



# The Great Stethoscope Caper

Grade 10 math · Multiplication, Word problems, Fractions of a number, Addition, Division · Reading level grades 7-9

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

A specialized simulation robot has rolled out of the pediatric training lab with the hospital's ceremonial Golden Stethoscope right before the grand opening of the new research wing. We need to analyze the clues and track down the mischievous machine!

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 Med-Bot is** \_\_\_\_\_

# Possible suspects

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

| NAME            | PRIMARY TOOL      | HELPER TOOL           | WRITING HAND        | ANTENNA LIGHT       | SYSTEM VULNERABILITY       |
|-----------------|-------------------|-----------------------|---------------------|---------------------|----------------------------|
| Koch Bot        | laser thermometer | soothing night light  | left handed stylus  | blue antenna light  | heavy wool blanket static  |
| Harvey Bot      | mini microscope   | soothing night light  | right handed stylus | red antenna light   | heavy wool blanket static  |
| Sabin Bot       | heart rate sensor | toy grabber claw      | right handed stylus | green antenna light | heavy wool blanket static  |
| Nightingale Bot | tablet screen     | bubble blower         | right handed stylus | red antenna light   | high pitch frequency       |
| Sanger Bot      | mini microscope   | bubble blower         | left handed stylus  | green antenna light | heavy wool blanket static  |
| Curie Bot       | heart rate sensor | lullaby music box     | right handed stylus | blue antenna light  | strong refrigerator magnet |
| Laennec Bot     | tablet screen     | lullaby music box     | left handed stylus  | green antenna light | heavy wool blanket static  |
| Galen Bot       | tablet screen     | lullaby music box     | left handed stylus  | blue antenna light  | strong refrigerator magnet |
| Nurse Beep      | mini microscope   | toy grabber claw      | right handed stylus | red antenna light   | heavy wool blanket static  |
| Clara Bot       | mini microscope   | soothing night light  | left handed stylus  | green antenna light | heavy wool blanket static  |
| Jenner Bot      | tablet screen     | soothing night light  | left handed stylus  | blue antenna light  | heavy wool blanket static  |
| Roentgen Bot    | tablet screen     | holographic projector | left handed stylus  | green antenna light | heavy wool blanket static  |
| Salk Bot        | heart rate sensor | holographic projector | left handed stylus  | green antenna light | strong refrigerator magnet |
| Blackwell Bot   | bandage dispenser | bubble blower         | right handed stylus | red antenna light   | strong refrigerator magnet |
| Dr Sparky       | bandage dispenser | holographic projector | left handed stylus  | green antenna light | high pitch frequency       |
| Watson Bot      | heart rate sensor | bubble blower         | right handed stylus | red antenna light   | strong refrigerator magnet |
| Fleming Bot     | mini microscope   | bubble blower         | left handed stylus  | red antenna light   | strong refrigerator magnet |
| Franklin Bot    | heart rate sensor | holographic projector | left handed stylus  | green antenna light | heavy wool blanket static  |
| Lister Bot      | mini microscope   | toy grabber claw      | right handed stylus | green antenna light | strong refrigerator magnet |
| Pasteur Bot     | heart rate sensor | lullaby music box     | left handed stylus  | green antenna light | heavy wool blanket static  |
| Banting Bot     | laser thermometer | soothing night light  | left handed stylus  | blue antenna light  | strong refrigerator magnet |

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

The suspect left a trail of power cells down the hallway. To find the first major lead, we need to calculate the total power output from these rows of cells.

