



# The Mystery of the Coral Kingdom Pearl

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

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

The legendary Heart of the Sea Pearl has been stolen from the Coral Altar! Witnesses saw a mysterious figure flee toward the forest. Both mermaids and unicorns are suspects, and it is up to the Glitter Patrol to solve the case.

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 Raider is** \_\_\_\_\_

# Possible suspects

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

| NAME        | SIGNATURE SPELL | ENCHANTED GEAR | SWIM PATTERN | MANE TEXTURE    | MAGIC BARRIER |
|-------------|-----------------|----------------|--------------|-----------------|---------------|
| Stormy      | Coral Shield    | Shell Necklace | Leans Right  | Seaweed Braids  | Sweet Clover  |
| Silvermane  | Sparkle Spark   | Kelpfrost Ring | Leans Right  | Glitter Strands | Sunlight      |
| Triton      | Coral Shield    | Starfish Wand  | Leans Right  | Starfish Clips  | Sweet Clover  |
| Starlight   | Rainbow Dash    | Kelpfrost Ring | Leans Right  | Seaweed Braids  | Sweet Clover  |
| Celestia    | Rainbow Dash    | Pearl Tiara    | Leans Right  | Seaweed Braids  | Sweet Clover  |
| Delphine    | Coral Shield    | Pearl Tiara    | Leans Left   | Starfish Clips  | Sunlight      |
| Aqua        | Tidal Wave      | Pearl Tiara    | Leans Right  | Starfish Clips  | Deep Trench   |
| Coralia     | Rainbow Dash    | Shell Necklace | Leans Right  | Seaweed Braids  | Sweet Clover  |
| Marina      | Sparkle Spark   | Starfish Wand  | Leans Right  | Seaweed Braids  | Sweet Clover  |
| Pearl       | Coral Shield    | Starfish Wand  | Leans Right  | Glitter Strands | Sweet Clover  |
| Oceanus     | Tidal Wave      | Pearl Tiara    | Leans Left   | Glitter Strands | Sunlight      |
| Glitterhoof | Sparkle Spark   | Pearl Tiara    | Leans Right  | Starfish Clips  | Deep Trench   |
| Waveweaver  | Sparkle Spark   | Pearl Tiara    | Leans Left   | Seaweed Braids  | Sunlight      |
| Skye        | Tidal Wave      | Shell Necklace | Leans Left   | Starfish Clips  | Sunlight      |
| Jewel       | Coral Shield    | Starfish Wand  | Leans Left   | Glitter Strands | Deep Trench   |
| Melody      | Sparkle Spark   | Kelpfrost Ring | Leans Right  | Seaweed Braids  | Deep Trench   |
| Splash      | Bubble Beam     | Kelpfrost Ring | Leans Left   | Seaweed Braids  | Sunlight      |
| Starshine   | Rainbow Dash    | Shell Necklace | Leans Right  | Starfish Clips  | Deep Trench   |
| Ariel       | Rainbow Dash    | Kelpfrost Ring | Leans Right  | Glitter Strands | Deep Trench   |
| Finley      | Bubble Beam     | Golden Bridle  | Leans Right  | Seaweed Braids  | Sunlight      |
| Neptune     | Coral Shield    | Starfish Wand  | Leans Left   | Seaweed Braids  | Sweet Clover  |

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

The Reef Guardians counted their stored glow-shells. They need to find what fraction of the shells are still shining to activate the tracking map.

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

|                            |                           |                           |                            |                           |                           |                           |                           |                            |                           |                           |                           |                          |                           |                            |                           |                           |                          |                           |
|----------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|---------------------------|--------------------------|---------------------------|----------------------------|---------------------------|---------------------------|--------------------------|---------------------------|
| <div>T</div> <div>15</div> | <div></div> <div>23</div> | <div></div> <div>18</div> | <div>T</div> <div>15</div> | <div></div> <div>23</div> | <div></div> <div>11</div> | <div></div> <div>18</div> | <div></div> <div>12</div> | <div></div> <div>38</div>  | <div></div> <div>25</div> | <div></div> <div>18</div> | <div></div> <div>31</div> | <div></div> <div>9</div> | <div></div> <div>25</div> | <div>T</div> <div>15</div> | <div></div> <div>10</div> | <div></div> <div>18</div> | <div></div> <div>2</div> | <div></div> <div>21</div> |
| <div>T</div> <div>15</div> | <div></div> <div>23</div> | <div></div> <div>18</div> | <div></div> <div>29</div>  | <div></div> <div>18</div> | <div></div> <div>2</div>  | <div></div> <div>21</div> | <div></div> <div>33</div> | <div>T</div> <div>15</div> | <div></div> <div>11</div> | <div></div> <div>2</div>  | <div></div> <div>21</div> | <div></div> <div>2</div> |                           |                            |                           |                           |                          |                           |

