



The Great Hospital Mix-Up Mystery

Grade 10 math · Multiplication, Subtraction, Addition, Word problems, Division · Reading level grades 7-9

Detective: _____ Date: _____

Someone is tampering with medical records and swapping equipment across the hospital wings. Work through the clues to identify the culprit before the night shift ends.

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 Hospital Saboteur is _____

Possible suspects

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

NAME	SPECIALTY	MEDICAL TOOL	DOMINANT HAND	HAIR COLOR	VULNERABILITY
Dr. Sigmund Freud	Cardiology	Ultrasound	Left Handed	Blonde Hair	Siren Alarm
Dr. Virginia Apgar	Radiology	Ultrasound	Left Handed	Red Hair	Siren Alarm
Dr. Helen Taussig	Cardiology	Otoscope	Left Handed	Red Hair	Siren Alarm
Dr. Ben Carson	Radiology	Surgical Tray	Left Handed	Blonde Hair	Sanitizer Spray
Dr. Sanjay Gupta	Radiology	Surgical Tray	Left Handed	Dark Hair	Bright Spotlight
Dr. Elizabeth Blackwell	Radiology	Stethoscope	Left Handed	Blonde Hair	Sanitizer Spray
Dr. Howard Florey	Cardiology	Ultrasound	Left Handed	Dark Hair	Sanitizer Spray
Nurse Edith Cavell	Neurology	Otoscope	Right Handed	Blonde Hair	Sanitizer Spray
Dr. Robert Koch	Radiology	Otoscope	Left Handed	Blonde Hair	Sanitizer Spray
Dr. Audrey Evans	Orthopedics	Ultrasound	Left Handed	Blonde Hair	Siren Alarm
Dr. Alexander Fleming	Pediatrics	Otoscope	Right Handed	Blonde Hair	Sanitizer Spray
Nurse Clara Barton	Radiology	Otoscope	Right Handed	Red Hair	Siren Alarm
Dr. Charles Drew	Cardiology	Otoscope	Right Handed	Blonde Hair	Siren Alarm
Dr. Walter Reed	Pediatrics	Defibrillator	Left Handed	Red Hair	Sanitizer Spray
Nurse Mary Seacole	Radiology	Surgical Tray	Left Handed	Blonde Hair	Bright Spotlight
Dr. Paul Farmer	Cardiology	Otoscope	Right Handed	Dark Hair	Siren Alarm
Nurse Florence Nightingale	Orthopedics	Ultrasound	Left Handed	Blonde Hair	Sanitizer Spray
Dr. Jonas Salk	Radiology	Otoscope	Left Handed	Red Hair	Bright Spotlight
Dr. Jane Cooke Wright	Neurology	Otoscope	Right Handed	Blonde Hair	Siren Alarm
Dr. Mae Jemison	Orthopedics	Stethoscope	Left Handed	Blonde Hair	Sanitizer Spray
Dr. William Osler	Cardiology	Defibrillator	Right Handed	Blonde Hair	Sanitizer Spray

CLUE 1
Multiplication facts (1-12)

To check room supplies, we multiplied the medical tray counts across all five hospital wings.

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

T 63	48	3	5	54	45	55	T 63	3	7	66	132	55	3	5	10	55	T 63
7	5	3	54	10	55	T 63	55	5	70	55	6	3					

$7 \times 9 = \square \rightarrow \text{T}$	$6 \times 11 = \square \rightarrow \text{R}$	$1 \times 3 = \square \rightarrow \text{E}$	$7 \times 1 = \square \rightarrow \text{U}$
$10 \times 1 = \square \rightarrow \text{N}$	$6 \times 8 = \square \rightarrow \text{H}$	$5 \times 9 = \square \rightarrow \text{B}$	$9 \times 6 = \square \rightarrow \text{A}$
$6 \times 1 = \square \rightarrow \text{P}$	$5 \times 1 = \square \rightarrow \text{S}$	$11 \times 12 = \square \rightarrow \text{D}$	
$7 \times 10 = \square \rightarrow \text{C}$	$5 \times 11 = \square \rightarrow \text{O}$		

Scratch space:

CLUE 2
Subtraction

We subtracted the missing chart folders from the main filing room total to trace the culprit.

