



The Mars Dome Heist

Grade 5 math · Multiplication, Multi-step word problems, Word problems, Fractions of a number, Division · Reading level grades 3-4

Detective: _____ Date: _____

Someone broke into the Mars dome vault and stole the Golden Star Map! Chief Astronomer Leo needs our help. The Galaxy Patrol is on the case to track down the Cosmic Thief.

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 Thief is _____

Possible suspects

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

NAME	MAIN SPACE TECH	BACKUP TOOL	HANDEDNESS	VISOR COLOR	HOW TO STOP THEM
Guion Bluford	Jetpack Boost	Solar Charger	Left-Handed	Gold Visor	Magnet Beam
Chris Hadfield	Gravity Boots	Space Wrench	Right-Handed	Gold Visor	Cosmic Dust
Sally Ride	Tractor Beam	Space Wrench	Left-Handed	Gold Visor	Magnet Beam
Valentina Tereshkova	Force Shield	Solar Charger	Right-Handed	Gold Visor	Magnet Beam
John Glenn	Jetpack Boost	Rocket Flare	Right-Handed	Gold Visor	Bubble Trap
Carl Sagan	Jetpack Boost	Astro Compass	Right-Handed	Gold Visor	Bubble Trap
Fred Haise	Laser Cutter	Astro Compass	Right-Handed	Red Visor	Bubble Trap
Jim Lovell	Force Shield	Astro Compass	Left-Handed	Gold Visor	Magnet Beam
Neil Armstrong	Tractor Beam	Star Scope	Left-Handed	Blue Visor	Bubble Trap
Buzz Aldrin	Tractor Beam	Astro Compass	Left-Handed	Red Visor	Cosmic Dust
Mae Jemison	Gravity Boots	Solar Charger	Left-Handed	Red Visor	Magnet Beam
Harrison Schmitt	Jetpack Boost	Star Scope	Right-Handed	Gold Visor	Bubble Trap
Peggy Whitson	Tractor Beam	Rocket Flare	Left-Handed	Red Visor	Bubble Trap
James Webb	Tractor Beam	Space Wrench	Left-Handed	Red Visor	Cosmic Dust
Yuri Gagarin	Force Shield	Space Wrench	Left-Handed	Gold Visor	Bubble Trap
Ellen Ochoa	Force Shield	Star Scope	Right-Handed	Gold Visor	Bubble Trap
Frank Borman	Tractor Beam	Star Scope	Right-Handed	Gold Visor	Bubble Trap
Kalpana Chawla	Laser Cutter	Star Scope	Right-Handed	Blue Visor	Bubble Trap
William Anders	Force Shield	Star Scope	Right-Handed	Blue Visor	Magnet Beam
Alan Shepard	Force Shield	Star Scope	Left-Handed	Blue Visor	Cosmic Dust
Michael Collins	Gravity Boots	Rocket Flare	Left-Handed	Blue Visor	Bubble Trap

CLUE 1
Multiplication facts (1-12)

We check the hangar inventory. A star cadet counts the rocket fuel tanks to find out what is missing.

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

T 42	56	22	T 42	56	27	22	7	28	100	22	84	66	100	T 42	33	84	22
T 42	56	22	21	100	81	48	22	T 42	7	5	24	21	22				

$7 \times 6 = \square \rightarrow \text{T}$	$10 \times 10 = \square \rightarrow \text{O}$	$12 \times 7 = \square \rightarrow \text{S}$	
$3 \times 8 = \square \rightarrow \text{A}$	$11 \times 6 = \square \rightarrow \text{N}$	$11 \times 2 = \square \rightarrow \text{E}$	
$9 \times 9 = \square \rightarrow \text{C}$	$7 \times 1 = \square \rightarrow \text{F}$	$5 \times 1 = \square \rightarrow \text{L}$	$3 \times 11 = \square \rightarrow \text{U}$
$7 \times 4 = \square \rightarrow \text{D}$	$8 \times 6 = \square \rightarrow \text{K}$	$3 \times 7 = \square \rightarrow \text{R}$	$7 \times 8 = \square \rightarrow \text{H}$
$3 \times 9 = \square \rightarrow \text{I}$			

Scratch space:

CLUE 2

Multi-step word problems

The thief left a trail of energy drain. We must calculate the total power drop across three space stations to find the path.

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 .

8 69 52 55 29 55 81 88

Star cadet collected 3 moon rock in the morning and 13 moon rock in the afternoon, then split them equally among 2 Galaxy Patrol. How many moon rock did each get?

Answer: → R

There were 189 moon rock in all. 3 Galaxy Patrol used 11 moon rock each. The other 3 Galaxy Patrol shared the rest equally. How many moon rock did each of the other Galaxy Patrol get?

