



# The Great Cosmic Yarn Heist

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

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

A sneaky space-pirate cat has broken into the Yarn Station! They zipped away with the Golden Ball of Cosmic Yarn. Officer Paws needs your help to track down the naughty kitty and save the nebula.

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 Space Pirate is** \_\_\_\_\_

# Possible suspects

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

| NAME           | PRIMARY GEAR    | SECONDARY TECH  | DOMINANT PAW | CYBERNETIC PART   | EFFECTIVE DEFENSE |
|----------------|-----------------|-----------------|--------------|-------------------|-------------------|
| Buster         | Laser Cutlass   | Hologram Decoy  | Left Pawed   | Rusty Metal Tail  | Catnip Spray      |
| Pixel          | Laser Cutlass   | Hologram Decoy  | Left Pawed   | Neon Green Helmet | Catnip Spray      |
| Barnacles      | Plasma Claw     | Warp Booster    | Right Pawed  | Chrome Ears       | Laser Pointer     |
| Major Meow     | Rocket Jetpack  | Magnetic Boots  | Right Pawed  | Rusty Metal Tail  | Laser Pointer     |
| Luna           | Plasma Claw     | Magnetic Boots  | Right Pawed  | Chrome Ears       | Water Blaster     |
| Tuna Breath    | Laser Cutlass   | Warp Booster    | Left Pawed   | Rusty Metal Tail  | Catnip Spray      |
| Sprocket       | Plasma Claw     | Warp Booster    | Left Pawed   | Neon Green Helmet | Catnip Spray      |
| Captain Claw   | Gravity Grapple | Magnetic Boots  | Left Pawed   | Chrome Ears       | Laser Pointer     |
| Nova           | Rocket Jetpack  | Warp Booster    | Left Pawed   | Neon Green Helmet | Laser Pointer     |
| Laser Claw     | Rocket Jetpack  | Magnetic Boots  | Left Pawed   | Chrome Ears       | Catnip Spray      |
| Nebula         | Gravity Grapple | Sonic Meow      | Left Pawed   | Rusty Metal Tail  | Laser Pointer     |
| Scurvy         | Laser Cutlass   | Magnetic Boots  | Left Pawed   | Rusty Metal Tail  | Catnip Spray      |
| Boots          | Laser Cutlass   | Magnetic Boots  | Left Pawed   | Neon Green Helmet | Laser Pointer     |
| Waffles        | Plasma Claw     | Cloaking Collar | Right Pawed  | Rusty Metal Tail  | Water Blaster     |
| Rusty          | Laser Cutlass   | Warp Booster    | Right Pawed  | Rusty Metal Tail  | Catnip Spray      |
| Patch          | Gravity Grapple | Cloaking Collar | Left Pawed   | Rusty Metal Tail  | Catnip Spray      |
| Ziggy          | Gravity Grapple | Magnetic Boots  | Left Pawed   | Rusty Metal Tail  | Catnip Spray      |
| Kitten Admiral | Gravity Grapple | Hologram Decoy  | Right Pawed  | Rusty Metal Tail  | Catnip Spray      |
| Stardust       | Rocket Jetpack  | Sonic Meow      | Left Pawed   | Chrome Ears       | Catnip Spray      |
| Barnaby        | Cyber Eyepatch  | Warp Booster    | Right Pawed  | Chrome Ears       | Laser Pointer     |
| Whiskers       | Laser Cutlass   | Sonic Meow      | Left Pawed   | Rusty Metal Tail  | Water Blaster     |

## CLUE 1 Rounding

Our ship radar scanned the pirate ship fleeing. The warp engine speed rounded to the nearest ten gives us our first clue.

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

|              |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |              |      |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|------|
| <div>T</div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div>T</div> |      |
| 1300         | 900         | 230         | 7000        | 1100        | 50          | 50          | 130         | 1100        | 30          | 5000        | 1700        | 230         | 3700        | 30          | 1700        | 1300        |              |      |
| <div></div>  | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div>  |      |
| 900          | 130         | 7000        | 230         | 130         | 4300        | 50          | 1700        | 130         | 2900        | 1100        | 30          | 300         | 4300        | 1700        | 50          | 50          | 130          | 9000 |

Round 1,344 to the nearest hundred  → 

T

Round 226 to the nearest ten  → 

E

Round 4,291 to the nearest hundred  → 

C

Round 5,364 to the nearest thousand  → 

D

Round 7,346 to the nearest thousand  → 

V

Round 1,714 to the nearest hundred  → 

O

Round 3,654 to the nearest hundred  → 

S

Round 2,903 to the nearest hundred  → 

K

Round 9,103 to the nearest thousand  → 

R

Round 1,142 to the nearest hundred  → 

I

Round 51 to the nearest ten  → 

L

Round 130 to the nearest ten  → 

A

Round 925 to the nearest hundred  → 

H

Round 26 to the nearest ten  → 

N

Round 301 to the nearest hundred  → 

G

Scratch space:

## CLUE 2 Addition

We counted the spilled fish treats left in the escape cargo bay. Adding them up reveals the next pirate secret.

