



The Moonbase Heist

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

Detective: _____ Date: _____

Emergency on Moonbase Alpha! A mysterious Cosmic Bandit has broken into the main vault and stolen the legendary Star Diamond. The Chief Astronomer needs your help to track down the thief before they board the escape rocket.

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	PRIMARY GEAR	BACKUP GADGET	ACTIVE HAND	HELMET COLOR	CRITICAL WEAKNESS
Ellen Ochoa	jetpack engine	ice ray	left handed	blue helmet	cosmic dust
Mae Jemison	tractor beam	starlight sensor	right handed	silver helmet	cosmic dust
Fred Haise	jetpack engine	sonic decoder	left handed	silver helmet	solar flare
Buzz Aldrin	laser blaster	ice ray	right handed	gold helmet	space magnet
Alexei Leonov	jetpack engine	stealth cloak	left handed	gold helmet	solar flare
John Glenn	gravity boots	solar shield	right handed	gold helmet	cosmic dust
Guion Bluford	jetpack engine	solar shield	right handed	blue helmet	cosmic dust
Peggy Whitson	tractor beam	stealth cloak	right handed	blue helmet	cosmic dust
Gene Cernan	tractor beam	stealth cloak	right handed	blue helmet	space magnet
Sunita Williams	tractor beam	starlight sensor	left handed	silver helmet	cosmic dust
Sally Ride	laser blaster	stealth cloak	right handed	silver helmet	space magnet
Gus Grissom	force field	starlight sensor	right handed	blue helmet	cosmic dust
Mark Kelly	jetpack engine	sonic decoder	left handed	gold helmet	cosmic dust
Jim Lovell	tractor beam	sonic decoder	right handed	gold helmet	cosmic dust
Ed White	laser blaster	sonic decoder	right handed	blue helmet	cosmic dust
Pete Conrad	gravity boots	sonic decoder	left handed	blue helmet	solar flare
Scott Kelly	laser blaster	starlight sensor	left handed	blue helmet	solar flare
Neil Armstrong	laser blaster	starlight sensor	left handed	blue helmet	cosmic dust
Michael Collins	gravity boots	solar shield	right handed	silver helmet	cosmic dust
Alan Shepard	force field	solar shield	right handed	silver helmet	solar flare
Valentina Tereshkova	jetpack engine	ice ray	right handed	blue helmet	cosmic dust

Multiplication facts (1-12)

We found a grid of star charts left by the suspect. The maps are arranged in equal rows and columns. Multiply the rows by the columns to count the charts and unlock the first clue.

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

Diagram illustrating the sequence of numbers and their corresponding boxes:

Row 1: 32, 28, 66, 24, 144, 120, 120, 42, 144, 4, 15, 5, 66, 100, 4, 5, 32

Row 2: 132, 100, 66, 32, 28, 66, 144, 18, 66, 21, 42, 77

$4 \times 8 = \boxed{} \rightarrow \boxed{\text{T}}$

$$3 \times 7 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$7 \times 4 = \boxed{} \rightarrow \left[\text{H} \right.$$

$6 \times 7 = \boxed{} \rightarrow \boxed{\mathbf{A}}$

$10 \times 10 = \boxed{} \rightarrow \boxed{\mathbf{S}}$

$1 \times 5 = \boxed{} \rightarrow \boxed{0}$

$$12 \times 11 = \boxed{} \rightarrow \boxed{\text{U}}$$

$$7 \times 11 = \boxed{} \rightarrow \boxed{\text{Y}}$$

$4 \times 1 = \boxed{} \rightarrow \boxed{\text{N}}$

$$11 \times 6 = \boxed{} \rightarrow \boxed{\text{E}}$$

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

$$2 \times 9 = \boxed{} \rightarrow \boxed{\text{C}}$$

$$8 \times 3 = \boxed{} \rightarrow \boxed{\mathbf{v}}$$

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

$3 \times 5 = \square \rightarrow \boxed{\mathbf{D}}$

Scratch space:

CLUE 2

Multi-step word problems

The space station computer needs a reboot. First, we must add the backup battery power, and then subtract the energy used by the life support systems. Solve this to crack the code.

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 .

67 71 39 53 21 53 34 38

Space ranger earned 8 radar dish in each of 4 rounds, plus 50 bonus radar dish. Then 15 radar dish were lost. How many radar dish are left?

Answer: → R

Space ranger collected 126 star map in the morning and 78 star map in the afternoon, then split them equally among 6 Astro Patrol. How many star map did each get?

Answer: → A

Space ranger collected 3 radar dish in the morning and 102 radar dish in the afternoon, then split them equally among 5 Astro Patrol. How many radar dish did each get?