Answer: → G

Star cadet collected 24 laser tool in the morning and 121 laser tool in the afternoon, then split them equally among 5 Galaxy Patrol. How many laser tool did each get?

Answer: → T

Star cadet collected 9 laser tool in the morning and 336 laser tool in the afternoon, then split them equally among 5 Galaxy Patrol. How many laser tool did each get?

Answer: → I

There were 463 space boot in all. 23 space boot were set aside. The rest were shared equally among 5 Galaxy Patrol. How many space boot did each get?

Answer: → N

There were 764 laser tool in all. 35 laser tool were set aside. The rest were shared equally among 9 Galaxy Patrol. How many laser tool did each get?

Answer: → A

There were 370 energy cell in all. 4 Galaxy Patrol used 10 energy cell each. The other 6 Galaxy Patrol shared the rest equally. How many energy cell did each of the other Galaxy Patrol get?

Answer: → H

Scratch space:

CLUE 3

Word problems

To unlock the security log, we count the blinking solar panels arranged in a neat grid on the dome roof.

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

Someone scared the villain off with

B		B	B						P
96	45	96	96	51	58	28	66	27	

There were 102 moon rock. 6 were used up. How many moon rock are left?

Answer: → **B**

There were 34 energy cell. 6 were used up. How many energy cell are left?

Answer: → **T**

Star cadet lined up 3 rows of 9 energy cell. How many energy cell in all?

Answer: → **A**

Star cadet found 57 energy cell yesterday and 9 more today. How many energy cell in all?

Answer: → **R**

Star cadet found 30 laser tool yesterday and 28 more today. How many laser tool in all?

Answer: → **E**

Star cadet found 44 energy cell yesterday and 7 more today. How many energy cell in all?

Answer: → **L**

Star cadet lined up 9 rows of 5 laser tool. How many laser tool in all?

Answer: → **U**

Scratch space:

CLUE 4
Fractions of a number

The thief dropped a pouch of glowing space crystals. We need to measure a fraction of the weight to unlock the next room.

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

T																		
3	29	28	33	17	38	10	24	8	36	17	34	33	38	28	13	37	28	10

		T							
8	22	3	29	28	10	13	34	25	

$1/10 \text{ of } 30 = \square \rightarrow \boxed{\text{T}}$

$1/4 \text{ of } 52 = \square \rightarrow \boxed{\text{A}}$

$4/5 \text{ of } 30 = \square \rightarrow \boxed{\text{V}}$

$5/10 \text{ of } 76 = \square \rightarrow \boxed{\text{L}}$

$2/10 \text{ of } 185 = \square \rightarrow \boxed{\text{M}}$

$4/10 \text{ of } 20 = \square \rightarrow \boxed{\text{I}}$

$2/8 \text{ of } 40 = \square \rightarrow \boxed{\text{D}}$

$1/6 \text{ of } 168 = \square \rightarrow \boxed{\text{E}}$

$4/8 \text{ of } 68 = \square \rightarrow \boxed{\text{R}}$

$2/8 \text{ of } 116 = \square \rightarrow \boxed{\text{H}}$

$5/6 \text{ of } 30 = \square \rightarrow \boxed{\text{K}}$

$1/6 \text{ of } 198 = \square \rightarrow \boxed{\text{G}}$

$1/5 \text{ of } 85 = \square \rightarrow \boxed{\text{O}}$

$1/3 \text{ of } 66 = \square \rightarrow \boxed{\text{N}}$

$1/2 \text{ of } 72 = \square \rightarrow \boxed{\text{S}}$

Scratch space:

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

We find a heavy crate of space tools. We must split them equally to see how many were stolen.

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:

$28 \div 7 = \boxed{}$

$144 \div 12 = \boxed{}$

$28 \div 4 = \boxed{}$

$20 \div 10 = \boxed{}$

$55 \div 5 = \boxed{}$

$9 \div 1 = \boxed{}$

$12 \div 2 = \boxed{}$

$55 \div 11 = \boxed{}$

$40 \div 5 = \boxed{}$

$6 \div 2 = \boxed{}$

$110 \div 11 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain used a jetpack boost to fly high, then spied the guards with a star scope.
2. The villain used a jetpack boost to fly high, then tightened a bolt with a space wrench.
3. The villain blocked the alarms with a force shield, then lighted the escape with a rocket flare.
4. The villain used a jetpack boost to fly high, then checked the path with an astro compass.
5. The villain sliced the door with a laser cutter, then lighted the escape with a rocket flare.
6. The villain sliced the door with a laser cutter, then recharged with a solar charger.
7. The villain blocked the alarms with a force shield, then spied the guards with a star scope.
8. The villain stomped past with gravity boots, then lighted the escape with a rocket flare.
9. The villain blocked the alarms with a force shield, then recharged with a solar charger.
10. The villain pulled the loot with a tractor beam, then lighted the escape with a rocket flare.
11. The villain blocked the alarms with a force shield, then checked the path with an astro compass.
12. The villain pulled the loot with a tractor beam, then spied the guards with a star scope.

