



The Space Dino Fossil Heist

Grade 4 math · Multiplication, Word problems, Bar models, Place value, Division · Reading level grades 3-4

Detective: _____ Date: _____

A priceless glowing Star Raptor egg disappeared from Orbit Dino Station! Solve the clues to expose the 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 fossil thief is _____

Possible suspects

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

NAME	ASTRO SUIT	DINO COMPANION	DOM-HAND	HELMET COLOR	DISTRACTION
Bernard Harris	Laser Cutter	Astro Brachiosaurus	Right Handed	Emerald Helmet	Tripped By Magnet
Peggy Whitson	Plasma Shield	Robo Stegosaurus	Right Handed	Gold Visor	Stunned By Flashlight
Edward Cope	Jetpack Thrusters	Pocket Velociraptor	Left Handed	Cobalt Helmet	Scared By Foghorn
Michael Collins	Laser Cutter	Robo Stegosaurus	Right Handed	Gold Visor	Scared By Foghorn
Yuri Gagarin	Laser Cutter	Robo Stegosaurus	Left Handed	Cobalt Helmet	Tripped By Magnet
Jim Lovell	Magna Gloves	Cyber Pterodactyl	Right Handed	Cobalt Helmet	Scared By Foghorn
Mae Jemison	Jetpack Thrusters	Pocket Velociraptor	Left Handed	Gold Visor	Tripped By Magnet
Alan Shepard	Plasma Shield	Pocket Velociraptor	Left Handed	Gold Visor	Scared By Foghorn
Buzz Aldrin	Magna Gloves	Mini Triceratops	Left Handed	Cobalt Helmet	Stunned By Flashlight
Jack Horner	Plasma Shield	Cyber Pterodactyl	Left Handed	Gold Visor	Scared By Foghorn
Eileen Collins	Plasma Shield	Mini Triceratops	Left Handed	Gold Visor	Scared By Foghorn
Carl Sagan	Gravity Boots	Astro Brachiosaurus	Left Handed	Cobalt Helmet	Tripped By Magnet
Sally Ride	Magna Gloves	Robo Stegosaurus	Left Handed	Emerald Helmet	Scared By Foghorn
Valentina Tereshkova	Gravity Boots	Robo Stegosaurus	Right Handed	Gold Visor	Stunned By Flashlight
Sue Hendrickson	Gravity Boots	Astro Brachiosaurus	Right Handed	Cobalt Helmet	Stunned By Flashlight
Neil Armstrong	Jetpack Thrusters	Astro Brachiosaurus	Left Handed	Cobalt Helmet	Scared By Foghorn
Mary Anning	Laser Cutter	Robo Stegosaurus	Left Handed	Gold Visor	Tripped By Magnet
Guion Bluford	Jetpack Thrusters	Mini Triceratops	Left Handed	Gold Visor	Scared By Foghorn
Kalpana Chawla	Gravity Boots	Astro Brachiosaurus	Left Handed	Gold Visor	Stunned By Flashlight
Ellen Ochoa	Gravity Boots	Cyber Pterodactyl	Right Handed	Emerald Helmet	Scared By Foghorn
Barnum Brown	Jetpack Thrusters	Robo Stegosaurus	Left Handed	Gold Visor	Scared By Foghorn

CLUE 1
Multiplication facts (1-12)

The station commander counts rows of supply crates stored in the cargo bay.

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

T			T														
110	5	54	110	5	66	54	121	5	25	64	28	32	88	35	16	54	9

	T							T		
20	110	54	9	32	27	25	88	110	35	3

$11 \times 10 = \square \rightarrow \boxed{\text{T}}$

$7 \times 5 = \square \rightarrow \boxed{\text{Y}}$

$3 \times 9 = \square \rightarrow \boxed{\text{D}}$

$2 \times 8 = \square \rightarrow \boxed{\text{B}}$

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

$5 \times 5 = \square \rightarrow \boxed{\text{A}}$

$6 \times 9 = \square \rightarrow \boxed{\text{E}}$

$4 \times 5 = \square \rightarrow \boxed{\text{P}}$

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

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

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

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

$5 \times 1 = \square \rightarrow \boxed{\text{H}}$

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

$1 \times 3 = \square \rightarrow \boxed{\text{L}}$

$1 \times 9 = \square \rightarrow \boxed{\text{R}}$

Scratch space:

CLUE 2

Word problems

The head scientist logs the weight of space fossils gathered this week.

