



The Orbital Catnip Heist

Grade 6 math · Addition, Multiplication, Word problems, Multi-step word problems, Division · Reading level grades 7-9

Detective: _____ Date: _____

A cunning feline rogue has infiltrated Starlight Station Alpha, causing chaos in zero gravity. Decipher security logs to identify the culprit before they escape into deep space.

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 Purrloiner is _____

Possible suspects

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

NAME	PRIMARY GADGET	SPACE GEAR	GLOVE HAND	FUR ACCENT	DISTRACTION ITEM
Milo Comet	Plasma Claw	Solar Shield	Right Paw Glove	Tabby Stripe	Vacuum Cleaner Noise
Leo Nebula	Jetpack Harness	Tether Cable	Right Paw Glove	Tabby Stripe	Shiny Foil Ball
Luna Astro	Gravity Boots	Solar Shield	Left Paw Glove	Calico Patch	Vacuum Cleaner Noise
Daisy Supernova	Plasma Claw	Tether Cable	Left Paw Glove	Calico Patch	Shiny Foil Ball
Archie Quasar	Gravity Boots	Magnetic Boots	Right Paw Glove	Calico Patch	Squeaky Mouse
Ziggy Galaxy	Gravity Boots	Tether Cable	Right Paw Glove	Calico Patch	Shiny Foil Ball
Otis Eclipse	Jetpack Harness	Solar Shield	Left Paw Glove	Calico Patch	Squeaky Mouse
Stella Paw	Gravity Boots	Tether Cable	Left Paw Glove	Tabby Stripe	Squeaky Mouse
Oliver Starlight	Laser Pointer Array	Magnetic Boots	Left Paw Glove	Calico Patch	Squeaky Mouse
Bella Polaris	Jetpack Harness	Magnetic Boots	Left Paw Glove	Calico Patch	Squeaky Mouse
Commander Mittens	Gravity Boots	Oxygen Helmet	Left Paw Glove	Calico Patch	Squeaky Mouse
Rosie Rigel	Gravity Boots	Oxygen Helmet	Left Paw Glove	Tabby Stripe	Squeaky Mouse
Jasper Cosmos	Laser Pointer Array	Thruster Pack	Right Paw Glove	Calico Patch	Squeaky Mouse
Pepper Vega	Laser Pointer Array	Tether Cable	Right Paw Glove	Calico Patch	Shiny Foil Ball
Felicia Orion	Laser Pointer Array	Oxygen Helmet	Left Paw Glove	Tabby Stripe	Squeaky Mouse
Willow Solaria	Plasma Claw	Tether Cable	Right Paw Glove	Tabby Stripe	Squeaky Mouse
Felix Zenith	Gravity Boots	Thruster Pack	Left Paw Glove	Calico Patch	Squeaky Mouse
Cosmo Purr	Gravity Boots	Tether Cable	Left Paw Glove	Midnight Black	Squeaky Mouse
Cleo Pulsar	Gravity Boots	Tether Cable	Left Paw Glove	Calico Patch	Vacuum Cleaner Noise
Penny Orbit	Plasma Claw	Thruster Pack	Right Paw Glove	Midnight Black	Vacuum Cleaner Noise
Bruno Meteor	Jetpack Harness	Oxygen Helmet	Right Paw Glove	Tabby Stripe	Squeaky Mouse

CLUE 1 Addition

To access the first encrypted security file, tally the total weight of recovered cargo pods across airlocks.

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




















6507 6522 8468 9389 5458 4674 4674 8885 5458 9504 8989 4821 8468 3506 9504 4821 6507




















9252 3506 8468 8885 9504 4821 3593 4281 7526 8468 9504 6522 8468 4674 4469 8468 6507

$$3392 + 3115 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$4401 + 4484 = \boxed{} \rightarrow \boxed{\text{A}}$$

$3057 + 1764 = \boxed{} \rightarrow \boxed{0}$

$3977 + 3549 = \boxed{} \rightarrow \mathbf{G}$

$$2515 + 2159 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$1436 + 3033 = \boxed{} \rightarrow \boxed{\text{M}}$$

$$4961 + 4291 = \boxed{} \rightarrow \boxed{\text{U}}$$

$$2520 + 4002 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$2349 + 1157 = \boxed{} \rightarrow \boxed{\text{S}}$$

$$2757 + 2701 = \boxed{} \rightarrow \boxed{\text{I}}$$

$$4580 + 4809 = \boxed{} \rightarrow \boxed{\mathbf{v}}$$

$$5533 + 3456 = \boxed{} \rightarrow \boxed{\text{D}}$$

$$2823 + 1458 = \boxed{} \rightarrow \boxed{\text{Y}}$$

$$5243 + 3225 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$5186 + 4318 = \boxed{} \rightarrow \boxed{\text{N}}$$

$$1864 + 1729 = \boxed{} \rightarrow \boxed{\mathbf{X}}$$

Scratch space:

CLUE 2
Multiplication facts (1-12)

The power grid logs show energy spikes across solar array sections; multiply the readings to unseal the next node.

