



The Spark Yard Mystery

Grade 2 math · Addition, Place value, Subtraction, Skip counting, Missing addends · Reading level grades 1-2

Detective: _____ Date: _____

Someone snuck into the Spark Yard and took the Golden Gear! We must find the scrap thief before the city runs out of power. Look at the robot files to find the thief.

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 scrap thief is _____

Possible suspects

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

NAME	TOOL POWER	BACKPACK GEAR	OIL LEAK	HEAD TOPPER	SYSTEM RESET
Byte	drill nose	search light	left side leak	silver dome	water splash
Turbo	drill nose	solar panel	left side leak	silver dome	rust spray
Gearbox	jet booster	search light	left side leak	glass bulb	rust spray
Sparky	jet booster	bubble fan	left side leak	glass bulb	rust spray
Sprocket	laser cutter	robo alarm	left side leak	glass bulb	rust spray
Clank	jet booster	bubble fan	right side leak	silver dome	magnet wave
Charger	drill nose	bubble fan	left side leak	glass bulb	rust spray
Widget	sonar ear	solar panel	left side leak	glass bulb	magnet wave
Otto	magnet claw	bubble fan	right side leak	silver dome	water splash
Astro	sonar ear	robo alarm	left side leak	glass bulb	magnet wave
Gasket	sonar ear	robo alarm	right side leak	glass bulb	magnet wave
Micro	sonar ear	robo alarm	right side leak	glass bulb	rust spray
Rivet	jet booster	smoke pipe	right side leak	glass bulb	rust spray
Tinny	laser cutter	solar panel	left side leak	glass bulb	rust spray
Copper	drill nose	robo alarm	right side leak	silver dome	rust spray
Beep	magnet claw	smoke pipe	left side leak	glass bulb	rust spray
Gizmo	drill nose	robo alarm	left side leak	spinning fan	rust spray
Dynamo	magnet claw	bubble fan	right side leak	spinning fan	rust spray
Rusty	drill nose	robo alarm	left side leak	spinning fan	magnet wave
Vector	sonar ear	smoke pipe	right side leak	spinning fan	water splash
Bolt	sonar ear	bubble fan	right side leak	glass bulb	magnet wave

CLUE 1

Addition

We need to count the fallen nuts and bolts on the floor. Let us add them together to unlock the first video clip.

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

N										N		N			
55	30	76	86	76	76	59	69	64	63	55	30	55	57	37	69

57	37	40	69	64

$38 + 17 = \square \rightarrow \boxed{\text{N}}$

$50 + 36 = \square \rightarrow \boxed{\text{U}}$

$25 + 12 = \square \rightarrow \boxed{\text{H}}$

$33 + 36 = \square \rightarrow \boxed{\text{E}}$

$30 + 33 = \square \rightarrow \boxed{\text{A}}$

$39 + 20 = \square \rightarrow \boxed{\text{L}}$

$23 + 17 = \square \rightarrow \boxed{\text{I}}$

$21 + 9 = \square \rightarrow \boxed{\text{O}}$

$32 + 25 = \square \rightarrow \boxed{\text{T}}$

$30 + 34 = \square \rightarrow \boxed{\text{F}}$

$42 + 34 = \square \rightarrow \boxed{\text{B}}$

Scratch space:

CLUE 2

Place value

Look at the digital screen on the main robot charger. We can read the tens and ones to unlock the secret code.

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

A							A									
17	77	28	46	12	57	13	17	46	12	12	20	17	33	82	57	28
57	39	20	12	20	84	57										

What number has 1 ten and 7 ones?

→

A

What number has 1 ten and 3 ones?

→

R

What number has 8 tens and 2 ones?

→

S

What number has 3 tens and 3 ones?

→

D

What number has 2 tens and 0 ones?

→

E

What number has 7 tens and 7 ones?

→

N

What number has 8 tens and 4 ones?

→

F

What number has 3 tens and 9 ones?

→

H

What number has 5 tens and 7 ones?