$5/10 \text{ of } 30 = \square \rightarrow \text{T}$

$2/10 \text{ of } 145 = \square \rightarrow \text{P}$

$6/10 \text{ of } 35 = \square \rightarrow \text{R}$

$2/4 \text{ of } 76 = \square \rightarrow \text{D}$

$3/6 \text{ of } 36 = \square \rightarrow \text{E}$

$2/4 \text{ of } 62 = \square \rightarrow \text{S}$

$1/8 \text{ of } 80 = \square \rightarrow \text{W}$

$1/5 \text{ of } 115 = \square \rightarrow \text{H}$

$4/8 \text{ of } 66 = \square \rightarrow \text{L}$

$3/8 \text{ of } 32 = \square \rightarrow \text{F}$

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

$1/2 \text{ of } 18 = \square \rightarrow \text{N}$

$4/8 \text{ of } 50 = \square \rightarrow \text{O}$

$5/10 \text{ of } 22 = \square \rightarrow \text{I}$

Scratch space:

## CLUE 2 Order of operations

To unlock the sea-chest containing the first clue, we must solve the sequence of bubble-math steps in the correct order.

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

|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| T  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 79 | 11 | 57 | 47 | 71 | 47 | 40 | 57 | 75 | 79 | 21 | 55 | 68 | 21 | 62 | 47 |    |    |    |
|    |    |    |    |    | T  |    |    |    |    |    | T  |    |    |    |    | T  |    |    |
| 47 | 68 | 67 | 49 | 47 | 79 | 27 | 68 | 21 | 9  | 73 | 79 | 11 | 57 | 9  | 67 | 23 | 11 | 79 |

|                                            |                                            |                                            |
|--------------------------------------------|--------------------------------------------|--------------------------------------------|
| $9 \times 11 - 20 = \square \rightarrow$ T | $8 \times 6 - 1 = \square \rightarrow$ S   | $3 \times 12 - 25 = \square \rightarrow$ H |
| $11 \times 8 - 15 = \square \rightarrow$ D | $5 + 6 \times 3 = \square \rightarrow$ G   | $44 + 3 \times 6 = \square \rightarrow$ Y  |
| $11 \times 8 - 17 = \square \rightarrow$ U | $10 \times 7 - 3 = \square \rightarrow$ I  | $10 \times 5 - 29 = \square \rightarrow$ A |
| $25 + 5 \times 3 = \square \rightarrow$ P  | $9 \times 3 - 18 = \square \rightarrow$ R  | $9 + 2 \times 9 = \square \rightarrow$ O   |
| $10 \times 5 - 1 = \square \rightarrow$ M  | $9 \times 7 - 8 = \square \rightarrow$ L   | $12 \times 7 - 27 = \square \rightarrow$ E |
| $27 + 6 \times 8 = \square \rightarrow$ C  | $10 \times 8 - 12 = \square \rightarrow$ W |                                            |

Scratch space:

## CLUE 3

## Multiplication facts (1-12)

The kelp forest is planted in equal rows. Counting the total plants will help us map the thief's escape path.

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

|    |    |    |    |    |    |    |    |    |   |    |    |     |    |  |
|----|----|----|----|----|----|----|----|----|---|----|----|-----|----|--|
| T  |    |    |    |    |    |    |    |    |   |    |    |     |    |  |
| 70 | 81 | 44 | 44 | 48 | 44 | 11 | 28 | 10 | 5 | 63 | 44 | 121 | 12 |  |

|     |    |     |    |    |   |    |   |    |    |    |    |    |    |    |    |    |    |
|-----|----|-----|----|----|---|----|---|----|----|----|----|----|----|----|----|----|----|
|     |    |     |    |    |   | T  |   |    |    |    | T  |    |    |    |    |    |    |
| 121 | 16 | 121 | 10 | 48 | 5 | 70 | 5 | 63 | 44 | 44 | 70 | 50 | 99 | 15 | 22 | 44 | 72 |

