



# The Great Airship Compass Caper

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

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

Someone snuck aboard the Skystar Fleet and swiped the Golden Astrolabe. Detective, follow the flight logs and math clues to unmask the culprit.

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 Sky Bandit is** \_\_\_\_\_

## Possible suspects

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

| NAME               | SPECIAL GEAR  | FLIGHT SKILL    | GLOVE HAND   | GOGGLE COLOR   | FEAR FACTOR         |
|--------------------|---------------|-----------------|--------------|----------------|---------------------|
| Amelia Earhart     | Grapple Hook  | Wind Reading    | Right Handed | Brass Goggles  | Loud Whistles       |
| Matthew Henson     | Grapple Hook  | Wind Reading    | Right Handed | Copper Goggles | High Winds          |
| Charles Lindbergh  | Signal Flare  | Night Flying    | Right Handed | Copper Goggles | High Winds          |
| Howard Hughes      | Signal Flare  | Wind Reading    | Right Handed | Copper Goggles | Loud Whistles       |
| James Cook         | Signal Flare  | Storm Riding    | Right Handed | Copper Goggles | High Winds          |
| Mae Jemison        | Glider Wings  | Wind Reading    | Left Handed  | Copper Goggles | Loud Whistles       |
| Yuri Gagarin       | Smoke Pellets | Night Flying    | Right Handed | Silver Goggles | Bright Searchlights |
| Leif Erikson       | Smoke Pellets | Cloud Diving    | Left Handed  | Copper Goggles | Loud Whistles       |
| Sally Ride         | Glider Wings  | Cloud Diving    | Right Handed | Copper Goggles | Bright Searchlights |
| Nellie Bly         | Grapple Hook  | Wind Reading    | Left Handed  | Brass Goggles  | Bright Searchlights |
| Marco Polo         | Signal Flare  | Night Flying    | Right Handed | Brass Goggles  | High Winds          |
| Ranulph Fiennes    | Signal Flare  | Thermal Soaring | Right Handed | Copper Goggles | High Winds          |
| Bessie Coleman     | Signal Flare  | Cloud Diving    | Left Handed  | Brass Goggles  | Loud Whistles       |
| Vasco da Gama      | Smoke Pellets | Cloud Diving    | Right Handed | Copper Goggles | Loud Whistles       |
| Wilbur Wright      | Smoke Pellets | Storm Riding    | Right Handed | Copper Goggles | Loud Whistles       |
| Sylvia Earle       | Smoke Pellets | Cloud Diving    | Right Handed | Copper Goggles | Bright Searchlights |
| Roald Amundsen     | Glider Wings  | Night Flying    | Left Handed  | Silver Goggles | Bright Searchlights |
| Orville Wright     | Flash Beacon  | Night Flying    | Right Handed | Copper Goggles | High Winds          |
| Ibn Battuta        | Grapple Hook  | Night Flying    | Left Handed  | Copper Goggles | High Winds          |
| Harriet Quimby     | Grapple Hook  | Thermal Soaring | Left Handed  | Brass Goggles  | Loud Whistles       |
| Ferdinand Magellan | Flash Beacon  | Wind Reading    | Right Handed | Silver Goggles | Bright Searchlights |

**CLUE 1**

# Fractions of a number

The lookout calculated a fraction of the fleet cargo to find where the thief dropped the first clue.

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

|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| T  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | T  |
| 40 | 6  | 10 | 19 | 34 | 8  | 8  | 25 | 34 | 26 | 32 | 36 | 10 | 18 | 26 | 36 | 40 |
|    |    |    |    | T  |    |    |    |    |    |    |    |    |    |    |    |    |
| 31 | 18 | 10 | 18 | 40 | 36 | 11 | 16 | 11 | 34 | 32 | 34 | 26 | 3  |    |    |    |

