



The Case of the Missing Moon-Rocks

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

Detective: _____ **Date:** _____

Oh no! A mysterious rogue has broken into Lunar Base Alpha and swiped the priceless glowing moon-rocks! The Chief Geologist needs your help. Decode the math clues left behind on the terminal screens to track down the sneaky culprit before they rocket away!

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 Cosmic Bandit is _____

Possible suspects

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

NAME	SPACESUIT CLASS	GADGET TOOL	HELMET VISOR	ZERO-G HAIRCUT	SYSTEM VULNERABILITY
Jack Swigert	Solar Jetpack	Magnetic Claw	Silver Tinted Visor	Neon Blue Mohawky	Water Squirter
Guion Bluford	Solar Jetpack	Cosmic Net Launcher	Silver Tinted Visor	Spiky Silver Buzz	Flashlight Beam
Michael Collins	Solar Jetpack	Hologram Projector	Gold Tinted Visor	Spiky Silver Buzz	Strong Magnet
Gene Cernan	Radar Scanner	Tractor Beam Wand	Gold Tinted Visor	Curly Purple Puff	Strong Magnet
Kalpana Chawla	Plasma Shield	Tractor Beam Wand	Silver Tinted Visor	Curly Purple Puff	Water Squirter
Mae Jemison	Plasma Shield	Magnetic Claw	Silver Tinted Visor	Neon Blue Mohawky	Strong Magnet
Peggy Whitson	Plasma Shield	Hologram Projector	Silver Tinted Visor	Spiky Silver Buzz	Flashlight Beam
Chris Hadfield	Gravity Boots	Cosmic Net Launcher	Silver Tinted Visor	Spiky Silver Buzz	Strong Magnet
Alan Shepard	Radar Scanner	Tractor Beam Wand	Silver Tinted Visor	Neon Blue Mohawky	Flashlight Beam
Pete Conrad	Laser Welder	Hologram Projector	Gold Tinted Visor	Neon Blue Mohawky	Flashlight Beam
Sunita Williams	Plasma Shield	Tractor Beam Wand	Silver Tinted Visor	Spiky Silver Buzz	Flashlight Beam
John Glenn	Gravity Boots	Magnetic Claw	Silver Tinted Visor	Curly Purple Puff	Strong Magnet
Sally Ride	Radar Scanner	Hologram Projector	Gold Tinted Visor	Spiky Silver Buzz	Flashlight Beam
Buzz Aldrin	Gravity Boots	Tractor Beam Wand	Gold Tinted Visor	Neon Blue Mohawky	Strong Magnet
Scott Kelly	Plasma Shield	Cosmic Net Launcher	Gold Tinted Visor	Neon Blue Mohawky	Flashlight Beam
Mark Kelly	Laser Welder	Hologram Projector	Silver Tinted Visor	Spiky Silver Buzz	Water Squirter
Jim Lovell	Laser Welder	Tractor Beam Wand	Silver Tinted Visor	Spiky Silver Buzz	Flashlight Beam
Valentina Tereshkova	Gravity Boots	Sonic Screwdriver	Gold Tinted Visor	Curly Purple Puff	Strong Magnet
Tim Peake	Laser Welder	Sonic Screwdriver	Silver Tinted Visor	Spiky Silver Buzz	Flashlight Beam
Leland Melvin	Gravity Boots	Hologram Projector	Gold Tinted Visor	Spiky Silver Buzz	Water Squirter
Neil Armstrong	Solar Jetpack	Magnetic Claw	Silver Tinted Visor	Spiky Silver Buzz	Strong Magnet

CLUE 1 Place value

To boot up the security screen, you need to find the digit in the hundreds place on the navigation computer.

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

T																T
3000	60	40	500	20	700	700	5000	20	9000	90	400	40	200	9000	400	3000
			T					T								
4000	200	40	3000	60	40	9000	40	3000	700	5000	4000	9000	1000	60	40	10

What is the value of the 3 in 63,866?

 → **T**

What is the value of the 4 in 10,646?

 → **E**

What is the value of the 4 in 15,496?

 → **O**

What is the value of the 2 in 84,923?

 → **I**

What is the value of the 1 in 304,417?

 → **R**

What is the value of the 2 in 87,266?

 → **S**

What is the value of the 4 in 914,853?

 → **U**

What is the value of the 9 in 779,046?

 → **N**

What is the value of the 6 in 58,065?

 → **H**

What is the value of the 9 in 432,492?

 → **D**

What is the value of the 7 in 44,786?

 → **L**

What is the value of the 5 in 45,260?

 → **A**

What is the value of the 5 in 849,573?

 → **V**

What is the value of the 1 in 341,026?

 → **C**

Scratch space:

CLUE 2 Addition

We need to know the total weight of the empty oxygen canisters left behind by the intruder. Add them up!

