The Great Starlight Station Sabotage

Grade 5 math · Addition, Place value, Subtraction, Multiplication, Division · Reading level grades 3-4

Detective: _____ **Date:** _____

Someone tampered with the telescope on the Starlight Orbital Station and hid the star charts! Cadet Cosmo and the Starlight Rangers need your help to crack the clues, examine the evidence, and find out which crew member is the culprit before the space station drifts 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 space saboteur is _____

Possible suspects

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

NAME	PRIMARY GEAR	PAYLOAD ITEM	VISOR TYPE	SPACESUIT COLOR	ENVIRONMENTAL HAZARD
Kathy Sullivan	jetpack booster	moon rover key	clear visor helmet	neon blue spacesuit	solar flares
Sally Ride	jetpack booster	solar wrench	clear visor helmet	silver foil spacesuit	solar flares
Eileen Collins	ion blaster	solar wrench	tinted visor helmet	neon blue spacesuit	cosmic dust
Chris Hadfield	ion blaster	com link radio	tinted visor helmet	silver foil spacesuit	cosmic dust
Victor Glover	ion blaster	star chart map	tinted visor helmet	silver foil spacesuit	solar flares
Jessica Meir	ion blaster	solar wrench	clear visor helmet	bright orange spacesuit	magnetic radiation
Mae Jemison	gravity boots	solar wrench	clear visor helmet	bright orange spacesuit	magnetic radiation
Yuri Gagarin	gravity boots	moon rover key	tinted visor helmet	silver foil spacesuit	cosmic dust
Alan Shepard	jetpack booster	moon rover key	clear visor helmet	neon blue spacesuit	magnetic radiation
Guion Bluford	plasma shield	oxygen canister	tinted visor helmet	neon blue spacesuit	cosmic dust
Robert Crippen	ion blaster	oxygen canister	clear visor helmet	neon blue spacesuit	solar flares
Buzz Aldrin	jetpack booster	com link radio	tinted visor helmet	neon blue spacesuit	magnetic radiation
Stephanie Wilson	plasma shield	com link radio	tinted visor helmet	bright orange spacesuit	cosmic dust
Ellen Ochoa	jetpack booster	com link radio	tinted visor helmet	silver foil spacesuit	solar flares
Christina Koch	jetpack booster	moon rover key	tinted visor helmet	neon blue spacesuit	cosmic dust
John Glenn	jetpack booster	com link radio	tinted visor helmet	silver foil spacesuit	cosmic dust
Guy Gardner	jetpack booster	oxygen canister	clear visor helmet	neon blue spacesuit	cosmic dust
Leland Melvin	gravity boots	star chart map	tinted visor helmet	neon blue spacesuit	cosmic dust
Bernard Harris	laser torch	oxygen canister	tinted visor helmet	neon blue spacesuit	cosmic dust
Peggy Whitson	laser torch	com link radio	clear visor helmet	neon blue spacesuit	cosmic dust
Sunita Williams	jetpack booster	star chart map	tinted visor helmet	neon blue spacesuit	magnetic radiation

CLUE 1 Addition

> Cadet Cosmo tallied up all the spare oxygen tanks gathered from two different supply bays to reveal the first secret log.

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



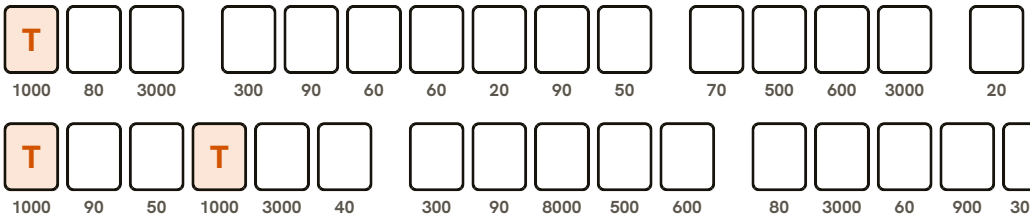
4331 + 3470 = ☐ → T	2007 + 4004 = ☐ → R	1206 + 2817 = ☐ → A
2938 + 2667 = ☐ → N	1884 + 2058 = ☐ → W	1780 + 3480 = ☐ → L
6305 + 2855 = ☐ → H	2161 + 1102 = ☐ → E	1001 + 1659 = ☐ → V
2490 + 1421 = ☐ → I	5221 + 2479 = ☐ → D	3408 + 2692 = ☐ → O
3227 + 2923 = ☐ → S	2100 + 1710 = ☐ → C	

Scratch space:

CLUE 2 Place value

> The station mainframes displayed a location code where the place value of the thousands digit pointed straight to a hidden data drive.