$$2/5 \text{ of } 100 = \boxed{\phantom{00}} \rightarrow \boxed{\text{T}}$$

$$1/8 \text{ of } 144 = \boxed{\phantom{00}} \rightarrow \boxed{\text{S}}$$

$$1/3 \text{ of } 93 = \boxed{\phantom{00}} \rightarrow \boxed{\text{U}}$$

$$2/4 \text{ of } 68 = \boxed{\phantom{00}} \rightarrow \boxed{\text{I}}$$

$$1/5 \text{ of } 125 = \boxed{\phantom{00}} \rightarrow \boxed{\text{A}}$$

$$1/4 \text{ of } 32 = \boxed{\phantom{00}} \rightarrow \boxed{\text{L}}$$

$$6/10 \text{ of } 5 = \boxed{\phantom{00}} \rightarrow \boxed{\text{G}}$$

$$1/3 \text{ of } 18 = \boxed{\phantom{00}} \rightarrow \boxed{\text{H}}$$

$$2/4 \text{ of } 38 = \boxed{\phantom{00}} \rightarrow \boxed{\text{V}}$$

$$1/3 \text{ of } 33 = \boxed{\phantom{00}} \rightarrow \boxed{\text{R}}$$

$$2/3 \text{ of } 39 = \boxed{\phantom{00}} \rightarrow \boxed{\text{N}}$$

$$8/10 \text{ of } 40 = \boxed{\phantom{00}} \rightarrow \boxed{\text{D}}$$

$$2/3 \text{ of } 24 = \boxed{\phantom{00}} \rightarrow \boxed{\text{M}}$$

$$2/10 \text{ of } 50 = \boxed{\phantom{00}} \rightarrow \boxed{\text{E}}$$

$$1/3 \text{ of } 108 = \boxed{\phantom{00}} \rightarrow \boxed{\text{O}}$$

Scratch space:

**CLUE 2**
**Order of operations**

To decrypt the airship engine log, follow the proper order of operations on the altitude dial.

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

|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|
| T  |    |    |    |    |    |    |    | T  |    |    |    |    |    |    |    |    |    |    | T |
| 13 | 26 | 50 | 22 | 61 | 27 | 33 | 13 | 68 | 68 | 26 | 37 | 75 | 21 | 61 | 27 | 79 | 26 | 13 |   |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |
| 26 | 21 | 33 | 40 | 50 | 40 | 6  | 37 | 33 | T  |    |    |    |    |    |    |    |    |    |   |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |

$9 \times 2 - 5 = \boxed{\phantom{00}} \rightarrow \boxed{\text{T}}$

$10 \times 7 - 20 = \boxed{\phantom{00}} \rightarrow \boxed{\text{E}}$

$10 \times 8 - 12 = \boxed{\phantom{00}} \rightarrow \boxed{\text{S}}$

$11 + 2 \times 5 = \boxed{\phantom{00}} \rightarrow \boxed{\text{A}}$

$22 + 3 \times 5 = \boxed{\phantom{00}} \rightarrow \boxed{\text{O}}$

$7 \times 9 - 2 = \boxed{\phantom{00}} \rightarrow \boxed{\text{R}}$

$6 + 2 \times 2 = \boxed{\phantom{00}} \rightarrow \boxed{\text{L}}$

$6 \times 5 - 24 = \boxed{\phantom{00}} \rightarrow \boxed{\text{C}}$

$4 \times 7 - 6 = \boxed{\phantom{00}} \rightarrow \boxed{\text{P}}$

$9 \times 11 - 20 = \boxed{\phantom{00}} \rightarrow \boxed{\text{G}}$

$14 + 4 \times 3 = \boxed{\phantom{00}} \rightarrow \boxed{\text{H}}$

$23 + 5 \times 2 = \boxed{\phantom{00}} \rightarrow \boxed{\text{N}}$

$24 + 8 \times 2 = \boxed{\phantom{00}} \rightarrow \boxed{\text{D}}$

$8 \times 4 - 5 = \boxed{\phantom{00}} \rightarrow \boxed{\text{I}}$

$39 + 4 \times 9 = \boxed{\phantom{00}} \rightarrow \boxed{\text{W}}$

Scratch space:

**CLUE 3**
**Multiplication facts (1-12)**

The navigator counted the total supply crates loaded across equal rows in the cargo hold.

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

|    |    |    |    |    |    |    |    |     |    |    |    |    |   |     |     |    |    |
|----|----|----|----|----|----|----|----|-----|----|----|----|----|---|-----|-----|----|----|
| T  |    |    |    |    |    |    |    |     |    |    |    |    |   |     |     |    |    |
| 16 | 44 | 28 | 9  | 1  | 64 | 54 | 28 | 63  | 45 | 84 | 84 | 16 | 1 | 108 | 108 | 28 | 18 |
|    |    |    |    |    |    |    |    |     |    |    |    |    |   |     |     |    |    |
| 81 | 20 | 44 | 10 | 64 | 44 | 63 | 10 | 132 | 18 | 84 | 45 | 60 | 1 | 40  | 16  |    |    |

