



The Astro Delta Heist

Grade 4 math · Rounding, Bar models, Addition, Subtraction, Division · Reading level grades 3-4

Detective: _____ **Date:** _____

The glowing Star-Core has been stolen from the central reactor! The station alarms are blaring, and the villain is trying to escape into the deep cosmos. You must look at the crew logs and solve the clues to find the bandit 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 Bandit is _____

Possible suspects

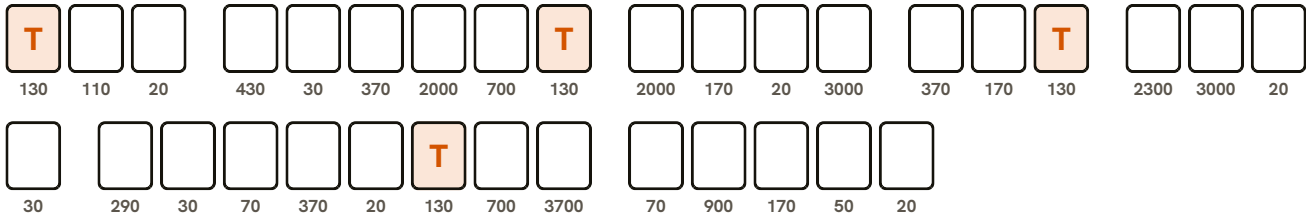
Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	SUIT POWER	SHIP UPGRADE	DOMINANT HAND	VISOR DYE COLOR	ENGINE HAZARD
Neil Armstrong	Rocket Pack	Warp Engine	Right Handed	Comet Silver	Solar Flares
Ed White	Laser Blaster	Warp Engine	Left Handed	Comet Silver	Solar Flares
Ellen Ochoa	Laser Blaster	Freeze Ray	Right Handed	Nebula Purple	Space Dust
Mae Jemison	Plasma Shield	Cyber Drone	Left Handed	Comet Silver	Space Dust
Sunita Williams	Gravity Boots	Warp Engine	Left Handed	Asteroid Grey	Moon Water
Chris Hadfield	Tractor Beam	Magnetic Glove	Left Handed	Comet Silver	Space Dust
Bill Anders	Laser Blaster	Freeze Ray	Right Handed	Comet Silver	Moon Water
Fred Haise	Rocket Pack	Solar Sails	Right Handed	Comet Silver	Solar Flares
Peggy Whitson	Gravity Boots	Magnetic Glove	Right Handed	Asteroid Grey	Solar Flares
Gene Cernan	Laser Blaster	Warp Engine	Left Handed	Nebula Purple	Solar Flares
Roger Chaffee	Laser Blaster	Solar Sails	Left Handed	Nebula Purple	Solar Flares
Sally Ride	Plasma Shield	Solar Sails	Right Handed	Asteroid Grey	Space Dust
Pete Conrad	Gravity Boots	Solar Sails	Right Handed	Comet Silver	Solar Flares
Yuri Gagarin	Rocket Pack	Freeze Ray	Left Handed	Comet Silver	Solar Flares
Alan Shepard	Rocket Pack	Solar Sails	Right Handed	Comet Silver	Moon Water
Jack Swigert	Plasma Shield	Freeze Ray	Left Handed	Comet Silver	Solar Flares
Guy Bluford	Tractor Beam	Solar Sails	Left Handed	Comet Silver	Solar Flares
James Lovell	Laser Blaster	Magnetic Glove	Right Handed	Nebula Purple	Space Dust
Gus Grissom	Gravity Boots	Magnetic Glove	Left Handed	Comet Silver	Solar Flares
Michael Collins	Laser Blaster	Solar Sails	Left Handed	Nebula Purple	Moon Water
John Glenn	Rocket Pack	Cyber Drone	Left Handed	Asteroid Grey	Solar Flares

CLUE 1 Rounding

We check the cargo manifests. The computer drew bar models to compare the weight of each astronaut's space gear.

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



Round 132 to the nearest ten → **T**

Round 885 to the nearest hundred → **L**

Round 29 to the nearest ten → **A**

Round 20 to the nearest ten → **E**

Round 720 to the nearest hundred → **I**

Round 2,419 to the nearest thousand → **D**

Round 290 to the nearest ten → **M**

Round 106 to the nearest ten → **H**

Round 69 to the nearest ten → **G**

Round 3,705 to the nearest hundred → **C**

Round 433 to the nearest ten → **B**

Round 52 to the nearest ten → **V**

Round 166 to the nearest ten → **O**

Round 2,343 to the nearest hundred → **U**

Round 3,122 to the nearest thousand → **S**

Round 370 to the nearest ten → **N**

Scratch space:

CLUE 2 Bar models

The ship radar is glitchy. It only shows launch speeds rounded to the nearest ten. Let us round the speeds to decode the hint.

