



# The Pangaea Paddock Panic

Grade 6 math · Fractions of a number, Percentages, Exponents, Order of operations, Division · Reading level grades 5-6

**Detective:** \_\_\_\_\_ **Date:** \_\_\_\_\_

A Rogue Dino-Shifter has locked the Chief Paleontologist inside the T-Rex paddock! The saboteur used experimental DNA to shape-shift and escape. We must crack the security codes to identify the shifter before the paddock fences shut down completely.

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 Rogue Dino-Shifter is** \_\_\_\_\_

## Possible suspects

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

| NAME              | DINO FORM        | SABOTAGE GEAR | SCOUTING GEAR      | DISGUISE HAIR | CAPTURING TOOL    |
|-------------------|------------------|---------------|--------------------|---------------|-------------------|
| Patricia Vickers  | Triceratops Form | Amber Shield  | Wearing Binoculars | Crimson Wig   | Sonic Whistle     |
| Othniel Marsh     | Triceratops Form | Sonic Roarer  | Wearing Binoculars | Cobalt Wig    | Ice Ray           |
| Luis Chiappe      | Triceratops Form | Sonic Roarer  | Wearing Headlamp   | Mustard Wig   | Bright Flashlight |
| Gideon Mantell    | Pterodactyl Form | Vine Grapple  | Wearing Headlamp   | Crimson Wig   | Ice Ray           |
| Henry Osborn      | T-Rex Form       | Amber Shield  | Wearing Binoculars | Cobalt Wig    | Sonic Whistle     |
| Tilly Edinger     | Triceratops Form | Vine Grapple  | Wearing Headlamp   | Cobalt Wig    | Bright Flashlight |
| Charles Sternberg | Raptor Form      | Tar Launcher  | Wearing Binoculars | Crimson Wig   | Sonic Whistle     |
| Sue Hendrickson   | T-Rex Form       | Vine Grapple  | Wearing Binoculars | Cobalt Wig    | Bright Flashlight |
| Mary Anning       | Raptor Form      | Sonic Roarer  | Wearing Binoculars | Cobalt Wig    | Sonic Whistle     |
| Sarah Harding     | Raptor Form      | Sonic Roarer  | Wearing Binoculars | Cobalt Wig    | Ice Ray           |
| Ian Malcolm       | Pterodactyl Form | Lava Blaster  | Wearing Headlamp   | Crimson Wig   | Bright Flashlight |
| Ellie Sattler     | T-Rex Form       | Lava Blaster  | Wearing Binoculars | Cobalt Wig    | Sonic Whistle     |
| Robert Bakker     | Pterodactyl Form | Vine Grapple  | Wearing Binoculars | Mustard Wig   | Bright Flashlight |
| Richard Owen      | Pterodactyl Form | Amber Shield  | Wearing Binoculars | Mustard Wig   | Ice Ray           |
| Dong Zhiming      | T-Rex Form       | Sonic Roarer  | Wearing Headlamp   | Cobalt Wig    | Sonic Whistle     |
| William Buckland  | T-Rex Form       | Sonic Roarer  | Wearing Binoculars | Mustard Wig   | Bright Flashlight |
| Barnum Brown      | Stegosaurus Form | Tar Launcher  | Wearing Binoculars | Crimson Wig   | Ice Ray           |
| Paul Sereno       | Stegosaurus Form | Tar Launcher  | Wearing Binoculars | Cobalt Wig    | Sonic Whistle     |
| John Hammond      | Triceratops Form | Tar Launcher  | Wearing Headlamp   | Mustard Wig   | Sonic Whistle     |
| Nick Van Owen     | Stegosaurus Form | Vine Grapple  | Wearing Binoculars | Cobalt Wig    | Sonic Whistle     |
| Jack Horner       | Pterodactyl Form | Lava Blaster  | Wearing Binoculars | Crimson Wig   | Bright Flashlight |

**CLUE 1**
**Fractions of a number**

To unlock the fossil database, we need to analyze the fractional distribution of fossilized bones found in the dig site. Calculate the fraction of the total skeleton retrieved to reveal the first clue.