→

T

What number has 4 tens and 6 ones?

→

I

What number has 1 ten and 2 ones?

→

L

What number has 2 tens and 8 ones?

→

O

Scratch space:

CLUE 3

Subtraction

Some battery packs are missing from the charging rack. Subtract the old count from the new count to find the difference.

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

R						R													
74	83	25	68	25	46	74	43	11	32	40	24	24	58	74	87	87	20	87	
68	23	87	25	11	25	68	87	86											

$79 - 5 = \square \rightarrow \boxed{\text{R}}$

$67 - 35 = \square \rightarrow \boxed{\text{W}}$

$62 - 19 = \square \rightarrow \boxed{\text{A}}$

$46 - 22 = \square \rightarrow \boxed{\text{L}}$

$57 - 37 = \square \rightarrow \boxed{\text{Z}}$

$124 - 37 = \square \rightarrow \boxed{\text{E}}$

$55 - 15 = \square \rightarrow \boxed{\text{I}}$

$85 - 2 = \square \rightarrow \boxed{\text{U}}$

$48 - 2 = \square \rightarrow \boxed{\text{P}}$

$102 - 16 = \square \rightarrow \boxed{\text{M}}$

$24 - 13 = \square \rightarrow \boxed{\text{Y}}$

$53 - 30 = \square \rightarrow \boxed{\text{H}}$

$58 - 33 = \square \rightarrow \boxed{\text{S}}$

$63 - 5 = \square \rightarrow \boxed{\text{F}}$

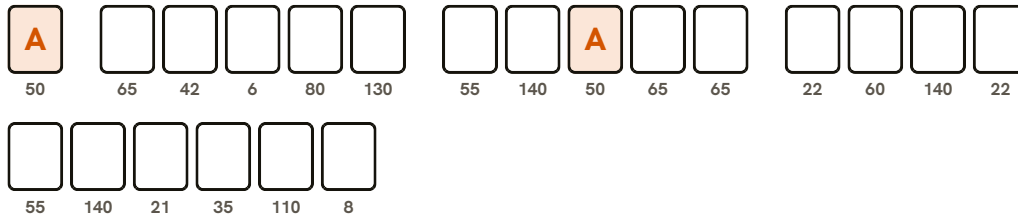
$78 - 10 = \square \rightarrow \boxed{\text{T}}$

Scratch space:

CLUE 4 Skip counting

The robot footprints go down the hallway. Skip count the metal toe prints by twos to follow the path.

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, __, 60, 70 → **A**

Skip-count by 2s. Fill the blank: 2, 4, 6, __, 10, 12 → **D**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, __, 120, 130 → **E**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, __, 24, 26 → **B**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, __, 24, 27 → **O**

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

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

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, __, 60, 65 → **G**

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

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, __, 150, 160 → **L**

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

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

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

Skip-count by 2s. Fill the blank: 2, 4, __, 8, 10



Scratch space:

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

The power bar needs ten points to work. We only have six points. Find how many more points we need to get to ten.

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:

$3 + \underline{\quad} = 5$

$10 + \underline{\quad} = 13$

$4 + \underline{\quad} = 9$

$1 + \underline{\quad} = 7$

$6 + \underline{\quad} = 16$

$1 + \underline{\quad} = 10$

$4 + \underline{\quad} = 5$

$7 + \underline{\quad} = 19$

$4 + \underline{\quad} = 11$

$5 + \underline{\quad} = 16$

$8 + \underline{\quad} = 12$

Step 2 - cross out the sentence with each answer:

1. The villain zooms over the high gate, then blows soapy bubbles in the air.
2. The villain slices open the locked safe, then charges up in the sunlight.
3. The villain slices open the locked safe, then sets off the shop bells.
4. The villain picks up the metal box, then beams a bright yellow light.
5. The villain picks up the metal box, then puffs out a cloud of grey soot.
6. The villain hears the secret lock code, then blows soapy bubbles in the air.
7. The villain picks up the metal box, then sets off the shop bells.
8. The villain zooms over the high gate, then beams a bright yellow light.
9. The villain slices open the locked safe, then blows soapy bubbles in the air.
10. The villain digs under the workshop floor, then puffs out a cloud of grey soot.
11. The villain slices open the locked safe, then beams a bright yellow light.
12. The villain zooms over the high gate, then charges up in the sunlight.