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



What is the value of the 1 in 41,639? ☐ → **T**

What is the value of the 5 in 724,541? ☐ → **O**

What is the value of the 9 in 46,988? ☐ → **M**

What is the value of the 8 in 98,127? ☐ → **S**

What is the value of the 7 in 58,975? ☐ → **W**

What is the value of the 6 in 382,160? ☐ → **L**

What is the value of the 5 in 322,354? ☐ → **N**

What is the value of the 4 in 71,146? ☐ → **D**

What is the value of the 3 in 972,320? ☐ → **V**

What is the value of the 6 in 181,648? ☐ → **R**

What is the value of the 3 in 93,510? ☐ → **E**

What is the value of the 9 in 315,897? ☐ → **I**

What is the value of the 2 in 511,123? ☐ → **A**

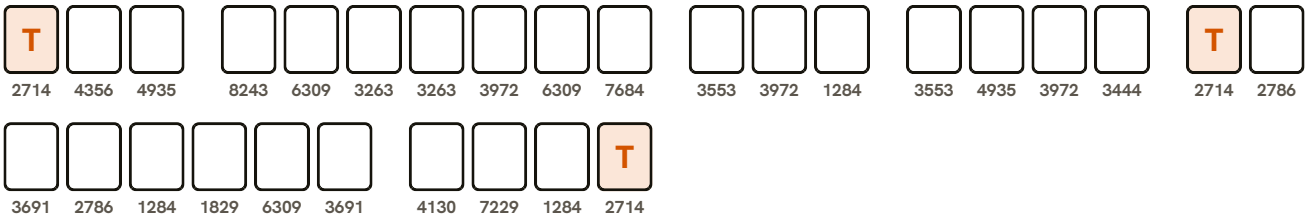
What is the value of the 8 in 70,685? ☐ → **H**

Scratch space:

CLUE 3 Subtraction

> The Rangers checked how many solar panels were still working after subtracting the damaged ones from the original total.

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



3817 - 1103 = ☐ → T

6653 - 3390 = ☐ → L

4148 - 1362 = ☐ → O

4825 - 469 = ☐ → H

4676 - 985 = ☐ → C

9130 - 4195 = ☐ → E

12609 - 4366 = ☐ → V

1910 - 626 = ☐ → S

6459 - 2906 = ☐ → W

7148 - 3704 = ☐ → K

7771 - 1462 = ☐ → I

7436 - 207 = ☐ → U

8293 - 4321 = ☐ → A

11898 - 4214 = ☐ → N

3285 - 1456 = ☐ → M

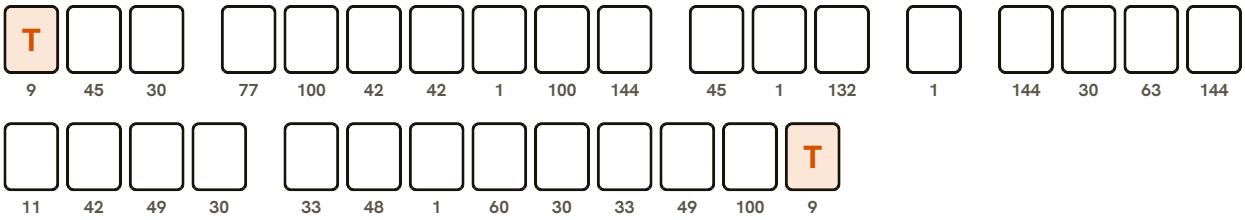
8773 - 4643 = ☐ → D

Scratch space:

CLUE 4 Multiplication facts (1-12)

> Captain Nova organized the space probes into equal rows inside the docking bay to calculate the total energy needed.

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



9 × 1 = ☐ → T

6 × 8 = ☐ → P

1 × 1 = ☐ → A

6 × 10 = ☐ → C

7 × 9 = ☐ → O

12 × 12 = ☐ → N

7 × 7 = ☐ → U

11 × 12 = ☐ → D

7 × 11 = ☐ → V

3 × 11 = ☐ → S

5 × 9 = ☐ → H

11 × 1 = ☐ → B

6 × 5 = ☐ → E

10 × 10 = ☐ → I

7 × 6 = ☐ → L

Scratch space:

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

> The astro engineers split the energy cells equally among the life support pods to activate the final decode scanner.

