



The Lunar Outpost Mystery

Grade 5 math · Rounding, Word problems, Place value, Multi-step word problems, Missing addends · Reading level grades 5-6

Detective: _____ Date: _____

Someone tampered with the life support grid on Starlight Station! Decrypt the telemetry logs and identify the suspect before the lunar night falls.

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	SUIT MODULE	GADGET	GLOVE HAND	HELMET VISOR	SYSTEM JAMMER
Alan Shepard	Thruster Pack	Laser Cutter	Right Handed	Gold Visor	Code Override
Eileen Collins	Thruster Pack	Beacon Flare	Right Handed	Gold Visor	Magnet Blast
Chris Hadfield	Thruster Pack	Stun Pulse	Left Handed	Silver Visor	Solar Pulse
Valentina Tereshkova	Grapple Arm	Sonic Scanner	Right Handed	Blue Visor	Solar Pulse
Kalpana Chawla	Grapple Arm	Beacon Flare	Right Handed	Blue Visor	Code Override
Buzz Aldrin	Mag Boots	Sonic Scanner	Right Handed	Blue Visor	Code Override
Jessica Meir	Plasma Torch	Laser Cutter	Left Handed	Gold Visor	Code Override
Peggy Whitson	Grapple Arm	Sonic Scanner	Left Handed	Blue Visor	Code Override
Sally Ride	Thruster Pack	Stun Pulse	Left Handed	Silver Visor	Magnet Blast
Robert Crippen	Plasma Torch	Laser Cutter	Right Handed	Blue Visor	Code Override
Christina Koch	Plasma Torch	Stun Pulse	Right Handed	Blue Visor	Code Override
Sunita Williams	Plasma Torch	EMP Mine	Left Handed	Silver Visor	Code Override
Bernard Harris	Grapple Arm	EMP Mine	Right Handed	Blue Visor	Code Override
Kjell Lindgren	Repair Drone	Laser Cutter	Right Handed	Silver Visor	Solar Pulse
John Glenn	Mag Boots	Stun Pulse	Left Handed	Silver Visor	Magnet Blast
Guion Bluford	Thruster Pack	Laser Cutter	Left Handed	Silver Visor	Code Override
Victor Glover	Grapple Arm	Laser Cutter	Left Handed	Blue Visor	Code Override
Samantha Cristoforetti	Grapple Arm	Stun Pulse	Left Handed	Blue Visor	Solar Pulse
Yuri Gagarin	Thruster Pack	Sonic Scanner	Left Handed	Gold Visor	Code Override
Neil Armstrong	Grapple Arm	Stun Pulse	Right Handed	Blue Visor	Solar Pulse
Jeanette Epps	Grapple Arm	EMP Mine	Right Handed	Gold Visor	Code Override

CLUE 1 Rounding

The station radar display rounds all distance values to the nearest hundred kilometers to clean up noisy tracking data.

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

T						T											T
300	5000	7000	290	430	130	1300	300	7000	3700	70	1100	1300	7000	290	370	1300	300
3700	290	7000	430	130	7000	430	4300	1300	370	9000	2000	430	70	7000			

Round 295 to the nearest hundred →

T

Round 67 to the nearest ten →

R

Round 290 to the nearest ten →

S

Round 5,261 to the nearest thousand →

H

Round 1,296 to the nearest hundred →

O

Round 1,086 to the nearest hundred →

D

Round 3,702 to the nearest hundred →

U

Round 434 to the nearest ten →

A

Round 6,835 to the nearest thousand →

E

Round 127 to the nearest ten →

B

Round 4,275 to the nearest hundred →

C

Round 9,495 to the nearest thousand →

F

Round 1,883 to the nearest thousand →

L

Round 367 to the nearest ten →

N

Scratch space:

CLUE 2

Word problems

You review the supply manifests in the cargo bay to count how many gear crates were opened.

Solve each problem, then write its letter in the boxes to fill in the missing word.

A witness saw the villain was

R									D	E	D
35	20	118	45	107	45	33	85				

Space Cadet lined up 7 rows of 5 solar panels. How many solar panels in all?

Answer: → **R**

Space Cadet found 20 space helmets yesterday and 25 more today. How many space helmets in all?

Answer: → **H**

Space Cadet found 59 space helmets yesterday and 26 more today. How many space helmets in all?

Answer: → **N**

Space Cadet lined up 11 rows of 3 star charts. How many star charts in all?

Answer: → **A**

There were 121 space helmets. 3 were used up. How many space helmets are left?

Answer: → **G**

There were 139 moon rocks. 32 were used up. How many moon rocks are left?

