



# The Great Dino Lab Mix-Up

Grade 4 math · Place value, Rounding, Addition, Subtraction, Division · Reading level grades 3-4

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

Oh no! Someone broke into the Dino Valley Lab and swapped the dinosaur DNA vials. Now we have a glowing T-Rex and a flying Triceratops! The Chief Paleontologist needs your help to catch the Rogue Ranger who did this before they escape the island.

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 Ranger is** \_\_\_\_\_

## Possible suspects

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

| NAME            | DINO FRIEND            | LAB GADGET           | COMPASS HAND        | FIELD HAT         | DINO SNACK             |
|-----------------|------------------------|----------------------|---------------------|-------------------|------------------------|
| Jack Horner     | Riding a Raptor        | Laser Scanner        | Left Handed Writer  | Brown Pith Helmet | Tricked by Sweet Fruit |
| Tracker Toby    | Stomping a Stegosaurus | Laser Scanner        | Right Handed Writer | Green Safari Hat  | Tricked by Sweet Fruit |
| Alan Grant      | Stomping a Stegosaurus | Sonic Dino Whistle   | Right Handed Writer | Brown Pith Helmet | Tricked by Sweet Fruit |
| Charles Marsh   | Stomping a Stegosaurus | Thermal Dino Tracker | Right Handed Writer | Tan Explorer Cap  | Tricked by Sweet Fruit |
| Barnum Brown    | Leading a Triceratops  | DNA Mutator Ray      | Right Handed Writer | Brown Pith Helmet | Tricked by Sweet Fruit |
| Ian Malcolm     | Leading a Triceratops  | Night Vision Goggles | Right Handed Writer | Tan Explorer Cap  | Scared of Shiny Lights |
| Explorer Emily  | Guiding a T-Rex        | Thermal Dino Tracker | Right Handed Writer | Brown Pith Helmet | Tricked by Sweet Fruit |
| Macy Stone      | Leading a Triceratops  | Sonic Dino Whistle   | Left Handed Writer  | Brown Pith Helmet | Scared of Shiny Lights |
| Robert Bakker   | Riding a Raptor        | Night Vision Goggles | Right Handed Writer | Tan Explorer Cap  | Tricked by Sweet Fruit |
| Sue Hendrickson | Leading a Triceratops  | DNA Mutator Ray      | Right Handed Writer | Brown Pith Helmet | Afraid of Loud Roars   |
| Claire Dearing  | Leading a Triceratops  | Night Vision Goggles | Right Handed Writer | Tan Explorer Cap  | Afraid of Loud Roars   |
| Mary Anning     | Leading a Triceratops  | Laser Scanner        | Right Handed Writer | Brown Pith Helmet | Scared of Shiny Lights |
| Gideon Mantell  | Guiding a T-Rex        | DNA Mutator Ray      | Right Handed Writer | Brown Pith Helmet | Tricked by Sweet Fruit |
| Dino Dan        | Flying a Pterodactyl   | Laser Scanner        | Left Handed Writer  | Tan Explorer Cap  | Scared of Shiny Lights |
| Ranger Owen     | Flying a Pterodactyl   | Laser Scanner        | Right Handed Writer | Green Safari Hat  | Tricked by Sweet Fruit |
| Bones Bailey    | Leading a Triceratops  | Night Vision Goggles | Right Handed Writer | Brown Pith Helmet | Tricked by Sweet Fruit |
| Roy Andrews     | Stomping a Stegosaurus | DNA Mutator Ray      | Left Handed Writer  | Green Safari Hat  | Afraid of Loud Roars   |
| Ranger Rick     | Riding a Raptor        | Sonic Dino Whistle   | Left Handed Writer  | Tan Explorer Cap  | Scared of Shiny Lights |
| Raptor Rex      | Stomping a Stegosaurus | Thermal Dino Tracker | Left Handed Writer  | Green Safari Hat  | Tricked by Sweet Fruit |
| Dr Wu           | Stomping a Stegosaurus | DNA Mutator Ray      | Right Handed Writer | Green Safari Hat  | Tricked by Sweet Fruit |
| Digging Daisy   | Leading a Triceratops  | DNA Mutator Ray      | Left Handed Writer  | Green Safari Hat  | Afraid of Loud Roars   |

## CLUE 1 Place value

We checked the security code lock on the dino cage. The screen shows a mystery number. Find the value of the digit in the tens place to unlock the first clue!

