The Case of the Missing Moon Crystal

Grade 1 math · Place value, Addition, Subtraction, Skip counting, Missing addends · Reading level grades 3-4

Detective: _____ **Date:** _____

Someone snuck into the Lunar Research Dome and swapped the glowing moon crystal with a fake space pebble! Detective, check the logs and decode the clues to catch the cosmic 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 Cosmic Culprit is _____

Possible suspects

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

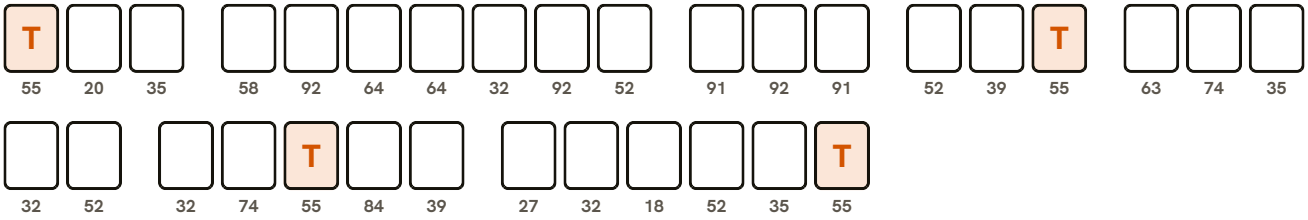
NAME	MAIN GADGET	BONUS TOOL	GOGGLES	SPACEDO	WEAKNESS
Sally Ride	gravity ray	meteor blaster	no space goggles	floating zero g ponytail	bright strobe flash
Jessica Meir	rocket boots	meteor blaster	no space goggles	bright neon buzzcut	bright strobe flash
Sunita Williams	warp drive	starlight cloak	no space goggles	silver helmet hair	bright strobe flash
Michael Collins	laser cutter	solar scanner	wears space goggles	floating zero g ponytail	sticky moon foam
Scott Kelly	laser cutter	solar scanner	no space goggles	bright neon buzzcut	sticky moon foam
Chris Hadfield	plasma shield	starlight cloak	no space goggles	silver helmet hair	loud alarm horn
Guion Bluford	warp drive	starlight cloak	no space goggles	bright neon buzzcut	loud alarm horn
Neil Armstrong	warp drive	meteor blaster	wears space goggles	silver helmet hair	bright strobe flash
Victor Glover	laser cutter	solar scanner	wears space goggles	floating zero g ponytail	bright strobe flash
Ellen Ochoa	rocket boots	meteor blaster	wears space goggles	floating zero g ponytail	bright strobe flash
Mark Kelly	laser cutter	solar scanner	no space goggles	silver helmet hair	bright strobe flash
Kalpana Chawla	rocket boots	comet thruster	wears space goggles	floating zero g ponytail	bright strobe flash
Alan Shepard	gravity ray	solar scanner	wears space goggles	floating zero g ponytail	loud alarm horn
Bernard Harris	plasma shield	solar scanner	wears space goggles	floating zero g ponytail	bright strobe flash
Samantha Cristoforetti	plasma shield	astro magnet	no space goggles	bright neon buzzcut	loud alarm horn
Peggy Whitson	plasma shield	solar scanner	wears space goggles	silver helmet hair	sticky moon foam
Leland Melvin	rocket boots	meteor blaster	no space goggles	silver helmet hair	loud alarm horn
Eileen Collins	warp drive	comet thruster	no space goggles	silver helmet hair	sticky moon foam
Yuri Gagarin	gravity ray	starlight cloak	no space goggles	bright neon buzzcut	sticky moon foam
Christina Koch	gravity ray	astro magnet	wears space goggles	floating zero g ponytail	bright strobe flash
Valentina Tereshkova	plasma shield	astro magnet	wears space goggles	floating zero g ponytail	bright strobe flash

make your own at mathcrackers.com

CLUE 1 Place value

The station main computer sorted the vault code digits by tens and ones to unlock the first secure file.

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



What number has 5 tens and 5 ones? ☐ → T

What number has 1 ten and 8 ones? ☐ → G

What number has 9 tens and 1 one? ☐ → D

What number has 3 tens and 2 ones? ☐ → A

What number has 5 tens and 2 ones? ☐ → N

What number has 3 tens and 9 ones? ☐ → O

What number has 2 tens and 0 ones? ☐ → H

What number has 2 tens and 7 ones? ☐ → M

What number has 6 tens and 3 ones? ☐ → U

What number has 7 tens and 4 ones? ☐ → S

What number has 9 tens and 2 ones? ☐ → I

What number has 3 tens and 5 ones? ☐ → E

What number has 8 tens and 4 ones? ☐ → R

What number has 5 tens and 8 ones? ☐ → V

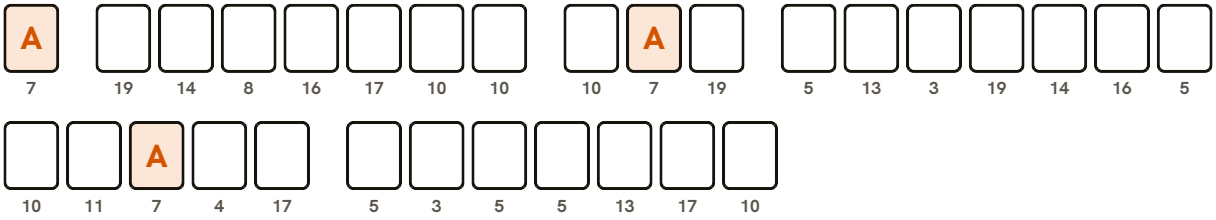
What number has 6 tens and 4 ones? ☐ → L

Scratch space:

CLUE 2 Addition

> Commander Vance added up the total energy canisters stored in the airlock bays.

