



The Trail of Tears National Historic Trail Mystery

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

Detective: _____ Date: _____

An irreplaceable hand-drawn map of the original northern land route from 1838 has gone missing from the Cherokee National Historical Trail Center. As junior rangers, we must piece together the clues to find the thief before the map is lost forever.

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 artifact thief is _____

Possible suspects

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

NAME	HISTORICAL SPECIALTY	RESEARCH TOOL	DOMINANT HAND	FIELD HAT	TRAIL SNACK
Archivist Lee	treaty history	field notebook	right handed writer	tan trail hat	dried hickory nuts
Dr Foreman	native plants	digital camera	right handed writer	tan trail hat	parched corn
Guide John	cherokee language	field notebook	right handed writer	green park cap	wild blackberries
Archivist Lowery	cherokee language	field notebook	right handed writer	green park cap	parched corn
Ranger Martin	cherokee language	uv flashlight	right handed writer	tan trail hat	dried hickory nuts
Ranger Daniel	archival maps	magnifying glass	left handed writer	green park cap	dried hickory nuts
Dr Cho	treaty history	digital camera	right handed writer	green park cap	parched corn
Historian Adair	cherokee language	digital camera	left handed writer	tan trail hat	parched corn
Historian Ross	archival maps	field notebook	right handed writer	green park cap	parched corn
Historian Ward	clan genealogy	handheld gps	right handed writer	green park cap	dried hickory nuts
Guide Mary	treaty history	magnifying glass	left handed writer	grey wool beanie	wild blackberries
Guide Gist	clan genealogy	uv flashlight	right handed writer	green park cap	parched corn
Ranger Walker	native plants	magnifying glass	left handed writer	grey wool beanie	wild blackberries
Guide Bushyhead	archival maps	digital camera	right handed writer	green park cap	parched corn
Dr Vann	treaty history	handheld gps	right handed writer	tan trail hat	parched corn
Ranger Clara	clan genealogy	field notebook	right handed writer	tan trail hat	parched corn
Dr Ridge	clan genealogy	field notebook	right handed writer	grey wool beanie	parched corn
Ranger Evans	treaty history	field notebook	right handed writer	grey wool beanie	wild blackberries
Ranger Davis	native plants	field notebook	right handed writer	tan trail hat	parched corn
Dr Thomas	clan genealogy	handheld gps	right handed writer	tan trail hat	wild blackberries
Curator Smith	cherokee language	magnifying glass	left handed writer	green park cap	parched corn

CLUE 1

Fractions of a number

We check the logbook of daily visitors to the historical center. The curator says only a fraction of yesterday's group went near the restricted archives.

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

Diagram illustrating a 2D array structure with two rows and 12 columns. The array is represented by boxes, some of which are highlighted in orange and contain the letter 'T'.

Row 1 (Top):

- Box 1 (Orange, T): 34
- Box 2: 13
- Box 3: 25
- Box 4: 11
- Box 5: 21
- Box 6: 11
- Box 7: 8
- Box 8: 25
- Box 9: 2
- Box 10 (Orange, T): 34
- Box 11: 22
- Box 12: 33
- Box 13: 22
- Box 14: 19
- Box 15: 32
- Box 16 (Orange, T): 34
- Box 17: 21
- Box 18: 11
- Box 19: 25

Row 2 (Bottom):

- Box 1: 16
- Box 2: 21
- Box 3: 9
- Box 4: 23
- Box 5: 3
- Box 6: 16
- Box 7: 11
- Box 8: 13
- Box 9: 3
- Box 10: 33
- Box 11: 17
- Box 12: 13
- Box 13 (Orange, T): 34

$$2/5 \text{ of } 85 = \boxed{} \rightarrow \boxed{\text{T}}$$

$1/10$ of 20 = $\rightarrow$ **C**

8/10 of 20 = → **A**

$2/8$ of 100 = $\rightarrow$ **E**

3/6 of 18 = → **V**

$$\frac{1}{6} \text{ of } 192 = \boxed{} \rightarrow \boxed{0}$$

$$1/6 \text{ of } 126 = \boxed{} \rightarrow \boxed{\text{U}}$$

$$\frac{1}{8} \text{ of } 152 = \boxed{} \rightarrow \boxed{\text{N}}$$

$$1/5 \text{ of } 15 = \boxed{} \rightarrow \boxed{\text{L}}$$

3/6 of 34 = → **G**

$$2/8 \text{ of } 132 = \boxed{} \rightarrow \boxed{}$$

4/8 of 16 = → **P**

$$2/6 \text{ of } 39 = \boxed{} \rightarrow \boxed{\text{H}}$$

2/4 of 46 = → **F**

$2/4$ of 22 = $\rightarrow$ **S**

$$\frac{1}{8} \text{ of } 176 = \boxed{} \rightarrow \boxed{\mathbf{D}}$$

Scratch space:

CLUE 2

Order of operations

A complicated security passcode was used on the back door. Solving this multi-step equation reveals the terminal code that logged the entry time.

