



The Lunar Base Mystery

Grade 5 math · Multiplication, Word problems, Fractions of a number, Order of operations, Division · Reading level grades 3-4

Detective: _____ Date: _____

A mysterious space bandit snuck into Moonbase Alpha and scrambled the navigation computers. Solve the math clues around the station to identify the culprit before the shuttle takes off.

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 bandit is _____

Possible suspects

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

NAME	MAIN TOOL	SPACE GEAR	DOMINANT HAND	SPACE SUIT HAIR	DEFENSE GADGET
John Glenn	Jetpack	Oxygen Tank	Left Handed	Neon Blue Mohawk	Magnetic Pulse Magnet
Chris Hadfield	Jetpack	Oxygen Tank	Left Handed	Silver Crew Cut	Magnetic Pulse Magnet
Michael Collins	Laser Blaster	Oxygen Tank	Right Handed	Green Space Pigtails	Starlight Flashlight
Sally Ride	Gravity Boots	Space Helmet	Left Handed	Green Space Pigtails	Magnetic Pulse Magnet
Scott Kelly	Plasma Shield	Oxygen Tank	Right Handed	Silver Crew Cut	Magnetic Pulse Magnet
Christina Koch	Tractor Beam	Moon Rover	Left Handed	Silver Crew Cut	Magnetic Pulse Magnet
Tim Peake	Tractor Beam	Moon Rover	Left Handed	Neon Blue Mohawk	Cosmic Dust Spray
Sunita Williams	Laser Blaster	Solar Panel	Left Handed	Neon Blue Mohawk	Cosmic Dust Spray
Guion Bluford	Tractor Beam	Oxygen Tank	Left Handed	Silver Crew Cut	Magnetic Pulse Magnet
Anne McClain	Jetpack	Solar Panel	Left Handed	Neon Blue Mohawk	Cosmic Dust Spray
Mae Jemison	Jetpack	Solar Panel	Right Handed	Silver Crew Cut	Magnetic Pulse Magnet
Peggy Whitson	Plasma Shield	Star Map	Left Handed	Green Space Pigtails	Magnetic Pulse Magnet
Eileen Collins	Jetpack	Star Map	Right Handed	Neon Blue Mohawk	Magnetic Pulse Magnet
Alan Shepard	Gravity Boots	Space Helmet	Left Handed	Neon Blue Mohawk	Cosmic Dust Spray
Kalpana Chawla	Plasma Shield	Space Helmet	Right Handed	Silver Crew Cut	Cosmic Dust Spray
Yuri Gagarin	Tractor Beam	Space Helmet	Left Handed	Green Space Pigtails	Cosmic Dust Spray
Buzz Aldrin	Laser Blaster	Moon Rover	Left Handed	Green Space Pigtails	Magnetic Pulse Magnet
Jessica Meir	Plasma Shield	Space Helmet	Right Handed	Green Space Pigtails	Magnetic Pulse Magnet
Leland Melvin	Plasma Shield	Solar Panel	Left Handed	Green Space Pigtails	Magnetic Pulse Magnet
Samantha Cristoforetti	Tractor Beam	Oxygen Tank	Right Handed	Neon Blue Mohawk	Cosmic Dust Spray
Kjell Lindgren	Gravity Boots	Oxygen Tank	Left Handed	Neon Blue Mohawk	Cosmic Dust Spray

Multiplication facts (1-12)

We found rows of storage lockers in the space station hangar. Count the crates in each row to crack the code.

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

Diagram illustrating the multiplication table for the numbers 24, 32, 120, 49, 2, 64, 64, 66, 2, 28, 8, 42, 120, 12, 28, 42, 24. The table is organized into two rows of six columns each. The first column of each row is labeled 'T'.

T	32	120	49	2	64	64	66	2	28	8	42	120	12	28	42	T
24	32	120	49	2	64	64	66	2	28	8	42	120	12	28	42	24

$12 \times 2 = \boxed{} \rightarrow \boxed{\text{T}}$

$11 \times 6 = \square \rightarrow \mathbf{A}$

$11 \times 11 = \square \rightarrow \boxed{\mathbf{U}}$

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

$7 \times 4 = \square \rightarrow \boxed{\mathbf{N}}$

$12 \times 10 = \boxed{} \rightarrow \boxed{\text{E}}$

$12 \times 7 = \square \rightarrow \boxed{\mathbf{M}}$

$1 \times 12 = \boxed{} \rightarrow \boxed{\text{S}}$

$2 \times 4 = \square \rightarrow \mathbf{D}$

$7 \times 6 = \square \rightarrow \boxed{0}$

$8 \times 4 = \square \rightarrow \boxed{\text{H}}$

$7 \times 7 = \boxed{} \rightarrow \boxed{\mathbf{V}}$

$8 \times 8 = \square \rightarrow \boxed{\text{L}}$

$$2 \times 2 = \boxed{} \rightarrow \boxed{\mathbf{R}}$$

Scratch space:

CLUE 2

Word problems

Commander Alex needs to figure out how many supplies were moved during the moon patrol.