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

|    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |   |
|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|---|
| T  |    |    |    |   |    |    | T  |    |    |    |    |    |    |    |    |    | T |
| 37 | 3  | 40 | 31 | 3 | 7  | 28 | 37 | 40 | 23 | 15 | 11 | 40 | 31 | 29 | 11 | 37 |   |
|    |    |    | T  |   |    |    |    |    |    |    |    |    |    |    |    |    |   |
| 16 | 31 | 40 | 37 | 3 | 40 | 21 | 35 | 33 | 40 | 23 | 31 | 3  | 7  | 40 | 32 | 15 |   |

$1/5 \text{ of } 185 = \square \rightarrow \text{ T }$

$5/10 \text{ of } 62 = \square \rightarrow \text{ S }$

$5/10 \text{ of } 58 = \square \rightarrow \text{ N }$

$1/3 \text{ of } 69 = \square \rightarrow \text{ R }$

$4/8 \text{ of } 70 = \square \rightarrow \text{ M }$

$5/10 \text{ of } 14 = \square \rightarrow \text{ I }$

$3/6 \text{ of } 22 = \square \rightarrow \text{ O }$

$1/3 \text{ of } 99 = \square \rightarrow \text{ B }$

$2/8 \text{ of } 160 = \square \rightarrow \text{ E }$

$1/8 \text{ of } 120 = \square \rightarrow \text{ D }$

$4/8 \text{ of } 64 = \square \rightarrow \text{ L }$

$2/3 \text{ of } 42 = \square \rightarrow \text{ F }$

$6/8 \text{ of } 28 = \square \rightarrow \text{ A }$

$2/3 \text{ of } 24 = \square \rightarrow \text{ U }$

$2/10 \text{ of } 15 = \square \rightarrow \text{ H }$

Scratch space:

## CLUE 2 Percentages

The paddock's backup battery is running low. We must determine the exact percentage of power remaining in the security grid before the emergency gates lock us out forever.

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

|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|
| T  |    |    |    |    |    |    |    |    |    | T  |    |    |    |    |    |    |    |  |
| 34 | 40 | 27 | 33 | 3  | 33 | 44 | 27 | 45 | 34 | 25 | 19 | 42 | 44 | 44 | 27 | 25 | 24 |  |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 44 | 24 | 35 | 19 | 42 | 20 | 1  | 35 | 31 | 42 | 45 | 3  | 12 | 24 | 19 | 33 |    |    |  |

$20\% \text{ of } 170 = \square \rightarrow \boxed{\text{T}}$

$25\% \text{ of } 180 = \square \rightarrow \boxed{\text{C}}$

$5\% \text{ of } 700 = \square \rightarrow \boxed{\text{I}}$

$25\% \text{ of } 80 = \square \rightarrow \boxed{\text{F}}$

$40\% \text{ of } 30 = \square \rightarrow \boxed{\text{L}}$

$25\% \text{ of } 132 = \square \rightarrow \boxed{\text{S}}$

$50\% \text{ of } 2 = \square \rightarrow \boxed{\text{B}}$

$5\% \text{ of } 480 = \square \rightarrow \boxed{\text{A}}$

$10\% \text{ of } 30 = \square \rightarrow \boxed{\text{U}}$

$20\% \text{ of } 200 = \square \rightarrow \boxed{\text{H}}$

$5\% \text{ of } 500 = \square \rightarrow \boxed{\text{D}}$

$5\% \text{ of } 620 = \square \rightarrow \boxed{\text{N}}$

$20\% \text{ of } 95 = \square \rightarrow \boxed{\text{R}}$

$50\% \text{ of } 54 = \square \rightarrow \boxed{\text{E}}$

$25\% \text{ of } 176 = \square \rightarrow \boxed{\text{P}}$

$20\% \text{ of } 210 = \square \rightarrow \boxed{\text{O}}$

Scratch space:

## CLUE 3

The dino-shifter used a fast-growing prehistoric vine to block our path. The vine cells multiply exponentially. Calculate the growth rate to clear the trail and find the next clue.

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

9 36 49 9 27 64 400 256 32 400 144 169 8 343 128 32 144 100 343

$$3^2 = \boxed{\phantom{00}} \rightarrow \boxed{\text{H}}$$

$$13^2 = \boxed{\phantom{000}} \rightarrow \boxed{\text{C}}$$

$$6^3 = \boxed{\phantom{000}} \rightarrow \boxed{\mathbf{W}}$$

$10^2 = \boxed{\phantom{00}} \rightarrow \boxed{\text{D}}$

$$2^5 = \boxed{\phantom{000}} \rightarrow \boxed{\text{U}}$$

$$20^2 = \boxed{\phantom{00}} \rightarrow \boxed{\text{E}}$$

$$4^4 = \boxed{\phantom{000}} \rightarrow \boxed{\text{Q}}$$

$$2^3 = \boxed{\phantom{000}} \rightarrow \boxed{\text{Y}}$$

$$2^7 = \boxed{\phantom{000}} \rightarrow \boxed{0}$$

$$7^2 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{G}}$$

$3^4 = \boxed{\phantom{000}} \rightarrow \boxed{\text{T}}$

$$5^3 = \boxed{\phantom{000}} \rightarrow \boxed{\text{L}}$$

$$12^2 = \boxed{\phantom{00}} \rightarrow \boxed{\text{N}}$$

$4^3 = \boxed{\phantom{000}} \rightarrow \boxed{\mathbf{R}}$

$3^3 = \square \rightarrow \boxed{\mathbf{F}}$

$$6^2 = \boxed{\phantom{00}} \rightarrow \boxed{1}$$

$$7^3 = \boxed{\phantom{000}} \rightarrow \boxed{\text{S}}$$

Scratch space:

## CLUE 4

## Order of operations

The security terminal requires a multi-step override sequence. We have to solve the operations in the exact order of importance to bypass the lockout screen.