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



4 + 3 = ☐ → A

1 + 2 = ☐ → O

6 + 2 = ☐ → T

4 + 9 = ☐ → L

14 + 5 = ☐ → W

6 + 10 = ☐ → N

2 + 2 = ☐ → C

5 + 12 = ☐ → E

6 + 4 = ☐ → S

1 + 4 = ☐ → G

7 + 4 = ☐ → P

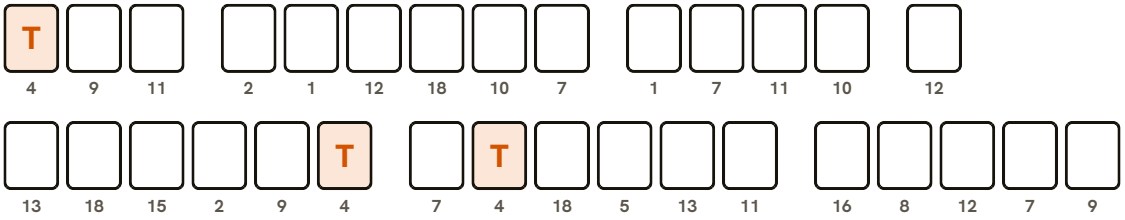
8 + 6 = ☐ → I

Scratch space:

CLUE 3 Subtraction

The security droid subtracted the damaged solar panels from the total power deck.

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



9 - 5 = ☐ → T

19 - 8 = ☐ → E

13 - 6 = ☐ → S

14 - 6 = ☐ → L

10 - 8 = ☐ → G

10 - 5 = ☐ → O

15 - 2 = ☐ → B

11 - 2 = ☐ → H

20 - 2 = ☐ → R

20 - 4 = ☐ → F

16 - 1 = ☐ → I

16 - 6 = ☐ → D

20 - 8 = ☐ → A

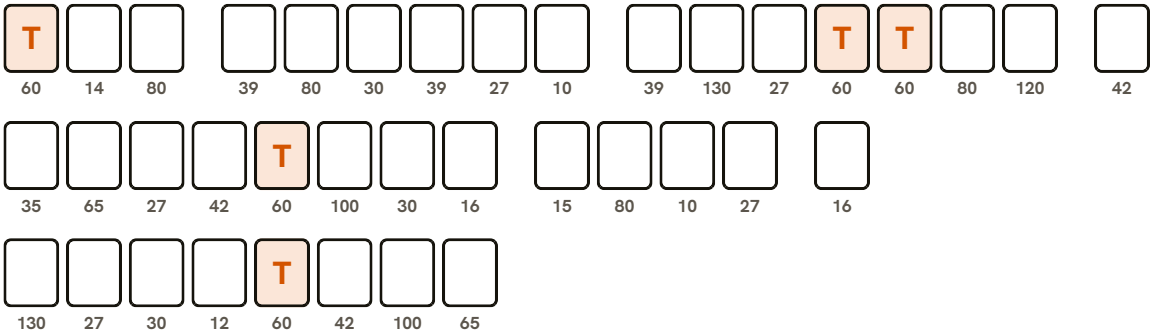
9 - 8 = ☐ → U

Scratch space:

CLUE 4 Skip counting

> Cadet Leo counted the supply crates lined up in equal rows across the launch pad.

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



Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, ___, 70, 80 ☐ → **T**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, ___, 130, 140 ☐ → **D**

Skip-count by 3s. Fill the blank: 3, 6, 9, ___, 15, 18 ☐ → **Y**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, ___, 18, 20 ☐ → **G**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, ___, 42, 45 ☐ → **S**

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, ___, 40, 45 ☐ → **F**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, ___, 12, 14 ☐ → **R**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, ___, 18, 21 ☐ → **Z**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, ___, 45, 48 ☐ → **A**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, ___, 140, 150 ☐ → **P**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, ___, 110, 120 ☐ → **I**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, ___, 16, 18 ☐ → **H**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, ___, 30, 33 ☐ → **O**

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, ___, 70, 75 ☐ → **L**

Skip-count by 10s. Fill the blank: 10, 20, ___, 40, 50 ☐ → **N**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, ___, 90, 100 ☐ → **E**

Scratch space:

CLUE 5 Missing addends - the last clue

Officer Nova checked how many extra fuel cells were needed to fill the rocket tanks.

