



The Great Ice Sculpture Mystery

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

Detective: _____ **Date:** _____

Someone froze the golden pinecone trophy at the Frosty Peak Ice Festival! Solve the math clues to find out which suspect did it.

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 Frost Thief is _____

Possible suspects

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

NAME	ICE GEAR	FROST CHARM	MITTEN HABIT	BEANIE COLOR	WARM TREAT
Eric Heiden	Glacier Boots	Crystal Whistle	Right Mitten First	White Beanie	Toasted Marshmallow
Apolo Ohno	Sled Jet	Frozen Compass	Right Mitten First	White Beanie	Toasted Marshmallow
Nancy Kerrigan	Snow Blower	Snowflake Badge	Left Mitten First	White Beanie	Hot Cocoa
Yukon Cornelius	Sled Jet	Polar Lantern	Right Mitten First	Red Beanie	Toasted Marshmallow
Mikaela Shiffrin	Sled Jet	Polar Lantern	Right Mitten First	White Beanie	Warm Pie
Tara Lipinski	Glacier Boots	Polar Lantern	Right Mitten First	Blue Beanie	Toasted Marshmallow
Chloe Kim	Glacier Boots	Polar Lantern	Right Mitten First	White Beanie	Toasted Marshmallow
Abominable Snowman	Frost Blaster	Polar Lantern	Right Mitten First	White Beanie	Toasted Marshmallow
Bonnie Blair	Frost Blaster	Polar Lantern	Right Mitten First	Red Beanie	Toasted Marshmallow
Jack Frost	Sled Jet	Frozen Compass	Left Mitten First	White Beanie	Warm Pie
Brian Boitano	Glacier Boots	Crystal Whistle	Right Mitten First	Blue Beanie	Toasted Marshmallow
Scott Hamilton	Frost Blaster	Frozen Compass	Left Mitten First	Red Beanie	Toasted Marshmallow
Kristoff Snow	Snow Blower	Crystal Whistle	Left Mitten First	Red Beanie	Toasted Marshmallow
Sasha Cohen	Ice Skates	Snowflake Badge	Left Mitten First	White Beanie	Toasted Marshmallow
Nathan Chen	Snow Blower	Icicle Key	Left Mitten First	White Beanie	Warm Pie
Elsa Ice	Ice Skates	Frozen Compass	Left Mitten First	Red Beanie	Warm Pie
Olaf Chill	Glacier Boots	Snowflake Badge	Right Mitten First	White Beanie	Toasted Marshmallow
Sven Tundra	Frost Blaster	Crystal Whistle	Left Mitten First	Blue Beanie	Warm Pie
Michelle Kwan	Frost Blaster	Polar Lantern	Right Mitten First	White Beanie	Hot Cocoa
Hermey Elf	Frost Blaster	Polar Lantern	Right Mitten First	White Beanie	Warm Pie
Bumble Snow	Frost Blaster	Snowflake Badge	Left Mitten First	White Beanie	Hot Cocoa

CLUE 1
Rounding

The digital lodge thermometer rounds snow depth to the nearest ten.

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

T																T
290	3700	30	5000	4300	200	200	110	4300	7000	90	9000	30	2300	7000	9000	290
3700	110	5000	30	110	430	1700	1100	2300	T					T		
3700	110	5000	30	110	430	1700	1100	2300	290	110	200	50	3700	4300	2300	290

Round 289 to the nearest ten → **T**

Round 46 to the nearest ten → **W**

Round 1,081 to the nearest hundred → **Y**

Round 30 to the nearest ten → **E**

Round 2,282 to the nearest hundred → **S**

Round 3,678 to the nearest hundred → **H**

Round 8,639 to the nearest thousand → **O**

Round 6,531 to the nearest thousand → **N**

Round 4,275 to the nearest hundred → **I**

Round 432 to the nearest ten → **C**

Round 87 to the nearest ten → **D**

Round 111 to the nearest ten → **A**

Round 5,490 to the nearest thousand → **V**

Round 1,675 to the nearest hundred → **R**

Round 217 to the nearest hundred → **L**

Scratch space:

Addition

The detective added up all the lost mittens found near the snowbank.

