The Great Bone Mystery

Grade 6 math · Percentages, Exponents, Order of operations, Multiplication, Division · Reading level grades 1-2

Detective: _____ **Date:** _____

Oh no! The Golden Bone is gone from the park vault! A sneaky pup has taken it. We must follow the tracks, solve the clues, and save the park's biggest treasure.

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 the Bone Thief is _____

Possible suspects

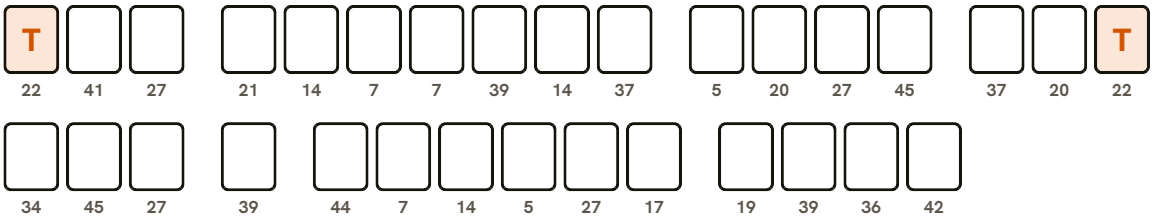
Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	TRICK SKILL	COLLAR TOOL	LEASH SIDE	FUR PATTERN	DISTRACTION TOY
Toto	Loud Bark	Glider Pack	Walks on the Left	Striped Fur	Squeaky Duck
Bluey	Fast Dash	Treat Launcher	Walks on the Left	Striped Fur	Tennis Ball
Otis	Loud Bark	Laser Pointer	Walks on the Right	Striped Fur	Tennis Ball
Pluto	Sneaky Crawl	Sonar Collar	Walks on the Left	Striped Fur	Rope Tug
Perdita	Super Dig	Sonar Collar	Walks on the Left	Striped Fur	Tennis Ball
Tramp	High Jump	Laser Pointer	Walks on the Right	Solid Fur	Rope Tug
Beethoven	Fast Dash	Bubble Shield	Walks on the Right	Striped Fur	Tennis Ball
Lassie	Loud Bark	Glider Pack	Walks on the Left	Spotted Fur	Squeaky Duck
Bolt	Sneaky Crawl	Bubble Shield	Walks on the Left	Striped Fur	Tennis Ball
Hachiko	Super Dig	Glider Pack	Walks on the Right	Striped Fur	Rope Tug
Nana	Fast Dash	Glider Pack	Walks on the Left	Striped Fur	Tennis Ball
Benji	Fast Dash	Glider Pack	Walks on the Right	Solid Fur	Rope Tug
Copper	Loud Bark	Treat Launcher	Walks on the Right	Spotted Fur	Rope Tug
Bingo	High Jump	Glider Pack	Walks on the Left	Striped Fur	Rope Tug
Snoopy	Sneaky Crawl	Sonar Collar	Walks on the Left	Spotted Fur	Rope Tug
Slinky	Fast Dash	Sonar Collar	Walks on the Left	Solid Fur	Rope Tug
Buddy	Loud Bark	Sonar Collar	Walks on the Left	Solid Fur	Rope Tug
Marley	High Jump	Treat Launcher	Walks on the Left	Solid Fur	Tennis Ball
Lady	Super Dig	Laser Pointer	Walks on the Left	Spotted Fur	Rope Tug
Pongo	Sneaky Crawl	Treat Launcher	Walks on the Left	Striped Fur	Tennis Ball
Wishbone	High Jump	Treat Launcher	Walks on the Left	Spotted Fur	Tennis Ball

CLUE 1 Percentages

> The park gate is locked. We need a secret code. The screen shows the percentage of puppies who love treats. Let us solve it.

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



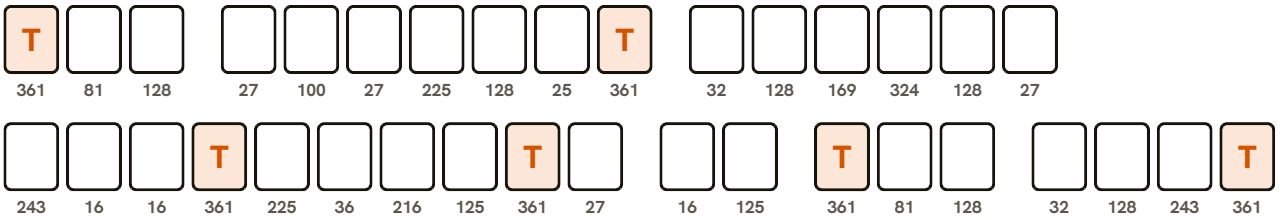
40% of 55 = ☐ → T	50% of 40 = ☐ → O	20% of 205 = ☐ → H
10% of 360 = ☐ → C	25% of 20 = ☐ → D	50% of 38 = ☐ → P
20% of 105 = ☐ → V	25% of 148 = ☐ → N	10% of 340 = ☐ → U
10% of 70 = ☐ → L	10% of 440 = ☐ → G	20% of 225 = ☐ → S
10% of 170 = ☐ → R	75% of 52 = ☐ → A	25% of 168 = ☐ → K
5% of 540 = ☐ → E	10% of 140 = ☐ → I	

