The Great Circuit Caper

Grade 5 math · Rounding, Skip counting, Word problems, Bar models, Missing addends · Reading level grades 5-6

Detective: _____ **Date:** _____

A mysterious rogue robot disrupted the annual Metro Tech Expo, scrambling the city's power grid! Detective Spark and the Scrapbot Squad must examine the evidence, solve the tech clues, and uncover the rogue automaton before the grand finale.

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 automaton is _____

Possible suspects

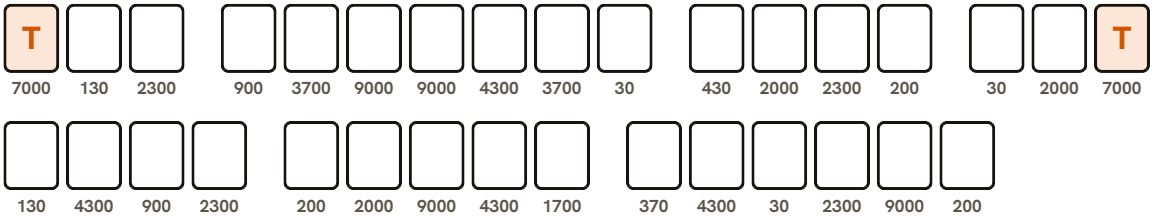
Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	MAIN GADGET	SUB-SYSTEM	SERVO ARM	CHASSIS CASING	VULNERABILITY
Isaac Asimov	Sonic Pulse	Homing Drone	Left-handed Servo	Cobalt Casing	EMP Blast
Lynn Conway	Jet Thruster	Armor Plating	Left-handed Servo	Cobalt Casing	Water Spray
Dorothy Vaughan	Laser Torch	Cyber Wings	Left-handed Servo	Bronze Casing	EMP Blast
Cynthia Breazeal	Plasma Shield	Armor Plating	Left-handed Servo	Cobalt Casing	Rust Powder
Tim Berners-Lee	Sonic Pulse	Cyber Wings	Left-handed Servo	Bronze Casing	Water Spray
Hedy Lamarr	Plasma Shield	Radar Scope	Right-handed Servo	Silver Casing	EMP Blast
Anita Borg	Sonic Pulse	Armor Plating	Left-handed Servo	Cobalt Casing	Water Spray
Claude Shannon	Sonic Pulse	Solar Panels	Right-handed Servo	Cobalt Casing	EMP Blast
Ada Lovelace	Jet Thruster	Armor Plating	Left-handed Servo	Cobalt Casing	EMP Blast
Edith Clarke	Laser Torch	Armor Plating	Left-handed Servo	Silver Casing	Rust Powder
George Devol	Jet Thruster	Homing Drone	Left-handed Servo	Cobalt Casing	EMP Blast
Gordon Moore	Magnet Beam	Cyber Wings	Left-handed Servo	Cobalt Casing	EMP Blast
Nikola Tesla	Magnet Beam	Cyber Wings	Right-handed Servo	Bronze Casing	Rust Powder
Norbert Wiener	Jet Thruster	Solar Panels	Left-handed Servo	Silver Casing	Water Spray
Rodney Brooks	Magnet Beam	Armor Plating	Left-handed Servo	Silver Casing	EMP Blast
Seymour Cray	Plasma Shield	Radar Scope	Right-handed Servo	Cobalt Casing	EMP Blast
Lonnie Johnson	Plasma Shield	Solar Panels	Right-handed Servo	Cobalt Casing	Water Spray
Katherine Johnson	Jet Thruster	Cyber Wings	Right-handed Servo	Cobalt Casing	EMP Blast
Marcian Hoff	Laser Torch	Solar Panels	Left-handed Servo	Cobalt Casing	EMP Blast
Margaret Hamilton	Laser Torch	Cyber Wings	Right-handed Servo	Cobalt Casing	EMP Blast
Alan Turing	Plasma Shield	Radar Scope	Right-handed Servo	Bronze Casing	EMP Blast

CLUE 1 Rounding

The lab security scanner rounded the power levels to the nearest thousand to get a general read.