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

A witness saw the villain was L D D .

18 12 79 58 117 34 21 12

Commander Alex found 15 alien pods yesterday and 3 more today. How many alien pods in all?

Answer: → L

Commander Alex found 11 moon rocks yesterday and 10 more today. How many moon rocks in all?

Answer: → N

Commander Alex found 3 star charts yesterday and 9 more today. How many star charts in all?

Answer: → E

Commander Alex found 58 star charts yesterday and 59 more today. How many star charts in all?

Answer: → H

Commander Alex found 26 space crystals yesterday and 8 more today. How many space crystals in all?

Answer: → A

There were 87 moon rocks. 8 were used up. How many moon rocks are left?

Answer: → F

Commander Alex found 16 alien pods yesterday and 42 more today. How many alien pods in all?

Answer: → T

Scratch space:

CLUE 3
Fractions of a number

Only a fraction of the power grid is working after the space break-in. Calculate the power level to proceed.

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

A			A															
2	22	31	2	39	3	6	40	12	6	39	16	19	12	27	5	39	3	

			A				A											
39	9	32	2	26	12	38	2	39	28	27	3	38	28	16				

$5/10 \text{ of } 4 = \square \rightarrow \boxed{\text{A}}$

$1/3 \text{ of } 27 = \square \rightarrow \boxed{\text{P}}$

$3/6 \text{ of } 62 = \square \rightarrow \boxed{\text{L}}$

$5/10 \text{ of } 38 = \square \rightarrow \boxed{\text{I}}$

$1/8 \text{ of } 24 = \square \rightarrow \boxed{\text{T}}$

$2/8 \text{ of } 104 = \square \rightarrow \boxed{\text{Y}}$

$1/8 \text{ of } 176 = \square \rightarrow \boxed{\text{B}}$

$4/10 \text{ of } 95 = \square \rightarrow \boxed{\text{H}}$

$1/4 \text{ of } 160 = \square \rightarrow \boxed{\text{F}}$

$2/10 \text{ of } 60 = \square \rightarrow \boxed{\text{C}}$

$3/6 \text{ of } 78 = \square \rightarrow \boxed{\text{S}}$

$8/10 \text{ of } 35 = \square \rightarrow \boxed{\text{E}}$

$6/8 \text{ of } 8 = \square \rightarrow \boxed{\text{O}}$

$4/5 \text{ of } 40 = \square \rightarrow \boxed{\text{R}}$

$3/8 \text{ of } 72 = \square \rightarrow \boxed{\text{D}}$

$2/6 \text{ of } 15 = \square \rightarrow \boxed{\text{U}}$

$1/6 \text{ of } 96 = \square \rightarrow \boxed{\text{M}}$

Scratch space:

CLUE 4

Order of operations

The airlock computer requires a multi-step security override code. Solve the steps in order to unlock it.

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

N			N															
20	76	16	20	22	21	7	76	43	9	31	24	30	66	24	9	20	44	30
									N									
73	76	24	76	21	76	42	66	16	20	30	76	9	66					

$4 + 2 \times 8 = \square \rightarrow \boxed{\text{N}}$

$9 \times 10 - 14 = \square \rightarrow \boxed{\text{E}}$

$6 \times 7 - 12 = \square \rightarrow \boxed{\text{S}}$

$6 \times 8 - 24 = \square \rightarrow \boxed{\text{R}}$

$12 \times 8 - 23 = \square \rightarrow \boxed{\text{W}}$

$20 + 3 \times 8 = \square \rightarrow \boxed{\text{D}}$

$6 \times 6 - 27 = \square \rightarrow \boxed{\text{A}}$

$3 \times 11 - 26 = \square \rightarrow \boxed{\text{U}}$

$18 + 6 \times 4 = \square \rightarrow \boxed{\text{F}}$

$19 + 3 \times 8 = \square \rightarrow \boxed{\text{H}}$

$4 \times 10 - 18 = \square \rightarrow \boxed{\text{B}}$

$9 + 4 \times 3 = \square \rightarrow \boxed{\text{L}}$

$38 + 4 \times 7 = \square \rightarrow \boxed{\text{T}}$

$4 \times 7 - 12 = \square \rightarrow \boxed{\text{O}}$

$8 \times 5 - 9 = \square \rightarrow \boxed{\text{I}}$

Scratch space:

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

The launch team has to divide the fuel canisters equally among the shuttle engines.