Scratch space:

CLUE 2 Exponents

> A collar signal is getting stronger. The power grows very fast in square steps. Work out the math to find where the signal goes.

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



19^2 = ☐ → T

5^3 = ☐ → N

2^5 = ☐ → L

5^2 = ☐ → C

2^7 = ☐ → E

4^2 = ☐ → O

3^4 = ☐ → H

6^3 = ☐ → I

10^2 = ☐ → U

3^5 = ☐ → F

13^2 = ☐ → A

18^2 = ☐ → V

15^2 = ☐ → P

3^3 = ☐ → S

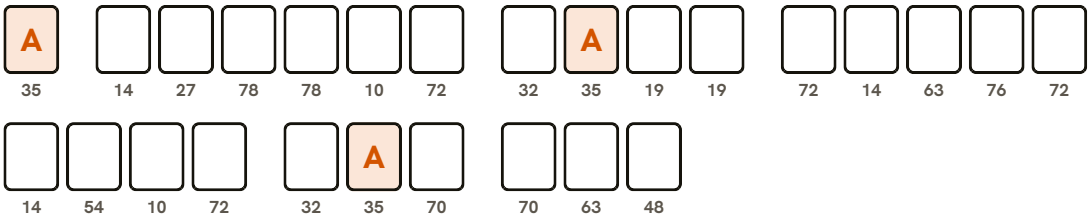
6^2 = ☐ → R

Scratch space:

CLUE 3 Order of operations

> Let us mix a special soap to wash off the muddy tracks. We must follow the math rules in the right order to get it right.

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



$10 \times 4 - 5 =$ ☐ → **A**

$30 + 6 \times 3 =$ ☐ → **G**

$10 \times 3 - 11 =$ ☐ → **L**

$8 + 3 \times 2 =$ ☐ → **T**

$19 + 5 \times 7 =$ ☐ → **H**

$7 \times 7 - 17 =$ ☐ → **B**

$3 + 4 \times 6 =$ ☐ → **E**

$4 + 2 \times 3 =$ ☐ → **I**

$64 + 7 \times 2 =$ ☐ → **N**

$9 \times 10 - 27 =$ ☐ → **O**

$30 + 8 \times 5 =$ ☐ → **D**

$8 \times 12 - 24 =$ ☐ → **S**

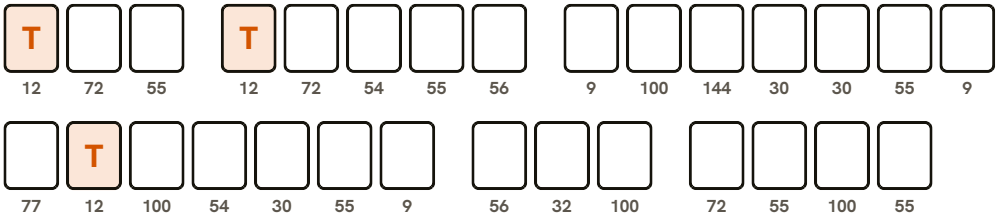
$12 \times 8 - 20 =$ ☐ → **P**

Scratch space:

CLUE 4 Multiplication facts (1-12)

> We found a pile of toy chests. There are rows of chests. Multiply the rows to find how many toys are hidden.

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



3 × 4 = ☐ → T

5 × 6 = ☐ → P

12 × 12 = ☐ → O

7 × 8 = ☐ → F

9 × 8 = ☐ → H

9 × 6 = ☐ → I

8 × 4 = ☐ → U

1 × 9 = ☐ → D

10 × 10 = ☐ → R

7 × 11 = ☐ → S

5 × 11 = ☐ → E

Scratch space:

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

> The helper dogs are hungry. We must share the bones equally among them. Divide the treats so every helper dog gets a fair share.