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



Round 7,057 to the nearest thousand ☐ → **T**

Round 858 to the nearest hundred ☐ → **V**

Round 431 to the nearest ten ☐ → **D**

Round 1,664 to the nearest hundred ☐ → **R**

Round 4,276 to the nearest hundred ☐ → **A**

Round 1,502 to the nearest thousand ☐ → **O**

Round 31 to the nearest ten ☐ → **N**

Round 204 to the nearest hundred ☐ → **S**

Round 3,672 to the nearest hundred ☐ → **I**

Round 134 to the nearest ten ☐ → **H**

Round 371 to the nearest ten ☐ → **P**

Round 2,294 to the nearest hundred ☐ → **E**

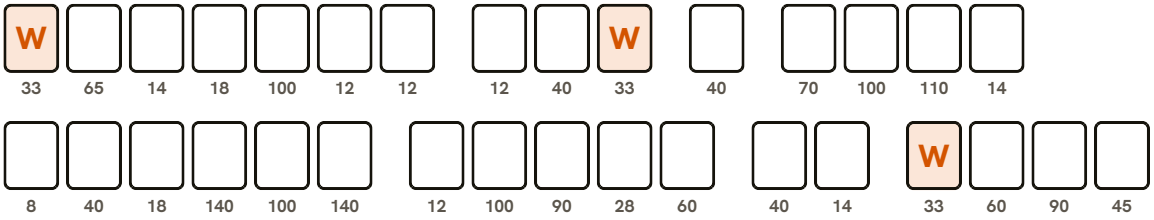
Round 8,732 to the nearest thousand ☐ → **L**

Scratch space:

CLUE 2 Skip counting

Detective Spark counted the energy pulses in quick rhythmic jumps across the grid.

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



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

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, ___, 50, 55 ☐ → K

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

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

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, ___, 80, 90 ☐ → L

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

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

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

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, ___, 30, 32 ☐ → V

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

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, ___, 14, 16 ☐ → S

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, ___, 20, 22 ☐ → N

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, ___, 65, 70 ☐ → O

Skip-count by 10s. Fill the blank: 10, 20, 30, ___, 50, 60 ☐ → **A**

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

Scratch space:

CLUE 3 Word problems

The head mechanic reviewed the supply logs to figure out how many gear packs were stolen.

Solve each problem, then write its letter in the boxes to fill in the missing word.

Someone scared the villain off with 

.

There were 124 steel bolts. 18 were used up. How many steel bolts are left?

Answer: ☐ → **E**

There were 118 fuse caps. 38 were used up. How many fuse caps are left?

Answer: ☐ → **B**

Robo Tech found 76 gearwheels yesterday and 29 more today. How many gearwheels in all?

Answer: ☐ → **S**

Robo Tech found 43 steel bolts yesterday and 35 more today. How many steel bolts in all?

Answer: ☐ → **M**

Robo Tech lined up 8 rows of 5 fuse caps. How many fuse caps in all?

Answer: ☐ → **P**

There were 66 copper wires. 29 were used up. How many copper wires are left?

Answer: ☐ → **L**

There were 120 fuse caps. 11 were used up. How many fuse caps are left?

Answer: ☐ → **A**

Scratch space:

CLUE 4 Bar model word problems

Analyzing the comparative energy bars on the monitor revealed a clear pattern.

Draw a bar model to solve each word problem, then write its letter in the boxes to fill in the missing word.

A strand of

C						C			I	N	G
137	121	115	110	23	56	137	110	82			

hair turned up at the scene.

The red team has 172 steel bolts and the blue team has 35 steel bolts. How many more steel bolts does the red team have?

draw a bar model

Answer: ☐ → C

One group collected 74 copper wires and another group collected 8 copper wires. How many copper wires in all?

draw a bar model

Answer: ☐ → S

There were 29 gearwheels in all. 6 gearwheels were used. How many gearwheels are left?

draw a bar model

Answer: ☐ → L

Robo Tech used 3/5 of the steel bolts on the first day. The other 44 steel bolts were used the next day. How many steel bolts were there in all?

draw a bar model

Answer: ☐ → A

There were 140 microchips in all. 19 microchips were used. How many microchips are left?

draw a bar model

Answer: ☐ → O

One group collected 42 gearwheels and another group collected 14 gearwheels. How many gearwheels in all?

draw a bar model

Answer: ☐ → T

Robo Tech shares 230 gearwheels equally among 2 teams. How many gearwheels does each team get?

draw a bar model

Answer: ☐ → B

CLUE 5

Missing addends - the last clue

> To unlock the final mainframe door the team had to calculate the missing power unit.

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:

13 + ___ = 15 ☐	38 + ___ = 39 ☐	3 + ___ = 13 ☐	4 + ___ = 16 ☐
6 + ___ = 9 ☐	19 + ___ = 25 ☐	21 + ___ = 29 ☐	2 + ___ = 9 ☐
4 + ___ = 8 ☐	1 + ___ = 6 ☐	2 + ___ = 13 ☐	

Step 2 - cross out the sentence with each answer:

1. The villain engages a jet thruster, then locks armor plating.
2. The villain engages a jet thruster, then launches homing drone.
3. The villain emits a sonic pulse, then spins cyber wings.
4. The villain activates a laser torch, then charges solar panels.
5. The villain fires a magnet beam, then locks armor plating.
6. The villain fires a magnet beam, then charges solar panels.
7. The villain engages a jet thruster, then scans with radar scope.
8. The villain fires a magnet beam, then scans with radar scope.
9. The villain fires a magnet beam, then spins cyber wings.
10. The villain emits a sonic pulse, then launches homing drone.
11. The villain activates a laser torch, then locks armor plating.
12. The villain emits a sonic pulse, then locks armor plating.

