



The Starlight Station Sabotage

Grade 4 math · Addition, Subtraction, Multiplication, Fractions of a number, Division · Reading level grades 5-6

Detective: _____ Date: _____

A rogue astronaut has locked down the main observatory at Starlight Station and scrambled the colony star-charts. We must trace the culprit's energy signature across the sector before our fleet goes off course!

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 astronaut is _____

Possible suspects

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

NAME	THRUSTER SUIT	PRIMARY TOOL	CONTROL GRIP	HELMET STRIPE	SUIT VULNERABILITY
Roger Chaffee	Plasma Jet	Plasma Torch	Left-Handed Grip	Green Stripe	Solar Flares
Sunita Williams	Plasma Jet	Plasma Torch	Left-Handed Grip	Blue Stripe	Magnet Dust
Buzz Aldrin	Gravity Boots	Hydro Spanner	Right-Handed Grip	Blue Stripe	Magnet Dust
Alan Shepard	Plasma Jet	Hydro Spanner	Left-Handed Grip	Blue Stripe	Frost Gas
Chris Hadfield	Gravity Boots	Hydro Spanner	Left-Handed Grip	Red Stripe	Solar Flares
Scott Kelly	Ion Engine	Laser Welder	Right-Handed Grip	Blue Stripe	Magnet Dust
Mae Jemison	Fusion Pack	Plasma Torch	Left-Handed Grip	Blue Stripe	Magnet Dust
Frank Borman	Plasma Jet	Laser Welder	Left-Handed Grip	Blue Stripe	Magnet Dust
Fred Haise	Solar Sail	Laser Welder	Left-Handed Grip	Red Stripe	Magnet Dust
Peggy Whitson	Solar Sail	Sonic Cutter	Left-Handed Grip	Blue Stripe	Magnet Dust
Mark Kelly	Fusion Pack	Hydro Spanner	Right-Handed Grip	Blue Stripe	Magnet Dust
Tim Peake	Plasma Jet	Sonic Cutter	Left-Handed Grip	Red Stripe	Frost Gas
Kalpana Chawla	Ion Engine	Laser Welder	Left-Handed Grip	Red Stripe	Frost Gas
Sally Ride	Ion Engine	Laser Welder	Left-Handed Grip	Blue Stripe	Magnet Dust
Gene Cernan	Solar Sail	Laser Welder	Right-Handed Grip	Green Stripe	Solar Flares
Guion Bluford	Ion Engine	Hydro Spanner	Right-Handed Grip	Blue Stripe	Magnet Dust
Helen Sharman	Fusion Pack	Hydro Spanner	Left-Handed Grip	Red Stripe	Solar Flares
Valentina Tereshkova	Ion Engine	Nano Wrench	Right-Handed Grip	Red Stripe	Magnet Dust
Jim Lovell	Ion Engine	Hydro Spanner	Right-Handed Grip	Red Stripe	Magnet Dust
Ed White	Gravity Boots	Laser Welder	Right-Handed Grip	Green Stripe	Solar Flares
Michael Collins	Ion Engine	Sonic Cutter	Left-Handed Grip	Green Stripe	Solar Flares

CLUE 1 Addition

To unlock the dock archives, we must calculate the total number of active radar satellites by adding up the tallies from all four space sectors.

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

T											T							T
8125	4809	8975	4832	6701	6751	2341	8975	4393	9502	8125	4832	6701	8998	4393	2341	8125		
						T				T								
9760	6701	8975	9502	8998	6701	8125	2341	9502	8975	8125	4809	8975	9502	6701	8998	8258	8131	
		T	T															
8131	2341	8125	8125	8975	4832													

$$4157 + 3968 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$986 + 1355 = \boxed{} \rightarrow \boxed{\text{U}}$$

$$3847 + 4411 = \boxed{} \rightarrow \boxed{\text{I}}$$

$$3313 + 1496 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$5067 + 3931 = \boxed{} \rightarrow \boxed{\text{N}}$$