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

T					T								
7817	5211	8868	2398	7921	7817	8801	8868	6999	6999	6999	5513	2398	5513

										T				
6999	7921	5844	9185	8868	5321	5211	8868	5844	6526	8868	7817	9185	7921	6999

$4752 + 3065 = \square \rightarrow \boxed{\text{T}}$

$3255 + 3271 = \square \rightarrow \boxed{\text{M}}$

$2776 + 2435 = \square \rightarrow \boxed{\text{H}}$

$1492 + 2214 = \square \rightarrow \boxed{\text{O}}$

$3256 + 2588 = \square \rightarrow \boxed{\text{L}}$

$4692 + 4176 = \square \rightarrow \boxed{\text{E}}$

$5245 + 2676 = \square \rightarrow \boxed{\text{I}}$

$2993 + 5808 = \square \rightarrow \boxed{\text{N}}$

$3604 + 1909 = \square \rightarrow \boxed{\text{A}}$

$5217 + 3968 = \square \rightarrow \boxed{\text{V}}$

$2151 + 4848 = \square \rightarrow \boxed{\text{S}}$

$1522 + 876 = \square \rightarrow \boxed{\text{W}}$

$2344 + 2977 = \square \rightarrow \boxed{\text{R}}$

Scratch space:

CLUE 3

Subtraction

The emergency backup battery lost some power during the break-in. Subtract the remaining charge to see what is missing.

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

T																				
8456	6694	8186	5501	4213	3349	3349	8496	5229	6694	8514	8186	7902	4941	8186	4941	8186	2064	8186	5229	
																				T
8710	4213	3349	8282	3988	8710	7902	3988	5229	6694	7902	8514	2979	6694	8456						

$$12460 - 4004 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$12051 - 3341 = \boxed{} \rightarrow \boxed{\text{F}}$$

$$4467 - 254 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$12346 - 3850 = \boxed{} \rightarrow \boxed{\text{K}}$$

$$9209 - 4268 = \boxed{} \rightarrow \boxed{\text{D}}$$

$$7187 - 1958 = \boxed{} \rightarrow \boxed{\text{S}}$$

$$7868 - 2367 = \boxed{} \rightarrow \boxed{\text{C}}$$

$$4739 - 1390 = \boxed{} \rightarrow \boxed{\text{O}}$$

$$5840 - 2861 = \boxed{} \rightarrow \boxed{\text{G}}$$

$$12179 - 3897 = \boxed{} \rightarrow \boxed{\text{M}}$$

$$11749 - 3235 = \boxed{} \rightarrow \boxed{\text{I}}$$

$$7033 - 339 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$11269 - 3083 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$4484 - 496 = \boxed{} \rightarrow \boxed{\text{A}}$$

$$9399 - 1497 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$4752 - 2688 = \boxed{} \rightarrow \boxed{\text{Y}}$$

Scratch space:

Multiplication facts (1-12)

The supply room has crates stacked in equal rows. Multiply the rows and columns to find the total boxes disturbed.

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

$$10 \times 6 = \boxed{} \rightarrow \boxed{\text{T}}$$

$7 \times 9 = \square \rightarrow \boxed{\mathbf{A}}$

$$4 \times 5 = \boxed{} \rightarrow \boxed{\text{P}}$$

$$7 \times 7 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$2 \times 1 = \boxed{} \rightarrow \boxed{1}$$

$8 \times 11 = \boxed{} \rightarrow \boxed{\text{Y}}$

$$3 \times 9 = \boxed{} \rightarrow \boxed{\text{N}}$$

$7 \times 2 = \boxed{} \rightarrow \boxed{\mathbf{S}}$

$$2 \times 3 = \boxed{} \rightarrow \boxed{\mathbf{v}}$$

$11 \times 4 = \square \rightarrow \boxed{\mathbf{D}}$

$11 \times 12 = \square \rightarrow \boxed{\mathbf{C}}$

$$5 \times 5 = \boxed{} \rightarrow \boxed{\text{K}}$$

$$4 \times 4 = \boxed{} \rightarrow \boxed{\mathbf{H}}$$

$$12 \times 1 = \boxed{} \rightarrow \boxed{0}$$

$8 \times 1 = \boxed{} \rightarrow \boxed{\text{E}}$

$$2 \times 5 = \boxed{} \rightarrow \boxed{\text{L}}$$

Scratch space:

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

We must divide the remaining energy cells equally among the scout droids to power up their search radars.

