The Great Vector Grid Glitch

Grade 1 math · Addition, Subtraction, Multiplication, Bar models, Division · Reading level grades 1-2

Detective: _____ **Date:** _____

A sneaky villain scrambled the directions on the city grid map! We need to follow the vector clues to catch the bad guy and fix the map.

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 rogue vector bandit is _____

Possible suspects

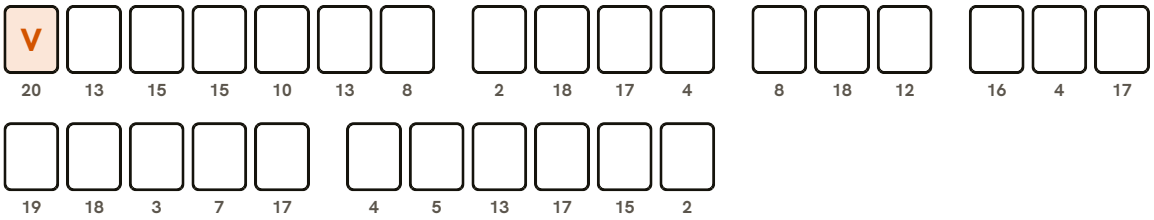
Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	VECTOR GADGET	GRID GEAR	ARROW HAND	HELMET STYLE	SYSTEM RESET
Vector Vic	Direction Dash	Line Tracer	Right Handed	Visor Helmet	Magnet Pulser
Captain Point	Angle Cannon	Line Tracer	Right Handed	Visor Helmet	Rubber Block
Turbo Tina	Angle Cannon	Force Shield	Right Handed	Visor Helmet	Magnet Pulser
Cosmo Cora	Ray Launcher	Speed Jetpack	Right Handed	Smooth Helmet	Rubber Block
Angle Andy	Ray Launcher	Graph Boots	Right Handed	Visor Helmet	Magnet Pulser
Compass Cole	Grid Blazer	Graph Boots	Left Handed	Spiky Helmet	Mirror Shield
Pointer Pam	Laser Pointer	Line Tracer	Right Handed	Visor Helmet	Mirror Shield
Sonic Syd	Direction Dash	Graph Boots	Right Handed	Visor Helmet	Rubber Block
Beacon Ben	Laser Pointer	Force Shield	Right Handed	Visor Helmet	Magnet Pulser
Racer Ruby	Laser Pointer	Force Shield	Left Handed	Spiky Helmet	Rubber Block
Dash Daisy	Grid Blazer	Line Tracer	Right Handed	Visor Helmet	Rubber Block
Zigzag Zac	Grid Blazer	Speed Jetpack	Right Handed	Visor Helmet	Magnet Pulser
Pixel Pete	Grid Blazer	North Compass	Right Handed	Visor Helmet	Mirror Shield
Matrix Mia	Ray Launcher	Line Tracer	Left Handed	Visor Helmet	Magnet Pulser
Orbit Otto	Ray Launcher	Graph Boots	Right Handed	Spiky Helmet	Magnet Pulser
Ruler Rex	Laser Pointer	North Compass	Left Handed	Spiky Helmet	Mirror Shield
Scale Sean	Direction Dash	North Compass	Right Handed	Spiky Helmet	Mirror Shield
Flash Felix	Direction Dash	Speed Jetpack	Left Handed	Visor Helmet	Mirror Shield
Agent Ray	Angle Cannon	Force Shield	Right Handed	Spiky Helmet	Rubber Block
Sparky Sam	Angle Cannon	Speed Jetpack	Left Handed	Visor Helmet	Magnet Pulser
Laser Leo	Laser Pointer	Speed Jetpack	Right Handed	Visor Helmet	Magnet Pulser

CLUE 1 Addition

> We counted all the vector energy arrows left behind on the grid wall. Solve this addition problem to uncover our first hint.

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



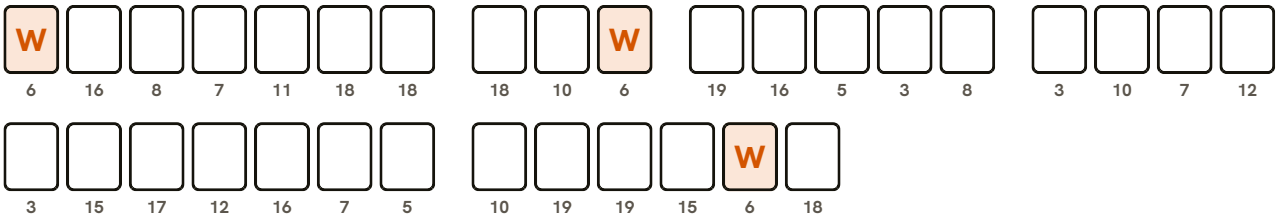
6 + 14 = ☐ → V	1 + 1 = ☐ → D	10 + 6 = ☐ → U
5 + 8 = ☐ → I	1 + 3 = ☐ → S	1 + 2 = ☐ → R
10 + 5 = ☐ → L		
5 + 13 = ☐ → O	1 + 4 = ☐ → H	3 + 4 = ☐ → C
6 + 4 = ☐ → A		
4 + 8 = ☐ → T	7 + 10 = ☐ → E	14 + 5 = ☐ → F
2 + 6 = ☐ → N		