TEACHER / PARENT

Answer Key

The Great Circuit Caper

Culprit: Gordon Moore

Magnet Beam · Cyber Wings · Left-handed Servo · Cobalt Casing · EMP Blast

Trail: Start 21 → Clue 1 17 → Clue 2 11 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Rounding): "THE VILLAIN DOES NOT HAVE SOLAR PANELS"

Round 7,057 to the nearest thousand = 7000 (T) · Round 858 to the nearest hundred = 900 (V) · Round 431 to the nearest ten = 430 (D) · Round 1,664 to the nearest hundred = 1700 (R) · Round 4,276 to the nearest hundred = 4300 (A) · Round 1,502 to the nearest thousand = 2000 (O) · Round 31 to the nearest ten = 30 (N) · Round 204 to the nearest hundred = 200 (S) · Round 3,672 to the nearest hundred = 3700 (I) · Round 134 to the nearest ten = 130 (H) · Round 371 to the nearest ten = 370 (P) · Round 2,294 to the nearest hundred = 2300 (E) · Round 8,732 to the nearest thousand = 9000 (L)

Clue 2 (Skip counting): "WITNESS SAW A LEFT HANDED SERVO AT WORK"

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, ___, 36, 39 = 33 (W) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, ___, 50, 55 = 45 (K) · Skip-count by 2s. Fill the blank: 2, 4, 6, ___, 10, 12 = 8 (H) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, ___, 70, 75 = 65 (I) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, ___, 80, 90 = 70 (L) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, ___, 16, 18 = 14 (T) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, ___, 150, 160 = 140 (D) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, ___, 110, 120 = 100 (E) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, ___, 30, 32 = 28 (V) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, ___, 100, 110 = 90 (R) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, ___, 14, 16 = 12 (S) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, ___, 20, 22 = 18 (N) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, ___, 65, 70 = 60 (O) · Skip-count by 10s. Fill the blank: 10, 20, 30, ___, 50, 60 = 40 (A) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, ___, 120, 130 = 110 (F)

Clue 3 (Word problems): "EMP BLAST"

There were 124 steel bolts. 18 were used up. How many steel bolts are left? = 106 (E) · There were 118 fuse caps. 38 were used up. How many fuse caps are left? = 80 (B) · Robo Tech found 76 gearwheels yesterday and 29 more today. How many gearwheels in all? = 105 (S) · Robo Tech found 43 steel bolts yesterday and 35 more today. How many steel bolts in all? = 78 (M) · Robo Tech lined up 8 rows of 5 fuse caps. How many fuse caps in all? = 40 (P) · There were 66 copper wires. 29 were used up. How many copper wires are left? = 37 (L) · There were 120 fuse caps. 11 were used up. How many fuse caps are left? = 109 (A)

Clue 4 (Bar model word problems): "COBALT CASING"

The red team has 172 steel bolts and the blue team has 35 steel bolts. How many more steel bolts does the red team have? = 137 (C) · One group collected 74 copper wires and another group collected 8 copper wires. How many copper wires in all? = 82 (S) · There were 29 gearwheels in all. 6 gearwheels were used. How many gearwheels are left? = 23 (L) · Robo Tech used 3/5 of the steel bolts on the first day. The other 44 steel bolts were used the next day. How many steel bolts were there in all? = 110 (A) · There were 140 microchips in all. 19 microchips were used. How many microchips are left? = 121 (O) · One group collected 42 gearwheels and another group collected 14 gearwheels. How many gearwheels in all? = 56 (T) · Robo Tech shares 230 gearwheels equally among 2 teams. How many gearwheels does each team get? = 115 (B)

Clue 5 (Missing addends): surviving statement is box 9 → Gordon Moore

13 + ___ = 15 = 2 · 38 + ___ = 39 = 1 · 3 + ___ = 13 = 10 · 4 + ___ = 16 = 12 · 6 + ___ = 9 = 3 · 19 + ___ = 25 = 6 · 21 + ___ = 29 = 8 · 2 + ___ = 9 = 7 · 4 + ___ = 8 = 4 · 1 + ___ = 6 = 5 · 2 + ___ = 13 = 11