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:

2 + ___ = 4 ☐	2 + ___ = 3 ☐	10 + ___ = 22 ☐	5 + ___ = 13 ☐
7 + ___ = 12 ☐	5 + ___ = 15 ☐	4 + ___ = 15 ☐	6 + ___ = 9 ☐
9 + ___ = 13 ☐	3 + ___ = 9 ☐	8 + ___ = 15 ☐	

Step 2 - cross out the sentence with each answer:

1. The villain flew over the guard rail, then shattered the hatch with a meteor blaster.
2. The villain sliced the solar wires, then checked the map with a solar scanner.
3. The villain blasted the vault lock, then checked the map with a solar scanner.
4. The villain blasted the vault lock, then snuck off under a starlight cloak.
5. The villain blocked the laser beam, then escaped fast using a comet thruster.
6. The villain blocked the laser beam, then shattered the hatch with a meteor blaster.
7. The villain warped past the security door, then escaped fast using a comet thruster.
8. The villain blasted the vault lock, then escaped fast using a comet thruster.
9. The villain flew over the guard rail, then escaped fast using a comet thruster.
10. The villain blocked the laser beam, then pulled the key with an astro magnet.
11. The villain warped past the security door, then pulled the key with an astro magnet.
12. The villain blocked the laser beam, then checked the map with a solar scanner.

TEACHER / PARENT

Answer Key

The Case of the Missing Moon Crystal

Culprit: Kalpana Chawla

rocket boots · comet thruster · wears space goggles · floating zero g ponytail · bright strobe flash

Trail: Start 21 → Clue 1 18 → Clue 2 8 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Place value): "THE VILLAIN DID NOT USE AN ASTRO MAGNET"

What number has 5 tens and 5 ones? = 55 (T) · What number has 1 ten and 8 ones? = 18 (G) · What number has 9 tens and 1 one? = 91 (D) · What number has 3 tens and 2 ones? = 32 (A) · What number has 5 tens and 2 ones? = 52 (N) · What number has 3 tens and 9 ones? = 39 (O) · What number has 2 tens and 0 ones? = 20 (H) · What number has 2 tens and 7 ones? = 27 (M) · What number has 6 tens and 3 ones? = 63 (U) · What number has 7 tens and 4 ones? = 74 (S) · What number has 9 tens and 2 ones? = 92 (I) · What number has 3 tens and 5 ones? = 35 (E) · What number has 8 tens and 4 ones? = 84 (R) · What number has 5 tens and 8 ones? = 58 (V) · What number has 6 tens and 4 ones? = 64 (L)

Clue 2 (Addition): "A WITNESS SAW GLOWING SPACE GOGGLES"

4 + 3 = 7 (A) · 1 + 2 = 3 (O) · 6 + 2 = 8 (T) · 4 + 9 = 13 (L) · 14 + 5 = 19 (W) · 6 + 10 = 16 (N) · 2 + 2 = 4 (C) · 5 + 12 = 17 (E) · 6 + 4 = 10 (S) · 1 + 4 = 5 (G) · 7 + 4 = 11 (P) · 8 + 6 = 14 (I)

Clue 3 (Subtraction): "THE GUARDS USED A BRIGHT STROBE FLASH"

9 - 5 = 4 (T) · 19 - 8 = 11 (E) · 13 - 6 = 7 (S) · 14 - 6 = 8 (L) · 10 - 8 = 2 (G) · 10 - 5 = 5 (O) · 15 - 2 = 13 (B) · 11 - 2 = 9 (H) · 20 - 2 = 18 (R) · 20 - 4 = 16 (F) · 16 - 1 = 15 (I) · 16 - 6 = 10 (D) · 20 - 8 = 12 (A) · 9 - 8 = 1 (U)

Clue 4 (Skip counting): "THE SENSOR SPOTTED A FLOATING ZERO G PONYTAIL"

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, ___, 70, 80 = 60 (T) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, ___, 130, 140 = 120 (D) · Skip-count by 3s. Fill the blank: 3, 6, 9, ___, 15, 18 = 12 (Y) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, ___, 18, 20 = 16 (G) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, ___, 42, 45 = 39 (S) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, ___, 40, 45 = 35 (F) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, ___, 12, 14 = 10 (R) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, ___, 18, 21 = 15 (Z) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, ___, 45, 48 = 42 (A) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, ___, 140, 150 = 130 (P) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, ___, 110, 120 = 100 (I) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, ___, 16, 18 = 14 (H) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, ___, 30, 33 = 27 (O) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, ___, 70, 75 = 65 (L) · Skip-count by 10s. Fill the blank: 10, 20, ___, 40, 50 = 30 (N) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, ___, 90, 100 = 80 (E)

Clue 5 (Missing addends): surviving statement is box 9 → Kalpana Chawla

2 + ___ = 4 = 2 · 2 + ___ = 3 = 1 · 10 + ___ = 22 = 12 · 5 + ___ = 13 = 8 · 7 + ___ = 12 = 5 · 5 + ___ = 15 = 10 · 4 + ___ = 15 = 11 · 6 + ___ = 9 = 3 · 9 + ___ = 13 = 4 · 3 + ___ = 9 = 6 · 8 + ___ = 15 = 7