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

T									T				T	
1472	2390	4210	5577	8330	5577	5709	4210	4451	1472	7622	1624	3850	1472	4210
				T				T				T		
4451	2390	7773	1624	1472	5577	7622	3740	1472	2390	8367	4210	1261	1472	2390

$6116 - 4644 = \boxed{} \rightarrow \boxed{T}$

$9391 - 4940 = \boxed{} \rightarrow \boxed{C}$

$3559 - 1935 = \boxed{} \rightarrow \boxed{R}$

$7354 - 4964 = \boxed{} \rightarrow \boxed{H}$

$9195 - 3486 = \boxed{} \rightarrow \boxed{P}$

$10717 - 2350 = \boxed{} \rightarrow \boxed{L}$

$7353 - 1776 = \boxed{} \rightarrow \boxed{S}$

$11667 - 4299 = \boxed{} \rightarrow \boxed{N}$

$11828 - 3512 = \boxed{} \rightarrow \boxed{D}$

$11916 - 4294 = \boxed{} \rightarrow \boxed{W}$

$7243 - 3033 = \boxed{} \rightarrow \boxed{E}$

$4368 - 518 = \boxed{} \rightarrow \boxed{O}$

$6539 - 2799 = \boxed{} \rightarrow \boxed{I}$

$11552 - 3779 = \boxed{} \rightarrow \boxed{A}$

$5374 - 4113 = \boxed{} \rightarrow \boxed{F}$

$13104 - 4774 = \boxed{} \rightarrow \boxed{U}$

Scratch space:

CLUE 3
Addition

Adding up the duty logs from each floor revealed an unexpected time gap.

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

T									T										
9280	7498	3792	4026	7579	5426	2138	4123	4251	9280	6007	5426	3792	7409	6007	4123	8036	2715		
				T															
2854	3780	4294	4251	9280	4251	3035	3792	4123	2854	2138	4123	3780	7337						

$5969 + 3311 = \square \rightarrow \text{**T**}$

$1912 + 4095 = \square \rightarrow \text{**F**}$

$2302 + 1724 = \square \rightarrow \text{**C**}$

$5153 + 2256 = \square \rightarrow \text{**D**}$

$2459 + 1664 = \square \rightarrow \text{**R**}$

$1227 + 1808 = \square \rightarrow \text{**Z**}$

$2777 + 2649 = \square \rightarrow \text{**L**}$

$3505 + 4074 = \square \rightarrow \text{**U**}$

$1061 + 1077 = \square \rightarrow \text{**P**}$

$1800 + 2451 = \square \rightarrow \text{**I**}$

$2334 + 1458 = \square \rightarrow \text{**E**}$

$1393 + 1461 = \square \rightarrow \text{**S**}$

$1762 + 2532 = \square \rightarrow \text{**N**}$

$3411 + 4087 = \square \rightarrow \text{**H**}$

$1332 + 2448 = \square \rightarrow \text{**A**}$

$1474 + 1241 = \square \rightarrow \text{**M**}$

$3001 + 4336 = \square \rightarrow \text{**Y**}$

$4589 + 3447 = \square \rightarrow \text{**O**}$

Scratch space:

CLUE 4**Word problems**

The head nurse solved the shift schedule breakdown to uncover our next clue.

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

A strand of

B								A	I	R
67	81	116	13	26	61	15				

 hair turned up at the scene.

There were 93 syringes. 26 were used up. How many syringes are left?

Answer: → **B**

There were 96 stethoscopes. 35 were used up. How many stethoscopes are left?

Answer: → **E**

Head nurse lined up 5 rows of 3 stethoscopes. How many stethoscopes in all?

Answer: → **H**

Head nurse found 7 chart folders yesterday and 6 more today. How many chart folders in all?

Answer: → **N**

Head nurse found 4 thermometers yesterday and 112 more today. How many thermometers in all?

Answer: → **O**

There were 42 bandages. 16 were used up. How many bandages are left?

Answer: → **D**

Head nurse lined up 9 rows of 9 stethoscopes. How many stethoscopes in all?

Answer: → **L**

Scratch space:

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

Dividing the lab samples evenly into test racks helped us isolate the unknown signature.

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:

$6 \div 6 = \boxed{}$

$60 \div 12 = \boxed{}$

$36 \div 9 = \boxed{}$

$6 \div 1 = \boxed{}$

$72 \div 6 = \boxed{}$

$30 \div 10 = \boxed{}$

$28 \div 4 = \boxed{}$

$10 \div 1 = \boxed{}$

$16 \div 2 = \boxed{}$

$24 \div 12 = \boxed{}$

$33 \div 3 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain misplaced orthopedic bone splints, then cleaned the area with a stethoscope.
2. The villain tampered with neurology brain scanners, then cleaned the area with a stethoscope.
3. The villain scrambled radiology x ray files, then scanned the door with an ultrasound.
4. The villain scrambled radiology x ray files, then jammed the cart with a surgical tray.
5. The villain scrambled radiology x ray files, then cleaned the area with a stethoscope.
6. The villain misplaced orthopedic bone splints, then jammed the cart with a surgical tray.
7. The villain rerouted cardiology telemetry monitors, then inspected the lock with an otoscope.
8. The villain rerouted cardiology telemetry monitors, then sparked the breaker with a defibrillator.
9. The villain misplaced orthopedic bone splints, then scanned the door with an ultrasound.
10. The villain rerouted cardiology telemetry monitors, then cleaned the area with a stethoscope.
11. The villain rerouted cardiology telemetry monitors, then jammed the cart with a surgical tray.
12. The villain swapped pediatric patient wristbands, then jammed the cart with a surgical tray.