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

T			T								T						
73	48	62	73	48	25	62	74	54	43	28	73	62	35	28	59	23	
		T		T									T				
54	25	73	48	73	48	62	25	43	43	25	59	48	73	48	30	44	33

$61 + 2 \times 6 = \square \rightarrow \boxed{\text{T}}$

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

$8 + 9 \times 3 = \square \rightarrow \boxed{\text{L}}$

$4 \times 10 - 12 = \square \rightarrow \boxed{\text{O}}$

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

$5 + 3 \times 6 = \square \rightarrow \boxed{\text{S}}$

$28 + 5 \times 3 = \square \rightarrow \boxed{\text{R}}$

$10 + 4 \times 5 = \square \rightarrow \boxed{\text{A}}$

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

$11 \times 5 - 1 = \square \rightarrow \boxed{\text{W}}$

$33 + 3 \times 5 = \square \rightarrow \boxed{\text{H}}$

$7 + 2 \times 9 = \square \rightarrow \boxed{\text{I}}$

$11 \times 6 - 7 = \square \rightarrow \boxed{\text{G}}$

$14 + 6 \times 5 = \square \rightarrow \boxed{\text{N}}$

Scratch space:

CLUE 3

Multiplication facts (1-12)

We inspect the supply shelves in the ranger office. To find the total count of missing field notebooks, we count the rows of empty boxes.

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

T																	
42	14	33	12	96	9	1	4	4	33	96	110	144	110	50	1	90	
4	110	9	45	14	33	96	45	1	9	88							

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

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

$4 \times 1 = \square \rightarrow \text{P}$

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

$5 \times 10 = \square \rightarrow \text{G}$

$3 \times 11 = \square \rightarrow \text{E}$

$12 \times 12 = \square \rightarrow \text{B}$

$1 \times 1 = \square \rightarrow \text{O}$

$1 \times 9 = \square \rightarrow \text{R}$

$11 \times 8 = \square \rightarrow \text{N}$

$10 \times 9 = \square \rightarrow \text{F}$

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

$2 \times 7 = \square \rightarrow \text{H}$

$10 \times 11 = \square \rightarrow \text{A}$

Scratch space:

CLUE 4 Rounding

The historic GPS tracker logged a signal, but the coordinates are fuzzy. We must round the numbers to the nearest tenth to find the trail coordinates.

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

W																
700	3000	130	4300	30	430	230	50	900	500	3000	3000	430	300	50	500	2300

170	50	300	430	3000	50	500	200	2900	3000	230	4300	4300	500

Round 677 to the nearest hundred → **W**

Round 189 to the nearest hundred → **T**

Round 2,647 to the nearest thousand → **E**

Round 493 to the nearest hundred → **R**

Round 2,923 to the nearest hundred → **H**

Round 48 to the nearest ten → **A**

Round 228 to the nearest ten → **D**

Round 323 to the nearest hundred → **P**

Round 28 to the nearest ten → **U**

Round 128 to the nearest ten → **F**

Round 429 to the nearest ten → **N**

Round 4,256 to the nearest hundred → **O**

Round 943 to the nearest hundred → **G**

Round 172 to the nearest ten → **C**

Round 2,341 to the nearest hundred → **K**

Scratch space:

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

The ranger team shares a stack of old route maps. Dividing the maps equally among the search teams reveals the final clue about the suspect.

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:

$6 \div 2 = \boxed{}$

$72 \div 12 = \boxed{}$

$22 \div 11 = \boxed{}$

$2 \div 2 = \boxed{}$

$56 \div 7 = \boxed{}$

$49 \div 7 = \boxed{}$

$88 \div 8 = \boxed{}$

$5 \div 1 = \boxed{}$

$16 \div 4 = \boxed{}$

$120 \div 12 = \boxed{}$

$27 \div 3 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain inspects the historic ledger, then takes a photo of the document.
2. The villain inspects the historic ledger, then grabs the archival letters.
3. The villain searches the treaty archives, then takes a photo of the document.
4. The villain scans the trail marker, then hides the vintage compass.
5. The villain unlocks the display case, then takes a photo of the document.
6. The villain examines the old map cabinet, then grabs the archival letters.
7. The villain unlocks the display case, then pockets the replica coin.
8. The villain searches the treaty archives, then pockets the replica coin.
9. The villain unlocks the display case, then slips the diary into a backpack.
10. The villain examines the old map cabinet, then pockets the replica coin.
11. The villain inspects the historic ledger, then hides the vintage compass.
12. The villain examines the old map cabinet, then takes a photo of the document.