$$3290 + 6212 = \boxed{} \rightarrow \boxed{\text{S}}$$

$$5856 + 3904 = \boxed{} \rightarrow \boxed{\text{D}}$$

$$2635 + 2197 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$3840 + 2911 = \boxed{} \rightarrow \boxed{\text{G}}$$

$$2799 + 6176 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$3095 + 5036 = \boxed{} \rightarrow \boxed{\text{C}}$$

$$3397 + 3304 = \boxed{} \rightarrow \boxed{\text{O}}$$

$$1364 + 3029 = \boxed{} \rightarrow \boxed{\text{A}}$$

Scratch space:

CLUE 2 Subtraction

A damaged utility line is leaking fuel. We must subtract the wasted canisters from our total reserves to see how long our backup sensors will last.

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

T 7753	8818	3717	7764	2514	7764	3193	3717	3127	T 7753	2514	7764	3717	8209	4150	5897	3717	5184	T 7753
8818	4150	6051	8209	3717	8209	5753	3580	3028	3193	1591	6051	T 7753	8818	3717				
5897	3717	3482	3717	3580														

$12677 - 4924 = \boxed{} \rightarrow \boxed{T}$

$12513 - 4304 = \boxed{} \rightarrow \boxed{D}$

$12111 - 4347 = \boxed{} \rightarrow \boxed{S}$

$5523 - 1806 = \boxed{} \rightarrow \boxed{E}$

$10030 - 4133 = \boxed{} \rightarrow \boxed{L}$

$7572 - 3422 = \boxed{} \rightarrow \boxed{A}$

$3499 - 306 = \boxed{} \rightarrow \boxed{P}$

$6216 - 3702 = \boxed{} \rightarrow \boxed{U}$

$4858 - 1731 = \boxed{} \rightarrow \boxed{C}$

$11657 - 2839 = \boxed{} \rightarrow \boxed{H}$

$5670 - 2642 = \boxed{} \rightarrow \boxed{I}$

$6820 - 769 = \boxed{} \rightarrow \boxed{N}$

$4413 - 833 = \boxed{} \rightarrow \boxed{R}$

$8135 - 2382 = \boxed{} \rightarrow \boxed{G}$

$4227 - 2636 = \boxed{} \rightarrow \boxed{O}$

$5411 - 227 = \boxed{} \rightarrow \boxed{F}$

$6582 - 3100 = \boxed{} \rightarrow \boxed{V}$

Scratch space:

CLUE 3
Multiplication facts (1-12)

The shuttle hangar holds our emergency tracking probes, neatly arranged in rows. We must multiply the rows by the columns to count our cameras.

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

M																
32	80	77	12	33	110	7	90	121	110	110	16	110	80	88	88	54
		M	M													
44	80	32	32	33	7	110	20	33	63	35	88	88	80	35	12	

$8 \times 4 = \square \rightarrow \boxed{\text{M}}$

$3 \times 11 = \square \rightarrow \boxed{\text{E}}$

$11 \times 11 = \square \rightarrow \boxed{\text{S}}$

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

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

$10 \times 2 = \square \rightarrow \boxed{\text{H}}$

$11 \times 8 = \square \rightarrow \boxed{\text{L}}$

$11 \times 7 = \square \rightarrow \boxed{\text{G}}$

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

$1 \times 7 = \square \rightarrow \boxed{\text{D}}$

$11 \times 4 = \square \rightarrow \boxed{\text{J}}$

$3 \times 4 = \square \rightarrow \boxed{\text{N}}$

$10 \times 11 = \square \rightarrow \boxed{\text{T}}$

$8 \times 2 = \square \rightarrow \boxed{\text{O}}$

$8 \times 10 = \square \rightarrow \boxed{\text{A}}$

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

Scratch space:

Fractions of a number

Only a fraction of our giant solar array is active after the power surge. We must find exactly three-fifths of the total output to reboot the main terminal.