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 .

6 33 25 11 76 40 7 33

Space ranger lined up 2 rows of 3 dino fossils. How many dino fossils in all?

Answer: → L

Space ranger lined up 10 rows of 4 astro boots. How many astro boots in all?

Answer: → A

Space ranger found 11 astro boots yesterday and 22 more today. How many astro boots in all?

Answer: → E

Space ranger found 38 space pods yesterday and 38 more today. How many space pods in all?

Answer: → H

Space ranger found 2 space pods yesterday and 9 more today. How many space pods in all?

Answer: → T

Space ranger found 4 star charts yesterday and 3 more today. How many star charts in all?

Answer: → N

Space ranger lined up 5 rows of 5 dino fossils. How many dino fossils in all?

Answer: → F

Scratch space:

CLUE 3

Bar model word problems

The lab monitor displays bar graphs comparing rover battery levels.

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

Someone scared the villain off with

Space ranger shares 95 astro boots equally among 5 teams. How many astro boots does each team get?

draw a bar model

Answer: → **S**

Space ranger has 240 astro boots, packed 4 to a bag. How many bags can be filled?

draw a bar model

Answer: → **C**

Space ranger shares 228 astro boots equally among 2 teams. How many astro boots does each team get?

draw a bar model

Answer: → **E**

Space ranger has 4 times as many astro boots as a teammate. The teammate has 2 astro boots. How many astro boots does space ranger have?

draw a bar model

Answer: → **B**

Space ranger used $\frac{2}{4}$ of the space pods on the first day. The other 58 space pods were used the next day. How many space pods were there in all?

draw a bar model

Answer: → **D**

One group collected 59 dino fossils and another group collected 61 dino fossils. How many dino fossils in all?

draw a bar model

Answer: → **A**

Space ranger has 152 astro boots, packed 2 to a bag. How many bags can be filled?

draw a bar model

Answer: → **R**

CLUE 4

S

40 5000 300 600 200 500 90 700 300 10 80 40 700 600 70 800 2000 40 2000

2000 9000 70 700 3000 70 20 70

A diagram showing a mapping from an empty box to a box labeled 'A'. An arrow points from an empty box on the left to a box containing the letter 'A' on the right.

A diagram illustrating a transition. On the left is a rounded rectangle. An arrow points from this rectangle to a square box on the right. Inside the square box is the letter 'H'.

A diagram showing a box with an arrow pointing to a box labeled 'D'.

A diagram showing a box with a question mark pointing to a box with the letter T.

A diagram showing a box with an arrow pointing to a box labeled 'E'.

A diagram showing a transformation. On the left is a square box with a question mark inside. An arrow points to the right, where there is another square box containing the letter 'I'.

→ C

A diagram showing a transformation. On the left, an empty rounded square box. An arrow points from this box to another rounded square box on the right. This second box contains the letter 'v'.

S

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

The team ranger splits energy crystals evenly into storage pods.

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:

$40 \div 4 = \boxed{}$

$6 \div 3 = \boxed{}$

$30 \div 10 = \boxed{}$

$144 \div 12 = \boxed{}$

$5 \div 1 = \boxed{}$

$28 \div 4 = \boxed{}$

$81 \div 9 = \boxed{}$

$36 \div 6 = \boxed{}$

$66 \div 6 = \boxed{}$

$8 \div 1 = \boxed{}$

$3 \div 3 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain sliced through locks with a laser cutter, then escaped beside a robo stegosaurus.
2. The villain boosted with jetpack thrusters, then rode away on a mini triceratops.
3. The villain deflected alarms with a plasma shield, then rode away on a mini triceratops.
4. The villain deflected alarms with a plasma shield, then dashed off with a pocket velociraptor.
5. The villain sliced through locks with a laser cutter, then dashed off with a pocket velociraptor.
6. The villain scaled the vault using magna gloves, then strolled away with an astro brachiosaurus.
7. The villain boosted with jetpack thrusters, then dashed off with a pocket velociraptor.
8. The villain scaled the vault using magna gloves, then escaped beside a robo stegosaurus.
9. The villain scaled the vault using magna gloves, then soared off with a cyber pterodactyl.
10. The villain boosted with jetpack thrusters, then escaped beside a robo stegosaurus.
11. The villain boosted with jetpack thrusters, then soared off with a cyber pterodactyl.
12. The villain boosted with jetpack thrusters, then strolled away with an astro brachiosaurus.