Draw a bar model to solve each word problem, then write its letter in the boxes to fill in the missing word.

A witness saw the villain was

L									
57	26	50	46	7	8	41			

 .

The whole is 68. One part is 11. What is the other part?

draw a bar model

Answer: → **L**

The whole is 54. One part is 4. What is the other part?

draw a bar model

Answer: → **F**

One bar shows 28 and the other shows 2. How much longer is the first bar?

draw a bar model

Answer: → **E**

One part is 4 and the other part is 3. What is the whole?

draw a bar model

Answer: → **H**

One bar shows 53 and the other shows 7. How much longer is the first bar?

draw a bar model

Answer: → **T**

One bar shows 19 and the other shows 11. How much longer is the first bar?

draw a bar model

Answer: → **A**

The whole is 58. One part is 17. What is the other part?

draw a bar model

Answer: → **N**

CLUE 3

We find a logbook with fuel cell totals. Adding the cells used on each flight path reveals who is next.

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

5567 5704 6200 5532 9044 6024 6200 5532 9044 6835 5567 9357 5704 7419 6835 9044 5376 5704 7419 3806

7989 4728 6835 3359 5532 3806 5376 9447 7989 5567 4778 9447 7989

$$3356 + 2211 = \boxed{} \rightarrow \boxed{\text{S}}$$

$$2678 + 5311 = \boxed{} \rightarrow \boxed{\mathbf{T}}$$

$3194 + 2338 = \boxed{} \rightarrow \boxed{\mathbf{A}}$

$$3677 + 2027 = \boxed{} \rightarrow \boxed{\mathbf{0}}$$

$$4252 + 1948 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$2972 + 1806 = \boxed{} \rightarrow \boxed{\mathbf{U}}$$

$1126 + 2233 = \boxed{} \rightarrow \boxed{\mathbf{B}}$

$$3189 + 1539 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$2122 + 1684 = \boxed{} \rightarrow \boxed{\text{N}}$$

$3341 + 2683 = \boxed{} \rightarrow \boxed{\text{F}}$

$5894 + 3463 = \boxed{} \rightarrow \boxed{\text{P}}$

$$3680 + 5767 = \boxed{} \rightarrow \boxed{}$$

$$3701 + 3134 = \boxed{} \rightarrow \boxed{\text{E}}$$

$1718 + 3658 = \boxed{} \rightarrow \mathbf{D}$

$$5799 + 3245 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$4240 + 3179 = \boxed{} \rightarrow \boxed{\text{W}}$$

Scratch space:

CLUE 4

Subtraction

The oxygen tanks are leaking. Subtracting the bad air from the total shows exactly how long they stayed.

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

W																		
3874	4101	5065	5096	4878	7480	1141	5705	5096	1746	4101	4525	6639	5825	1698	1829	4101	2661	
6639	4525	2661	1667	7480	1141	6639	5825	7480	4525	6669	4101	5705	5096	5705	7814	5996	5825	4525

$7688 - 3814 = \square \rightarrow \text{W}$

$3177 - 516 = \square \rightarrow \text{R}$

$3586 - 1840 = \square \rightarrow \text{M}$

$2100 - 271 = \square \rightarrow \text{V}$

$8872 - 2233 = \square \rightarrow \text{S}$

$6582 - 586 = \square \rightarrow \text{P}$

$5490 - 965 = \square \rightarrow \text{T}$

$7071 - 2006 = \square \rightarrow \text{F}$

$3110 - 1412 = \square \rightarrow \text{L}$

$4134 - 2467 = \square \rightarrow \text{A}$

$11715 - 4235 = \square \rightarrow \text{N}$

$7986 - 1317 = \square \rightarrow \text{H}$

$7415 - 2537 = \square \rightarrow \text{U}$

$9174 - 1360 = \square \rightarrow \text{K}$

$4706 - 3565 = \square \rightarrow \text{D}$

$10005 - 4300 = \square \rightarrow \text{C}$

$6797 - 2696 = \square \rightarrow \text{E}$

$9686 - 3861 = \square \rightarrow \text{I}$

$5884 - 788 = \square \rightarrow \text{O}$

Scratch space:

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

We need to split the leftover satellite dishes. Dividing them equally among the launch pads gives us the final secret.