Answer: → **T**

Space Cadet lined up 5 rows of 4 star charts. How many star charts in all?

Answer: → **I**

Scratch space:

CLUE 3

Place value

The security airlock panel displays power readings separated into hundreds, tens, and ones places.

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

T			T						T									
4000	100	40	4000	8000	20	700	40	4000	90	8000	5000	5000	4000	500	900	900	40	9000
2000	200	50	500	9000	40	500	3000	40	20	20	10	9000	40					

What is the value of the 4 in 14,265?

→

T

What is the value of the 7 in 55,723?

→

G

What is the value of the 9 in 384,592?

→

W

What is the value of the 2 in 13,420?

→

R

What is the value of the 2 in 312,999?

→

B

What is the value of the 1 in 22,714?

→

I

What is the value of the 8 in 258,160?

→

A

What is the value of the 1 in 588,196?

→

H

What is the value of the 5 in 895,964?

→

S

What is the value of the 3 in 583,761?

→

V

What is the value of the 4 in 10,641?

→

E

What is the value of the 5 in 78,517?

→

O

What is the value of the 2 in 195,267?

→

Y

What is the value of the 9 in 79,002?

→

D

What is the value of the 5 in 42,756?

→

C

What is the value of the 9 in 36,943?

→

P

Scratch space:

CLUE 4

Multi-step word problems

Calculating fuel usage across multiple shuttle trips requires solving a multi-step flight log.

Solve each problem, then write its letter in the boxes to fill in the missing word.

A strand of B O R hair turned up at the scene.

14 66 47 43 45 7 39

Space Cadet collected 20 solar panels in the morning and 8 solar panels in the afternoon, then split them equally among 2 Astro Crew. How many solar panels did each get?

Answer: → B

There were 176 space helmets in all. 2 Astro Crew used 10 space helmets each. The other 4 Astro Crew shared the rest equally. How many space helmets did each of the other Astro Crew get?

Answer: → S

Space Cadet collected 2 space helmets in the morning and 40 space helmets in the afternoon, then split them equally among 6 Astro Crew. How many space helmets did each get?

Answer: → I

There were 281 oxygen tanks in all. 1 Astro Crew used 11 oxygen tanks each. The other 6 Astro Crew shared the rest equally. How many oxygen tanks did each of the other Astro Crew get?

Answer: → V

There were 551 star charts in all. 23 star charts were set aside. The rest were shared equally among 8 Astro Crew. How many star charts did each get?

Answer: → L

There were 144 star charts in all. 15 star charts were set aside. The rest were shared equally among 3 Astro Crew. How many star charts did each get?

Answer: → E

Space Cadet earned 4 solar panels in each of 6 rounds, plus 28 bonus solar panels. Then 5 solar panels were lost. How many solar panels are left?

Answer: → U

Scratch space:

CLUE 5**Missing addends - the last clue**

The pressure system needs a total balance, but one sensor input value is missing from the readout.

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:

$31 + \underline{\quad} = 39$

$30 + \underline{\quad} = 39$

$30 + \underline{\quad} = 36$

$12 + \underline{\quad} = 17$

$37 + \underline{\quad} = 41$

$4 + \underline{\quad} = 7$

$4 + \underline{\quad} = 16$

$14 + \underline{\quad} = 16$

$13 + \underline{\quad} = 20$

$10 + \underline{\quad} = 21$

$40 + \underline{\quad} = 41$

Step 2 - cross out the sentence with each answer:

1. The villain deployed a repair drone, then tripped alarms with an emp mine.
2. The villain ignited a thruster pack, then sliced airducts with a laser cutter.
3. The villain deployed a repair drone, then sliced airducts with a laser cutter.
4. The villain launched a grapple arm, then disrupted sensors with a stun pulse.
5. The villain marched with mag boots, then sliced airducts with a laser cutter.
6. The villain marched with mag boots, then scanned frequencies with a sonic scanner.
7. The villain launched a grapple arm, then sliced airducts with a laser cutter.
8. The villain sparked a plasma torch, then disrupted sensors with a stun pulse.
9. The villain sparked a plasma torch, then sliced airducts with a laser cutter.
10. The villain launched a grapple arm, then tripped alarms with an emp mine.
11. The villain sparked a plasma torch, then lit up the bay with a beacon flare.
12. The villain deployed a repair drone, then lit up the bay with a beacon flare.