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 ÷ 1 = ☐	10 ÷ 1 = ☐	48 ÷ 6 = ☐	8 ÷ 2 = ☐	35 ÷ 7 = ☐
30 ÷ 10 = ☐	12 ÷ 1 = ☐	22 ÷ 2 = ☐	6 ÷ 1 = ☐	49 ÷ 7 = ☐
108 ÷ 12 = ☐				

Step 2 - cross out the sentence with each answer:

1. The villain digs a deep tunnel, then pings the sonar screen.
2. The villain crawls under the gate, then fires the snack cannon.
3. The villain crawls under the gate, then flies away with glider wings.
4. The villain dashes like a rocket, then pings the sonar screen.
5. The villain digs a deep tunnel, then fires the snack cannon.
6. The villain digs a deep tunnel, then blocks the path with bubbles.
7. The villain dashes like a rocket, then blocks the path with bubbles.
8. The villain crawls under the gate, then blocks the path with bubbles.
9. The villain lets out a booming bark, then fires the snack cannon.
10. The villain dashes like a rocket, then fires the snack cannon.
11. The villain lets out a booming bark, then pings the sonar screen.
12. The villain lets out a booming bark, then flies away with glider wings.

TEACHER / PARENT

Answer Key

The Great Bone Mystery

Culprit: Perdita

Super Dig · Sonar Collar · Walks on the Left · Striped Fur · Tennis Ball

Trail: Start 21 → Clue 1 15 → Clue 2 11 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Percentages): "THE VILLAIN DOES NOT USE A GLIDER PACK"

40% of 55 = 22 (T) · 50% of 40 = 20 (O) · 20% of 205 = 41 (H) · 10% of 360 = 36 (C) · 25% of 20 = 5 (D) · 50% of 38 = 19 (P) · 20% of 105 = 21 (V) · 25% of 148 = 37 (N) · 10% of 340 = 34 (U) · 10% of 70 = 7 (L) · 10% of 440 = 44 (G) · 20% of 225 = 45 (S) · 10% of 170 = 17 (R) · 75% of 52 = 39 (A) · 25% of 168 = 42 (K) · 5% of 540 = 27 (E) · 10% of 140 = 14 (I)

Clue 2 (Exponents): "THE SUSPECT LEAVES FOOTPRINTS ON THE LEFT"

19^2 = 361 (T) · 5^3 = 125 (N) · 2^5 = 32 (L) · 5^2 = 25 (C) · 2^7 = 128 (E) · 4^2 = 16 (O) · 3^4 = 81 (H) · 6^3 = 216 (I) · 10^2 = 100 (U) · 3^5 = 243 (F) · 13^2 = 169 (A) · 18^2 = 324 (V) · 15^2 = 225 (P) · 3^3 = 27 (S) · 6^2 = 36 (R)

Clue 3 (Order of operations): "A TENNIS BALL STOPS THIS BAD DOG"

10 × 4 - 5 = 35 (A) · 30 + 6 × 3 = 48 (G) · 10 × 3 - 11 = 19 (L) · 8 + 3 × 2 = 14 (T) · 19 + 5 × 7 = 54 (H) · 7 × 7 - 17 = 32 (B) · 3 + 4 × 6 = 27 (E) · 4 + 2 × 3 = 10 (I) · 64 + 7 × 2 = 78 (N) · 9 × 10 - 27 = 63 (O) · 30 + 8 × 5 = 70 (D) · 8 × 12 - 24 = 72 (S) · 12 × 8 - 20 = 76 (P)

Clue 4 (Multiplication facts (1-12)): "THE THIEF DROPPED STRIPED FUR HERE"

3 × 4 = 12 (T) · 5 × 6 = 30 (P) · 12 × 12 = 144 (O) · 7 × 8 = 56 (F) · 9 × 8 = 72 (H) · 9 × 6 = 54 (I) · 8 × 4 = 32 (U) · 1 × 9 = 9 (D) · 10 × 10 = 100 (R) · 7 × 11 = 77 (S) · 5 × 11 = 55 (E)

Clue 5 (Division facts (1-12)): surviving statement is box 1 → Perdita

2 ÷ 1 = 2 · 10 ÷ 1 = 10 · 48 ÷ 6 = 8 · 8 ÷ 2 = 4 · 35 ÷ 7 = 5 · 30 ÷ 10 = 3 · 12 ÷ 1 = 12 · 22 ÷ 2 = 11 · 6 ÷ 1 = 6 · 49 ÷ 7 = 7 · 108 ÷ 12 = 9