Answer Key

The Trail of Tears National Historic Trail Mystery

Culprit: Historian Ross

archival maps · field notebook · right handed writer · green park cap · parched corn

Trail: Start 21 → Clue 1 19 → Clue 2 14 → Clue 3 9 → Clue 4 4 → Clue 5 1

Clue 1 (Fractions of a number): "THE SUSPECT DID NOT USE A UV FLASHLIGHT"

$\frac{2}{5}$ of 85 = 34 (T) · $\frac{1}{10}$ of 20 = 2 (C) · $\frac{8}{10}$ of 20 = 16 (A) · $\frac{2}{8}$ of 100 = 25 (E) · $\frac{3}{6}$ of 18 = 9 (V) · $\frac{1}{6}$ of 192 = 32 (O) · $\frac{1}{6}$ of 126 = 21 (U) · $\frac{1}{8}$ of 152 = 19 (N) · $\frac{1}{5}$ of 15 = 3 (L) · $\frac{3}{6}$ of 34 = 17 (G) · $\frac{2}{8}$ of 132 = 33 (I) · $\frac{4}{8}$ of 16 = 8 (P) · $\frac{2}{6}$ of 39 = 13 (H) · $\frac{2}{4}$ of 46 = 23 (F) · $\frac{2}{4}$ of 22 = 11 (S) · $\frac{1}{8}$ of 176 = 22 (D)

Clue 2 (Order of operations): "THE THIEF WROTE LOGS WITH THEIR RIGHT HAND"

$61 + 2 \times 6 = 73$ (T) · $6 \times 6 - 3 = 33$ (D) · $8 + 9 \times 3 = 35$ (L) · $4 \times 10 - 12 = 28$ (O) · $6 \times 12 - 10 = 62$ (E) · $5 + 3 \times 6 = 23$ (S) · $28 + 5 \times 3 = 43$ (R) · $10 + 4 \times 5 = 30$ (A) · $9 \times 9 - 7 = 74$ (F) · $11 \times 5 - 1 = 54$ (W) · $33 + 3 \times 5 = 48$ (H) · $7 + 2 \times 9 = 25$ (I) · $11 \times 6 - 7 = 59$ (G) · $14 + 6 \times 5 = 44$ (N)

Clue 3 (Multiplication facts (1-12)): "THEY DROPPED A BAG OF PARCHED CORN"

$7 \times 6 = 42$ (T) · $5 \times 9 = 45$ (C) · $4 \times 1 = 4$ (P) · $12 \times 8 = 96$ (D) · $5 \times 10 = 50$ (G) · $3 \times 11 = 33$ (E) · $12 \times 12 = 144$ (B) · $1 \times 1 = 1$ (O) · $1 \times 9 = 9$ (R) · $11 \times 8 = 88$ (N) · $10 \times 9 = 90$ (F) · $2 \times 6 = 12$ (Y) · $2 \times 7 = 14$ (H) · $10 \times 11 = 110$ (A)

Clue 4 (Rounding): "WE FOUND A GREEN PARK CAP NEAR THE DOOR"

Round 677 to the nearest hundred = 700 (W) · Round 189 to the nearest hundred = 200 (T) · Round 2,647 to the nearest thousand = 3000 (E) · Round 493 to the nearest hundred = 500 (R) · Round 2,923 to the nearest hundred = 2900 (H) · Round 48 to the nearest ten = 50 (A) · Round 228 to the nearest ten = 230 (D) · Round 323 to the nearest hundred = 300 (P) · Round 28 to the nearest ten = 30 (U) · Round 128 to the nearest ten = 130 (F) · Round 429 to the nearest ten = 430 (N) · Round 4,256 to the nearest hundred = 4300 (O) · Round 943 to the nearest hundred = 900 (G) · Round 172 to the nearest ten = 170 (C) · Round 2,341 to the nearest hundred = 2300 (K)

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

$6 \div 2 = 3$ · $72 \div 12 = 6$ · $22 \div 11 = 2$ · $2 \div 2 = 1$ · $56 \div 7 = 8$ · $49 \div 7 = 7$ · $88 \div 8 = 11$ · $5 \div 1 = 5$ · $16 \div 4 = 4$ · $120 \div 12 = 10$ · $27 \div 3 = 9$