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

7005 9190 9177 3027 5915 4675 4675 4675 7806 7005 9177 4489 5915 5529 9547 2103 9177 2674 3027

7767 9190 6305 4489 9177 5529 9190 9177 9177 5915 3027 4188 9190 7767 4675 9177

$$2337 + 4668 = \boxed{} \rightarrow \boxed{\mathbf{W}}$$

$$1632 + 3043 = \boxed{} \rightarrow \boxed{\text{S}}$$

$$2316 + 3599 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$4949 + 2818 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$5361 + 4186 = \boxed{} \rightarrow \boxed{\text{P}}$$

$3148 + 4658 = \boxed{} \rightarrow \boxed{\text{A}}$

$$3250 + 5927 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$1885 + 3644 = \boxed{} \rightarrow \boxed{\text{M}}$$

$$1098 + 1576 = \boxed{} \rightarrow \boxed{0}$$

$$2940 + 3365 = \boxed{} \rightarrow \boxed{\text{G}}$$

$$1270 + 833 = \boxed{} \rightarrow \boxed{\text{U}}$$

$$2580 + 1909 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$3788 + 5402 = \boxed{} \rightarrow \boxed{}$$

$1848 + 1179 = \boxed{} \rightarrow \boxed{\text{N}}$

$$2471 + 1717 = \boxed{} \rightarrow \boxed{\text{F}}$$

Scratch space:

CLUE 3

Subtraction

Comparing footprint counts showed how many steps the villain took.

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

D															
8945	6104	6170	6104	4995	6170	2802	2187	6104	4034	2748	7419	8556	8945	5878	

						D											
6170	2748	5878	2422	6170	6104	8945	4215	5878	1794	2422	8082	4215	5878	2193	2193	2748	4454

8556	6104	5878	1794	1375	6506

$11548 - 2603 = \square \rightarrow \boxed{D}$

$9337 - 4342 = \square \rightarrow \boxed{C}$

$9574 - 1492 = \square \rightarrow \boxed{H}$

$7090 - 584 = \square \rightarrow \boxed{Y}$

$2446 - 1071 = \square \rightarrow \boxed{B}$

$2626 - 832 = \square \rightarrow \boxed{R}$

$2725 - 538 = \square \rightarrow \boxed{V}$

$6593 - 423 = \square \rightarrow \boxed{T}$

$7763 - 1659 = \square \rightarrow \boxed{E}$

$7069 - 2615 = \square \rightarrow \boxed{W}$

$4273 - 58 = \square \rightarrow \boxed{M}$

$7583 - 3549 = \square \rightarrow \boxed{F}$

$6031 - 3229 = \square \rightarrow \boxed{I}$

$8799 - 243 = \square \rightarrow \boxed{N}$

$8250 - 831 = \square \rightarrow \boxed{U}$

$8501 - 2623 = \square \rightarrow \boxed{A}$

$2533 - 340 = \square \rightarrow \boxed{L}$

$4216 - 1468 = \square \rightarrow \boxed{O}$

$2768 - 346 = \square \rightarrow \boxed{S}$

Scratch space:

CLUE 4

Multiplication facts (1-12)

The ice carver checked rows of ice blocks stacked in equal piles.

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

S						S				S								
99	25	11	4	100	63	99	84	4	54	99	5	11	63	25	100	11	25	54
4	35	56	84	2	10	2	54	25	56	2								

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

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

$5 \times 7 = \square \rightarrow \boxed{\text{H}}$

$1 \times 10 = \square \rightarrow \boxed{\text{B}}$

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

$7 \times 12 = \square \rightarrow \boxed{\text{T}}$

$2 \times 1 = \square \rightarrow \boxed{\text{E}}$

$7 \times 8 = \square \rightarrow \boxed{\text{I}}$

$10 \times 10 = \square \rightarrow \boxed{\text{D}}$

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

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

$9 \times 6 = \square \rightarrow \boxed{\text{A}}$

$1 \times 4 = \square \rightarrow \boxed{\text{W}}$

Scratch space:

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

Sharing the warm cocoa cups equally gave 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:

$72 \div 8 = \boxed{}$

$132 \div 12 = \boxed{}$

$18 \div 6 = \boxed{}$

$4 \div 2 = \boxed{}$

$88 \div 11 = \boxed{}$

$48 \div 12 = \boxed{}$

$100 \div 10 = \boxed{}$

$42 \div 7 = \boxed{}$

$24 \div 2 = \boxed{}$

$3 \div 3 = \boxed{}$

$25 \div 5 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain stomped through snow in glacier boots, then checked a frozen compass.
2. The villain cleared path with a snow blower, then checked a frozen compass.
3. The villain stomped through snow in glacier boots, then flashed a snowflake badge.
4. The villain zipped past on ice skates, then flashed a snowflake badge.
5. The villain zipped past on ice skates, then blew a crystal whistle.
6. The villain cleared path with a snow blower, then blew a crystal whistle.
7. The villain stomped through snow in glacier boots, then lit the way with a polar lantern.
8. The villain cleared path with a snow blower, then lit the way with a polar lantern.
9. The villain blasted ice with a frost blaster, then lit the way with a polar lantern.
10. The villain zoomed away on a sled jet, then flashed a snowflake badge.
11. The villain zoomed away on a sled jet, then checked a frozen compass.
12. The villain zoomed away on a sled jet, then unlocked the gate with an icicle key.

