



The Great Diagnostic Glitch

Grade 5 math · Multiplication, Rounding, Place value, Skip counting, Division · Reading level grades 5-6

Detective: _____ Date: _____

Someone has logged into the teacher dashboard and scrambled the learning pathways right before the Friday Diagnostic! We must identify the Glitch Avatar and restore our study streaks before the lab timer runs out.

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 Avatar is _____

Possible suspects

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

NAME	CHEAT CODE	SYSTEM SETTING	MOUSE SETUP	AVATAR HAT	TOUGH SUBJECT
Ryan	Streak Freeze	Dark Mode	Left Handed Mouse	Green Visor	Spelling Test
Plory	Streak Freeze	Speed Run	Right Handed Mouse	Green Visor	Hard Math
Sofia	Diagnostic Hacker	Double Coins	Right Handed Mouse	Blue Headphones	Hard Math
Snarg	Streak Freeze	Speed Run	Left Handed Mouse	Blue Headphones	Reading Quiz
Ava	Streak Freeze	Dark Mode	Right Handed Mouse	Orange Cap	Hard Math
Brandon	Lesson Skipper	Auto Jump	Left Handed Mouse	Green Visor	Reading Quiz
Lily	Avatar Cloner	Dark Mode	Left Handed Mouse	Green Visor	Reading Quiz
Daniel	Diagnostic Hacker	Muted Sound	Right Handed Mouse	Blue Headphones	Hard Math
Brooke	Streak Freeze	Speed Run	Right Handed Mouse	Green Visor	Spelling Test
Mason	Streak Freeze	Speed Run	Left Handed Mouse	Orange Cap	Spelling Test
Justin	Streak Freeze	Auto Jump	Right Handed Mouse	Green Visor	Spelling Test
Zoe	Streak Freeze	Speed Run	Right Handed Mouse	Blue Headphones	Hard Math
Tyler	Avatar Cloner	Auto Jump	Left Handed Mouse	Green Visor	Spelling Test
Yoop	Streak Freeze	Speed Run	Left Handed Mouse	Green Visor	Spelling Test
Alex	Streak Freeze	Dark Mode	Right Handed Mouse	Green Visor	Hard Math
Chloe	Coin Multiplier	Auto Jump	Right Handed Mouse	Orange Cap	Reading Quiz
Mia	Lesson Skipper	Speed Run	Left Handed Mouse	Green Visor	Spelling Test
Eli	Coin Multiplier	Muted Sound	Left Handed Mouse	Green Visor	Spelling Test
Grace	Lesson Skipper	Double Coins	Left Handed Mouse	Orange Cap	Spelling Test
Ella	Avatar Cloner	Speed Run	Right Handed Mouse	Green Visor	Reading Quiz
Sweet T	Diagnostic Hacker	Auto Jump	Right Handed Mouse	Blue Headphones	Spelling Test

CLUE 1

Multiplication facts (1-12)

Plory wants to count the total prize coins earned by the classes, but they are stacked in neat, even rows.

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

T																T
144	90	63	35	22	11	11	14	22	18	100	64	63	30	18	64	144
					T											
6	30	63	21	6	144	63	100	30	64	6	18	100				

$12 \times 12 = \square \rightarrow \boxed{\text{T}}$

$11 \times 2 = \square \rightarrow \boxed{\text{I}}$

$10 \times 10 = \square \rightarrow \boxed{\text{D}}$

$7 \times 9 = \square \rightarrow \boxed{\text{E}}$

$3 \times 2 = \square \rightarrow \boxed{\text{U}}$

$1 \times 11 = \square \rightarrow \boxed{\text{L}}$

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

$7 \times 2 = \square \rightarrow \boxed{\text{A}}$

$7 \times 5 = \square \rightarrow \boxed{\text{V}}$

$9 \times 10 = \square \rightarrow \boxed{\text{H}}$

$3 \times 10 = \square \rightarrow \boxed{\text{S}}$

$6 \times 3 = \square \rightarrow \boxed{\text{N}}$

$7 \times 3 = \square \rightarrow \boxed{\text{M}}$

Scratch space:

CLUE 2

The system administrator checks the lesson timer, which only displays the study time rounded to the nearest ten minutes.