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

|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |   |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|---|
| T    |      |      |      |      |      |      |      | T    |      |      |      |      |      |      |      |      |      |  | T |
| 9763 | 8297 | 3833 | 6372 | 9516 | 3830 | 6609 | 9763 | 3833 | 2722 | 4028 | 3833 | 9458 | 6609 | 6103 | 3833 | 7674 | 9763 |  |   |
|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |   |
| 6372 | 6609 | 8601 | 3833 | 9458 | 4636 | 3830 | 9516 | 6372 |      |      |      |      |      |      |      |      |      |  |   |

|                                              |                                              |                                              |
|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| $5409 + 4354 = \square \rightarrow \text{T}$ | $2223 + 4386 = \square \rightarrow \text{A}$ | $1607 + 1115 = \square \rightarrow \text{U}$ |
| $1964 + 2672 = \square \rightarrow \text{G}$ | $4974 + 3323 = \square \rightarrow \text{H}$ | $1710 + 2120 = \square \rightarrow \text{R}$ |
| $2375 + 5299 = \square \rightarrow \text{F}$ | $3365 + 3007 = \square \rightarrow \text{P}$ | $3266 + 6192 = \square \rightarrow \text{D}$ |
| $1801 + 2032 = \square \rightarrow \text{E}$ | $3043 + 5558 = \square \rightarrow \text{W}$ | $4125 + 1978 = \square \rightarrow \text{L}$ |
| $1304 + 2724 = \square \rightarrow \text{S}$ | $4907 + 4609 = \square \rightarrow \text{I}$ |                                              |

Scratch space:

## CLUE 3

## Subtraction

The pirate ship dropped some extra fuel cells during the getaway. Subtract the lost cells from the total to learn more.

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

|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| T    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 5407 | 2109 | 3822 | 2926 | 4783 | 3822 | 8436 | 6448 | 1767 | 6600 | 8436 | 5407 | 2926 | 4783 | 3822 | 3822 | 2087 | 3822 | 8387 |
|      | T    |      |      | T    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 8436 | 5407 | 6600 | 8436 | 5407 | 4783 | 6727 | 7888 |      |      |      |      |      |      |      |      |      |      |      |

$10354 - 4947 = \square \rightarrow \boxed{\text{T}}$

$9754 - 1318 = \square \rightarrow \boxed{\text{A}}$

$8400 - 1800 = \square \rightarrow \boxed{\text{C}}$

$4719 - 897 = \square \rightarrow \boxed{\text{E}}$

$8102 - 1375 = \square \rightarrow \boxed{\text{I}}$

$2769 - 1002 = \square \rightarrow \boxed{\text{Y}}$

$2993 - 67 = \square \rightarrow \boxed{\text{S}}$

$5070 - 287 = \square \rightarrow \boxed{\text{N}}$

$6051 - 3964 = \square \rightarrow \boxed{\text{Z}}$

$10388 - 3940 = \square \rightarrow \boxed{\text{K}}$

$4491 - 2382 = \square \rightarrow \boxed{\text{H}}$

$11691 - 3304 = \square \rightarrow \boxed{\text{D}}$

$12266 - 4378 = \square \rightarrow \boxed{\text{P}}$

Scratch space:

## CLUE 4

## Multiplication facts (1-12)

The pirate crew packed their laser yarn in equal rows. Multiply the crates to unlock this clue.

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

|    |     |    |     |     |    |     |    |    |   |    |    |   |    |    |    |     |   |  |  |
|----|-----|----|-----|-----|----|-----|----|----|---|----|----|---|----|----|----|-----|---|--|--|
| S  |     |    |     |     | S  |     |    |    |   | S  |    |   |    |    |    |     |   |  |  |
| 49 | 100 | 11 | 132 | 108 | 49 | 120 | 20 | 11 | 4 | 49 | 21 | 8 | 10 | 25 | 21 | 132 | 2 |  |  |
|    |     |    |     |     |    |     |    |    |   |    |    |   |    |    |    |     |   |  |  |
| 90 | 25  | 11 | 25  | 2   | 25 | 20  | 21 |    |   |    |    |   |    |    |    |     |   |  |  |

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

$5 \times 4 = \square \rightarrow \text{F}$

$1 \times 2 = \square \rightarrow \text{L}$

$1 \times 10 = \square \rightarrow \text{M}$

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

$11 \times 12 = \square \rightarrow \text{A}$

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

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

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

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

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

$8 \times 1 = \square \rightarrow \text{Y}$

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

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

Scratch space:

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

We need to divide the remaining space tuna cans equally among our scout ships. This division gives us the final detail.

