



The Sky-Pirate Balloon Mystery

Grade 6 math · Percentages, Exponents, Order of operations, Multiplication, Missing addends · Reading level grades 5-6

Detective: _____ **Date:** _____

The golden weather vane of Skylandia has been stolen from the weather station! Without it, the floating islands cannot predict the shifting winds. The Chief Meteorologist needs your help to find which aviator took it before the storm hits!

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 The Air Pirate is _____

Possible suspects

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

NAME	FLIGHT METHOD	ESCAPE TOOL	GOGGLES PLACEMENT	HAIR COLOR	CRITICAL WEAKNESS
Silas Spark	harpoon grapple	spy camera	goggles on cap	dusty brown hair	allergic to pine needles
Stella Starboard	electric propeller	spy camera	goggles on cap	dusty brown hair	allergic to pine needles
Arthur Anchor	harpoon grapple	spy camera	goggles on neck	dusty brown hair	dazzled by shiny mirrors
Nora Navigator	harpoon grapple	smoke bomb	goggles on neck	jet black hair	allergic to pine needles
Maya Jetstream	steam jetpack	spy camera	goggles on cap	bright orange hair	allergic to pine needles
Finn Flapjack	magnet hook	flare launcher	goggles on neck	jet black hair	allergic to pine needles
Penny Propeller	steam jetpack	net shooter	goggles on neck	jet black hair	allergic to pine needles
Amelia Skyward	wind glider	smoke bomb	goggles on cap	bright orange hair	allergic to pine needles
Hazel Altitude	steam jetpack	net shooter	goggles on neck	dusty brown hair	afraid of loud horns
Toby Turbine	wind glider	net shooter	goggles on neck	jet black hair	allergic to pine needles
Buster Balloon	harpoon grapple	flare launcher	goggles on neck	jet black hair	afraid of loud horns
Miles Mapmaker	magnet hook	signal whistle	goggles on neck	jet black hair	allergic to pine needles
Clara Compass	electric propeller	signal whistle	goggles on cap	bright orange hair	afraid of loud horns
Leo Zephyr	harpoon grapple	flare launcher	goggles on neck	bright orange hair	allergic to pine needles
Rufus Rudder	magnet hook	signal whistle	goggles on neck	jet black hair	afraid of loud horns
Gus Cloudhopper	steam jetpack	net shooter	goggles on cap	jet black hair	allergic to pine needles
Gemma Gearbox	wind glider	spy camera	goggles on neck	dusty brown hair	afraid of loud horns
Captain Barnaby	steam jetpack	signal whistle	goggles on neck	jet black hair	afraid of loud horns
Pip Stratus	steam jetpack	signal whistle	goggles on neck	jet black hair	allergic to pine needles
Victor Velocity	electric propeller	smoke bomb	goggles on cap	dusty brown hair	allergic to pine needles
Jax Aero	wind glider	smoke bomb	goggles on neck	dusty brown hair	afraid of loud horns

CLUE 1

To narrow down the suspect airships, we check the weather station's solar batteries. We calculate what percentage of power remains to boot up the security log.

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

[illegible]

25% of 32 = → **T**

40% of 75 = → **G**

60% of 15 = → **L**

25% of 52 = → **D**

20% of 10 = → **A**

40% of 95 = → **U**

25% of 180 = → **S**

40% of 25 = → **N**

5% of 460 = →

20% of 185 = → **E**

5% of 60 = → ☒

60% of 25 = → **V**

25% of 100 = → **H**

10% of 290 = → **W**

Scratch space:

CLUE 2

The thief escaped by climbing several flights of sky-stairs. We calculate the total steps by squaring the island's tier number to find the correct landing platform.

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

Diagram showing two rows of boxes with numbers and the letter 'T'.

Top row (left to right):

- Box 1: T (orange)
- Box 2: 324
- Box 3: 216
- Box 4: 289
- Box 5: 4
- Box 6: 100
- Box 7: 4
- Box 8: 4
- Box 9: 125
- Box 10: 289
- Box 11: 361
- Box 12: 49
- Box 13: 289
- Box 14: 32
- Box 15: 289

Bottom row (left to right):