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:

$20 \div 5 = \boxed{}$

$54 \div 6 = \boxed{}$

$22 \div 11 = \boxed{}$

$7 \div 7 = \boxed{}$

$12 \div 1 = \boxed{}$

$50 \div 10 = \boxed{}$

$120 \div 12 = \boxed{}$

$18 \div 3 = \boxed{}$

$15 \div 5 = \boxed{}$

$66 \div 6 = \boxed{}$

$24 \div 3 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain activates gravity boots, then deploys a cyber drone.
2. The villain fires a tractor beam, then unfurls solar sails.
3. The villain fires a tractor beam, then engages a warp engine.
4. The villain raises a plasma shield, then shoots a freeze ray.
5. The villain fires a laser blaster, then deploys a cyber drone.
6. The villain activates gravity boots, then engages a warp engine.
7. The villain fires a laser blaster, then engages a warp engine.
8. The villain fires a tractor beam, then deploys a cyber drone.
9. The villain ignites a rocket pack, then shoots a freeze ray.
10. The villain fires a laser blaster, then powers up a magnetic glove.
11. The villain ignites a rocket pack, then unfurls solar sails.
12. The villain activates gravity boots, then powers up a magnetic glove.

Answer Key

The Astro Delta Heist

Culprit: Ed White

Laser Blaster · Warp Engine · Left Handed · Comet Silver · Solar Flares

Trail: Start 21 → Clue 1 17 → Clue 2 10 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Rounding): "THE BANDIT DOES NOT USE A MAGNETIC GLOVE"

Round 132 to the nearest ten = 130 (T) · Round 885 to the nearest hundred = 900 (L) · Round 29 to the nearest ten = 30 (A) · Round 20 to the nearest ten = 20 (E) · Round 720 to the nearest hundred = 700 (I) · Round 2,419 to the nearest thousand = 2000 (D) · Round 290 to the nearest ten = 290 (M) · Round 106 to the nearest ten = 110 (H) · Round 69 to the nearest ten = 70 (G) · Round 3,705 to the nearest hundred = 3700 (C) · Round 433 to the nearest ten = 430 (B) · Round 52 to the nearest ten = 50 (V) · Round 166 to the nearest ten = 170 (O) · Round 2,343 to the nearest hundred = 2300 (U) · Round 3,122 to the nearest thousand = 3000 (S) · Round 370 to the nearest ten = 370 (N)

Clue 2 (Bar models): "LEFT HANDED"

The whole is 68. One part is 11. What is the other part? = 57 (L) · The whole is 54. One part is 4. What is the other part? = 50 (F) · One bar shows 28 and the other shows 2. How much longer is the first bar? = 26 (E) · One part is 4 and the other part is 3. What is the whole? = 7 (H) · One bar shows 53 and the other shows 7. How much longer is the first bar? = 46 (T) · One bar shows 19 and the other shows 11. How much longer is the first bar? = 8 (A) · The whole is 58. One part is 17. What is the other part? = 41 (N)

Clue 3 (Addition): "SOLAR FLARES POWER DOWN THE BANDIT SUIT"

$3356 + 2211 = 5567$ (S) · $2678 + 5311 = 7989$ (T) · $3194 + 2338 = 5532$ (A) · $3677 + 2027 = 5704$ (O) · $4252 + 1948 = 6200$ (L) · $2972 + 1806 = 4778$ (U) · $1126 + 2233 = 3359$ (B) · $3189 + 1539 = 4728$ (H) · $2122 + 1684 = 3806$ (N) · $3341 + 2683 = 6024$ (F) · $5894 + 3463 = 9357$ (P) · $3680 + 5767 = 9447$ (I) · $3701 + 3134 = 6835$ (E) · $1718 + 3658 = 5376$ (D) · $5799 + 3245 = 9044$ (R) · $4240 + 3179 = 7419$ (W)

Clue 4 (Subtraction): "WE FOUND COMET SILVER STRANDS IN THE COCKPIT"

$7688 - 3814 = 3874$ (W) · $3177 - 516 = 2661$ (R) · $3586 - 1840 = 1746$ (M) · $2100 - 271 = 1829$ (V) · $8872 - 2233 = 6639$ (S) · $6582 - 586 = 5996$ (P) · $5490 - 965 = 4525$ (T) · $7071 - 2006 = 5065$ (F) · $3110 - 1412 = 1698$ (L) · $4134 - 2467 = 1667$ (A) · $11715 - 4235 = 7480$ (N) · $7986 - 1317 = 6669$ (H) · $7415 - 2537 = 4878$ (U) · $9174 - 1360 = 7814$ (K) · $4706 - 3565 = 1141$ (D) · $10005 - 4300 = 5705$ (C) · $6797 - 2696 = 4101$ (E) · $9686 - 3861 = 5825$ (I) · $5884 - 788 = 5096$ (O)

Clue 5 (Division facts (1-12)): surviving statement is box 7 → Ed White

$20 \div 5 = 4$ · $54 \div 6 = 9$ · $22 \div 11 = 2$ · $7 \div 7 = 1$ · $12 \div 1 = 12$ · $50 \div 10 = 5$ · $120 \div 12 = 10$ · $18 \div 3 = 6$ · $15 \div 5 = 3$ · $66 \div 6 = 11$ · $24 \div 3 = 8$