Answer Key

The Lunar Outpost Mystery

Culprit: Bernard Harris

Grapple Arm · EMP Mine · Right Handed · Blue Visor · Code Override

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

Clue 1 (Rounding): "THE SABOTEUR DOES NOT USE A BEACON FLARE"

Round 295 to the nearest hundred = 300 (T) · Round 67 to the nearest ten = 70 (R) · Round 290 to the nearest ten = 290 (S) · Round 5,261 to the nearest thousand = 5000 (H) · Round 1,296 to the nearest hundred = 1300 (O) · Round 1,086 to the nearest hundred = 1100 (D) · Round 3,702 to the nearest hundred = 3700 (U) · Round 434 to the nearest ten = 430 (A) · Round 6,835 to the nearest thousand = 7000 (E) · Round 127 to the nearest ten = 130 (B) · Round 4,275 to the nearest hundred = 4300 (C) · Round 9,495 to the nearest thousand = 9000 (F) · Round 1,883 to the nearest thousand = 2000 (L) · Round 367 to the nearest ten = 370 (N)

Clue 2 (Word problems): "RIGHT HANDED"

Space Cadet lined up 7 rows of 5 solar panels. How many solar panels in all? = 35 (R) · Space Cadet found 20 space helmets yesterday and 25 more today. How many space helmets in all? = 45 (H) · Space Cadet found 59 space helmets yesterday and 26 more today. How many space helmets in all? = 85 (N) · Space Cadet lined up 11 rows of 3 star charts. How many star charts in all? = 33 (A) · There were 121 space helmets. 3 were used up. How many space helmets are left? = 118 (G) · There were 139 moon rocks. 32 were used up. How many moon rocks are left? = 107 (T) · Space Cadet lined up 5 rows of 4 star charts. How many star charts in all? = 20 (I)

Clue 3 (Place value): "THE TARGET WAS STOPPED BY CODE OVERRIDE"

What is the value of the 4 in 14,265? = 4000 (T) · What is the value of the 7 in 55,723? = 700 (G) · What is the value of the 9 in 384,592? = 90 (W) · What is the value of the 2 in 13,420? = 20 (R) · What is the value of the 2 in 312,999? = 2000 (B) · What is the value of the 1 in 22,714? = 10 (I) · What is the value of the 8 in 258,160? = 8000 (A) · What is the value of the 1 in 588,196? = 100 (H) · What is the value of the 5 in 895,964? = 5000 (S) · What is the value of the 3 in 583,761? = 3000 (V) · What is the value of the 4 in 10,641? = 40 (E) · What is the value of the 5 in 78,517? = 500 (O) · What is the value of the 2 in 195,267? = 200 (Y) · What is the value of the 9 in 79,002? = 9000 (D) · What is the value of the 5 in 42,756? = 50 (C) · What is the value of the 9 in 36,943? = 900 (P)

Clue 4 (Multi-step word problems): "BLUE VISOR"

Space Cadet collected 20 solar panels in the morning and 8 solar panels in the afternoon, then split them equally among 2 Astro Crew. How many solar panels did each get? = 14 (B) · There were 176 space helmets in all. 2 Astro Crew used 10 space helmets each. The other 4 Astro Crew shared the rest equally. How many space helmets did each of the other Astro Crew get? = 39 (S) · Space Cadet collected 2 space helmets in the morning and 40 space helmets in the afternoon, then split them equally among 6 Astro Crew. How many space helmets did each get? = 7 (I) · There were 281 oxygen tanks in all. 1 Astro Crew used 11 oxygen tanks each. The other 6 Astro Crew shared the rest equally. How many oxygen tanks did each of the other Astro Crew get? = 45 (V) · There were 551 star charts in all. 23 star charts were set aside. The rest were shared equally among 8 Astro Crew. How many star charts did each get? = 66 (L) · There were 144 star charts in all. 15 star charts were set aside. The rest were shared equally among 3 Astro Crew. How many star charts did each get? = 43 (E) · Space Cadet earned 4 solar panels in each of 6 rounds, plus 28 bonus solar panels. Then 5 solar panels were lost. How many solar panels are left? = 47 (U)

Clue 5 (Missing addends): surviving statement is box 10 → Bernard Harris

$31 + \underline{\quad} = 39 = 8$ · $30 + \underline{\quad} = 39 = 9$ · $30 + \underline{\quad} = 36 = 6$ · $12 + \underline{\quad} = 17 = 5$ · $37 + \underline{\quad} = 41 = 4$ · $4 + \underline{\quad} = 7 = 3$ · $4 + \underline{\quad} = 16 = 12$ · $14 + \underline{\quad} = 16 = 2$ · $13 + \underline{\quad} = 20 = 7$ · $10 + \underline{\quad} = 21 = 11$ · $40 + \underline{\quad} = 41 = 1$