Scratch space:

CLUE 2 Subtraction

> The villain dropped some energy cells while fleeing down the alley. Solve this subtraction problem to see how many were left.

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



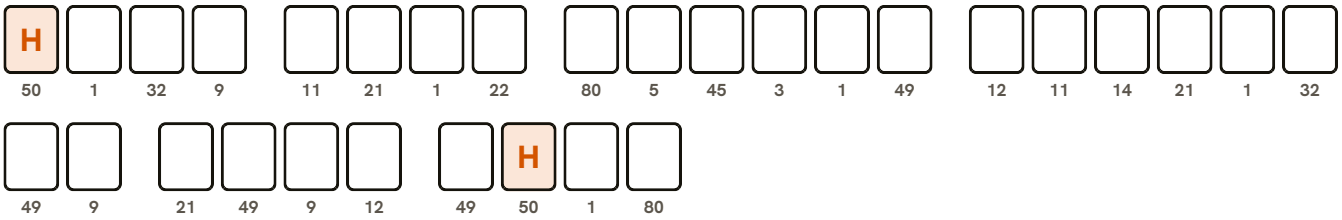
12 - 6 = ☐ → W	10 - 5 = ☐ → G	15 - 7 = ☐ → T
20 - 4 = ☐ → I	11 - 8 = ☐ → H	20 - 1 = ☐ → R
18 - 7 = ☐ → E	17 - 2 = ☐ → O	10 - 3 = ☐ → N
16 - 6 = ☐ → A	20 - 3 = ☐ → L	20 - 8 = ☐ → D
20 - 2 = ☐ → S		

Scratch space:

CLUE 3 Multiplication facts (1-12)

> We found rows of matching vector marks on the computer screen. Solve this multiplication problem to read the code.

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



5 × 10 = ☐ → H	9 × 1 = ☐ → O	6 × 2 = ☐ → P	1 × 3 = ☐ → N
7 × 7 = ☐ → T	8 × 4 = ☐ → R	11 × 1 = ☐ → U	
10 × 8 = ☐ → M	2 × 7 = ☐ → L	2 × 11 = ☐ → D	
5 × 1 = ☐ → A	1 × 1 = ☐ → E	5 × 9 = ☐ → G	7 × 3 = ☐ → S

Scratch space:

CLUE 4 Bar model word problems

> Our grid sensors compared the lengths of two vector power beams. Solve this bar model problem to find the missing beam length.

Draw a bar model to solve each word problem, then write its letter in the boxes to fill in the missing word.

A strand of

V							L	M		T
59	57	56	19	36	17	51			51	

hair turned up at the scene.

The red team has 63 compass chips and the blue team has 4 compass chips. How many more compass chips does the red team have?

draw a bar model

Answer: ☐ → V

There were 60 energy arrows in all. 4 energy arrows were used. How many energy arrows are left?

draw a bar model

Answer: ☐ → S

One group collected 47 grid tiles and another group collected 4 grid tiles. How many grid tiles in all?

draw a bar model

Answer: ☐ → E

The red team has 69 laser dots and the blue team has 12 laser dots. How many more laser dots does the red team have?

draw a bar model

Answer: ☐ → I

One group collected 15 compass chips and another group collected 4 compass chips. How many compass chips in all?

draw a bar model

Answer: ☐ → O

The red team has 42 energy arrows and the blue team has 6 energy arrows. How many more energy arrows does the red team have?

draw a bar model

Answer: ☐ → R

The red team has 19 laser dots and the blue team has 2 laser dots. How many more laser dots does the red team have?

draw a bar model

Answer: ☐ → H

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

> The detective team shared out the glowing direction badges equally. Solve this division problem to get 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:

35 ÷ 7 = ☐ 33 ÷ 3 = ☐ 49 ÷ 7 = ☐ 14 ÷ 7 = ☐ 42 ÷ 7 = ☐

80 ÷ 8 = ☐ 80 ÷ 10 = ☐ 10 ÷ 10 = ☐ 48 ÷ 12 = ☐ 84 ÷ 7 = ☐

21 ÷ 7 = ☐

Step 2 - cross out the sentence with each answer:

1. The villain blasted a directional line, then zoomed off in graph boots.
2. The villain shot a glowing vector ray, then steered north with compass.
3. The villain fired an angle power blast, then drew a line with line tracer.
4. The villain fired an angle power blast, then zoomed off in graph boots.
5. The villain shot a glowing vector ray, then escaped with speed jetpack.
6. The villain dashed across the grid map, then blocked path with force shield.
7. The villain aimed a sharp arrow beam, then zoomed off in graph boots.
8. The villain shot a glowing vector ray, then zoomed off in graph boots.
9. The villain dashed across the grid map, then drew a line with line tracer.
10. The villain blasted a directional line, then blocked path with force shield.
11. The villain blasted a directional line, then escaped with speed jetpack.
12. The villain blasted a directional line, then steered north with compass.

TEACHER / PARENT

Answer Key

The Great Vector Grid Glitch

Culprit: Vector Vic

Direction Dash · Line Tracer · Right Handed · Visor Helmet · Magnet Pulser

Trail: Start 21 → Clue 1 17 → Clue 2 12 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Addition): "VILLAIN DOES NOT USE FORCE SHIELD"

6 + 14 = 20 (V) · 1 + 1 = 2 (D) · 10 + 6 = 16 (U) · 5 + 8 = 13 (I) · 1 + 3 = 4 (S) · 1 + 2 = 3 (R) · 10 + 5 = 15 (L) · 5 + 13 = 18 (O) · 1 + 4 = 5 (H) · 3 + 4 = 7 (C) · 6 + 4 = 10 (A) · 4 + 8 = 12 (T) · 7 + 10 = 17 (E) · 14 + 5 = 19 (F) · 2 + 6 = 8 (N)

Clue 2 (Subtraction): "WITNESS SAW RIGHT HAND HOLDING ARROWS"

12 - 6 = 6 (W) · 10 - 5 = 5 (G) · 15 - 7 = 8 (T) · 20 - 4 = 16 (I) · 11 - 8 = 3 (H) · 20 - 1 = 19 (R) · 18 - 7 = 11 (E) · 17 - 2 = 15 (O) · 10 - 3 = 7 (N) · 16 - 6 = 10 (A) · 20 - 3 = 17 (L) · 20 - 8 = 12 (D) · 20 - 2 = 18 (S)

Clue 3 (Multiplication facts (1-12)): "HERO USED MAGNET PULSER TO STOP THEM"

5 × 10 = 50 (H) · 9 × 1 = 9 (O) · 6 × 2 = 12 (P) · 1 × 3 = 3 (N) · 7 × 7 = 49 (T) · 8 × 4 = 32 (R) · 11 × 1 = 11 (U) · 10 × 8 = 80 (M) · 2 × 7 = 14 (L) · 2 × 11 = 22 (D) · 5 × 1 = 5 (A) · 1 × 1 = 1 (E) · 5 × 9 = 45 (G) · 7 × 3 = 21 (S)

Clue 4 (Bar model word problems): "VISOR HELMET"

The red team has 63 compass chips and the blue team has 4 compass chips. How many more compass chips does the red team have? = 59 (V) · There were 60 energy arrows in all. 4 energy arrows were used. How many energy arrows are left? = 56 (S) · One group collected 47 grid tiles and another group collected 4 grid tiles. How many grid tiles in all? = 51 (E) · The red team has 69 laser dots and the blue team has 12 laser dots. How many more laser dots does the red team have? = 57 (I) · One group collected 15 compass chips and another group collected 4 compass chips. How many compass chips in all? = 19 (O) · The red team has 42 energy arrows and the blue team has 6 energy arrows. How many more energy arrows does the red team have? = 36 (R) · The red team has 19 laser dots and the blue team has 2 laser dots. How many more laser dots does the red team have? = 17 (H)

Clue 5 (Division facts (1-12)): surviving statement is box 9 → Vector Vic

35 ÷ 7 = 5 · 33 ÷ 3 = 11 · 49 ÷ 7 = 7 · 14 ÷ 7 = 2 · 42 ÷ 7 = 6 · 80 ÷ 8 = 10 · 80 ÷ 10 = 8 · 10 ÷ 10 = 1 · 48 ÷ 12 = 4 · 84 ÷ 7 = 12 · 21 ÷ 7 = 3