



The Case of the Golden Compass

Grade 5 math · Fractions of a number, Order of operations, Multiplication, Rounding, Division · Reading level grades 3-4

Detective: _____ Date: _____

Chief Archeologist Marina found the ancient Golden Compass on Coconut Cove. But overnight, a rogue explorer snatched it from her tent! The Coconut Cove Kids Club is on the case to find the culprit before they sail away.

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 explorer is _____

Possible suspects

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

NAME	GEAR ITEM	SURVIVAL SKILL	WRITING HAND	BANDANA COLOR	FAVORITE SNACK
Gavin	Grappling Hook	Campfire Building	Left Handed	Green Bandana	Sour Gummy Worms
Ivy	Pocket Lantern	Trail Blazing	Right Handed	Blue Bandana	Salted Pretzels
Sam	Pocket Lantern	Trail Blazing	Left Handed	Red Bandana	Sour Gummy Worms
Ben	Pocket Lantern	Trail Blazing	Right Handed	Green Bandana	Salted Pretzels
Finn	Metal Detector	Trail Blazing	Right Handed	Red Bandana	Chocolate Coins
Ruby	Pocket Lantern	Campfire Building	Right Handed	Green Bandana	Chocolate Coins
Leo	Pocket Lantern	Shelter Making	Left Handed	Green Bandana	Sour Gummy Worms
Ava	Metal Detector	Knot Tying	Right Handed	Blue Bandana	Salted Pretzels
Sienna	Climbing Rope	Knot Tying	Right Handed	Green Bandana	Chocolate Coins
Alex	Pocket Lantern	Campfire Building	Right Handed	Blue Bandana	Chocolate Coins
Chloe	Metal Detector	Knot Tying	Right Handed	Blue Bandana	Sour Gummy Worms
Mia	Pocket Lantern	Map Reading	Right Handed	Blue Bandana	Chocolate Coins
Cole	Grappling Hook	Shelter Making	Left Handed	Green Bandana	Sour Gummy Worms
Jack	Climbing Rope	Shelter Making	Left Handed	Blue Bandana	Salted Pretzels
Toby	Metal Detector	Campfire Building	Right Handed	Blue Bandana	Chocolate Coins
Ella	Pocket Lantern	Shelter Making	Right Handed	Blue Bandana	Chocolate Coins
Maya	Metal Detector	Map Reading	Right Handed	Blue Bandana	Chocolate Coins
Noah	Grappling Hook	Shelter Making	Right Handed	Green Bandana	Sour Gummy Worms
Luke	Pocket Lantern	Trail Blazing	Right Handed	Green Bandana	Sour Gummy Worms
Zoe	Pocket Lantern	Knot Tying	Right Handed	Green Bandana	Sour Gummy Worms
Grace	Spyglass	Map Reading	Left Handed	Blue Bandana	Chocolate Coins

CLUE 1

Fractions of a number

The kids find a ripped page from a logbook. To find the first clue, we need to calculate a fraction of the total pages left in the book.

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

T																	T
31	25	16	27	22	14	14	9	22	29	39	33	16	30	29	33	31	

								T								
25	9	27	16	30	25	16	14	31	16	13	8	9	3	22	29	23

$2/4$ of 62 = → T	$2/3$ of 12 = → M	$4/10$ of 35 = → L
$2/6$ of 66 = → I	$4/8$ of 50 = → H	$1/6$ of 18 = → K
$3/8$ of 80 = → S	$1/10$ of 130 = → R	$4/8$ of 78 = → D
$9/10$ of 10 = → A	$6/8$ of 36 = → V	$2/10$ of 165 = → O
$1/4$ of 64 = → E	$3/6$ of 58 = → N	$4/8$ of 46 = → G

Scratch space:

CLUE 2 Order of operations

Marina remembers a secret code on the lockbox. To crack the code, the team must solve a puzzle using the correct order of operations.

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

A 2x6 grid of boxes. The top row contains the following sequence: an orange box with 'T', three empty boxes, an orange box with 'T', and three empty boxes. The bottom row contains: three empty boxes, an orange box with 'T', and four empty boxes.