Answer Key

The Great Ice Sculpture Mystery

Culprit: Chloe Kim

Glacier Boots · Polar Lantern · Right Mitten First · White Beanie · Toasted Marshmallow

Trail: Start 21 → Clue 1 17 → Clue 2 10 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Rounding): "THE VILLAIN DOES NOT HAVE A CRYSTAL WHISTLE"

Round 289 to the nearest ten = 290 (T) · Round 46 to the nearest ten = 50 (W) · Round 1,081 to the nearest hundred = 1100 (Y) · Round 30 to the nearest ten = 30 (E) · Round 2,282 to the nearest hundred = 2300 (S) · Round 3,678 to the nearest hundred = 3700 (H) · Round 8,639 to the nearest thousand = 9000 (O) · Round 6,531 to the nearest thousand = 7000 (N) · Round 4,275 to the nearest hundred = 4300 (I) · Round 432 to the nearest ten = 430 (C) · Round 87 to the nearest ten = 90 (D) · Round 111 to the nearest ten = 110 (A) · Round 5,490 to the nearest thousand = 5000 (V) · Round 1,675 to the nearest hundred = 1700 (R) · Round 217 to the nearest hundred = 200 (L)

Clue 2 (Addition): "WITNESS SAW THEM PUT ON RIGHT MITTEN FIRST"

$2337 + 4668 = 7005$ (W) · $1632 + 3043 = 4675$ (S) · $2316 + 3599 = 5915$ (E) · $4949 + 2818 = 7767$ (R) · $5361 + 4186 = 9547$ (P) · $3148 + 4658 = 7806$ (A) · $3250 + 5927 = 9177$ (T) · $1885 + 3644 = 5529$ (M) · $1098 + 1576 = 2674$ (O) · $2940 + 3365 = 6305$ (G) · $1270 + 833 = 2103$ (U) · $2580 + 1909 = 4489$ (H) · $3788 + 5402 = 9190$ (I) · $1848 + 1179 = 3027$ (N) · $2471 + 1717 = 4188$ (F)

Clue 3 (Subtraction): "DETECTIVE FOUND A TOASTED MARSHMALLOW NEARBY"

$11548 - 2603 = 8945$ (D) · $9337 - 4342 = 4995$ (C) · $9574 - 1492 = 8082$ (H) · $7090 - 584 = 6506$ (Y) · $2446 - 1071 = 1375$ (B) · $2626 - 832 = 1794$ (R) · $2725 - 538 = 2187$ (V) · $6593 - 423 = 6170$ (T) · $7763 - 1659 = 6104$ (E) · $7069 - 2615 = 4454$ (W) · $4273 - 58 = 4215$ (M) · $7583 - 3549 = 4034$ (F) · $6031 - 3229 = 2802$ (I) · $8799 - 243 = 8556$ (N) · $8250 - 831 = 7419$ (U) · $8501 - 2623 = 5878$ (A) · $2533 - 340 = 2193$ (L) · $4216 - 1468 = 2748$ (O) · $2768 - 346 = 2422$ (S)

Clue 4 (Multiplication facts (1-12)): "SNOW DUST WAS FOUND ON A WHITE BEANIE"

$11 \times 9 = 99$ (S) · $5 \times 1 = 5$ (F) · $5 \times 7 = 35$ (H) · $1 \times 10 = 10$ (B) · $5 \times 5 = 25$ (N) · $7 \times 12 = 84$ (T) · $2 \times 1 = 2$ (E) · $7 \times 8 = 56$ (I) · $10 \times 10 = 100$ (D) · $1 \times 11 = 11$ (O) · $9 \times 7 = 63$ (U) · $9 \times 6 = 54$ (A) · $1 \times 4 = 4$ (W)

Clue 5 (Division facts (1-12)): surviving statement is box 7 → Chloe Kim

$72 \div 8 = 9$ · $132 \div 12 = 11$ · $18 \div 6 = 3$ · $4 \div 2 = 2$ · $88 \div 11 = 8$ · $48 \div 12 = 4$ · $100 \div 10 = 10$ · $42 \div 7 = 6$ · $24 \div 2 = 12$ · $3 \div 3 = 1$ · $25 \div 5 = 5$