



The Great Toy Factory Mix-Up

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

Detective: _____ Date: _____

A wild rogue bot has escaped the assembly line! It took the golden key to the main toy chest. The head toy maker needs your help to scan the bots and find the runaway thief before bedtime.

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 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	BONUS GADGET	FRAME BUILD	HEAD SENSOR	SOFTWARE GLITCH
Copper	drill nose	siren light	square chassis	spiral antenna	low battery
Bolt	laser welder	bubble blower	round chassis	spiral antenna	low battery
Widget	grabber claw	siren light	square chassis	spiral antenna	rusty gear
Gizmo	jet nozzle	siren light	round chassis	flashing bulb	low battery
Rusty	magnet crane	propeller hat	round chassis	solar panel	low battery
Beep	jet nozzle	siren light	round chassis	spiral antenna	rusty gear
Gazer	drill nose	bubble blower	square chassis	solar panel	rusty gear
Turbo	grabber claw	oil squirter	round chassis	solar panel	rusty gear
Sparky	laser welder	propeller hat	round chassis	spiral antenna	static shock
Tink	laser welder	oil squirter	square chassis	solar panel	low battery
Solder	magnet crane	oil squirter	round chassis	spiral antenna	rusty gear
Radar	jet nozzle	siren light	square chassis	solar panel	rusty gear
Otto	grabber claw	bubble blower	round chassis	spiral antenna	static shock
Boop	grabber claw	confetti shooter	square chassis	solar panel	rusty gear
Pixel	drill nose	oil squirter	round chassis	flashing bulb	rusty gear
Sprocket	magnet crane	propeller hat	square chassis	solar panel	rusty gear
Click	grabber claw	siren light	square chassis	solar panel	rusty gear
Flux	grabber claw	siren light	square chassis	flashing bulb	rusty gear
Geary	jet nozzle	propeller hat	square chassis	solar panel	static shock
Bitty	magnet crane	oil squirter	square chassis	solar panel	low battery
Zap	grabber claw	confetti shooter	square chassis	spiral antenna	static shock

CLUE 1

Place value (tens & ones)

The security screen has a tens slot and a ones slot. Put the correct numbers in each slot to read the first clue.

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

T			T															
31	17	84	31	17	58	84	41	17	66	87	34	80	20	85	20	20	75	84

20	75	80	26	84	71

- | | | | | | |
|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| What number has 3 tens and 1 one? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> T | What number has 4 tens and 1 one? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> F | What number has 8 tens and 7 ones? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> S |
| What number has 1 ten and 7 ones? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> H | What number has 2 tens and 0 ones? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> B | What number has 3 tens and 4 ones? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> N |
| What number has 6 tens and 6 ones? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> A | What number has 7 tens and 1 one? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> R | What number has 7 tens and 5 ones? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> L |
| What number has 8 tens and 4 ones? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> E | What number has 8 tens and 0 ones? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> O | What number has 5 tens and 8 ones? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> I |
| What number has 8 tens and 5 ones? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> U | What number has 2 tens and 6 ones? <input style="width: 40px; height: 25px;" type="text"/> | <input style="width: 25px; height: 25px; border: 1px solid black;" type="text"/> W | | |

Scratch space:

CLUE 2 Addition

We found two piles of dropped screws on the rug. Add them together to see what the second clue is.

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

<input type="text" value="T"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="T"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
37	67	39	22	75	37	67	42	87	42	87	68	62	42	31	39

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
22	75	95	63

17 + 20 =	<input type="text"/>	<input type="text" value="T"/>	42 + 45 =	<input type="text"/>	<input type="text" value="S"/>	11 + 28 =	<input type="text"/>	<input type="text" value="E"/>
65 + 30 =	<input type="text"/>	<input type="text" value="D"/>	23 + 44 =	<input type="text"/>	<input type="text" value="H"/>	27 + 48 =	<input type="text"/>	<input type="text" value="O"/>
9 + 13 =	<input type="text"/>	<input type="text" value="B"/>	29 + 13 =	<input type="text"/>	<input type="text" value="A"/>	22 + 9 =	<input type="text"/>	<input type="text" value="R"/>
32 + 30 =	<input type="text"/>	<input type="text" value="U"/>	33 + 30 =	<input type="text"/>	<input type="text" value="Y"/>	23 + 45 =	<input type="text"/>	<input type="text" value="Q"/>

Scratch space:

CLUE 3**Subtraction**

The runaway bot started with a full power pack, but lost some juice. Take away the used power to find the third clue.