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

|     |    |      |      |    |    |     |    |     |    |    |     |      |    |
|-----|----|------|------|----|----|-----|----|-----|----|----|-----|------|----|
| T   |    |      |      |    |    |     |    | T   |    |    |     |      |    |
| 100 | 20 | 1000 | 3000 | 80 | 50 | 400 | 50 | 100 | 20 | 30 | 800 | 1000 | 30 |

|     |    |      |      |     |    |    |    |     |     |    |     |      |    |      |      |      |      |
|-----|----|------|------|-----|----|----|----|-----|-----|----|-----|------|----|------|------|------|------|
| T   |    |      |      |     |    |    |    |     |     | T  |     |      |    |      |      |      |      |
| 100 | 20 | 1000 | 8000 | 500 | 30 | 70 | 80 | 300 | 400 | 50 | 100 | 8000 | 30 | 9000 | 6000 | 1000 | 8000 |

What is the value of the 1 in 8,147?  → **T**

What is the value of the 5 in 158?  → **O**

What is the value of the 8 in 38,043?  → **R**

What is the value of the 6 in 6,270?  → **K**

What is the value of the 9 in 9,028?  → **C**

What is the value of the 3 in 538?  → **A**

What is the value of the 3 in 9,377?  → **I**

What is the value of the 7 in 279?  → **L**

What is the value of the 2 in 327?  → **H**

What is the value of the 3 in 3,022?  → **Y**

What is the value of the 5 in 560?  → **M**

What is the value of the 8 in 1,801?  → **V**

What is the value of the 1 in 1,087?  → **E**

What is the value of the 8 in 3,989?  → **D**

What is the value of the 4 in 471?  → **N**

Scratch space:

## CLUE 2 Rounding

The lab radar tracks dinosaur footsteps. It only prints out numbers rounded to the nearest ten. Round this footprint count to see where the suspect went next!

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

|      |      |     |      |      |      |      |      |    |     |      |     |      |     |      |     |      |      |    |     |
|------|------|-----|------|------|------|------|------|----|-----|------|-----|------|-----|------|-----|------|------|----|-----|
| T    |      |     |      |      |      |      |      |    | T   |      |     |      | T   |      |     |      |      |    |     |
| 290  | 2900 | 700 | 70   | 7000 | 70   | 1700 | 700  | 30 | 290 | 1100 | 20  | 9000 | 290 | 700  | 70  | 1300 | 4300 | 50 | 200 |
|      |      | T   |      | T    |      |      |      |    |     |      |     |      | T   |      |     |      |      |    |     |
| 1100 | 9000 | 290 | 2900 | 290  | 2900 | 700  | 9000 | 20 | 20  | 9000 | 170 | 2900 | 290 | 2900 | 110 | 4300 | 5000 |    |     |

Round 286 to the nearest ten  → **T**

Round 4,292 to the nearest hundred  → **N**

Round 8,543 to the nearest thousand  → **I**

Round 169 to the nearest ten  → **G**

Round 53 to the nearest ten  → **L**

Round 658 to the nearest hundred  → **E**

Round 22 to the nearest ten  → **R**

Round 2,911 to the nearest hundred  → **H**

Round 66 to the nearest ten  → **S**

Round 6,583 to the nearest thousand  → **U**

Round 1,739 to the nearest hundred  → **P**

Round 223 to the nearest hundred  → **Y**

Round 4,748 to the nearest thousand  → **D**

Round 26 to the nearest ten  → **C**

Round 110 to the nearest ten  → **A**

Round 1,337 to the nearest hundred  → **O**

Round 1,088 to the nearest hundred  → **W**

Scratch space:

### CLUE 3 Addition

We found dropped fossil pieces along the muddy trail. Add up the total number of fossils collected to find the suspect's path!

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

|              |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |              |             |             |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|
| <div>T</div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div>T</div> | <div></div> | <div></div> |
| 4740         | 8803        | 4965        | 9126        | 5674        | 5156        | 7077        | 7077        | 4790        | 7077        | 5674        | 4790        | 9126        | 4978        | 4978        | 4740        | 3654        | 3356         |             |             |

  

|             |             |             |             |             |             |             |             |             |             |              |             |             |             |             |              |      |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|--------------|------|
| <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div>T</div> | <div></div> | <div></div> | <div></div> | <div></div> | <div>T</div> |      |
| 4473        | 3654        | 5985        | 4978        | 3654        | 8662        | 4965        | 4978        | 5674        | 4965        | 4965         | 4740        | 4473        | 5985        | 5626        | 5156         | 4740 |

|                                          |                                          |                                          |
|------------------------------------------|------------------------------------------|------------------------------------------|
| 2655 + 2085 = <div></div> → <div>T</div> | 6146 + 2657 = <div></div> → <div>H</div> | 1910 + 1446 = <div></div> → <div>P</div> |
| 3279 + 1699 = <div></div> → <div>S</div> | 2557 + 4520 = <div></div> → <div>L</div> | 1536 + 2118 = <div></div> → <div>O</div> |
| 4022 + 4640 = <div></div> → <div>M</div> | 3505 + 2480 = <div></div> → <div>R</div> | 3619 + 5507 = <div></div> → <div>Y</div> |
| 2933 + 1857 = <div></div> → <div>A</div> | 2348 + 2617 = <div></div> → <div>E</div> | 2211 + 3415 = <div></div> → <div>U</div> |
| 2088 + 2385 = <div></div> → <div>F</div> | 3500 + 2174 = <div></div> → <div>W</div> | 2608 + 2548 = <div></div> → <div>I</div> |

Scratch space:

## CLUE 4 Subtraction

The baby triceratops ate some of our berry supplies. Subtract the eaten berries from our total inventory to see what clue was left behind!