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

|    |    |    |    |    |    |    |   |   |    |    |    |    |    |   |    |    |    |
|----|----|----|----|----|----|----|---|---|----|----|----|----|----|---|----|----|----|
| A  |    |    |    |    |    |    |   |   |    |    |    |    |    |   |    |    |    |
| 34 | 39 | 24 | 65 | 42 | 15 | 31 | 9 | 6 | 56 | 29 | 65 | 39 | 28 | 6 | 65 | 39 | 56 |

  

|    |    |    |    |    |    |    |    |   |    |    |    |    |    |  |
|----|----|----|----|----|----|----|----|---|----|----|----|----|----|--|
|    | A  |    |    |    | A  |    |    |   |    |    |    |    |    |  |
| 24 | 34 | 65 | 59 | 78 | 34 | 39 | 48 | 9 | 65 | 36 | 36 | 56 | 29 |  |

$7 \times 5 - 1 = \square \rightarrow \boxed{\text{A}}$

$6 + 9 \times 2 = \square \rightarrow \boxed{\text{H}}$

$12 \times 7 - 19 = \square \rightarrow \boxed{\text{I}}$

$5 \times 6 - 21 = \square \rightarrow \boxed{\text{L}}$

$66 + 2 \times 6 = \square \rightarrow \boxed{\text{W}}$

$10 \times 5 - 19 = \square \rightarrow \boxed{\text{B}}$

$10 \times 6 - 12 = \square \rightarrow \boxed{\text{C}}$

$6 \times 10 - 21 = \square \rightarrow \boxed{\text{S}}$

$6 + 4 \times 9 = \square \rightarrow \boxed{\text{N}}$

$6 \times 9 - 18 = \square \rightarrow \boxed{\text{P}}$

$5 \times 11 - 27 = \square \rightarrow \boxed{\text{G}}$

$7 \times 10 - 14 = \square \rightarrow \boxed{\text{E}}$

$12 \times 5 - 1 = \square \rightarrow \boxed{\text{R}}$

$3 \times 4 - 6 = \square \rightarrow \boxed{\text{U}}$

$10 \times 5 - 21 = \square \rightarrow \boxed{\text{D}}$

$3 + 2 \times 6 = \square \rightarrow \boxed{\text{Y}}$

Scratch space:

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

We have to split the remaining tracking darts equally among our rescue teams. Divide the supply cache to secure our final lead on the shifter.

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:**

$2 \div 2 = \boxed{\phantom{00}}$

$32 \div 8 = \boxed{\phantom{00}}$

$60 \div 10 = \boxed{\phantom{00}}$

$25 \div 5 = \boxed{\phantom{00}}$

$90 \div 9 = \boxed{\phantom{00}}$

$30 \div 10 = \boxed{\phantom{00}}$

$63 \div 9 = \boxed{\phantom{00}}$

$60 \div 5 = \boxed{\phantom{00}}$

$88 \div 8 = \boxed{\phantom{00}}$

$64 \div 8 = \boxed{\phantom{00}}$

$4 \div 2 = \boxed{\phantom{00}}$

**Step 2 - cross out the sentence with each answer:**

1. The villain blocked the access road in Stegosaurus Form, then escaped into the jungle using a Vine Grapple.
2. The villain smashed the security gate in Triceratops Form, then shattered the lab windows with a Sonic Roarer.
3. The villain stomped around in T-Rex Form, then shattered the lab windows with a Sonic Roarer.
4. The villain stomped around in T-Rex Form, then scorched the control panel with a Lava Blaster.
5. The villain smashed the security gate in Triceratops Form, then escaped into the jungle using a Vine Grapple.
6. The villain blocked the access road in Stegosaurus Form, then mucked up the paddock gates with a Tar Launcher.
7. The villain swooped over the canopy in Pterodactyl Form, then scorched the control panel with a Lava Blaster.
8. The villain swooped over the canopy in Pterodactyl Form, then deflected the security drones with an Amber Shield.
9. The villain dashed through the brush in Raptor Form, then shattered the lab windows with a Sonic Roarer.
10. The villain smashed the security gate in Triceratops Form, then scorched the control panel with a Lava Blaster.
11. The villain dashed through the brush in Raptor Form, then scorched the control panel with a Lava Blaster.
12. The villain swooped over the canopy in Pterodactyl Form, then escaped into the jungle using a Vine Grapple.