$7 \times 10 = \square \rightarrow \boxed{\text{T}}$

$5 \times 2 = \square \rightarrow \boxed{\text{I}}$

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

$7 \times 9 = \square \rightarrow \boxed{\text{W}}$

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

$3 \times 5 = \square \rightarrow \boxed{\text{O}}$

$6 \times 8 = \square \rightarrow \boxed{\text{N}}$

$11 \times 2 = \square \rightarrow \boxed{\text{V}}$

$10 \times 5 = \square \rightarrow \boxed{\text{C}}$

$9 \times 11 = \square \rightarrow \boxed{\text{L}}$

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

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

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

$1 \times 11 = \square \rightarrow \boxed{\text{M}}$

$4 \times 11 = \square \rightarrow \boxed{\text{E}}$

$9 \times 8 = \square \rightarrow \boxed{\text{R}}$

$12 \times 1 = \square \rightarrow \boxed{\text{K}}$

Scratch space:

## CLUE 4

## Rounding

Our sea-sonar isn't perfectly precise. It rounds the distance of the suspect's magical trail to the nearest ten leagues.

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

|          |     |      |     |     |      |     |      |    |     |     |    |      |     |     |          |     |     |     |  |
|----------|-----|------|-----|-----|------|-----|------|----|-----|-----|----|------|-----|-----|----------|-----|-----|-----|--|
| <b>W</b> |     |      |     |     |      |     |      |    |     |     |    |      |     |     |          |     |     |     |  |
| 2300     | 130 | 7000 | 290 | 110 | 90   | 170 | 1300 | 50 | 130 | 130 | 90 | 1700 | 130 | 500 | <b>W</b> | 130 | 130 | 170 |  |
|          |     |      |     |     |      |     |      |    |     |     |    |      |     |     |          |     |     |     |  |
| 1100     | 50  | 500  | 230 | 170 | 1700 |     |      |    |     |     |    |      |     |     |          |     |     |     |  |

Round 2,294 to the nearest hundred

→ **W**

Round 126 to the nearest ten

→ **E**

Round 502 to the nearest hundred

→ **A**

Round 231 to the nearest ten

→ **I**

Round 7,217 to the nearest thousand

→ **F**

Round 1,327 to the nearest hundred

→ **G**

Round 1,727 to the nearest hundred

→ **S**

Round 1,056 to the nearest hundred

→ **B**

Round 93 to the nearest ten

→ **N**

Round 166 to the nearest ten

→ **D**

Round 47 to the nearest ten

→ **R**

Round 287 to the nearest ten

→ **O**

Round 109 to the nearest ten

→ **U**

Scratch space:

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

The mermaids need to divide their speed-potions equally among the search teams before they set off.

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:**

$96 \div 8 = \boxed{\phantom{00}}$

$108 \div 12 = \boxed{\phantom{00}}$

$55 \div 11 = \boxed{\phantom{00}}$

$2 \div 1 = \boxed{\phantom{00}}$

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

$40 \div 5 = \boxed{\phantom{00}}$

$99 \div 9 = \boxed{\phantom{00}}$

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

$3 \div 1 = \boxed{\phantom{00}}$

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

$30 \div 5 = \boxed{\phantom{00}}$

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

1. The villain summons a blinding flash of light, then leaps over the coral reef.
2. The villain conjures a wall of sharp coral, then vanishes in a cloud of bubbles.
3. The villain creates a massive whirlpool, then gallops away into the deep forest.
4. The villain conjures a wall of sharp coral, then gallops away into the deep forest.
5. The villain kicks up a blinding sandstorm, then gallops away into the deep forest.
6. The villain shoots a stream of hot steam, then gallops away into the deep forest.
7. The villain creates a massive whirlpool, then vanishes in a cloud of bubbles.
8. The villain kicks up a blinding sandstorm, then leaps over the coral reef.
9. The villain summons a blinding flash of light, then gallops away into the deep forest.
10. The villain shoots a stream of hot steam, then disappears into a deep trench.
11. The villain summons a blinding flash of light, then vanishes in a cloud of bubbles.
12. The villain shoots a stream of hot steam, then vanishes in a cloud of bubbles.

