



The Case of the Missing Moonstone

Grade 6 math · Percentages, Exponents, Order of operations, Multiplication, Division · Reading level grades 3-4

Detective: _____ Date: _____

A rare glowing moonstone has been stolen from the station museum! The Space Patrol needs your help to catch the Space Thief before they warp 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 Space Thief is _____

Possible suspects

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

NAME	SPACE GEAR	SPACESHIP TOOL	OXYGEN TANK METER	SPACESUIT HELMET COLOR	ORBITAL WEAKNESS
Tim Peake	Laser Welder	Solar Driller	Glowing Blue Light	Silver Chrome Helmet	Thick Moon Dust
Kalpana Chawla	Plasma Shield	Photon Blaster	Blinking Green Light	Silver Chrome Helmet	Thick Moon Dust
Peggy Whitson	Plasma Shield	Cargo Magnet	Blinking Green Light	Bright Yellow Helmet	Thick Moon Dust
Alexei Leonov	Laser Welder	Cosmic Scanner	Glowing Blue Light	Bright Yellow Helmet	Freezing Shadow Zone
Charles Bolden	Plasma Shield	Photon Blaster	Blinking Green Light	Silver Chrome Helmet	Strong Magnetic Field
Chris Hadfield	Stellar Compass	Solar Driller	Blinking Green Light	Neon Orange Helmet	Thick Moon Dust
Ed White	Jetpack Harness	Cargo Magnet	Blinking Green Light	Bright Yellow Helmet	Thick Moon Dust
Gennady Padalka	Plasma Shield	Photon Blaster	Glowing Blue Light	Neon Orange Helmet	Freezing Shadow Zone
Guion Bluford	Laser Welder	Cargo Magnet	Blinking Green Light	Bright Yellow Helmet	Thick Moon Dust
Christina Koch	Jetpack Harness	Asteroid Grabber	Blinking Green Light	Bright Yellow Helmet	Freezing Shadow Zone
Alan Shepard	Jetpack Harness	Solar Driller	Blinking Green Light	Silver Chrome Helmet	Thick Moon Dust
Roberta Bondar	Plasma Shield	Photon Blaster	Blinking Green Light	Neon Orange Helmet	Freezing Shadow Zone
Scott Kelly	Stellar Compass	Cosmic Scanner	Blinking Green Light	Neon Orange Helmet	Strong Magnetic Field
Jim Lovell	Laser Welder	Asteroid Grabber	Blinking Green Light	Neon Orange Helmet	Strong Magnetic Field
Buzz Aldrin	Stellar Compass	Asteroid Grabber	Blinking Green Light	Silver Chrome Helmet	Thick Moon Dust
Valentina Tereshkova	Stellar Compass	Cargo Magnet	Blinking Green Light	Bright Yellow Helmet	Freezing Shadow Zone
Neil Armstrong	Stellar Compass	Photon Blaster	Glowing Blue Light	Silver Chrome Helmet	Freezing Shadow Zone
Yuri Gagarin	Stellar Compass	Photon Blaster	Blinking Green Light	Bright Yellow Helmet	Strong Magnetic Field
Sunita Williams	Jetpack Harness	Cargo Magnet	Blinking Green Light	Silver Chrome Helmet	Thick Moon Dust
Ellen Ochoa	Laser Welder	Cosmic Scanner	Blinking Green Light	Silver Chrome Helmet	Thick Moon Dust
Michael Collins	Gravity Boots	Cosmic Scanner	Blinking Green Light	Silver Chrome Helmet	Strong Magnetic Field

CLUE 1

The museum door has a digital lock. It shows what percentage of power is left in the backup battery. Solve the math to unlock the door and find a clue!

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

Diagram illustrating the sequence of boxes and their associated numbers:

Top Row: 20, 19, 38, 24, 21, 31, 31, 39, 21, 14, 45, 9, 38, 22, 14, 9, 20

Bottom Row: 1, 22, 38, 20, 19, 38, 33, 5, 39, 7, 7, 38, 5

5% of 400 = → **T**

20% of 155 = → **L**

25% of 56 = → **N**

50% of 42 = → **I**

10% of 70 = $\rightarrow$ **B**

60% of 40 = → **V**

50% of 90 = → **D**

10% of 90 = $\rightarrow$

20% of 110 = → **S**

10% of 10 = → **U**

25% of 152 = → **E**

5% of 100 = → **R**

50% of 66 = → **G**

25% of 156 = $\rightarrow$ **A**

$$5\% \text{ of } 380 = \boxed{} \rightarrow \boxed{\text{H}}$$

Scratch space:

CLUE 2 Exponents

A computer screen in the control room is blinking. It shows security code patterns written in exponents. Work out the numbers to read the security log.