Answer Key

The Space Dino Fossil Heist

Culprit: Alan Shepard

Plasma Shield · Pocket Velociraptor · Left Handed · Gold Visor · Scared By Foghorn

Trail: Start 21 → Clue 1 18 → Clue 2 13 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Multiplication facts (1-12)): "THE THIEF HAS NO CYBER PTERODACTYL"

$11 \times 10 = 110$ (T) · $7 \times 5 = 35$ (Y) · $3 \times 9 = 27$ (D) · $2 \times 8 = 16$ (B) · $4 \times 8 = 32$ (O) · $5 \times 5 = 25$ (A) · $6 \times 9 = 54$ (E) · $4 \times 5 = 20$ (P) · $6 \times 11 = 66$ (I) · $7 \times 4 = 28$ (N) · $8 \times 8 = 64$ (S) · $11 \times 11 = 121$ (F) · $5 \times 1 = 5$ (H) · $11 \times 8 = 88$ (C) · $1 \times 3 = 3$ (L) · $1 \times 9 = 9$ (R)

Clue 2 (Word problems): "LEFT HANDED"

Space ranger lined up 2 rows of 3 dino fossils. How many dino fossils in all? = 6 (L) · Space ranger lined up 10 rows of 4 astro boots. How many astro boots in all? = 40 (A) · Space ranger found 11 astro boots yesterday and 22 more today. How many astro boots in all? = 33 (E) · Space ranger found 38 space pods yesterday and 38 more today. How many space pods in all? = 76 (H) · Space ranger found 2 space pods yesterday and 9 more today. How many space pods in all? = 11 (T) · Space ranger found 4 star charts yesterday and 3 more today. How many star charts in all? = 7 (N) · Space ranger lined up 5 rows of 5 dino fossils. How many dino fossils in all? = 25 (F)

Clue 3 (Bar model word problems): "SCARED BY FOGHORN"

Space ranger shares 95 astro boots equally among 5 teams. How many astro boots does each team get? = 19 (S) · Space ranger has 240 astro boots, packed 4 to a bag. How many bags can be filled? = 60 (C) · Space ranger shares 228 astro boots equally among 2 teams. How many astro boots does each team get? = 114 (E) · Space ranger has 4 times as many astro boots as a teammate. The teammate has 2 astro boots. How many astro boots does space ranger have? = 8 (B) · Space ranger used $\frac{2}{4}$ of the space pods on the first day. The other 58 space pods were used the next day. How many space pods were there in all? = 116 (D) · One group collected 59 dino fossils and another group collected 61 dino fossils. How many dino fossils in all? = 120 (A) · Space ranger has 152 astro boots, packed 2 to a bag. How many bags can be filled? = 76 (R)

Clue 4 (Place value): "A GOLD VISOR WAS LEFT AT THE SCENE"

What is the value of the 4 in 1,143? = 40 (A) · What is the value of the 9 in 9,412? = 9000 (H) · What is the value of the 8 in 890? = 800 (F) · What is the value of the 2 in 5,236? = 200 (D) · What is the value of the 6 in 690? = 600 (L) · What is the value of the 2 in 2,135? = 2000 (T) · What is the value of the 3 in 7,359? = 300 (O) · What is the value of the 7 in 474? = 70 (E) · What is the value of the 2 in 626? = 20 (N) · What is the value of the 1 in 517? = 10 (R) · What is the value of the 5 in 5,221? = 5000 (G) · What is the value of the 9 in 792? = 90 (I) · What is the value of the 8 in 585? = 80 (W) · What is the value of the 7 in 8,719? = 700 (S) · What is the value of the 3 in 83,984? = 3000 (C) · What is the value of the 5 in 576? = 500 (V)

Clue 5 (Division facts (1-12)): surviving statement is box 4 → Alan Shepard

$40 \div 4 = 10$ · $6 \div 3 = 2$ · $30 \div 10 = 3$ · $144 \div 12 = 12$ · $5 \div 1 = 5$ · $28 \div 4 = 7$ · $81 \div 9 = 9$ · $36 \div 6 = 6$ · $66 \div 6 = 11$ · $8 \div 1 = 8$ · $3 \div 3 = 1$