Answer Key

The Spark Yard Mystery

Culprit: Gearbox

jet booster · search light · left side leak · glass bulb · rust spray

Trail: Start 21 → Clue 1 15 → Clue 2 10 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Addition): "NO BUBBLE FAN ON THE THIEF"

$38 + 17 = 55$ (N) · $50 + 36 = 86$ (U) · $25 + 12 = 37$ (H) · $33 + 36 = 69$ (E) · $30 + 33 = 63$ (A) · $39 + 20 = 59$ (L) · $23 + 17 = 40$ (I) · $21 + 9 = 30$ (O) · $32 + 25 = 57$ (T) · $30 + 34 = 64$ (F) · $42 + 34 = 76$ (B)

Clue 2 (Place value): "AN OIL TRAIL LEADS TO THE LEFT"

What number has 1 ten and 7 ones? = 17 (A) · What number has 1 ten and 3 ones? = 13 (R) · What number has 8 tens and 2 ones? = 82 (S) · What number has 3 tens and 3 ones? = 33 (D) · What number has 2 tens and 0 ones? = 20 (E) · What number has 7 tens and 7 ones? = 77 (N) · What number has 8 tens and 4 ones? = 84 (F) · What number has 3 tens and 9 ones? = 39 (H) · What number has 5 tens and 7 ones? = 57 (T) · What number has 4 tens and 6 ones? = 46 (I) · What number has 1 ten and 2 ones? = 12 (L) · What number has 2 tens and 8 ones? = 28 (O)

Clue 3 (Subtraction): "RUST SPRAY WILL FREEZE THE SYSTEM"

$79 - 5 = 74$ (R) · $67 - 35 = 32$ (W) · $62 - 19 = 43$ (A) · $46 - 22 = 24$ (L) · $57 - 37 = 20$ (Z) · $124 - 37 = 87$ (E) · $55 - 15 = 40$ (I) · $85 - 2 = 83$ (U) · $48 - 2 = 46$ (P) · $102 - 16 = 86$ (M) · $24 - 13 = 11$ (Y) · $53 - 30 = 23$ (H) · $58 - 33 = 25$ (S) · $63 - 5 = 58$ (F) · $78 - 10 = 68$ (T)

Clue 4 (Skip counting): "A SHINY GLASS BULB GLOWED"

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, __, 60, 70 = 50 (A) · Skip-count by 2s. Fill the blank: 2, 4, 6, __, 10, 12 = 8 (D) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, __, 120, 130 = 110 (E) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, __, 24, 26 = 22 (B) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, __, 24, 27 = 21 (O) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, __, 90, 100 = 80 (N) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, __, 70, 75 = 65 (S) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, __, 60, 65 = 55 (G) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, __, 40, 45 = 35 (W) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, __, 140, 150 = 130 (Y) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, __, 70, 80 = 60 (U) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, __, 45, 48 = 42 (H) · Skip-count by 2s. Fill the blank: 2, 4, __, 8, 10 = 6 (I)

Clue 5 (Missing addends): surviving statement is box 8 → Gearbox

$3 + \underline{\quad} = 5 = 2$ · $10 + \underline{\quad} = 13 = 3$ · $4 + \underline{\quad} = 9 = 5$ · $1 + \underline{\quad} = 7 = 6$ · $6 + \underline{\quad} = 16 = 10$ · $1 + \underline{\quad} = 10 = 9$ · $4 + \underline{\quad} = 5 = 1$ · $7 + \underline{\quad} = 19 = 12$ · $4 + \underline{\quad} = 11 = 7$ · $5 + \underline{\quad} = 16 = 11$ · $8 + \underline{\quad} = 12 = 4$