T					T							T				
67	13	61	42	60	16	49	31	71	67	13	61	16	59	67	13	61
							T									
49	61	9	31	71	35	13	67	13	21	9	59	61	59			

$$63 + 2 \times 2 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$15 + 2 \times 8 = \boxed{} \rightarrow \boxed{\mathbf{R}}$$

$$8 \times 3 - 8 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$39 + 5 \times 4 = \boxed{} \rightarrow \boxed{\text{D}}$$

$$50 + 3 \times 7 = \boxed{} \rightarrow \boxed{\text{I}}$$

$1 + 4 \times 2 = \boxed{} \rightarrow \boxed{\text{N}}$

$$11 \times 5 - 20 = \boxed{} \rightarrow \mathbf{G}$$

$$5 \times 11 - 13 = \boxed{} \rightarrow \boxed{\text{C}}$$

$$42 + 9 \times 2 = \boxed{} \rightarrow$$

$$10 \times 4 - 27 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$5 + 8 \times 7 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$2 \times 11 - 1 = \boxed{} \rightarrow \boxed{\mathbf{A}}$$

$10 \times 6 - 11 = \boxed{} \rightarrow \boxed{\text{P}}$

Scratch space:

CLUE 3

Multiplication facts (1-12)

The team spots footprints in the mud leading away from the tent. They are arranged in neat rows. We must multiply the rows to count them all.

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

A			A																
120	70	108	120	21	21	35	108	42	40	108	11	24	40	11	40	96	120	60	35
						A													
11	40	49	6	45	70	120	45	96	35	42	60								

$10 \times 12 = \square \rightarrow \text{A}$

$3 \times 2 = \square \rightarrow \text{N}$

$10 \times 7 = \square \rightarrow \text{W}$

$7 \times 3 = \square \rightarrow \text{P}$

$5 \times 8 = \square \rightarrow \text{O}$

$7 \times 7 = \square \rightarrow \text{I}$

$5 \times 9 = \square \rightarrow \text{S}$

$12 \times 8 = \square \rightarrow \text{L}$

$7 \times 5 = \square \rightarrow \text{E}$

$12 \times 9 = \square \rightarrow \text{R}$

$12 \times 2 = \square \rightarrow \text{H}$

$7 \times 6 = \square \rightarrow \text{F}$

$1 \times 11 = \square \rightarrow \text{C}$

$12 \times 5 = \square \rightarrow \text{T}$

Scratch space:

CLUE 4 Rounding

A nearby radio tower is sending a faint signal. The frequency is fuzzy, so we have to round the number to the nearest ten to get a clear message.

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

T																
1300	50	290	900	3700	90	1100	130	50	200	1100	90	430	430	290	170	90

900	500	7000	290	900	90	1100	170

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

Round 1,057 to the nearest hundred → **N**

Round 91 to the nearest ten → **A**

Round 170 to the nearest ten → **D**

Round 542 to the nearest hundred → **L**

Round 852 to the nearest hundred → **B**

Round 6,588 to the nearest thousand → **U**

Round 432 to the nearest ten → **G**

Round 3,670 to the nearest hundred → **R**

Round 156 to the nearest hundred → **S**

Round 292 to the nearest ten → **E**

Round 54 to the nearest ten → **H**

Round 127 to the nearest ten → **C**

Scratch space:

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

The explorers find a bag of shiny rocks dropped on the path. We must divide the rocks equally among the searchers to see how many each person gets.

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:

$18 \div 6 = \boxed{}$

$90 \div 10 = \boxed{}$

$10 \div 1 = \boxed{}$

$48 \div 12 = \boxed{}$

$55 \div 5 = \boxed{}$

$77 \div 11 = \boxed{}$

$6 \div 6 = \boxed{}$

$18 \div 3 = \boxed{}$

$60 \div 12 = \boxed{}$

$72 \div 9 = \boxed{}$

$16 \div 8 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain sweeps the sandy beach with a metal detector, then blazes a trail through the thick vines.
2. The villain swings across the river with a grappling hook, then blazes a trail through the thick vines.
3. The villain sweeps the sandy beach with a metal detector, then builds a small campfire to stay warm.
4. The villain lights up the dark jungle with a pocket lantern, then ties a quick double knot to secure the boat.
5. The villain climbs up the steep cliff with a climbing rope, then makes a quick branch shelter to hide from rain.
6. The villain climbs up the steep cliff with a climbing rope, then ties a quick double knot to secure the boat.
7. The villain climbs up the steep cliff with a climbing rope, then reads the old map to escape.
8. The villain uses a brass spyglass to spot the camp, then blazes a trail through the thick vines.
9. The villain lights up the dark jungle with a pocket lantern, then builds a small campfire to stay warm.
10. The villain lights up the dark jungle with a pocket lantern, then reads the old map to escape.
11. The villain swings across the river with a grappling hook, then makes a quick branch shelter to hide from rain.
12. The villain sweeps the sandy beach with a metal detector, then reads the old map to escape.