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

T																
44	55	12	11	14	11	100	12	21	44	50	12	66	45	11	66	

			T								
6	12	22	44	100	66	50	24	6	88	80	12

$4 \times 11 = \square \rightarrow \boxed{\text{T}}$

$3 \times 7 = \square \rightarrow \boxed{\text{C}}$

$5 \times 10 = \square \rightarrow \boxed{\text{W}}$

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

$9 \times 5 = \square \rightarrow \boxed{\text{R}}$

$10 \times 8 = \square \rightarrow \boxed{\text{V}}$

$8 \times 3 = \square \rightarrow \boxed{\text{G}}$

$1 \times 11 = \square \rightarrow \boxed{\text{S}}$

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

$11 \times 5 = \square \rightarrow \boxed{\text{H}}$

$11 \times 6 = \square \rightarrow \boxed{\text{A}}$

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

$10 \times 10 = \square \rightarrow \boxed{\text{P}}$

$11 \times 8 = \square \rightarrow \boxed{\text{O}}$

$3 \times 4 = \square \rightarrow \boxed{\text{E}}$

Scratch space:

CLUE 3

Word problems

The station inventory logs present a supply riddle about catnip canisters; solve it to clear up the sensor noise.

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

Someone scared the villain off with S M O S .

47 118 106 35 76 78 31 106 47 35

There were 55 catnip canisters. 8 were used up. How many catnip canisters are left?

Answer: → S

There were 106 scratching posts. 30 were used up. How many scratching posts are left?

Answer: → A

There were 112 catnip canisters. 6 were used up. How many catnip canisters are left?

Answer: → U

There were 53 scratching posts. 18 were used up. How many scratching posts are left?

Answer: → E

Astro-Vet found 15 space helmets yesterday and 63 more today. How many space helmets in all?

Answer: → K

There were 150 space helmets. 32 were used up. How many space helmets are left?

Answer: → Q

There were 65 freeze dried treats. 34 were used up. How many freeze dried treats are left?

Answer: → Y

Scratch space:

CLUE 4

Multi-step word problems

Calculating pursuit trajectories requires multi-step accounting for thruster fuel burn and station rotation.

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

A strand of

C				C					C	H
71	8	17	16	71	49	21	8	73	71	

 hair turned up at the scene.

Astro-Vet filled 7 boxes with 6 space helmets each, then found 29 more space helmets. How many space helmets are there in all?

Answer: → **C**

Astro-Vet earned 5 scratching posts in each of 6 rounds, plus 24 bonus scratching posts. Then 5 scratching posts were lost. How many scratching posts are left?

Answer: → **O**

Astro-Vet earned 8 scratching posts in each of 3 rounds, plus 8 bonus scratching posts. Then 11 scratching posts were lost. How many scratching posts are left?

Answer: → **P**

There were 141 laser toys in all. 3 Space Cadets used 15 laser toys each. The other 6 Space Cadets shared the rest equally. How many laser toys did each of the other Space Cadets get?

Answer: → **I**

There were 391 catnip canisters in all. 1 Space Cadets used 26 catnip canisters each. The other 5 Space Cadets shared the rest equally. How many catnip canisters did each of the other Space Cadets get?

Answer: → **T**

Astro-Vet earned 3 freeze dried treats in each of 6 rounds, plus 7 bonus freeze dried treats. Then 8 freeze dried treats were lost. How many freeze dried treats are left?

Answer: → **L**

There were 56 catnip canisters in all. 24 catnip canisters were set aside. The rest were shared equally among 4 Space Cadets. How many catnip canisters did each get?

Answer: → **A**

Scratch space:

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

Divide the telemetry frequencies evenly across the radio towers to decrypt the final transmission fragment.

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:

$30 \div 5 = \boxed{}$

$21 \div 3 = \boxed{}$

$32 \div 8 = \boxed{}$

$33 \div 3 = \boxed{}$

$60 \div 6 = \boxed{}$

$9 \div 3 = \boxed{}$

$25 \div 5 = \boxed{}$

$8 \div 8 = \boxed{}$

$24 \div 2 = \boxed{}$

$12 \div 6 = \boxed{}$

$9 \div 1 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain engaged the stealth cloak, then vented pressure near the oxygen helmet.
2. The villain ignited the jetpack harness, then hooked the hatch with a tether cable.
3. The villain ignited the jetpack harness, then zipped away using a thruster pack.
4. The villain activated gravity boots, then zipped away using a thruster pack.
5. The villain slashed with the plasma claw, then hooked the hatch with a tether cable.
6. The villain fired the laser pointer array, then clamped down with magnetic boots.
7. The villain ignited the jetpack harness, then clamped down with magnetic boots.
8. The villain ignited the jetpack harness, then deflected sensor scans with a solar shield.
9. The villain engaged the stealth cloak, then hooked the hatch with a tether cable.
10. The villain slashed with the plasma claw, then zipped away using a thruster pack.
11. The villain activated gravity boots, then clamped down with magnetic boots.
12. The villain fired the laser pointer array, then vented pressure near the oxygen helmet.