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

W				W													
343	361	125	216	343	216	16	100	361	361	36	64	9	16	121	196	144	36
196	121	361	128	216	25	32	324	216	25	32							

$7^3 = \square \rightarrow \mathbf{W}$	$5^2 = \square \rightarrow \mathbf{C}$	$2^7 = \square \rightarrow \mathbf{B}$	$6^3 = \square \rightarrow \mathbf{A}$
$14^2 = \square \rightarrow \mathbf{T}$	$6^2 = \square \rightarrow \mathbf{N}$	$2^4 = \square \rightarrow \mathbf{G}$	$19^2 = \square \rightarrow \mathbf{E}$
$8^2 = \square \rightarrow \mathbf{L}$	$5^3 = \square \rightarrow \mathbf{S}$	$3^2 = \square \rightarrow \mathbf{I}$	$10^2 = \square \rightarrow \mathbf{R}$
$12^2 = \square \rightarrow \mathbf{O}$	$2^5 = \square \rightarrow \mathbf{K}$	$11^2 = \square \rightarrow \mathbf{H}$	$18^2 = \square \rightarrow \mathbf{P}$

Scratch space:

CLUE 3

Order of operations

The thief left a trail of footprints. To find out which way they went, we must solve these multi-step math problems in the exact right order.

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

T																			
57	19	58	45	46	29	29	25	46	76	66	76	58	58	75	58	14	46	76	
48	51	51	76	14	15	66	57												

$9 \times 9 - 24 = \square \rightarrow \boxed{\text{T}}$

$5 \times 6 - 15 = \square \rightarrow \boxed{\text{U}}$

$8 \times 9 - 14 = \square \rightarrow \boxed{\text{E}}$

$16 + 8 \times 4 = \square \rightarrow \boxed{\text{M}}$

$7 \times 4 - 14 = \square \rightarrow \boxed{\text{D}}$

$3 \times 9 - 8 = \square \rightarrow \boxed{\text{H}}$

$9 + 6 \times 7 = \square \rightarrow \boxed{\text{O}}$

$32 + 7 \times 2 = \square \rightarrow \boxed{\text{I}}$

$7 \times 6 - 17 = \square \rightarrow \boxed{\text{A}}$

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

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

$8 \times 11 - 12 = \square \rightarrow \boxed{\text{N}}$

$5 \times 9 - 16 = \square \rightarrow \boxed{\text{L}}$

$62 + 2 \times 2 = \square \rightarrow \boxed{\text{S}}$

Scratch space:

CLUE 4

Multiplication facts (1-12)

We found some dropped cargo crates in the hangar. They are stacked in equal rows. Multiply the rows to count the crates and find the hidden note inside.

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

A																	
8	33	49	25	48	2	33	25	6	28	108	120	49	108	6	14	108	121

	A					
22	8	33	33	108	108	48

$2 \times 4 = \square \rightarrow \boxed{\text{A}}$

$2 \times 1 = \square \rightarrow \boxed{\text{Y}}$

$6 \times 1 = \square \rightarrow \boxed{\text{L}}$

$7 \times 7 = \square \rightarrow \boxed{\text{H}}$

$7 \times 2 = \square \rightarrow \boxed{\text{M}}$

$10 \times 12 = \square \rightarrow \boxed{\text{R}}$

$7 \times 4 = \square \rightarrow \boxed{\text{V}}$

$12 \times 9 = \square \rightarrow \boxed{\text{E}}$

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

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

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

$6 \times 8 = \square \rightarrow \boxed{\text{N}}$

$2 \times 11 = \square \rightarrow \boxed{\text{W}}$

Scratch space:

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

The starship fuel cells must be shared equally among the emergency engines. Divide the fuel canisters to power up our radar and locate the thief.