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

Diagram illustrating a sequence of numbers and their corresponding positions (indices) in a list. The sequence is represented by two rows of boxes, each containing a number or the letter 'T' (representing a specific value or state).

Top Row (Indices 1 to 18):

- Index 1: T
- Index 2: 6
- Index 3: 12
- Index 4: 17
- Index 5: 20
- Index 6: 17
- Index 7: 15
- Index 8: 20
- Index 9: 36
- Index 10: 39
- Index 11: 14
- Index 12: 17
- Index 13: T
- Index 14: 17
- Index 15: 37
- Index 16: T
- Index 17: 6
- Index 18: 17

Bottom Row (Indices 1 to 14):

- Index 1: 35
- Index 2: 24
- Index 3: 26
- Index 4: 17
- Index 5: 12
- Index 6: 17
- Index 7: 24
- Index 8: 22
- Index 9: 17
- Index 10: T
- Index 11: 6
- Index 12: 7
- Index 13: 24
- Index 14: 36

$$1/2 \text{ of } 12 = \boxed{} \rightarrow \boxed{\mathbf{T}}$$

4/8 of 30 = → **N**

$$\frac{1}{2} \text{ of } 78 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$2/10 \text{ of } 180 = \boxed{} \rightarrow \boxed{\text{O}}$$

2/6 of 111 = → **C**

$\frac{1}{4}$ of 88 = $\rightarrow$ **M**

$$2/6 \text{ of } 21 = \boxed{} \rightarrow \boxed{\text{G}}$$

$$\frac{1}{6} \text{ of } 156 = \boxed{} \rightarrow \boxed{\text{U}}$$

$3/10$ of $40 = \boxed{} \rightarrow \mathbf{H}$

$$1/5 \text{ of } 175 = \boxed{} \rightarrow \boxed{\mathbf{B}}$$

$$\frac{1}{4} \text{ of } 80 = \boxed{} \rightarrow \boxed{\text{S}}$$

$$\frac{1}{6} \text{ of } 144 = \boxed{} \rightarrow \boxed{\text{L}}$$

$4/6$ of 21 = $\rightarrow$ **D**

2/6 of 33 = → **W**

$$2/6 \text{ of } 51 = \boxed{} \rightarrow \boxed{\text{E}}$$

Scratch space:

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

The cargo bay computer holds encrypted distress signals. We must divide the total data files equally among the patrol bots to crack the final code.

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:

$30 \div 6 = \boxed{}$

$108 \div 12 = \boxed{}$

$30 \div 10 = \boxed{}$

$10 \div 1 = \boxed{}$

$12 \div 1 = \boxed{}$

$88 \div 11 = \boxed{}$

$12 \div 6 = \boxed{}$

$66 \div 11 = \boxed{}$

$8 \div 2 = \boxed{}$

$21 \div 3 = \boxed{}$

$4 \div 4 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain zoomed past the dock with a fusion pack, then welded the escape hatch shut.
2. The villain glided silently on a solar sail, then adjusted the sensor dishes.
3. The villain zoomed past the dock with a fusion pack, then melted the vault hinges.
4. The villain glided silently on a solar sail, then unscrewed the main computer core.
5. The villain burned through the lock with a plasma jet, then welded the escape hatch shut.
6. The villain leaped across the hull in gravity boots, then welded the escape hatch shut.
7. The villain burned through the lock with a plasma jet, then unscrewed the main computer core.
8. The villain glided silently on a solar sail, then welded the escape hatch shut.
9. The villain blasted off using an ion engine, then welded the escape hatch shut.
10. The villain leaped across the hull in gravity boots, then sliced the communication wires.
11. The villain burned through the lock with a plasma jet, then melted the vault hinges.
12. The villain zoomed past the dock with a fusion pack, then sliced the communication wires.