Answer Key

The Case of the Golden Compass

Culprit: Maya

Metal Detector · Map Reading · Right Handed · Blue Bandana · Chocolate Coins

Trail: Start 21 → Clue 1 16 → Clue 2 13 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Fractions of a number): "THE VILLAIN DOES NOT HAVE SHELTER MAKING"

$\frac{2}{4}$ of 62 = 31 (T) · $\frac{2}{3}$ of 12 = 8 (M) · $\frac{4}{10}$ of 35 = 14 (L) · $\frac{2}{6}$ of 66 = 22 (I) · $\frac{4}{8}$ of 50 = 25 (H) · $\frac{1}{6}$ of 18 = 3 (K) · $\frac{3}{8}$ of 80 = 30 (S) · $\frac{1}{10}$ of 130 = 13 (R) · $\frac{4}{8}$ of 78 = 39 (D) · $\frac{9}{10}$ of 10 = 9 (A) · $\frac{6}{8}$ of 36 = 27 (V) · $\frac{2}{10}$ of 165 = 33 (O) · $\frac{1}{4}$ of 64 = 16 (E) · $\frac{3}{6}$ of 58 = 29 (N) · $\frac{4}{8}$ of 46 = 23 (G)

Clue 2 (Order of operations): "THE CULPRIT HELD THE PEN RIGHT HANDED"

$63 + 2 \times 2 = 67$ (T) · $15 + 2 \times 8 = 31$ (R) · $8 \times 3 - 8 = 16$ (L) · $39 + 5 \times 4 = 59$ (D) · $50 + 3 \times 7 = 71$ (I) · $1 + 4 \times 2 = 9$ (N) · $11 \times 5 - 20 = 35$ (G) · $5 \times 11 - 13 = 42$ (C) · $42 + 9 \times 2 = 60$ (U) · $10 \times 4 - 27 = 13$ (H) · $5 + 8 \times 7 = 61$ (E) · $2 \times 11 - 1 = 21$ (A) · $10 \times 6 - 11 = 49$ (P)

Clue 3 (Multiplication facts (1-12)): "A WRAPPER FOR CHOCOLATE COINS WAS LEFT"

$10 \times 12 = 120$ (A) · $3 \times 2 = 6$ (N) · $10 \times 7 = 70$ (W) · $7 \times 3 = 21$ (P) · $5 \times 8 = 40$ (O) · $7 \times 7 = 49$ (I) · $5 \times 9 = 45$ (S) · $12 \times 8 = 96$ (L) · $7 \times 5 = 35$ (E) · $12 \times 9 = 108$ (R) · $12 \times 2 = 24$ (H) · $7 \times 6 = 42$ (F) · $1 \times 11 = 11$ (C) · $12 \times 5 = 60$ (T)

Clue 4 (Rounding): "THE BRANCH SNAGGED A BLUE BANDANA"

Round 1,337 to the nearest hundred = 1300 (T) · Round 1,057 to the nearest hundred = 1100 (N) · Round 91 to the nearest ten = 90 (A) · Round 170 to the nearest ten = 170 (D) · Round 542 to the nearest hundred = 500 (L) · Round 852 to the nearest hundred = 900 (B) · Round 6,588 to the nearest thousand = 7000 (U) · Round 432 to the nearest ten = 430 (G) · Round 3,670 to the nearest hundred = 3700 (R) · Round 156 to the nearest hundred = 200 (S) · Round 292 to the nearest ten = 290 (E) · Round 54 to the nearest ten = 50 (H) · Round 127 to the nearest ten = 130 (C)

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

$18 \div 6 = 3$ · $90 \div 10 = 9$ · $10 \div 1 = 10$ · $48 \div 12 = 4$ · $55 \div 5 = 11$ · $77 \div 11 = 7$ · $6 \div 6 = 1$ · $18 \div 3 = 6$ · $60 \div 12 = 5$ · $72 \div 9 = 8$ · $16 \div 8 = 2$