|                                        |                                       |                                       |                                      |
|----------------------------------------|---------------------------------------|---------------------------------------|--------------------------------------|
| $2 \times 8 = \square \rightarrow$ T   | $4 \times 10 = \square \rightarrow$ F | $5 \times 12 = \square \rightarrow$ L |                                      |
| $7 \times 4 = \square \rightarrow$ E   | $8 \times 8 = \square \rightarrow$ G  | $2 \times 5 = \square \rightarrow$ I  | $9 \times 6 = \square \rightarrow$ U |
| $11 \times 4 = \square \rightarrow$ H  | $3 \times 3 = \square \rightarrow$ R  | $1 \times 1 = \square \rightarrow$ O  | $9 \times 9 = \square \rightarrow$ B |
| $11 \times 12 = \square \rightarrow$ N | $6 \times 3 = \square \rightarrow$ D  | $9 \times 5 = \square \rightarrow$ A  |                                      |
| $12 \times 9 = \square \rightarrow$ P  | $12 \times 7 = \square \rightarrow$ S | $9 \times 7 = \square \rightarrow$ W  |                                      |
| $4 \times 5 = \square \rightarrow$ Y   |                                       |                                       |                                      |

Scratch space:

**CLUE 4**
**Rounding**

The barometer scanner rounds the pressure reading to the nearest hundred to track the flight path.

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

|     |      |      |      |      |      |     |      |     |      |      |      |     |    |      |     |      |      |     |
|-----|------|------|------|------|------|-----|------|-----|------|------|------|-----|----|------|-----|------|------|-----|
| T   |      |      | T    |      |      |     |      |     |      |      |      |     |    |      |     |      |      |     |
| 90  | 3000 | 170  | 90   | 2300 | 370  | 700 | 2000 | 170 | 2300 | 3700 | 7000 | 130 | 50 | 1300 |     |      |      |     |
|     |      |      |      |      |      |     |      |     |      |      |      |     |    |      |     |      |      |     |
| 700 | 7000 | 4300 | 4300 | 170  | 2300 | 70  | 7000 | 70  | 70   | 9000 | 170  | 290 | 50 | 170  | 370 | 2300 | 5000 | 200 |

Round 90 to the nearest ten  → **T**

Round 2,203 to the nearest thousand  → **K**

Round 4,342 to the nearest hundred  → **P**

Round 7,379 to the nearest thousand  → **O**

Round 4,765 to the nearest thousand  → **B**

Round 286 to the nearest ten  → **S**

Round 9,142 to the nearest thousand  → **L**

Round 2,276 to the nearest hundred  → **R**

Round 3,067 to the nearest thousand  → **H**

Round 666 to the nearest hundred  → **C**

Round 3,744 to the nearest hundred  → **F**

Round 1,305 to the nearest hundred  → **D**

Round 172 to the nearest hundred  → **Y**

Round 54 to the nearest ten  → **N**

Round 367 to the nearest ten  → **A**

Round 174 to the nearest ten  → **E**

Round 66 to the nearest ten  → **G**

Round 129 to the nearest ten  → **U**

Scratch space:

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

The crew divided the remaining compass maps equally among the rescue airships to narrow down the search.

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:**

$21 \div 7 = \boxed{\phantom{00}}$

$54 \div 6 = \boxed{\phantom{00}}$

$66 \div 6 = \boxed{\phantom{00}}$

$60 \div 12 = \boxed{\phantom{00}}$

$20 \div 2 = \boxed{\phantom{00}}$

$60 \div 5 = \boxed{\phantom{00}}$

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

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

$42 \div 7 = \boxed{\phantom{00}}$

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

$12 \div 3 = \boxed{\phantom{00}}$

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

1. The villain soared past using glider wings, then fled through storm riding.
2. The villain vanished behind smoke pellets, then dashed away using wind reading.
3. The villain signaled the crew with a signal flare, then pushed high with thermal soaring.
4. The villain vanished behind smoke pellets, then disappeared into night flying.
5. The villain swung down with a grapple hook, then escaped by cloud diving.
6. The villain soared past using glider wings, then dashed away using wind reading.
7. The villain swung down with a grapple hook, then disappeared into night flying.
8. The villain blinded the watch with a flash beacon, then disappeared into night flying.
9. The villain swung down with a grapple hook, then dashed away using wind reading.
10. The villain signaled the crew with a signal flare, then dashed away using wind reading.
11. The villain signaled the crew with a signal flare, then disappeared into night flying.
12. The villain vanished behind smoke pellets, then escaped by cloud diving.