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:**

$32 \div 4 = \boxed{\phantom{00}}$

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

$144 \div 12 = \boxed{\phantom{00}}$

$132 \div 12 = \boxed{\phantom{00}}$

$9 \div 3 = \boxed{\phantom{00}}$

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

$28 \div 7 = \boxed{\phantom{00}}$

$18 \div 2 = \boxed{\phantom{00}}$

$42 \div 6 = \boxed{\phantom{00}}$

$6 \div 3 = \boxed{\phantom{00}}$

$100 \div 10 = \boxed{\phantom{00}}$

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

1. The villain fired a gravity grapple, then stomped with magnetic boots.
2. The villain swung a laser cutlass, then turned on a cloaking collar.
3. The villain adjusted a cyber eyepatch, then unleashed a sonic meow.
4. The villain adjusted a cyber eyepatch, then activated a warp booster.
5. The villain swung a laser cutlass, then activated a warp booster.
6. The villain fired a gravity grapple, then threw a hologram decoy.
7. The villain fired a gravity grapple, then turned on a cloaking collar.
8. The villain swung a laser cutlass, then threw a hologram decoy.
9. The villain ignited a rocket jetpack, then turned on a cloaking collar.
10. The villain swiped a plasma claw, then turned on a cloaking collar.
11. The villain ignited a rocket jetpack, then activated a warp booster.
12. The villain swung a laser cutlass, then stomped with magnetic boots.

# Answer Key

## The Great Cosmic Yarn Heist

### Culprit: Tuna Breath

Laser Cutlass · Warp Booster · Left Pawed · Rusty Metal Tail · Catnip Spray

Trail: Start 21 → Clue 1 19 → Clue 2 13 → Clue 3 8 → Clue 4 4 → Clue 5 1

#### Clue 1 (Rounding): "THE VILLAIN DOES NOT HAVE A CLOAKING COLLAR"

Round 1,344 to the nearest hundred = 1300 (T) · Round 226 to the nearest ten = 230 (E) · Round 4,291 to the nearest hundred = 4300 (C) · Round 5,364 to the nearest thousand = 5000 (D) · Round 7,346 to the nearest thousand = 7000 (V) · Round 1,714 to the nearest hundred = 1700 (O) · Round 3,654 to the nearest hundred = 3700 (S) · Round 2,903 to the nearest hundred = 2900 (K) · Round 9,103 to the nearest thousand = 9000 (R) · Round 1,142 to the nearest hundred = 1100 (I) · Round 51 to the nearest ten = 50 (L) · Round 130 to the nearest ten = 130 (A) · Round 925 to the nearest hundred = 900 (H) · Round 26 to the nearest ten = 30 (N) · Round 301 to the nearest hundred = 300 (G)

#### Clue 2 (Addition): "THE PIRATE USED A LEFT PAWED GRIP"

$5409 + 4354 = 9763$  (T) ·  $2223 + 4386 = 6609$  (A) ·  $1607 + 1115 = 2722$  (U) ·  $1964 + 2672 = 4636$  (G) ·  $4974 + 3323 = 8297$  (H) ·  $1710 + 2120 = 3830$  (R) ·  $2375 + 5299 = 7674$  (F) ·  $3365 + 3007 = 6372$  (P) ·  $3266 + 6192 = 9458$  (D) ·  $1801 + 2032 = 3833$  (E) ·  $3043 + 5558 = 8601$  (W) ·  $4125 + 1978 = 6103$  (L) ·  $1304 + 2724 = 4028$  (S) ·  $4907 + 4609 = 9516$  (I)

#### Clue 3 (Subtraction): "THE SNEAKY CAT SNEEZED AT CATNIP"

$10354 - 4947 = 5407$  (T) ·  $9754 - 1318 = 8436$  (A) ·  $8400 - 1800 = 6600$  (C) ·  $4719 - 897 = 3822$  (E) ·  $8102 - 1375 = 6727$  (I) ·  $2769 - 1002 = 1767$  (Y) ·  $2993 - 67 = 2926$  (S) ·  $5070 - 287 = 4783$  (N) ·  $6051 - 3964 = 2087$  (Z) ·  $10388 - 3940 = 6448$  (K) ·  $4491 - 2382 = 2109$  (H) ·  $11691 - 3304 = 8387$  (D) ·  $12266 - 4378 = 7888$  (P)

#### Clue 4 (Multiplication facts (1-12)): "SCRAPS OF RUSTY METAL WERE LEFT"

$7 \times 7 = 49$  (S) ·  $5 \times 4 = 20$  (F) ·  $1 \times 2 = 2$  (L) ·  $1 \times 10 = 10$  (M) ·  $10 \times 10 = 100$  (C) ·  $11 \times 12 = 132$  (A) ·  $3 \times 7 = 21$  (T) ·  $9 \times 10 = 90$  (W) ·  $5 \times 5 = 25$  (E) ·  $11 \times 1 = 11$  (R) ·  $10 \times 12 = 120$  (O) ·  $8 \times 1 = 8$  (Y) ·  $12 \times 9 = 108$  (P) ·  $1 \times 4 = 4$  (U)

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

$32 \div 4 = 8$  ·  $7 \div 7 = 1$  ·  $144 \div 12 = 12$  ·  $132 \div 12 = 11$  ·  $9 \div 3 = 3$  ·  $30 \div 5 = 6$  ·  $28 \div 7 = 4$  ·  $18 \div 2 = 9$  ·  $42 \div 6 = 7$  ·  $6 \div 3 = 2$  ·  $100 \div 10 = 10$