Answer Key

The Great Hospital Mix-Up Mystery

Culprit: Nurse Florence Nightingale

Orthopedics · Ultrasound · Left Handed · Blonde Hair · Sanitizer Spray

Trail: Start 21 → Clue 1 12 → Clue 2 11 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Multiplication facts (1-12)): "THE SABOTEUR DOES NOT USE AN OTOSCOPE"

$7 \times 9 = 63$ (T) · $6 \times 11 = 66$ (R) · $1 \times 3 = 3$ (E) · $7 \times 1 = 7$ (U) · $10 \times 1 = 10$ (N) · $6 \times 8 = 48$ (H) · $5 \times 9 = 45$ (B) · $9 \times 6 = 54$ (A) · $6 \times 1 = 6$ (P) · $5 \times 1 = 5$ (S) · $11 \times 12 = 132$ (D) · $7 \times 10 = 70$ (C) · $5 \times 11 = 55$ (O)

Clue 2 (Subtraction): "THE SUSPECT WROTE CHARTS WITH LEFT HAND"

$6116 - 4644 = 1472$ (T) · $9391 - 4940 = 4451$ (C) · $3559 - 1935 = 1624$ (R) · $7354 - 4964 = 2390$ (H) · $9195 - 3486 = 5709$ (P) · $10717 - 2350 = 8367$ (L) · $7353 - 1776 = 5577$ (S) · $11667 - 4299 = 7368$ (N) · $11828 - 3512 = 8316$ (D) · $11916 - 4294 = 7622$ (W) · $7243 - 3033 = 4210$ (E) · $4368 - 518 = 3850$ (O) · $6539 - 2799 = 3740$ (I) · $11552 - 3779 = 7773$ (A) · $5374 - 4113 = 1261$ (F) · $13104 - 4774 = 8330$ (U)

Clue 3 (Addition): "THE CULPRIT FLED FROM SANITIZER SPRAY"

$5969 + 3311 = 9280$ (T) · $1912 + 4095 = 6007$ (F) · $2302 + 1724 = 4026$ (C) · $5153 + 2256 = 7409$ (D) · $2459 + 1664 = 4123$ (R) · $1227 + 1808 = 3035$ (Z) · $2777 + 2649 = 5426$ (L) · $3505 + 4074 = 7579$ (U) · $1061 + 1077 = 2138$ (P) · $1800 + 2451 = 4251$ (I) · $2334 + 1458 = 3792$ (E) · $1393 + 1461 = 2854$ (S) · $1762 + 2532 = 4294$ (N) · $3411 + 4087 = 7498$ (H) · $1332 + 2448 = 3780$ (A) · $1474 + 1241 = 2715$ (M) · $3001 + 4336 = 7337$ (Y) · $4589 + 3447 = 8036$ (O)

Clue 4 (Word problems): "BLONDE HAIR"

There were 93 syringes. 26 were used up. How many syringes are left? = 67 (B) · There were 96 stethoscopes. 35 were used up. How many stethoscopes are left? = 61 (E) · Head nurse lined up 5 rows of 3 stethoscopes. How many stethoscopes in all? = 15 (H) · Head nurse found 7 chart folders yesterday and 6 more today. How many chart folders in all? = 13 (N) · Head nurse found 4 thermometers yesterday and 112 more today. How many thermometers in all? = 116 (O) · There were 42 bandages. 16 were used up. How many bandages are left? = 26 (D) · Head nurse lined up 9 rows of 9 stethoscopes. How many stethoscopes in all? = 81 (L)

Clue 5 (Division facts (1-12)): surviving statement is box 9 → Nurse Florence Nightingale

$6 \div 6 = 1$ · $60 \div 12 = 5$ · $36 \div 9 = 4$ · $6 \div 1 = 6$ · $72 \div 6 = 12$ · $30 \div 10 = 3$ · $28 \div 4 = 7$ · $10 \div 1 = 10$ · $16 \div 2 = 8$ · $24 \div 12 = 2$ · $33 \div 3 = 11$