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

Diagram illustrating the sequence of operations for the merge sort algorithm. The top row shows the recursive splitting of an array of 10 elements (300, 1700, 700, 1100, 90, 3700, 1100, 700, 300, 1700, 90, 3700, 110, 700, 9000, 300) into smaller sub-arrays until single elements are reached. The bottom row shows the merging process, where sub-arrays are combined back into sorted order. The final sorted array is 110, 700, 9000, 300, 1700, 90, 3700, 1100, 700, 300, 1700, 90, 3700, 1100, 700, 300.

Round 315 to the nearest hundred $\rightarrow$ **T**

Round 3,256 to the nearest thousand → **M**

Round 112 to the nearest ten $\rightarrow$ **L**

Round 368 to the nearest ten $\rightarrow$ **N**

Round 1,147 to the nearest hundred → **G**

Round 1,702 to the nearest hundred $\rightarrow$ **H**

Round 736 to the nearest hundred $\rightarrow$ **E**

Round 127 to the nearest ten $\rightarrow$ **S**

Round 3,716 to the nearest hundred → **D**

Round 8,600 to the nearest thousand $\rightarrow$ **F**

Round 88 to the nearest ten $\rightarrow$ **A**

Round 6,876 to the nearest thousand → **U**

Scratch space:

CLUE 3 Place value

To unlock the secure server room, we must analyze the exact digit in the thousands place of the master computer passcode.

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

A																	
20	3000	100	500	200	200	50	700	40	800	500	3000	800	3000	800	400	100	3000
800	80	500	600	90	400	200	8000										

What is the value of the 2 in 377,720? → **A**

What is the value of the 5 in 789,657? → **I**

What is the value of the 9 in 113,498? → **C**

What is the value of the 8 in 419,835? → **T**

What is the value of the 8 in 65,180? → **H**

What is the value of the 8 in 48,232? → **D**

What is the value of the 4 in 652,427? → **O**

What is the value of the 5 in 13,582? → **E**

What is the value of the 3 in 93,414? → **S**

What is the value of the 7 in 12,783? → **N**

What is the value of the 4 in 67,540? → **G**

What is the value of the 1 in 29,142? → **P**

What is the value of the 2 in 83,296? → **L**

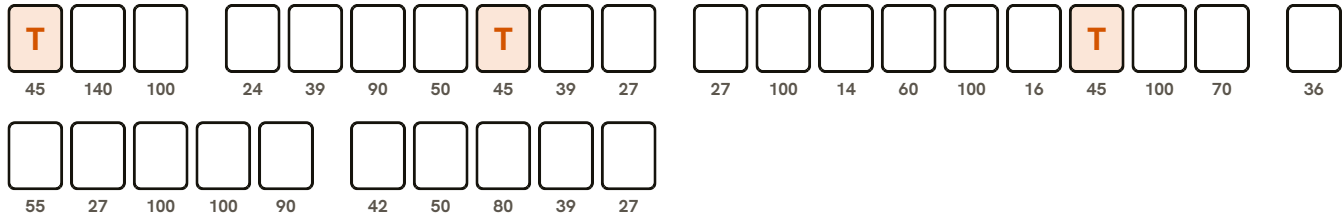
What is the value of the 6 in 53,672? → **M**

Scratch space:

CLUE 4 Skip counting

We trace the villain's path along the digital track by skip counting the glowing checkpoint nodes that light up at equal intervals.

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



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

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, __, 100, 110 → **N**

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, __, 75, 80 → **D**

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

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, __, 65, 70 → **L**

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

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, __, 60, 70 → **I**

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

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

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, __, 26, 28 → **M**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, __, 45, 48 → **V**

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

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

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, __, 18, 20 → **C**

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

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, __, 39, 42 → **A**

Scratch space:

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

The lab teacher wants to divide the leftover scratch paper packs equally among the active study group tables.

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:

$88 \div 8 = \boxed{}$

$66 \div 11 = \boxed{}$

$5 \div 1 = \boxed{}$

$8 \div 2 = \boxed{}$

$16 \div 8 = \boxed{}$

$96 \div 12 = \boxed{}$

$50 \div 5 = \boxed{}$

$6 \div 6 = \boxed{}$

$35 \div 5 = \boxed{}$

$72 \div 6 = \boxed{}$

$72 \div 8 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain steals the streak tracker, then logs out of the system.
2. The villain hacks the diagnostic database, then reboots the computer lab.
3. The villain freezes the lesson pathway, then reboots the computer lab.
4. The villain freezes the lesson pathway, then deletes the student coins.
5. The villain hacks the diagnostic database, then locks the avatar customizer.
6. The villain freezes the lesson pathway, then locks the avatar customizer.
7. The villain hacks the diagnostic database, then logs out of the system.
8. The villain steals the streak tracker, then mutes the audio guide.
9. The villain jams the reward shop, then mutes the audio guide.
10. The villain freezes the lesson pathway, then logs out of the system.
11. The villain jams the reward shop, then logs out of the system.
12. The villain skips the tutorial video, then deletes the student coins.

