in a shield bubble, then blasted past the guard with a fireball toss.
7. The villain smashed the high scores with a power hammer, then stopped the clock using time freeze.
8. The villain sliced through the code with a pixel sword, then stopped the clock using time freeze.
9. The villain zapped the mainframe with a laser blaster, then faded into darkness with a shadow cloak.
10. The villain zapped the mainframe with a laser blaster, then vanished instantly with a teleport dash.
11. The villain outran the security guards in speed boots, then escaped with a double jump.
12. The villain zapped the mainframe with a laser blaster, then stopped the clock using time freeze.

# Answer Key

## The Great Arcade Glitch Mystery

### Culprit: Glitch Gary

Power Hammer · Fireball Toss · Left Handed · Crimson Red Headset · Cold Lemonade

Trail: Start 21 → Clue 1 16 → Clue 2 9 → Clue 3 6 → Clue 4 4 → Clue 5 1

#### Clue 1 (Place value): "THE VILLAIN DOES NOT USE TELEPORT DASH"

What is the value of the 7 in 4,764? = 700 (T) · What is the value of the 4 in 54,018? = 4000 (S) · What is the value of the 8 in 8,743? = 8000 (D) · What is the value of the 6 in 367? = 60 (V) · What is the value of the 2 in 72,379? = 2000 (A) · What is the value of the 5 in 5,290? = 5000 (I) · What is the value of the 7 in 2,870? = 70 (L) · What is the value of the 3 in 388? = 300 (O) · What is the value of the 9 in 4,961? = 900 (H) · What is the value of the 1 in 71,296? = 1000 (N) · What is the value of the 5 in 759? = 50 (E) · What is the value of the 1 in 8,187? = 100 (R) · What is the value of the 8 in 6,830? = 800 (U) · What is the value of the 2 in 230? = 200 (P)

#### Clue 2 (Rounding): "WITNESS SAW A LEFT HANDED GRIP"

Round 4,328 to the nearest hundred = 4300 (W) · Round 230 to the nearest hundred = 200 (A) · Round 166 to the nearest ten = 170 (I) · Round 426 to the nearest ten = 430 (E) · Round 27 to the nearest ten = 30 (N) · Round 292 to the nearest ten = 290 (F) · Round 1,657 to the nearest hundred = 1700 (H) · Round 46 to the nearest ten = 50 (P) · Round 738 to the nearest hundred = 700 (R) · Round 71 to the nearest ten = 70 (T) · Round 89 to the nearest ten = 90 (L) · Round 366 to the nearest ten = 370 (D) · Round 2,262 to the nearest hundred = 2300 (G) · Round 2,364 to the nearest thousand = 2000 (S)

#### Clue 3 (Multiplication facts (1-12)): "THE VILLAIN FLED FROM COLD LEMONADE"

$1 \times 3 = 3$  (T) ·  $9 \times 7 = 63$  (D) ·  $3 \times 11 = 33$  (A) ·  $6 \times 3 = 18$  (M) ·  $9 \times 12 = 108$  (C) ·  $10 \times 2 = 20$  (F) ·  $5 \times 7 = 35$  (R) ·  $8 \times 5 = 40$  (L) ·  $6 \times 9 = 54$  (V) ·  $6 \times 12 = 72$  (H) ·  $5 \times 3 = 15$  (I) ·  $11 \times 2 = 22$  (O) ·  $8 \times 7 = 56$  (N) ·  $9 \times 4 = 36$  (E)

#### Clue 4 (Skip counting): "CRIMSON RED HEADSET PIECE LEFT AT SCENE"

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, \_\_, 35, 40 = 30 (C) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, \_\_, 28, 30 = 26 (P) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, \_\_, 24, 26 = 22 (I) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, \_\_, 120, 130 = 110 (A) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, \_\_, 150, 160 = 140 (F) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, \_\_, 60, 65 = 55 (M) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, \_\_, 50, 55 = 45 (R) · Skip-count by 3s. Fill the blank: 3, 6, 9, \_\_, 15, 18 = 12 (H) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, \_\_, 30, 32 = 28 (D) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, \_\_, 36, 39 = 33 (N) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, \_\_, 90, 100 = 80 (S) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, \_\_, 110, 120 = 100 (E) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, \_\_, 30, 33 = 27 (L) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, \_\_, 16, 18 = 14 (O) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, \_\_, 42, 45 = 39 (T)

#### Clue 5 (Division facts (1-12)): surviving statement is box 4 → Glitch Gary

$15 \div 3 = 5$  ·  $99 \div 9 = 11$  ·  $6 \div 2 = 3$  ·  $90 \div 10 = 9$  ·  $77 \div 11 = 7$  ·  $6 \div 6 = 1$  ·  $40 \div 5 = 8$  ·  $10 \div 5 = 2$  ·  $24 \div 4 = 6$  ·  $10 \div 1 = 10$  ·  $144 \div 12 = 12$