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

|    |     |    |    |     |    |    |     |     |   |    |     |    |     |    |    |    |
|----|-----|----|----|-----|----|----|-----|-----|---|----|-----|----|-----|----|----|----|
| T  |     |    |    |     | T  |    |     |     |   |    |     | T  |     |    |    |    |
| 4  | 64  | 80 | 44 | 108 | 4  | 7  | 108 | 80  | 1 | 22 | 108 | 4  | 144 | 1  | 80 | 88 |
|    |     |    |    |     |    |    |     |     |   |    |     |    |     |    |    |    |
| 49 | 144 | 49 | 49 | 88  | 44 | 12 | 21  | 144 | 1 | 99 | 36  | 44 | 108 | 84 |    |    |

$4 \times 1 = \square \rightarrow \boxed{\text{T}}$

$2 \times 11 = \square \rightarrow \boxed{\text{N}}$

$3 \times 7 = \square \rightarrow \boxed{\text{M}}$

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

$11 \times 8 = \square \rightarrow \boxed{\text{A}}$

$12 \times 1 = \square \rightarrow \boxed{\text{Y}}$

$8 \times 8 = \square \rightarrow \boxed{\text{H}}$

$6 \times 6 = \square \rightarrow \boxed{\text{C}}$

$1 \times 1 = \square \rightarrow \boxed{\text{S}}$

$11 \times 4 = \square \rightarrow \boxed{\text{B}}$

$9 \times 11 = \square \rightarrow \boxed{\text{I}}$

$12 \times 12 = \square \rightarrow \boxed{\text{U}}$

$7 \times 1 = \square \rightarrow \boxed{\text{D}}$

$12 \times 9 = \square \rightarrow \boxed{\text{O}}$

$12 \times 7 = \square \rightarrow \boxed{\text{X}}$

$8 \times 10 = \square \rightarrow \boxed{\text{E}}$

Scratch space:

## CLUE 2

## Word problems

We found an encrypted logbook containing puzzle-like records of patient transport times and medicine deliveries. Solving the riddle reveals the bot's secret path.

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

A witness saw the villain was

|    |    |    |    |     |    |     |   |    |   |   |    |   |    |   |   |   |
|----|----|----|----|-----|----|-----|---|----|---|---|----|---|----|---|---|---|
| L  |    |    |    |     |    |     | D |    | D | S |    | Y | L  | U | S | . |
| 82 | 47 | 44 | 42 | 118 | 65 | 104 |   | 47 |   |   | 42 |   | 82 |   |   |   |

There were 110 stethoscopes. 28 were used up. How many stethoscopes are left?

Answer:  → **L**

There were 157 syringes. 39 were used up. How many syringes are left?

Answer:  → **H**

Pediatrician lined up 4 rows of 11 stethoscopes. How many stethoscopes in all?

Answer:  → **F**

Pediatrician lined up 7 rows of 6 syringes. How many syringes in all?

Answer:  → **T**

Pediatrician found 30 stethoscopes yesterday and 74 more today. How many stethoscopes in all?

Answer:  → **N**

Pediatrician found 22 syringes yesterday and 25 more today. How many syringes in all?

Answer:  → **E**

There were 100 thermometers. 35 were used up. How many thermometers are left?

Answer:  → **A**

Scratch space:

CLUE 3

## Fractions of a number

The rogue bot drained only a fraction of the backup generator's energy. We must compute the exact remaining kilowatts to narrow down our search grid.

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

|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| S  |    |    |    |    |    | S  |    |    |    |    |    |    |    |    |    |    |    |    |
| 11 | 51 | 24 | 51 | 31 | 47 | 11 | 26 | 12 | 47 | 21 | 48 | 28 | 12 | 25 | 29 | 12 | 12 | 30 |
|    |    | S  |    |    |    |    |    |    | S  |    | S  |    |    |    |    |    |    |    |
| 28 | 39 | 11 | 39 | 51 |    | 51 | 26 | 39 | 11 | 52 | 11 | 51 | 39 | 25 |    |    |    |    |