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:

$132 \div 12 = \boxed{}$

$4 \div 2 = \boxed{}$

$70 \div 10 = \boxed{}$

$20 \div 4 = \boxed{}$

$50 \div 5 = \boxed{}$

$4 \div 1 = \boxed{}$

$2 \div 2 = \boxed{}$

$6 \div 1 = \boxed{}$

$72 \div 6 = \boxed{}$

$15 \div 5 = \boxed{}$

$80 \div 10 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain zoomed through the airlock with a solar jetpack, then pulled the glowing chest away with a tractor beam wand.
2. The villain cut open the vault using a laser welder, then pulled the glowing chest away with a tractor beam wand.
3. The villain tracked the patrol bots on a radar scanner, then tangled up the helper bots with a cosmic net launcher.
4. The villain cut open the vault using a laser welder, then escaped by making a giant hologram projector trick.
5. The villain cut open the vault using a laser welder, then grabbed the heavy cargo box using a magnetic claw.
6. The villain cut open the vault using a laser welder, then tangled up the helper bots with a cosmic net launcher.
7. The villain cut open the vault using a laser welder, then unlocked the main locker with a sonic screwdriver.
8. The villain tracked the patrol bots on a radar scanner, then unlocked the main locker with a sonic screwdriver.
9. The villain blocked the laser alarms with a plasma shield, then escaped by making a giant hologram projector trick.
10. The villain zoomed through the airlock with a solar jetpack, then escaped by making a giant hologram projector trick.
11. The villain blocked the laser alarms with a plasma shield, then pulled the glowing chest away with a tractor beam wand.
12. The villain tracked the patrol bots on a radar scanner, then grabbed the heavy cargo box using a magnetic claw.

Answer Key

The Case of the Missing Moon-Rocks

Culprit: Peggy Whitson

Plasma Shield · Hologram Projector · Silver Tinted Visor · Spiky Silver Buzz · Flashlight Beam

Trail: Start 21 → Clue 1 18 → Clue 2 11 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Place value): "THE VILLAIN DOES NOT USE THE NET LAUNCHER"

What is the value of the 3 in 63,866? = 3000 (T) · What is the value of the 4 in 10,646? = 40 (E) · What is the value of the 4 in 15,496? = 400 (O) · What is the value of the 2 in 84,923? = 20 (I) · What is the value of the 1 in 304,417? = 10 (R) · What is the value of the 2 in 87,266? = 200 (S) · What is the value of the 4 in 914,853? = 4000 (U) · What is the value of the 9 in 779,046? = 9000 (N) · What is the value of the 6 in 58,065? = 60 (H) · What is the value of the 9 in 432,492? = 90 (D) · What is the value of the 7 in 44,786? = 700 (L) · What is the value of the 5 in 45,260? = 5000 (A) · What is the value of the 5 in 849,573? = 500 (V) · What is the value of the 1 in 341,026? = 1000 (C)

Clue 2 (Addition): "THE WITNESS SAW A SILVER HELMET VISOR"

4752 + 3065 = 7817 (T) · 3255 + 3271 = 6526 (M) · 2776 + 2435 = 5211 (H) · 1492 + 2214 = 3706 (O) · 3256 + 2588 = 5844 (L) · 4692 + 4176 = 8868 (E) · 5245 + 2676 = 7921 (I) · 2993 + 5808 = 8801 (N) · 3604 + 1909 = 5513 (A) · 5217 + 3968 = 9185 (V) · 2151 + 4848 = 6999 (S) · 1522 + 876 = 2398 (W) · 2344 + 2977 = 5321 (R)

Clue 3 (Subtraction): "THE CROOK SHIELDED EYES FROM A FLASHLIGHT"

12460 - 4004 = 8456 (T) · 12051 - 3341 = 8710 (F) · 4467 - 254 = 4213 (R) · 12346 - 3850 = 8496 (K) · 9209 - 4268 = 4941 (D) · 7187 - 1958 = 5229 (S) · 7868 - 2367 = 5501 (C) · 4739 - 1390 = 3349 (O) · 5840 - 2861 = 2979 (G) · 12179 - 3897 = 8282 (M) · 11749 - 3235 = 8514 (I) · 7033 - 339 = 6694 (H) · 11269 - 3083 = 8186 (E) · 4484 - 496 = 3988 (A) · 9399 - 1497 = 7902 (L) · 4752 - 2688 = 2064 (Y)

Clue 4 (Multiplication facts (1-12)): "THE SENSORS DETECTED SPIKY SILVER HAIR"

$10 \times 6 = 60$ (T) · $7 \times 9 = 63$ (A) · $4 \times 5 = 20$ (P) · $7 \times 7 = 49$ (R) · $2 \times 1 = 2$ (I) · $8 \times 11 = 88$ (Y) · $3 \times 9 = 27$ (N) · $7 \times 2 = 14$ (S) · $2 \times 3 = 6$ (V) · $11 \times 4 = 44$ (D) · $11 \times 12 = 132$ (C) · $5 \times 5 = 25$ (K) · $4 \times 4 = 16$ (H) · $12 \times 1 = 12$ (O) · $8 \times 1 = 8$ (E) · $2 \times 5 = 10$ (L)

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

$132 \div 12 = 11$ · $4 \div 2 = 2$ · $70 \div 10 = 7$ · $20 \div 4 = 5$ · $50 \div 5 = 10$ · $4 \div 1 = 4$ · $2 \div 2 = 1$ · $6 \div 1 = 6$ · $72 \div 6 = 12$ · $15 \div 5 = 3$ · $80 \div 10 = 8$