# Answer Key

## The Great Airship Compass Caper

### Culprit: Orville Wright

Flash Beacon · Night Flying · Right Handed · Copper Goggles · High Winds

Trail: Start 21 → Clue 1 19 → Clue 2 12 → Clue 3 5 → Clue 4 4 → Clue 5 1

#### Clue 1 (Fractions of a number): "THE VILLAIN DOES NOT USE STORM RIDING"

$\frac{2}{5}$  of 100 = 40 (T) ·  $\frac{1}{8}$  of 144 = 18 (S) ·  $\frac{1}{3}$  of 93 = 31 (U) ·  $\frac{2}{4}$  of 68 = 34 (I) ·  $\frac{1}{5}$  of 125 = 25 (A) ·  $\frac{1}{4}$  of 32 = 8 (L) ·  $\frac{6}{10}$  of 5 = 3 (G) ·  $\frac{1}{3}$  of 18 = 6 (H) ·  $\frac{2}{4}$  of 38 = 19 (V) ·  $\frac{1}{3}$  of 33 = 11 (R) ·  $\frac{2}{3}$  of 39 = 26 (N) ·  $\frac{8}{10}$  of 40 = 32 (D) ·  $\frac{2}{3}$  of 24 = 16 (M) ·  $\frac{2}{10}$  of 50 = 10 (E) ·  $\frac{1}{3}$  of 108 = 36 (O)

#### Clue 2 (Order of operations): "THE PRINTS SHOW A RIGHT HANDED CONTROL GRIP"

$9 \times 2 - 5 = 13$  (T) ·  $10 \times 7 - 20 = 50$  (E) ·  $10 \times 8 - 12 = 68$  (S) ·  $11 + 2 \times 5 = 21$  (A) ·  $22 + 3 \times 5 = 37$  (O) ·  $7 \times 9 - 2 = 61$  (R) ·  $6 + 2 \times 2 = 10$  (L) ·  $6 \times 5 - 24 = 6$  (C) ·  $4 \times 7 - 6 = 22$  (P) ·  $9 \times 11 - 20 = 79$  (G) ·  $14 + 4 \times 3 = 26$  (H) ·  $23 + 5 \times 2 = 33$  (N) ·  $24 + 8 \times 2 = 40$  (D) ·  $8 \times 4 - 5 = 27$  (I) ·  $39 + 4 \times 9 = 75$  (W)

#### Clue 3 (Multiplication facts (1-12)): "THE ROGUE WAS STOPPED BY HIGH WINDS ALOFT"

$2 \times 8 = 16$  (T) ·  $4 \times 10 = 40$  (F) ·  $5 \times 12 = 60$  (L) ·  $7 \times 4 = 28$  (E) ·  $8 \times 8 = 64$  (G) ·  $2 \times 5 = 10$  (I) ·  $9 \times 6 = 54$  (U) ·  $11 \times 4 = 44$  (H) ·  $3 \times 3 = 9$  (R) ·  $1 \times 1 = 1$  (O) ·  $9 \times 9 = 81$  (B) ·  $11 \times 12 = 132$  (N) ·  $6 \times 3 = 18$  (D) ·  $9 \times 5 = 45$  (A) ·  $12 \times 9 = 108$  (P) ·  $12 \times 7 = 84$  (S) ·  $9 \times 7 = 63$  (W) ·  $4 \times 5 = 20$  (Y)

#### Clue 4 (Rounding): "THE TRACKER FOUND COPPER GOGGLES NEARBY"

Round 90 to the nearest ten = 90 (T) · Round 2,203 to the nearest thousand = 2000 (K) · Round 4,342 to the nearest hundred = 4300 (P) · Round 7,379 to the nearest thousand = 7000 (O) · Round 4,765 to the nearest thousand = 5000 (B) · Round 286 to the nearest ten = 290 (S) · Round 9,142 to the nearest thousand = 9000 (L) · Round 2,276 to the nearest hundred = 2300 (R) · Round 3,067 to the nearest thousand = 3000 (H) · Round 666 to the nearest hundred = 700 (C) · Round 3,744 to the nearest hundred = 3700 (F) · Round 1,305 to the nearest hundred = 1300 (D) · Round 172 to the nearest hundred = 200 (Y) · Round 54 to the nearest ten = 50 (N) · Round 367 to the nearest ten = 370 (A) · Round 174 to the nearest ten = 170 (E) · Round 66 to the nearest ten = 70 (G) · Round 129 to the nearest ten = 130 (U)

#### Clue 5 (Division facts (1-12)): surviving statement is box 8 → Orville Wright

$21 \div 7 = 3$  ·  $54 \div 6 = 9$  ·  $66 \div 6 = 11$  ·  $60 \div 12 = 5$  ·  $20 \div 2 = 10$  ·  $60 \div 5 = 12$  ·  $2 \div 1 = 2$  ·  $28 \div 4 = 7$  ·  $42 \div 7 = 6$  ·  $8 \div 8 = 1$  ·  $12 \div 3 = 4$