$1/6 \text{ of } 66 = \square \rightarrow \text{S}$

$3/5 \text{ of } 40 = \square \rightarrow \text{A}$

$3/8 \text{ of } 80 = \square \rightarrow \text{L}$

$1/2 \text{ of } 104 = \square \rightarrow \text{Y}$

$3/4 \text{ of } 52 = \square \rightarrow \text{E}$

$2/10 \text{ of } 125 = \square \rightarrow \text{M}$

$2/6 \text{ of } 141 = \square \rightarrow \text{C}$

$2/6 \text{ of } 144 = \square \rightarrow \text{F}$

$1/6 \text{ of } 168 = \square \rightarrow \text{R}$

$2/6 \text{ of } 87 = \square \rightarrow \text{W}$

$3/6 \text{ of } 62 = \square \rightarrow \text{I}$

$4/6 \text{ of } 39 = \square \rightarrow \text{H}$

$1/2 \text{ of } 102 = \square \rightarrow \text{T}$

$4/6 \text{ of } 18 = \square \rightarrow \text{O}$

$3/6 \text{ of } 42 = \square \rightarrow \text{K}$

Scratch space:

## CLUE 4 Addition

Volunteers gathered all the dropped digital badges from the pediatric playroom floor. Adding up the serial numbers of these badges gives us the next security code.

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

|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|--|
| A    |      | A    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 8470 | 8582 | 8470 | 4092 | 9054 | 6409 | 7524 | 3382 | 4691 | 4691 | 9054 | 7524 | 6178 | 7638 | 6549 | 6549 | 8470 | 8892 |  |  |
|      |      |      |      |      |      |      |      |      |      |      |      |      | A    |      |      |      |      |  |  |
| 8892 | 3170 | 7638 | 6409 | 6409 | 4691 | 6247 | 7638 | 9054 | 6409 | 5831 | 4691 | 6549 | 8470 | 6178 | 6178 |      |      |  |  |

$$2556 + 5914 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{A}}$$

$$3647 + 2902 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{W}}$$

$$4546 + 4508 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{N}}$$

$$3158 + 2673 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{H}}$$

$$3508 + 5384 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{S}}$$

$$3826 + 3812 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{O}}$$

$$2126 + 1044 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{P}}$$

$$2893 + 4631 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{G}}$$

$$3462 + 2716 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{L}}$$

$$2389 + 2302 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{E}}$$

$$1819 + 1563 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{R}}$$

$$4217 + 2030 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{D}}$$

$$2722 + 1370 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{I}}$$

$$4062 + 2347 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{T}}$$

$$2640 + 5942 = \boxed{\phantom{0000}} \rightarrow \boxed{\text{F}}$$

Scratch space:

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

The bot left a stash of toy awards in the therapy center. Dividing these prizes equally among the nearby clinics will help us trace where the bot went last.

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:**

$24 \div 12 = \boxed{\phantom{00}}$

$9 \div 9 = \boxed{\phantom{00}}$

$24 \div 6 = \boxed{\phantom{00}}$

$99 \div 9 = \boxed{\phantom{00}}$

$132 \div 11 = \boxed{\phantom{00}}$

$110 \div 11 = \boxed{\phantom{00}}$

$21 \div 3 = \boxed{\phantom{00}}$

$55 \div 11 = \boxed{\phantom{00}}$

$80 \div 10 = \boxed{\phantom{00}}$

$54 \div 9 = \boxed{\phantom{00}}$

$3 \div 1 = \boxed{\phantom{00}}$

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

1. The villain measured the pulse, then projected a starry sky.
2. The villain inspected the culture slide, then turned on a soft glow.
3. The villain measured the pulse, then floated sparkling bubbles.
4. The villain inspected the culture slide, then floated sparkling bubbles.
5. The villain measured the pulse, then played a gentle tune.
6. The villain updated the patient chart, then dropped off a plush toy.
7. The villain updated the patient chart, then floated sparkling bubbles.
8. The villain inspected the culture slide, then projected a starry sky.
9. The villain updated the patient chart, then projected a starry sky.
10. The villain wrapped a quick bandage, then played a gentle tune.
11. The villain wrapped a quick bandage, then turned on a soft glow.
12. The villain wrapped a quick bandage, then projected a starry sky.