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

|              |             |             |             |             |             |             |             |             |             |              |             |             |             |             |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|
| <div>T</div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div>T</div> | <div></div> | <div></div> | <div></div> | <div></div> |
| 8464         | 4299        | 7571        | 3387        | 3494        | 7571        | 8469        | 6710        | 4147        | 8464        | 4299         | 7615        | 7571        | 4362        |             |

  

|             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |              |             |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|
| <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div>T</div> | <div></div> |
| 6017        | 2383        | 6314        | 4097        | 4097        | 7571        | 6017        | 8469        | 6949        | 2383        | 6314        | 6876        | 3494        | 4097        | 7615        | 8464         | 4299        |

  

|             |             |             |             |             |              |
|-------------|-------------|-------------|-------------|-------------|--------------|
| <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div>T</div> |
| 4299        | 7571        | 5983        | 6553        | 7571        | 8464         |

$10164 - 1700 = \boxed{\phantom{0000}} \rightarrow \boxed{T}$

$4259 - 112 = \boxed{\phantom{0000}} \rightarrow \boxed{Y}$

$8093 - 3794 = \boxed{\phantom{0000}} \rightarrow \boxed{H}$

$8593 - 4496 = \boxed{\phantom{0000}} \rightarrow \boxed{P}$

$7621 - 4234 = \boxed{\phantom{0000}} \rightarrow \boxed{S}$

$10600 - 4047 = \boxed{\phantom{0000}} \rightarrow \boxed{M}$

$6890 - 873 = \boxed{\phantom{0000}} \rightarrow \boxed{D}$

$8200 - 629 = \boxed{\phantom{0000}} \rightarrow \boxed{E}$

$5913 - 1551 = \boxed{\phantom{0000}} \rightarrow \boxed{F}$

$6626 - 3132 = \boxed{\phantom{0000}} \rightarrow \boxed{N}$

$7425 - 549 = \boxed{\phantom{0000}} \rightarrow \boxed{W}$

$12717 - 4248 = \boxed{\phantom{0000}} \rightarrow \boxed{A}$

$9879 - 3169 = \boxed{\phantom{0000}} \rightarrow \boxed{K}$

$9037 - 1422 = \boxed{\phantom{0000}} \rightarrow \boxed{I}$

$4883 - 2500 = \boxed{\phantom{0000}} \rightarrow \boxed{R}$

$10540 - 3591 = \boxed{\phantom{0000}} \rightarrow \boxed{B}$

$10453 - 4139 = \boxed{\phantom{0000}} \rightarrow \boxed{O}$

$7001 - 1018 = \boxed{\phantom{0000}} \rightarrow \boxed{L}$

Scratch space:

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

We have a bag of raptor treats to share equally among our patrol teams. Divide the treats evenly to find the final clue!

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:**

$22 \div 11 = \boxed{\phantom{00}}$

$132 \div 11 = \boxed{\phantom{00}}$

$28 \div 4 = \boxed{\phantom{00}}$

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

$30 \div 6 = \boxed{\phantom{00}}$

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

$27 \div 3 = \boxed{\phantom{00}}$

$70 \div 7 = \boxed{\phantom{00}}$

$6 \div 2 = \boxed{\phantom{00}}$

$48 \div 12 = \boxed{\phantom{00}}$

$18 \div 3 = \boxed{\phantom{00}}$

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

1. The villain flies a giant pterodactyl over the fences, then scans the area with a stolen laser.
2. The villain marches a grumpy triceratops into town, then blasts a tree with a dna mutator ray.
3. The villain rides a fast raptor through the lab gates, then scans the area with a stolen laser.
4. The villain stomps a heavy stegosaurus down the path, then blasts a tree with a dna mutator ray.
5. The villain rides a fast raptor through the lab gates, then slips away using night vision goggles.
6. The villain stomps a heavy stegosaurus down the path, then tracks wild dinos with a thermal screen.
7. The villain leads a roaring t-rex past the cameras, then blasts a tree with a dna mutator ray.
8. The villain marches a grumpy triceratops into town, then blows a loud sonic whistle to escape.
9. The villain leads a roaring t-rex past the cameras, then scans the area with a stolen laser.
10. The villain flies a giant pterodactyl over the fences, then blasts a tree with a dna mutator ray.
11. The villain stomps a heavy stegosaurus down the path, then blows a loud sonic whistle to escape.
12. The villain marches a grumpy triceratops into town, then slips away using night vision goggles.