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:

5 ÷ 5 = ☐	24 ÷ 4 = ☐	24 ÷ 3 = ☐	12 ÷ 6 = ☐	55 ÷ 11 = ☐
9 ÷ 1 = ☐	33 ÷ 3 = ☐	70 ÷ 10 = ☐	9 ÷ 3 = ☐	60 ÷ 6 = ☐
36 ÷ 9 = ☐				

Step 2 - cross out the sentence with each answer:

1. The villain overloaded the plasma shield grid, then drained the oxygen canister.
2. The villain zapped the main reactor controls, then stole the star chart map.
3. The villain zapped the main reactor controls, then jammed the com link radio.
4. The villain charged the ion beam blaster, then stole the star chart map.
5. The villain charged the ion beam blaster, then jammed the com link radio.
6. The villain fired the jetpack thrusters, then grabbed the moon rover key.
7. The villain scrambled the magnetic gravity boots, then snatched the solar wrench.
8. The villain zapped the main reactor controls, then drained the oxygen canister.
9. The villain overloaded the plasma shield grid, then stole the star chart map.
10. The villain zapped the main reactor controls, then snatched the solar wrench.
11. The villain scrambled the magnetic gravity boots, then drained the oxygen canister.
12. The villain scrambled the magnetic gravity boots, then stole the star chart map.

TEACHER / PARENT

Answer Key

The Great Starlight Station Sabotage

Culprit: Leland Melvin

gravity boots · star chart map · tinted visor helmet · neon blue spacesuit · cosmic dust

Trail: Start 21 → Clue 1 17 → Clue 2 12 → Clue 3 8 → Clue 4 4 → Clue 5 1

Clue 1 (Addition): "THE VILLAIN DOES NOT HAVE A SOLAR WRENCH"

4331 + 3470 = 7801 (T) · 2007 + 4004 = 6011 (R) · 1206 + 2817 = 4023 (A) · 2938 + 2667 = 5605 (N) · 1884 + 2058 = 3942 (W) · 1780 + 3480 = 5260 (L) · 6305 + 2855 = 9160 (H) · 2161 + 1102 = 3263 (E) · 1001 + 1659 = 2660 (V) · 2490 + 1421 = 3911 (I) · 5221 + 2479 = 7700 (D) · 3408 + 2692 = 6100 (O) · 3227 + 2923 = 6150 (S) · 2100 + 1710 = 3810 (C)

Clue 2 (Place value): "THE VILLAIN WORE A TINTED VISOR HELMET"

What is the value of the 1 in 41,639? = 1000 (T) · What is the value of the 5 in 724,541? = 500 (O) · What is the value of the 9 in 46,988? = 900 (M) · What is the value of the 8 in 98,127? = 8000 (S) · What is the value of the 7 in 58,975? = 70 (W) · What is the value of the 6 in 382,160? = 60 (L) · What is the value of the 5 in 322,354? = 50 (N) · What is the value of the 4 in 71,146? = 40 (D) · What is the value of the 3 in 972,320? = 300 (V) · What is the value of the 6 in 181,648? = 600 (R) · What is the value of the 3 in 93,510? = 3000 (E) · What is the value of the 9 in 315,897? = 90 (I) · What is the value of the 2 in 511,123? = 20 (A) · What is the value of the 8 in 70,685? = 80 (H)

Clue 3 (Subtraction): "THE VILLAIN WAS WEAK TO COSMIC DUST"

3817 - 1103 = 2714 (T) · 6653 - 3390 = 3263 (L) · 4148 - 1362 = 2786 (O) · 4825 - 469 = 4356 (H) · 4676 - 985 = 3691 (C) · 9130 - 4195 = 4935 (E) · 12609 - 4366 = 8243 (V) · 1910 - 626 = 1284 (S) · 6459 - 2906 = 3553 (W) · 7148 - 3704 = 3444 (K) · 7771 - 1462 = 6309 (I) · 7436 - 207 = 7229 (U) · 8293 - 4321 = 3972 (A) · 11898 - 4214 = 7684 (N) · 3285 - 1456 = 1829 (M) · 8773 - 4643 = 4130 (D)

Clue 4 (Multiplication facts (1-12)): "THE VILLAIN HAD A NEON BLUE SPACESUIT"

9 × 1 = 9 (T) · 6 × 8 = 48 (P) · 1 × 1 = 1 (A) · 6 × 10 = 60 (C) · 7 × 9 = 63 (O) · 12 × 12 = 144 (N) · 7 × 7 = 49 (U) · 11 × 12 = 132 (D) · 7 × 11 = 77 (V) · 3 × 11 = 33 (S) · 5 × 9 = 45 (H) · 11 × 1 = 11 (B) · 6 × 5 = 30 (E) · 10 × 10 = 100 (I) · 7 × 6 = 42 (L)

Clue 5 (Division facts (1-12)): surviving statement is box 12 → Leland Melvin

5 ÷ 5 = 1 · 24 ÷ 4 = 6 · 24 ÷ 3 = 8 · 12 ÷ 6 = 2 · 55 ÷ 11 = 5 · 9 ÷ 1 = 9 · 33 ÷ 3 = 11 · 70 ÷ 10 = 7 · 9 ÷ 3 = 3 · 60 ÷ 6 = 10 · 36 ÷ 9 = 4