# Answer Key

## The Pangaea Paddock Panic

### Culprit: Mary Anning

Raptor Form · Sonic Roarer · Wearing Binoculars · Cobalt Wig · Sonic Whistle

Trail: Start 21 → Clue 1 18 → Clue 2 12 → Clue 3 5 → Clue 4 4 → Clue 5 1

#### Clue 1 (Fractions of a number): "THE SHIFTER DOES NOT USE THE AMBER SHIELD"

$\frac{1}{5}$  of 185 = 37 (T) ·  $\frac{5}{10}$  of 62 = 31 (S) ·  $\frac{5}{10}$  of 58 = 29 (N) ·  $\frac{1}{3}$  of 69 = 23 (R) ·  $\frac{4}{8}$  of 70 = 35 (M) ·  $\frac{5}{10}$  of 14 = 7 (I) ·  $\frac{3}{6}$  of 22 = 11 (O) ·  $\frac{1}{3}$  of 99 = 33 (B) ·  $\frac{2}{8}$  of 160 = 40 (E) ·  $\frac{1}{8}$  of 120 = 15 (D) ·  $\frac{4}{8}$  of 64 = 32 (L) ·  $\frac{2}{3}$  of 42 = 28 (F) ·  $\frac{6}{8}$  of 28 = 21 (A) ·  $\frac{2}{3}$  of 24 = 16 (U) ·  $\frac{2}{10}$  of 15 = 3 (H)

#### Clue 2 (Percentages): "THE SUSPECT DROPPED A PAIR OF BINOCULARS"

20% of 170 = 34 (T) · 25% of 180 = 45 (C) · 5% of 700 = 35 (I) · 25% of 80 = 20 (F) · 40% of 30 = 12 (L) · 25% of 132 = 33 (S) · 50% of 2 = 1 (B) · 5% of 480 = 24 (A) · 10% of 30 = 3 (U) · 20% of 200 = 40 (H) · 5% of 500 = 25 (D) · 5% of 620 = 31 (N) · 20% of 95 = 19 (R) · 50% of 54 = 27 (E) · 25% of 176 = 44 (P) · 20% of 210 = 42 (O)

#### Clue 3 (Exponents): "HIGH FREQUENCY SOUNDS WILL STUN THE FOE"

$3^2 = 9$  (H) ·  $13^2 = 169$  (C) ·  $6^3 = 216$  (W) ·  $10^2 = 100$  (D) ·  $2^5 = 32$  (U) ·  $20^2 = 400$  (E) ·  $4^4 = 256$  (Q) ·  $2^3 = 8$  (Y) ·  $2^7 = 128$  (O) ·  $7^2 = 49$  (G) ·  $3^4 = 81$  (T) ·  $5^3 = 125$  (L) ·  $12^2 = 144$  (N) ·  $4^3 = 64$  (R) ·  $3^3 = 27$  (F) ·  $6^2 = 36$  (I) ·  $7^3 = 343$  (S)

#### Clue 4 (Order of operations): "A SHINY BLUE DISGUISE HAIR WAS CLIPPED"

$7 \times 5 - 1 = 34$  (A) ·  $6 + 9 \times 2 = 24$  (H) ·  $12 \times 7 - 19 = 65$  (I) ·  $5 \times 6 - 21 = 9$  (L) ·  $66 + 2 \times 6 = 78$  (W) ·  $10 \times 5 - 19 = 31$  (B) ·  $10 \times 6 - 12 = 48$  (C) ·  $6 \times 10 - 21 = 39$  (S) ·  $6 + 4 \times 9 = 42$  (N) ·  $6 \times 9 - 18 = 36$  (P) ·  $5 \times 11 - 27 = 28$  (G) ·  $7 \times 10 - 14 = 56$  (E) ·  $12 \times 5 - 1 = 59$  (R) ·  $3 \times 4 - 6 = 6$  (U) ·  $10 \times 5 - 21 = 29$  (D) ·  $3 + 2 \times 6 = 15$  (Y)

#### Clue 5 (Division facts (1-12)): surviving statement is box 9 → Mary Anning

$2 \div 2 = 1$  ·  $32 \div 8 = 4$  ·  $60 \div 10 = 6$  ·  $25 \div 5 = 5$  ·  $90 \div 9 = 10$  ·  $30 \div 10 = 3$  ·  $63 \div 9 = 7$  ·  $60 \div 5 = 12$  ·  $88 \div 8 = 11$  ·  $64 \div 8 = 8$  ·  $4 \div 2 = 2$