Answer: → T

Space ranger collected 47 star map in the morning and 112 star map in the afternoon, then split them equally among 3 Astro Patrol. How many star map did each get?

Answer: → H

Space ranger filled 7 boxes with 5 star map each, then found 4 more star map. How many star map are there in all?

Answer: → G

Space ranger collected 50 oxygen tank in the morning and 26 oxygen tank in the afternoon, then split them equally among 2 Astro Patrol. How many oxygen tank did each get?

Answer: → N

There were 174 space wrench in all. 32 space wrench were set aside. The rest were shared equally among 2 Astro Patrol. How many space wrench did each get?

Answer: → I

Scratch space:

CLUE 3 Skip counting

To track the escape pod, we need to follow its warp jumps. The pod leaps forward by the exact same number of lightyears each time. Complete the number pattern to find the trail.

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

C					C														
90	110	70	27	25	90	14	10	70	130	27	16	12	28	70	130	120	28		
18	25	24	24	16	25	65	70	65	28	28	33	28							

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, __, 100, 110 → **C**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, __, 26, 28 → **L**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, __, 12, 14 → **U**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, __, 80, 90 → **S**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, __, 140, 150 → **T**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, __, 30, 33 → **M**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, __, 120, 130 → **O**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, __, 36, 39 → **Z**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, __, 18, 20 → **A**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, __, 130, 140 → **H**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, __, 30, 32 → **E**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, __, 16, 18 → **D**

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, __, 30, 35 → **I**

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, __, 70, 75 → **N**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, __, 14, 16 → **K**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, __, 21, 24 → **V**

Scratch space:

CLUE 4 Fractions of a number

The hungry space cadets shared a big box of moon pies. We need to find out exactly how many pies make up a fraction of the total pile. Work out the share to reveal the clue.

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

T										T							
21	10	32	6	32	17	18	37	36	21	11	17	29	5	32	37	29	
					T												
17	29	18	12	10	21	29	19	13	29	6	10	27	19	30	13	18	32

$2/10 \text{ of } 105 = \square \rightarrow \boxed{\text{T}}$

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

$2/6 \text{ of } 30 = \square \rightarrow \boxed{\text{H}}$

$2/4 \text{ of } 74 = \square \rightarrow \boxed{\text{R}}$

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

$1/4 \text{ of } 68 = \square \rightarrow \boxed{\text{C}}$

$1/3 \text{ of } 33 = \square \rightarrow \boxed{\text{Y}}$

$3/6 \text{ of } 54 = \square \rightarrow \boxed{\text{O}}$

$2/6 \text{ of } 96 = \square \rightarrow \boxed{\text{E}}$

$1/3 \text{ of } 57 = \square \rightarrow \boxed{\text{F}}$

$3/8 \text{ of } 48 = \square \rightarrow \boxed{\text{U}}$

$1/4 \text{ of } 144 = \square \rightarrow \boxed{\text{I}}$

$3/4 \text{ of } 16 = \square \rightarrow \boxed{\text{G}}$

$1/6 \text{ of } 174 = \square \rightarrow \boxed{\text{A}}$

$2/8 \text{ of } 52 = \square \rightarrow \boxed{\text{L}}$

$3/8 \text{ of } 80 = \square \rightarrow \boxed{\text{B}}$

Scratch space:

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

A crate of glowing space crystals must be divided equally among the research labs. Split the total number of crystals evenly to power up the final decoder.

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:

$24 \div 2 = \boxed{}$

$8 \div 4 = \boxed{}$

$49 \div 7 = \boxed{}$

$77 \div 7 = \boxed{}$

$50 \div 5 = \boxed{}$

$30 \div 10 = \boxed{}$

$36 \div 9 = \boxed{}$

$15 \div 3 = \boxed{}$

$8 \div 8 = \boxed{}$

$48 \div 8 = \boxed{}$

$108 \div 12 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain blocks all attacks with a force field, then cracks the vault code with a sonic decoder.
2. The villain blocks all attacks with a force field, then navigates the dark using a starlight sensor.
3. The villain stomps around in heavy gravity boots, then vanishes from sight using a stealth cloak.
4. The villain blocks all attacks with a force field, then escapes behind a bright solar shield.
5. The villain fires a glowing laser blaster, then escapes behind a bright solar shield.
6. The villain grabs the loot with a tractor beam, then freezes the locks with a cold ice ray.
7. The villain flies up high with a jetpack engine, then escapes behind a bright solar shield.
8. The villain fires a glowing laser blaster, then cracks the vault code with a sonic decoder.
9. The villain grabs the loot with a tractor beam, then navigates the dark using a starlight sensor.
10. The villain blocks all attacks with a force field, then vanishes from sight using a stealth cloak.
11. The villain grabs the loot with a tractor beam, then cracks the vault code with a sonic decoder.
12. The villain grabs the loot with a tractor beam, then vanishes from sight using a stealth cloak.