Answer Key

The Mars Dome Heist

Culprit: Harrison Schmitt

Jetpack Boost · Star Scope · Right-Handed · Gold Visor · Bubble Trap

Trail: Start 21 → Clue 1 18 → Clue 2 9 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Multiplication facts (1-12)): "THE THIEF DOES NOT USE THE ROCKET FLARE"

$7 \times 6 = 42$ (T) · $10 \times 10 = 100$ (O) · $12 \times 7 = 84$ (S) · $3 \times 8 = 24$ (A) · $11 \times 6 = 66$ (N) · $11 \times 2 = 22$ (E) · $9 \times 9 = 81$ (C) · $7 \times 1 = 7$ (F) · $5 \times 1 = 5$ (L) · $3 \times 11 = 33$ (U) · $7 \times 4 = 28$ (D) · $8 \times 6 = 48$ (K) · $3 \times 7 = 21$ (R) · $7 \times 8 = 56$ (H) · $3 \times 9 = 27$ (I)

Clue 2 (Multi-step word problems): "RIGHT HANDED"

Star cadet collected 3 moon rock in the morning and 13 moon rock in the afternoon, then split them equally among 2 Galaxy Patrol. How many moon rock did each get? = 8 (R) · There were 189 moon rock in all. 3 Galaxy Patrol used 11 moon rock each. The other 3 Galaxy Patrol shared the rest equally. How many moon rock did each of the other Galaxy Patrol get? = 52 (G) · Star cadet collected 24 laser tool in the morning and 121 laser tool in the afternoon, then split them equally among 5 Galaxy Patrol. How many laser tool did each get? = 29 (T) · Star cadet collected 9 laser tool in the morning and 336 laser tool in the afternoon, then split them equally among 5 Galaxy Patrol. How many laser tool did each get? = 69 (I) · There were 463 space boot in all. 23 space boot were set aside. The rest were shared equally among 5 Galaxy Patrol. How many space boot did each get? = 88 (N) · There were 764 laser tool in all. 35 laser tool were set aside. The rest were shared equally among 9 Galaxy Patrol. How many laser tool did each get? = 81 (A) · There were 370 energy cell in all. 4 Galaxy Patrol used 10 energy cell each. The other 6 Galaxy Patrol shared the rest equally. How many energy cell did each of the other Galaxy Patrol get? = 55 (H)

Clue 3 (Word problems): "BUBBLE TRAP"

There were 102 moon rock. 6 were used up. How many moon rock are left? = 96 (B) · There were 34 energy cell. 6 were used up. How many energy cell are left? = 28 (T) · Star cadet lined up 3 rows of 9 energy cell. How many energy cell in all? = 27 (A) · Star cadet found 57 energy cell yesterday and 9 more today. How many energy cell in all? = 66 (R) · Star cadet found 30 laser tool yesterday and 28 more today. How many laser tool in all? = 58 (E) · Star cadet found 44 energy cell yesterday and 7 more today. How many energy cell in all? = 51 (L) · Star cadet lined up 9 rows of 5 laser tool. How many laser tool in all? = 45 (U)

Clue 4 (Fractions of a number): "THE GOLD VISOR GLEAMED IN THE DARK"

$1/10$ of 30 = 3 (T) · $1/4$ of 52 = 13 (A) · $4/5$ of 30 = 24 (V) · $5/10$ of 76 = 38 (L) · $2/10$ of 185 = 37 (M) · $4/10$ of 20 = 8 (I) · $2/8$ of 40 = 10 (D) · $1/6$ of 168 = 28 (E) · $4/8$ of 68 = 34 (R) · $2/8$ of 116 = 29 (H) · $5/6$ of 30 = 25 (K) · $1/6$ of 198 = 33 (G) · $1/5$ of 85 = 17 (O) · $1/3$ of 66 = 22 (N) · $1/2$ of 72 = 36 (S)

Clue 5 (Division facts (1-12)): surviving statement is box 1 → Harrison Schmitt

$28 \div 7 = 4$ · $144 \div 12 = 12$ · $28 \div 4 = 7$ · $20 \div 10 = 2$ · $55 \div 5 = 11$ · $9 \div 1 = 9$ · $12 \div 2 = 6$ · $55 \div 11 = 5$ · $40 \div 5 = 8$ · $6 \div 2 = 3$ · $110 \div 11 = 10$