Answer Key

The Great Diagnostic Glitch

Culprit: Ryan

Streak Freeze · Dark Mode · Left Handed Mouse · Green Visor · Spelling Test

Trail: Start 21 → Clue 1 19 → Clue 2 9 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Multiplication facts (1-12)): "THE VILLAIN DOES NOT USE MUTED SOUND"

$12 \times 12 = 144$ (T) · $11 \times 2 = 22$ (I) · $10 \times 10 = 100$ (D) · $7 \times 9 = 63$ (E) · $3 \times 2 = 6$ (U) · $1 \times 11 = 11$ (L) · $8 \times 8 = 64$ (O) · $7 \times 2 = 14$ (A) · $7 \times 5 = 35$ (V) · $9 \times 10 = 90$ (H) · $3 \times 10 = 30$ (S) · $6 \times 3 = 18$ (N) · $7 \times 3 = 21$ (M)

Clue 2 (Rounding): "THE GADGET HAD LEFT HANDED SMUDGES"

Round 315 to the nearest hundred = 300 (T) · Round 3,256 to the nearest thousand = 3000 (M) · Round 112 to the nearest ten = 110 (L) · Round 368 to the nearest ten = 370 (N) · Round 1,147 to the nearest hundred = 1100 (G) · Round 1,702 to the nearest hundred = 1700 (H) · Round 736 to the nearest hundred = 700 (E) · Round 127 to the nearest ten = 130 (S) · Round 3,716 to the nearest hundred = 3700 (D) · Round 8,600 to the nearest thousand = 9000 (F) · Round 88 to the nearest ten = 90 (A) · Round 6,876 to the nearest thousand = 7000 (U)

Clue 3 (Place value): "A SPELLING TEST STOPS THEM COLD"

What is the value of the 2 in 377,720? = 20 (A) · What is the value of the 5 in 789,657? = 50 (I) · What is the value of the 9 in 113,498? = 90 (C) · What is the value of the 8 in 419,835? = 800 (T) · What is the value of the 8 in 65,180? = 80 (H) · What is the value of the 8 in 48,232? = 8000 (D) · What is the value of the 4 in 652,427? = 400 (O) · What is the value of the 5 in 13,582? = 500 (E) · What is the value of the 3 in 93,414? = 3000 (S) · What is the value of the 7 in 12,783? = 700 (N) · What is the value of the 4 in 67,540? = 40 (G) · What is the value of the 1 in 29,142? = 100 (P) · What is the value of the 2 in 83,296? = 200 (L) · What is the value of the 6 in 53,672? = 600 (M)

Clue 4 (Skip counting): "THE MONITOR REFLECTED A GREEN VISOR"

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, __, 50, 55 = 45 (T) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, __, 100, 110 = 90 (N) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, __, 75, 80 = 70 (D) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, __, 60, 65 = 55 (G) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, __, 65, 70 = 60 (L) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, __, 30, 33 = 27 (R) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, __, 60, 70 = 50 (I) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, __, 110, 120 = 100 (E) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, __, 90, 100 = 80 (S) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, __, 26, 28 = 24 (M) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, __, 45, 48 = 42 (V) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, __, 16, 18 = 14 (F) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, __, 150, 160 = 140 (H) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, __, 18, 20 = 16 (C) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, __, 42, 45 = 39 (O) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, __, 39, 42 = 36 (A)

Clue 5 (Division facts (1-12)): surviving statement is box 3 → Ryan

$88 \div 8 = 11$ · $66 \div 11 = 6$ · $5 \div 1 = 5$ · $8 \div 2 = 4$ · $16 \div 8 = 2$ · $96 \div 12 = 8$ · $50 \div 5 = 10$ · $6 \div 6 = 1$ · $35 \div 5 = 7$ · $72 \div 6 = 12$ · $72 \div 8 = 9$