Answer Key

The Moonbase Heist

Culprit: Ed White

laser blaster · sonic decoder · right handed · blue helmet · cosmic dust

Trail: Start 21 → Clue 1 18 → Clue 2 11 → Clue 3 8 → Clue 4 4 → Clue 5 1

Clue 1 (Multiplication facts (1-12)): "THE VILLAIN DOES NOT USE THE ICE RAY"

$4 \times 8 = 32$ (T) · $3 \times 7 = 21$ (R) · $7 \times 4 = 28$ (H) · $6 \times 7 = 42$ (A) · $10 \times 10 = 100$ (S) · $1 \times 5 = 5$ (O) · $12 \times 11 = 132$ (U) · $7 \times 11 = 77$ (Y) · $4 \times 1 = 4$ (N) · $11 \times 6 = 66$ (E) · $12 \times 12 = 144$ (I) · $2 \times 9 = 18$ (C) · $8 \times 3 = 24$ (V) · $10 \times 12 = 120$ (L) · $3 \times 5 = 15$ (D)

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

Space ranger earned 8 radar dish in each of 4 rounds, plus 50 bonus radar dish. Then 15 radar dish were lost. How many radar dish are left? = 67 (R) · Space ranger collected 126 star map in the morning and 78 star map in the afternoon, then split them equally among 6 Astro Patrol. How many star map did each get? = 34 (A) · Space ranger collected 3 radar dish in the morning and 102 radar dish in the afternoon, then split them equally among 5 Astro Patrol. How many radar dish did each get? = 21 (T) · Space ranger collected 47 star map in the morning and 112 star map in the afternoon, then split them equally among 3 Astro Patrol. How many star map did each get? = 53 (H) · Space ranger filled 7 boxes with 5 star map each, then found 4 more star map. How many star map are there in all? = 39 (G) · Space ranger collected 50 oxygen tank in the morning and 26 oxygen tank in the afternoon, then split them equally among 2 Astro Patrol. How many oxygen tank did each get? = 38 (N) · There were 174 space wrench in all. 32 space wrench were set aside. The rest were shared equally among 2 Astro Patrol. How many space wrench did each get? = 71 (I)

Clue 3 (Skip counting): "COSMIC DUST MAKES THE VILLAIN SNEEZE"

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, __, 100, 110 = 90 (C) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, __, 26, 28 = 24 (L) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, __, 12, 14 = 10 (U) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, __, 80, 90 = 70 (S) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, __, 140, 150 = 130 (T) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, __, 30, 33 = 27 (M) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, __, 120, 130 = 110 (O) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, __, 36, 39 = 33 (Z) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, __, 18, 20 = 16 (A) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, __, 130, 140 = 120 (H) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, __, 30, 32 = 28 (E) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, __, 16, 18 = 14 (D) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, __, 30, 35 = 25 (I) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, __, 70, 75 = 65 (N) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, __, 14, 16 = 12 (K) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, __, 21, 24 = 18 (V)

Clue 4 (Fractions of a number): "THE SECURITY CAMERA CAUGHT A FLASH OF BLUE"

$2/10$ of 105 = 21 (T) · $6/8$ of 8 = 6 (S) · $2/6$ of 30 = 10 (H) · $2/4$ of 74 = 37 (R) · $5/10$ of 10 = 5 (M) · $1/4$ of 68 = 17 (C) · $1/3$ of 33 = 11 (Y) · $3/6$ of 54 = 27 (O) · $2/6$ of 96 = 32 (E) · $1/3$ of 57 = 19 (F) · $3/8$ of 48 = 18 (U) · $1/4$ of 144 = 36 (I) · $3/4$ of 16 = 12 (G) · $1/6$ of 174 = 29 (A) · $2/8$ of 52 = 13 (L) · $3/8$ of 80 = 30 (B)

Clue 5 (Division facts (1-12)): surviving statement is box 8 → Ed White

$24 \div 2 = 12$ · $8 \div 4 = 2$ · $49 \div 7 = 7$ · $77 \div 7 = 11$ · $50 \div 5 = 10$ · $30 \div 10 = 3$ · $36 \div 9 = 4$ · $15 \div 3 = 5$ · $8 \div 8 = 1$ · $48 \div 8 = 6$ · $108 \div 12 = 9$