- Box 1: 32
- Box 2: 289
- Box 3: 361
- Box 4: T (orange)
- Box 5: 324
- Box 6: 25
- Box 7: 81
- Box 8: 4
- Box 9: 128
- Box 10: 32
- Box 11: 100
- Box 12: 243
- Box 13: 81
- Box 14: 256
- Box 15: T (orange)
- Box 16: 324
- Box 17: 216
- Box 18: 289
- Box 19: 81
- Box 20: 289
- Box 21: 144
- Box 22: 225

$$18^2 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$2^7 = \boxed{} \rightarrow \boxed{\mathbf{A}}$$

$$5^3 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$7^2 = \boxed{} \rightarrow \boxed{\mathbf{W}}$$

$$9^2 = \boxed{} \rightarrow \boxed{\text{N}}$$

$$5^2 = \boxed{} \rightarrow \boxed{1}$$

$$2^8 = \boxed{} \rightarrow \boxed{\mathbf{D}}$$

$$17^2 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$15^2 = \boxed{} \rightarrow \boxed{\text{K}}$$

$$19^2 = \boxed{} \rightarrow \boxed{\text{S}}$$

$12^2 = \boxed{} \rightarrow \boxed{}$

$10^2 = \boxed{} \rightarrow$

$$2^5 = \boxed{} \rightarrow \boxed{\mathbf{R}}$$

$$6^3 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$2^2 = \boxed{} \rightarrow \boxed{\mathbf{G}}$$

$$3^5 = \boxed{} \rightarrow \boxed{\text{U}}$$

Scratch space:

Order of operations

We find a locked brass canister on the launch pad. Solving the multi-step order of operations code on the dial pops the lid open to reveal a clue.

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

$$3 \times 8 - 15 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$7 \times 12 - 15 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$9 \times 8 - 6 = \boxed{} \rightarrow \boxed{\mathbf{D}}$$

$$26 + 7 \times 4 = \boxed{} \rightarrow \boxed{\text{F}}$$

$$67 + 5 \times 2 = \boxed{} \rightarrow \boxed{\text{N}}$$

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

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

$$8 \times 8 - 29 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$3 \times 12 - 7 = \boxed{} \rightarrow \boxed{0}$$

$$1 + 6 \times 8 = \boxed{} \rightarrow \boxed{\text{G}}$$

$$3 + 3 \times 6 = \boxed{} \rightarrow \boxed{\mathbf{A}}$$

$$10 \times 5 - 8 = \boxed{} \rightarrow \boxed{\text{P}}$$

$$5 \times 6 - 5 = \boxed{} \rightarrow \boxed{\mathbf{S}}$$

$$7 \times 8 - 1 = \boxed{} \rightarrow \boxed{\mathbf{U}}$$

Scratch space:

CLUE 4
Multiplication facts (1-12)

Looking at the supply deck, we count the rows of heavy sandbags left behind. Multiplying the rows by the columns tells us how much ballast the thief dropped.

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

B																	
132	28	20	33	8	80	25	121	20	60	27	80	110	32	121	32		
21	99	70	60	27	99	60	25	18	32	33	99	33	8	45	81	25	
121	70	54															

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

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

$6 \times 3 = \square \rightarrow \text{H}$

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

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

$10 \times 2 = \square \rightarrow \text{A}$

$2 \times 4 = \square \rightarrow \text{K}$

$8 \times 4 = \square \rightarrow \text{E}$

$9 \times 9 = \square \rightarrow \text{I}$

$7 \times 4 = \square \rightarrow \text{L}$

$6 \times 9 = \square \rightarrow \text{G}$

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

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

$3 \times 9 = \square \rightarrow \text{D}$

$10 \times 8 = \square \rightarrow \text{S}$

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

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

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

$11 \times 9 = \square \rightarrow \text{O}$

Scratch space:

CLUE 5**Missing addends - the last clue**

To balance the scale on the getaway dock, we must figure out the exact missing weight of the fuel canisters that were carried away.

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:

$16 + \underline{\quad} = 23$

$25 + \underline{\quad} = 30$

$28 + \underline{\quad} = 30$

$25 + \underline{\quad} = 28$

$21 + \underline{\quad} = 27$

$11 + \underline{\quad} = 21$

$3 + \underline{\quad} = 15$

$33 + \underline{\quad} = 34$

$18 + \underline{\quad} = 26$

$33 + \underline{\quad} = 37$

$34 + \underline{\quad} = 43$

Step 2 - cross out the sentence with each answer:

1. The villain swings across with a harpoon grapple, then tangles the pursuit team in a net.
2. The villain zooms away on a steam jetpack, then tangles the pursuit team in a net.
3. The villain flies high with an electric propeller, then lights up the dark sky with a flare.
4. The villain swings across with a harpoon grapple, then snaps a picture with a spy camera.
5. The villain climbs up with a magnet hook, then lights up the dark sky with a flare.
6. The villain flies high with an electric propeller, then snaps a picture with a spy camera.
7. The villain swings across with a harpoon grapple, then escapes into a cloud of smoke.
8. The villain soars down using a wind glider, then snaps a picture with a spy camera.
9. The villain flies high with an electric propeller, then escapes into a cloud of smoke.
10. The villain climbs up with a magnet hook, then calls for backup using a whistle.
11. The villain soars down using a wind glider, then tangles the pursuit team in a net.
12. The villain zooms away on a steam jetpack, then calls for backup using a whistle.