Answer Key

The Orbital Catnip Heist

Culprit: Otis Eclipse

Jetpack Harness · Solar Shield · Left Paw Glove · Calico Patch · Squeaky Mouse

Trail: Start 21 → Clue 1 17 → Clue 2 9 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Addition): "THE VILLAIN DOES NOT USE AN OXYGEN HELMET"

$3392 + 3115 = 6507$ (T) · $4401 + 4484 = 8885$ (A) · $3057 + 1764 = 4821$ (O) · $3977 + 3549 = 7526$ (G) · $2515 + 2159 = 4674$ (L) · $1436 + 3033 = 4469$ (M) · $4961 + 4291 = 9252$ (U) · $2520 + 4002 = 6522$ (H) · $2349 + 1157 = 3506$ (S) · $2757 + 2701 = 5458$ (I) · $4580 + 4809 = 9389$ (V) · $5533 + 3456 = 8989$ (D) · $2823 + 1458 = 4281$ (Y) · $5243 + 3225 = 8468$ (E) · $5186 + 4318 = 9504$ (N) · $1864 + 1729 = 3593$ (X)

Clue 2 (Multiplication facts (1-12)): "THE SUSPECT WEARS A LEFT PAW GLOVE"

$4 \times 11 = 44$ (T) · $3 \times 7 = 21$ (C) · $5 \times 10 = 50$ (W) · $7 \times 2 = 14$ (U) · $9 \times 5 = 45$ (R) · $10 \times 8 = 80$ (V) · $8 \times 3 = 24$ (G) · $1 \times 11 = 11$ (S) · $2 \times 11 = 22$ (F) · $11 \times 5 = 55$ (H) · $11 \times 6 = 66$ (A) · $6 \times 1 = 6$ (L) · $10 \times 10 = 100$ (P) · $11 \times 8 = 88$ (O) · $3 \times 4 = 12$ (E)

Clue 3 (Word problems): "SQUEAKY MOUSE"

There were 55 catnip canisters. 8 were used up. How many catnip canisters are left? = 47 (S) · There were 106 scratching posts. 30 were used up. How many scratching posts are left? = 76 (A) · There were 112 catnip canisters. 6 were used up. How many catnip canisters are left? = 106 (U) · There were 53 scratching posts. 18 were used up. How many scratching posts are left? = 35 (E) · Astro-Vet found 15 space helmets yesterday and 63 more today. How many space helmets in all? = 78 (K) · There were 150 space helmets. 32 were used up. How many space helmets are left? = 118 (Q) · There were 65 freeze dried treats. 34 were used up. How many freeze dried treats are left? = 31 (Y)

Clue 4 (Multi-step word problems): "CALICO PATCH"

Astro-Vet filled 7 boxes with 6 space helmets each, then found 29 more space helmets. How many space helmets are there in all? = 71 (C) · Astro-Vet earned 5 scratching posts in each of 6 rounds, plus 24 bonus scratching posts. Then 5 scratching posts were lost. How many scratching posts are left? = 49 (O) · Astro-Vet earned 8 scratching posts in each of 3 rounds, plus 8 bonus scratching posts. Then 11 scratching posts were lost. How many scratching posts are left? = 21 (P) · There were 141 laser toys in all. 3 Space Cadets used 15 laser toys each. The other 6 Space Cadets shared the rest equally. How many laser toys did each of the other Space Cadets get? = 16 (I) · There were 391 catnip canisters in all. 1 Space Cadets used 26 catnip canisters each. The other 5 Space Cadets shared the rest equally. How many catnip canisters did each of the other Space Cadets get? = 73 (T) · Astro-Vet earned 3 freeze dried treats in each of 6 rounds, plus 7 bonus freeze dried treats. Then 8 freeze dried treats were lost. How many freeze dried treats are left? = 17 (L) · There were 56 catnip canisters in all. 24 catnip canisters were set aside. The rest were shared equally among 4 Space Cadets. How many catnip canisters did each get? = 8 (A)

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

$30 \div 5 = 6$ · $21 \div 3 = 7$ · $32 \div 8 = 4$ · $33 \div 3 = 11$ · $60 \div 6 = 10$ · $9 \div 3 = 3$ · $25 \div 5 = 5$ · $8 \div 8 = 1$ · $24 \div 2 = 12$ · $12 \div 6 = 2$ · $9 \div 1 = 9$