Answer Key

The Starlight Station Sabotage

Culprit: Sunita Williams

Plasma Jet · Plasma Torch · Left-Handed Grip · Blue Stripe · Magnet Dust

Trail: Start 21 → Clue 1 18 → Clue 2 10 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Addition): "THE ROGUE ASTRONAUT DOES NOT USE THE SONIC CUTTER"

$4157 + 3968 = 8125$ (T) · $986 + 1355 = 2341$ (U) · $3847 + 4411 = 8258$ (I) · $3313 + 1496 = 4809$ (H) · $5067 + 3931 = 8998$ (N) · $3290 + 6212 = 9502$ (S) · $5856 + 3904 = 9760$ (D) · $2635 + 2197 = 4832$ (R) · $3840 + 2911 = 6751$ (G) · $2799 + 6176 = 8975$ (E) · $3095 + 5036 = 8131$ (C) · $3397 + 3304 = 6701$ (O) · $1364 + 3029 = 4393$ (A)

Clue 2 (Subtraction): "THE SUSPECT USED A LEFT HANDED GRIP ON THE LEVER"

$12677 - 4924 = 7753$ (T) · $12513 - 4304 = 8209$ (D) · $12111 - 4347 = 7764$ (S) · $5523 - 1806 = 3717$ (E) · $10030 - 4133 = 5897$ (L) · $7572 - 3422 = 4150$ (A) · $3499 - 306 = 3193$ (P) · $6216 - 3702 = 2514$ (U) · $4858 - 1731 = 3127$ (C) · $11657 - 2839 = 8818$ (H) · $5670 - 2642 = 3028$ (I) · $6820 - 769 = 6051$ (N) · $4413 - 833 = 3580$ (R) · $8135 - 2382 = 5753$ (G) · $4227 - 2636 = 1591$ (O) · $5411 - 227 = 5184$ (F) · $6582 - 3100 = 3482$ (V)

Clue 3 (Multiplication facts (1-12)): "MAGNET DUST TOTALLY JAMMED THE VILLAIN"

$8 \times 4 = 32$ (M) · $3 \times 11 = 33$ (E) · $11 \times 11 = 121$ (S) · $7 \times 5 = 35$ (I) · $9 \times 10 = 90$ (U) · $10 \times 2 = 20$ (H) · $11 \times 8 = 88$ (L) · $11 \times 7 = 77$ (G) · $9 \times 7 = 63$ (V) · $1 \times 7 = 7$ (D) · $11 \times 4 = 44$ (J) · $3 \times 4 = 12$ (N) · $10 \times 11 = 110$ (T) · $8 \times 2 = 16$ (O) · $8 \times 10 = 80$ (A) · $9 \times 6 = 54$ (Y)

Clue 4 (Fractions of a number): "THE SENSOR DETECTED BLUE HELMET GLOW"

$\frac{1}{2}$ of 12 = 6 (T) · $\frac{4}{8}$ of 30 = 15 (N) · $\frac{1}{2}$ of 78 = 39 (R) · $\frac{2}{10}$ of 180 = 36 (O) · $\frac{2}{6}$ of 111 = 37 (C) · $\frac{1}{4}$ of 88 = 22 (M) · $\frac{2}{6}$ of 21 = 7 (G) · $\frac{1}{6}$ of 156 = 26 (U) · $\frac{3}{10}$ of 40 = 12 (H) · $\frac{1}{5}$ of 175 = 35 (B) · $\frac{1}{4}$ of 80 = 20 (S) · $\frac{1}{6}$ of 144 = 24 (L) · $\frac{4}{6}$ of 21 = 14 (D) · $\frac{2}{6}$ of 33 = 11 (W) · $\frac{2}{6}$ of 51 = 17 (E)

Clue 5 (Division facts (1-12)): surviving statement is box 11 → Sunita Williams

$30 \div 6 = 5$ · $108 \div 12 = 9$ · $30 \div 10 = 3$ · $10 \div 1 = 10$ · $12 \div 1 = 12$ · $88 \div 11 = 8$ · $12 \div 6 = 2$ · $66 \div 11 = 6$ · $8 \div 2 = 4$ · $21 \div 3 = 7$ · $4 \div 4 = 1$