Answer Key

The Sky-Pirate Balloon Mystery

Culprit: Toby Turbine

wind glider · net shooter · goggles on neck · jet black hair · allergic to pine needles

Trail: Start 21 → Clue 1 16 → Clue 2 10 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Percentages): "THE VILLAIN DOES NOT USE THE SIGNAL WHISTLE"

25% of 32 = 8 (T) · 40% of 75 = 30 (G) · 60% of 15 = 9 (L) · 25% of 52 = 13 (D) · 20% of 10 = 2 (A) · 40% of 95 = 38 (U) · 25% of 180 = 45 (S) · 40% of 25 = 10 (N) · 5% of 460 = 23 (I) · 20% of 185 = 37 (E) · 5% of 60 = 3 (O) · 60% of 25 = 15 (V) · 25% of 100 = 25 (H) · 10% of 290 = 29 (W)

Clue 2 (Exponents): "THE GOGGLES WERE RESTING AROUND THE NECK"

$18^2 = 324$ (T) · $2^7 = 128$ (A) · $5^3 = 125$ (L) · $7^2 = 49$ (W) · $9^2 = 81$ (N) · $5^2 = 25$ (I) · $2^8 = 256$ (D) · $17^2 = 289$ (E) · $15^2 = 225$ (K) · $19^2 = 361$ (S) · $12^2 = 144$ (C) · $10^2 = 100$ (O) · $2^5 = 32$ (R) · $6^3 = 216$ (H) · $2^2 = 4$ (G) · $3^5 = 243$ (U)

Clue 3 (Order of operations): "THE FLIGHT SUIT HAD PINE NEEDLES ON IT"

$3 \times 8 - 15 = 9$ (T) · $7 \times 12 - 15 = 69$ (H) · $9 \times 8 - 6 = 66$ (D) · $26 + 7 \times 4 = 54$ (F) · $67 + 5 \times 2 = 77$ (N) · $4 + 4 \times 2 = 12$ (E) · $2 + 2 \times 2 = 6$ (I) · $8 \times 8 - 29 = 35$ (L) · $3 \times 12 - 7 = 29$ (O) · $1 + 6 \times 8 = 49$ (G) · $3 + 3 \times 6 = 21$ (A) · $10 \times 5 - 8 = 42$ (P) · $5 \times 6 - 5 = 25$ (S) · $7 \times 8 - 1 = 55$ (U)

Clue 4 (Multiplication facts (1-12)): "BLACK STRANDS WERE FOUND ON THE COCKPIT RUG"

$12 \times 11 = 132$ (B) · $3 \times 11 = 33$ (C) · $6 \times 3 = 18$ (H) · $3 \times 7 = 21$ (F) · $5 \times 5 = 25$ (T) · $10 \times 2 = 20$ (A) · $2 \times 4 = 8$ (K) · $8 \times 4 = 32$ (E) · $9 \times 9 = 81$ (I) · $7 \times 4 = 28$ (L) · $6 \times 9 = 54$ (G) · $11 \times 10 = 110$ (W) · $5 \times 9 = 45$ (P) · $3 \times 9 = 27$ (D) · $10 \times 8 = 80$ (S) · $12 \times 5 = 60$ (N) · $10 \times 7 = 70$ (U) · $11 \times 11 = 121$ (R) · $11 \times 9 = 99$ (O)

Clue 5 (Missing addends): surviving statement is box 11 → Toby Turbine

$16 + \underline{\quad} = 23 = 7$ · $25 + \underline{\quad} = 30 = 5$ · $28 + \underline{\quad} = 30 = 2$ · $25 + \underline{\quad} = 28 = 3$ · $21 + \underline{\quad} = 27 = 6$ · $11 + \underline{\quad} = 21 = 10$ · $3 + \underline{\quad} = 15 = 12$ · $33 + \underline{\quad} = 34 = 1$ · $18 + \underline{\quad} = 26 = 8$ · $33 + \underline{\quad} = 37 = 4$ · $34 + \underline{\quad} = 43 = 9$