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:

$3 \div 1 = \boxed{}$

$88 \div 11 = \boxed{}$

$8 \div 2 = \boxed{}$

$81 \div 9 = \boxed{}$

$60 \div 6 = \boxed{}$

$24 \div 2 = \boxed{}$

$36 \div 6 = \boxed{}$

$4 \div 4 = \boxed{}$

$20 \div 4 = \boxed{}$

$7 \div 1 = \boxed{}$

$24 \div 12 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain activates plasma shields, then checks the star map.
2. The villain locks the tractor beam, then checks the star map.
3. The villain fires the laser blast, then charges the solar panel.
4. The villain zaps the station controls, then charges the solar panel.
5. The villain fires the laser blast, then opens the oxygen tank.
6. The villain zaps the station controls, then opens the oxygen tank.
7. The villain boosts through gravity, then charges the solar panel.
8. The villain boosts through gravity, then seals the space helmet.
9. The villain activates plasma shields, then drives the moon rover.
10. The villain fires the laser blast, then seals the space helmet.
11. The villain boosts through gravity, then opens the oxygen tank.
12. The villain activates plasma shields, then charges the solar panel.

Answer Key

The Lunar Base Mystery

Culprit: Kjell Lindgren

Gravity Boots · Oxygen Tank · Left Handed · Neon Blue Mohawk · Cosmic Dust Spray

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

Clue 1 (Multiplication facts (1-12)): "THE VILLAIN DOES NOT USE A MOON ROVER"

$12 \times 2 = 24$ (T) · $11 \times 6 = 66$ (A) · $11 \times 11 = 121$ (U) · $2 \times 1 = 2$ (I) · $7 \times 4 = 28$ (N) · $12 \times 10 = 120$ (E) · $12 \times 7 = 84$ (M) · $1 \times 12 = 12$ (S) · $2 \times 4 = 8$ (D) · $7 \times 6 = 42$ (O) · $8 \times 4 = 32$ (H) · $7 \times 7 = 49$ (V) · $8 \times 8 = 64$ (L) · $2 \times 2 = 4$ (R)

Clue 2 (Word problems): "LEFT HANDED"

Commander Alex found 15 alien pods yesterday and 3 more today. How many alien pods in all? = 18 (L) · Commander Alex found 11 moon rocks yesterday and 10 more today. How many moon rocks in all? = 21 (N) · Commander Alex found 3 star charts yesterday and 9 more today. How many star charts in all? = 12 (E) · Commander Alex found 58 star charts yesterday and 59 more today. How many star charts in all? = 117 (H) · Commander Alex found 26 space crystals yesterday and 8 more today. How many space crystals in all? = 34 (A) · There were 87 moon rocks. 8 were used up. How many moon rocks are left? = 79 (F) · Commander Alex found 16 alien pods yesterday and 42 more today. How many alien pods in all? = 58 (T)

Clue 3 (Fractions of a number): "A BLAST OF COSMIC DUST SPRAY CHASED THEM"

$5/10$ of 4 = 2 (A) · $1/3$ of 27 = 9 (P) · $3/6$ of 62 = 31 (L) · $5/10$ of 38 = 19 (I) · $1/8$ of 24 = 3 (T) · $2/8$ of 104 = 26 (Y) · $1/8$ of 176 = 22 (B) · $4/10$ of 95 = 38 (H) · $1/4$ of 160 = 40 (F) · $2/10$ of 60 = 12 (C) · $3/6$ of 78 = 39 (S) · $8/10$ of 35 = 28 (E) · $6/8$ of 8 = 6 (O) · $4/5$ of 40 = 32 (R) · $3/8$ of 72 = 27 (D) · $2/6$ of 15 = 5 (U) · $1/6$ of 96 = 16 (M)

Clue 4 (Order of operations): "NEON BLUE HAIR STRANDS WERE LEFT ON SEAT"

$4 + 2 \times 8 = 20$ (N) · $9 \times 10 - 14 = 76$ (E) · $6 \times 7 - 12 = 30$ (S) · $6 \times 8 - 24 = 24$ (R) · $12 \times 8 - 23 = 73$ (W) · $20 + 3 \times 8 = 44$ (D) · $6 \times 6 - 27 = 9$ (A) · $3 \times 11 - 26 = 7$ (U) · $18 + 6 \times 4 = 42$ (F) · $19 + 3 \times 8 = 43$ (H) · $4 \times 10 - 18 = 22$ (B) · $9 + 4 \times 3 = 21$ (L) · $38 + 4 \times 7 = 66$ (T) · $4 \times 7 - 12 = 16$ (O) · $8 \times 5 - 9 = 31$ (I)

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

$3 \div 1 = 3$ · $88 \div 11 = 8$ · $8 \div 2 = 4$ · $81 \div 9 = 9$ · $60 \div 6 = 10$ · $24 \div 2 = 12$ · $36 \div 6 = 6$ · $4 \div 4 = 1$ · $20 \div 4 = 5$ · $7 \div 1 = 7$ · $24 \div 12 = 2$