# Answer Key

## The Great Stethoscope Caper

### Culprit: Roentgen Bot

tablet screen · holographic projector · left handed stylus · green antenna light · heavy wool blanket static

Trail: Start 21 → Clue 1 17 → Clue 2 10 → Clue 3 6 → Clue 4 4 → Clue 5 1

### Clue 1 (Multiplication facts (1-12)): "THE BOT DOES NOT USE A LULLABY MUSIC BOX"

$4 \times 1 = 4$  (T) ·  $2 \times 11 = 22$  (N) ·  $3 \times 7 = 21$  (M) ·  $7 \times 7 = 49$  (L) ·  $11 \times 8 = 88$  (A) ·  $12 \times 1 = 12$  (Y) ·  $8 \times 8 = 64$  (H) ·  $6 \times 6 = 36$  (C) ·  $1 \times 1 = 1$  (S) ·  $11 \times 4 = 44$  (B) ·  $9 \times 11 = 99$  (I) ·  $12 \times 12 = 144$  (U) ·  $7 \times 1 = 7$  (D) ·  $12 \times 9 = 108$  (O) ·  $12 \times 7 = 84$  (X) ·  $8 \times 10 = 80$  (E)

### Clue 2 (Word problems): "LEFT HANDED STYLUS"

There were 110 stethoscopes. 28 were used up. How many stethoscopes are left? = 82 (L) · There were 157 syringes. 39 were used up. How many syringes are left? = 118 (H) · Pediatrician lined up 4 rows of 11 stethoscopes. How many stethoscopes in all? = 44 (F) · Pediatrician lined up 7 rows of 6 syringes. How many syringes in all? = 42 (T) · Pediatrician found 30 stethoscopes yesterday and 74 more today. How many stethoscopes in all? = 104 (N) · Pediatrician found 22 syringes yesterday and 25 more today. How many syringes in all? = 47 (E) · There were 100 thermometers. 35 were used up. How many thermometers are left? = 65 (A)

### Clue 3 (Fractions of a number): "STATIC SHOCK FROM WOOL RESET THE SYSTEM"

$1/6$  of 66 = 11 (S) ·  $3/5$  of 40 = 24 (A) ·  $3/8$  of 80 = 30 (L) ·  $1/2$  of 104 = 52 (Y) ·  $3/4$  of 52 = 39 (E) ·  $2/10$  of 125 = 25 (M) ·  $2/6$  of 141 = 47 (C) ·  $2/6$  of 144 = 48 (F) ·  $1/6$  of 168 = 28 (R) ·  $2/6$  of 87 = 29 (W) ·  $3/6$  of 62 = 31 (I) ·  $4/6$  of 39 = 26 (H) ·  $1/2$  of 102 = 51 (T) ·  $4/6$  of 18 = 12 (O) ·  $3/6$  of 42 = 21 (K)

### Clue 4 (Addition): "A FAINT GREEN GLOW WAS SPOTTED ON THE WALL"

$2556 + 5914 = 8470$  (A) ·  $3647 + 2902 = 6549$  (W) ·  $4546 + 4508 = 9054$  (N) ·  $3158 + 2673 = 5831$  (H) ·  $3508 + 5384 = 8892$  (S) ·  $3826 + 3812 = 7638$  (O) ·  $2126 + 1044 = 3170$  (P) ·  $2893 + 4631 = 7524$  (G) ·  $3462 + 2716 = 6178$  (L) ·  $2389 + 2302 = 4691$  (E) ·  $1819 + 1563 = 3382$  (R) ·  $4217 + 2030 = 6247$  (D) ·  $2722 + 1370 = 4092$  (I) ·  $4062 + 2347 = 6409$  (T) ·  $2640 + 5942 = 8582$  (F)

### Clue 5 (Division facts (1-12)): surviving statement is box 9 → Roentgen Bot

$24 \div 12 = 2$  ·  $9 \div 9 = 1$  ·  $24 \div 6 = 4$  ·  $99 \div 9 = 11$  ·  $132 \div 11 = 12$  ·  $110 \div 11 = 10$  ·  $21 \div 3 = 7$  ·  $55 \div 11 = 5$  ·  $80 \div 10 = 8$  ·  $54 \div 9 = 6$  ·  $3 \div 1 = 3$