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:

$11 \div 11 = \boxed{}$

$6 \div 3 = \boxed{}$

$96 \div 8 = \boxed{}$

$70 \div 10 = \boxed{}$

$48 \div 12 = \boxed{}$

$54 \div 6 = \boxed{}$

$45 \div 9 = \boxed{}$

$15 \div 5 = \boxed{}$

$70 \div 7 = \boxed{}$

$48 \div 8 = \boxed{}$

$72 \div 9 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain fired up their jetpack harness, then swiped the rare moonstone using a cargo magnet.
2. The villain fired up their jetpack harness, then drilled through the vault with a solar driller.
3. The villain turned on their high power laser welder, then drilled through the vault with a solar driller.
4. The villain fired up their jetpack harness, then spotted the security guards with a cosmic scanner.
5. The villain raised their glowing plasma shield, then plucked the crystal with an asteroid grabber.
6. The villain raised their glowing plasma shield, then swiped the rare moonstone using a cargo magnet.
7. The villain raised their glowing plasma shield, then spotted the security guards with a cosmic scanner.
8. The villain turned on their high power laser welder, then plucked the crystal with an asteroid grabber.
9. The villain checked their stellar compass directions, then plucked the crystal with an asteroid grabber.
10. The villain fired up their jetpack harness, then blasted through the blast doors with a photon blaster.
11. The villain raised their glowing plasma shield, then blasted through the blast doors with a photon blaster.
12. The villain turned on their high power laser welder, then spotted the security guards with a cosmic scanner.

Answer Key

The Case of the Missing Moonstone

Culprit: Kalpana Chawla

Plasma Shield · Photon Blaster · Blinking Green Light · Silver Chrome Helmet · Thick Moon Dust

Trail: Start 21 → Clue 1 18 → Clue 2 14 → Clue 3 8 → Clue 4 4 → Clue 5 1

Clue 1 (Percentages): "THE VILLAIN DOES NOT USE THE GRABBER"

5% of 400 = 20 (T) · 20% of 155 = 31 (L) · 25% of 56 = 14 (N) · 50% of 42 = 21 (I) · 10% of 70 = 7 (B) · 60% of 40 = 24 (V) · 50% of 90 = 45 (D) · 10% of 90 = 9 (O) · 20% of 110 = 22 (S) · 10% of 10 = 1 (U) · 25% of 152 = 38 (E) · 5% of 100 = 5 (R) · 50% of 66 = 33 (G) · 25% of 156 = 39 (A) · 5% of 380 = 19 (H)

Clue 2 (Exponents): "WE SAW A GREEN LIGHT ON THE BACKPACK"

$7^3 = 343$ (W) · $5^2 = 25$ (C) · $2^7 = 128$ (B) · $6^3 = 216$ (A) · $14^2 = 196$ (T) · $6^2 = 36$ (N) · $2^4 = 16$ (G) · $19^2 = 361$ (E) · $8^2 = 64$ (L) · $5^3 = 125$ (S) · $3^2 = 9$ (I) · $10^2 = 100$ (R) · $12^2 = 144$ (O) · $2^5 = 32$ (K) · $11^2 = 121$ (H) · $18^2 = 324$ (P)

Clue 3 (Order of operations): "THE VILLAIN SNEEZED IN MOON DUST"

$9 \times 9 - 24 = 57$ (T) · $5 \times 6 - 15 = 15$ (U) · $8 \times 9 - 14 = 58$ (E) · $16 + 8 \times 4 = 48$ (M) · $7 \times 4 - 14 = 14$ (D) · $3 \times 9 - 8 = 19$ (H) · $9 + 6 \times 7 = 51$ (O) · $32 + 7 \times 2 = 46$ (I) · $7 \times 6 - 17 = 25$ (A) · $9 \times 9 - 6 = 75$ (Z) · $9 + 6 \times 6 = 45$ (V) · $8 \times 11 - 12 = 76$ (N) · $5 \times 9 - 16 = 29$ (L) · $62 + 2 \times 2 = 66$ (S)

Clue 4 (Multiplication facts (1-12)): "A SHINY SILVER HELMET WAS SEEN"

$2 \times 4 = 8$ (A) · $2 \times 1 = 2$ (Y) · $6 \times 1 = 6$ (L) · $7 \times 7 = 49$ (H) · $7 \times 2 = 14$ (M) · $10 \times 12 = 120$ (R) · $7 \times 4 = 28$ (V) · $12 \times 9 = 108$ (E) · $11 \times 11 = 121$ (T) · $5 \times 5 = 25$ (I) · $11 \times 3 = 33$ (S) · $6 \times 8 = 48$ (N) · $2 \times 11 = 22$ (W)

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

$11 \div 11 = 1$ · $6 \div 3 = 2$ · $96 \div 8 = 12$ · $70 \div 10 = 7$ · $48 \div 12 = 4$ · $54 \div 6 = 9$ · $45 \div 9 = 5$ · $15 \div 5 = 3$ · $70 \div 7 = 10$ · $48 \div 8 = 6$ · $72 \div 9 = 8$