# Answer Key

## The Great Dino Lab Mix-Up

### Culprit: Alan Grant

Stomping a Stegosaurus · Sonic Dino Whistle · Right Handed Writer · Brown Pith Helmet · Tricked by Sweet Fruit

Trail: Start 21 → Clue 1 18 → Clue 2 12 → Clue 3 8 → Clue 4 4 → Clue 5 1

#### Clue 1 (Place value): "THEY DO NOT HAVE A THERMAL DINO TRACKER"

What is the value of the 1 in 8,147? = 100 (T) · What is the value of the 5 in 158? = 50 (O) · What is the value of the 8 in 38,043? = 8000 (R) · What is the value of the 6 in 6,270? = 6000 (K) · What is the value of the 9 in 9,028? = 9000 (C) · What is the value of the 3 in 538? = 30 (A) · What is the value of the 3 in 9,377? = 300 (I) · What is the value of the 7 in 279? = 70 (L) · What is the value of the 2 in 327? = 20 (H) · What is the value of the 3 in 3,022? = 3000 (Y) · What is the value of the 5 in 560? = 500 (M) · What is the value of the 8 in 1,801? = 800 (V) · What is the value of the 1 in 1,087? = 1000 (E) · What is the value of the 8 in 3,989? = 80 (D) · What is the value of the 4 in 471? = 400 (N)

#### Clue 2 (Rounding): "THE SUSPECT WRITES ONLY WITH THEIR RIGHT HAND"

Round 286 to the nearest ten = 290 (T) · Round 4,292 to the nearest hundred = 4300 (N) · Round 8,543 to the nearest thousand = 9000 (I) · Round 169 to the nearest ten = 170 (G) · Round 53 to the nearest ten = 50 (L) · Round 658 to the nearest hundred = 700 (E) · Round 22 to the nearest ten = 20 (R) · Round 2,911 to the nearest hundred = 2900 (H) · Round 66 to the nearest ten = 70 (S) · Round 6,583 to the nearest thousand = 7000 (U) · Round 1,739 to the nearest hundred = 1700 (P) · Round 223 to the nearest hundred = 200 (Y) · Round 4,748 to the nearest thousand = 5000 (D) · Round 26 to the nearest ten = 30 (C) · Round 110 to the nearest ten = 110 (A) · Round 1,337 to the nearest hundred = 1300 (O) · Round 1,088 to the nearest hundred = 1100 (W)

#### Clue 3 (Addition): "THEY WILL ALWAYS STOP FOR SOME SWEET FRUIT"

2655 + 2085 = 4740 (T) · 6146 + 2657 = 8803 (H) · 1910 + 1446 = 3356 (P) · 3279 + 1699 = 4978 (S) · 2557 + 4520 = 7077 (L) · 1536 + 2118 = 3654 (O) · 4022 + 4640 = 8662 (M) · 3505 + 2480 = 5985 (R) · 3619 + 5507 = 9126 (Y) · 2933 + 1857 = 4790 (A) · 2348 + 2617 = 4965 (E) · 2211 + 3415 = 5626 (U) · 2088 + 2385 = 4473 (F) · 3500 + 2174 = 5674 (W) · 2608 + 2548 = 5156 (I)

#### Clue 4 (Subtraction): "THE SNEAKY THIEF DROPPED A BROWN PITH HELMET"

10164 - 1700 = 8464 (T) · 4259 - 112 = 4147 (Y) · 8093 - 3794 = 4299 (H) · 8593 - 4496 = 4097 (P) · 7621 - 4234 = 3387 (S) · 10600 - 4047 = 6553 (M) · 6890 - 873 = 6017 (D) · 8200 - 629 = 7571 (E) · 5913 - 1551 = 4362 (F) · 6626 - 3132 = 3494 (N) · 7425 - 549 = 6876 (W) · 12717 - 4248 = 8469 (A) · 9879 - 3169 = 6710 (K) · 9037 - 1422 = 7615 (I) · 4883 - 2500 = 2383 (R) · 10540 - 3591 = 6949 (B) · 10453 - 4139 = 6314 (O) · 7001 - 1018 = 5983 (L)

#### Clue 5 (Division facts (1-12)): surviving statement is box 11 → Alan Grant

22 ÷ 11 = 2 · 132 ÷ 11 = 12 · 28 ÷ 4 = 7 · 64 ÷ 8 = 8 · 30 ÷ 6 = 5 · 9 ÷ 9 = 1 · 27 ÷ 3 = 9 · 70 ÷ 7 = 10 · 6 ÷ 2 = 3 · 48 ÷ 12 = 4 · 18 ÷ 3 = 6