# Answer Key

## The Mystery of the Coral Kingdom Pearl

### Culprit: Starlight

Rainbow Dash · Kelpfrost Ring · Leans Right · Seaweed Braids · Sweet Clover

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

#### Clue 1 (Fractions of a number): "THE THIEF DOES NOT WEAR THE PEARL TIARA"

$5/10$  of 30 = 15 (T) ·  $2/10$  of 145 = 29 (P) ·  $6/10$  of 35 = 21 (R) ·  $2/4$  of 76 = 38 (D) ·  $3/6$  of 36 = 18 (E) ·  $2/4$  of 62 = 31 (S) ·  $1/8$  of 80 = 10 (W) ·  $1/5$  of 115 = 23 (H) ·  $4/8$  of 66 = 33 (L) ·  $3/8$  of 32 = 12 (F) ·  $2/10$  of 10 = 2 (A) ·  $1/2$  of 18 = 9 (N) ·  $4/8$  of 50 = 25 (O) ·  $5/10$  of 22 = 11 (I)

#### Clue 2 (Order of operations): "THE SUSPECT ALWAYS SWIMS TOWARD THE RIGHT"

$9 \times 11 - 20 = 79$  (T) ·  $8 \times 6 - 1 = 47$  (S) ·  $3 \times 12 - 25 = 11$  (H) ·  $11 \times 8 - 15 = 73$  (D) ·  $5 + 6 \times 3 = 23$  (G) ·  $44 + 3 \times 6 = 62$  (Y) ·  $11 \times 8 - 17 = 71$  (U) ·  $10 \times 7 - 3 = 67$  (I) ·  $10 \times 5 - 29 = 21$  (A) ·  $25 + 5 \times 3 = 40$  (P) ·  $9 \times 3 - 18 = 9$  (R) ·  $9 + 2 \times 9 = 27$  (O) ·  $10 \times 5 - 1 = 49$  (M) ·  $9 \times 7 - 8 = 55$  (L) ·  $12 \times 7 - 27 = 57$  (E) ·  $27 + 6 \times 8 = 75$  (C) ·  $10 \times 8 - 12 = 68$  (W)

#### Clue 3 (Multiplication facts (1-12)): "THE ENEMY IS WEAK AGAINST SWEET CLOVER"

$7 \times 10 = 70$  (T) ·  $5 \times 2 = 10$  (I) ·  $2 \times 8 = 16$  (G) ·  $7 \times 9 = 63$  (W) ·  $5 \times 1 = 5$  (S) ·  $3 \times 5 = 15$  (O) ·  $6 \times 8 = 48$  (N) ·  $11 \times 2 = 22$  (V) ·  $10 \times 5 = 50$  (C) ·  $9 \times 11 = 99$  (L) ·  $11 \times 11 = 121$  (A) ·  $9 \times 9 = 81$  (H) ·  $4 \times 7 = 28$  (Y) ·  $1 \times 11 = 11$  (M) ·  $4 \times 11 = 44$  (E) ·  $9 \times 8 = 72$  (R) ·  $12 \times 1 = 12$  (K)

#### Clue 4 (Rounding): "WE FOUND GREEN SEAWEEED BRAIDS"

Round 2,294 to the nearest hundred = 2300 (W) · Round 126 to the nearest ten = 130 (E) · Round 502 to the nearest hundred = 500 (A) · Round 231 to the nearest ten = 230 (I) · Round 7,217 to the nearest thousand = 7000 (F) · Round 1,327 to the nearest hundred = 1300 (G) · Round 1,727 to the nearest hundred = 1700 (S) · Round 1,056 to the nearest hundred = 1100 (B) · Round 93 to the nearest ten = 90 (N) · Round 166 to the nearest ten = 170 (D) · Round 47 to the nearest ten = 50 (R) · Round 287 to the nearest ten = 290 (O) · Round 109 to the nearest ten = 110 (U)

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

$96 \div 8 = 12$  ·  $108 \div 12 = 9$  ·  $55 \div 11 = 5$  ·  $2 \div 1 = 2$  ·  $70 \div 7 = 10$  ·  $40 \div 5 = 8$  ·  $99 \div 9 = 11$  ·  $28 \div 4 = 7$  ·  $3 \div 1 = 3$  ·  $48 \div 12 = 4$  ·  $30 \div 5 = 6$