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

<input type="text" value="A"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="A"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
53	28	57	60	37	54	68	19	53	28	60	34	63	49	60	37	85	19	20
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>															
35	63	49	48															

81 - 28 =	<input type="text"/>	<input type="text" value="A"/>	64 - 27 =	<input type="text"/>	<input type="text" value="T"/>	78 - 21 =	<input type="text"/>	<input type="text" value="U"/>
93 - 8 =	<input type="text"/>	<input type="text" value="H"/>	28 - 8 =	<input type="text"/>	<input type="text" value="M"/>	61 - 33 =	<input type="text"/>	<input type="text" value="R"/>
94 - 31 =	<input type="text"/>	<input type="text" value="O"/>	61 - 1 =	<input type="text"/>	<input type="text" value="S"/>	88 - 40 =	<input type="text"/>	<input type="text" value="N"/>
85 - 36 =	<input type="text"/>	<input type="text" value="W"/>	50 - 16 =	<input type="text"/>	<input type="text" value="L"/>	54 - 35 =	<input type="text"/>	<input type="text" value="E"/>
52 - 17 =	<input type="text"/>	<input type="text" value="D"/>	73 - 19 =	<input type="text"/>	<input type="text" value="Y"/>	107 - 39 =	<input type="text"/>	<input type="text" value="G"/>

Scratch space:

CLUE 4

Skip counting

There are tracks left on the dusty floor. Count the tread marks by twos to reach the fourth clue.

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

<input type="text" value="A"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="A"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="A"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
40	45	120	60	40	140	28	40	8	55	60	45	14	100	8	55	45	120	8	
<input type="text"/>	<input type="text"/>	<input type="text"/>																	
33	120	28																	

Skip-count by 10s. Fill the blank: 10, 20, 30, __, <input type="text"/>	<input type="text" value="A"/>	Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, __, 60, 65	<input type="text"/>	<input type="text" value="E"/>	Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, __, 130, 140	<input type="text"/>	<input type="text" value="O"/>	
Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, __, 110, 120	<input type="text"/>	<input type="text" value="I"/>	Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, __, 30, 32	<input type="text"/>	<input type="text" value="P"/>	Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, __, 36, 39	<input type="text"/>	<input type="text" value="T"/>
Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, __, 16, 18	<input type="text"/>	<input type="text" value="H"/>	Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, __, 70, 80	<input type="text"/>	<input type="text" value="L"/>	Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, __, 50, 55	<input type="text"/>	<input type="text" value="S"/>
Skip-count by 2s. Fill the blank: 2, 4, 6, __, 10, 12	<input type="text"/>	<input type="text" value="N"/>	Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, __, 150, 160	<input type="text"/>	<input type="text" value="R"/>			

Scratch space:

CLUE 5 Missing addends - the last clue

The backup generator needs ten fuses to work, but we only have six. Find how many more we need to unlock the final clue.

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:

$6 + \underline{\quad} = 7$

$6 + \underline{\quad} = 10$

$4 + \underline{\quad} = 15$

$5 + \underline{\quad} = 10$

$3 + \underline{\quad} = 6$

$2 + \underline{\quad} = 4$

$5 + \underline{\quad} = 12$

$10 + \underline{\quad} = 16$

$4 + \underline{\quad} = 16$

$6 + \underline{\quad} = 14$

$5 + \underline{\quad} = 15$

Step 2 - cross out the sentence with each answer:

1. The villain blasts air from a jet nozzle, then flashes a bright red siren light.
2. The villain fires up a glowing laser welder, then blasts paper dots using a confetti shooter.
3. The villain reaches out with a grabber claw, then flies off using a spinning propeller hat.
4. The villain reaches out with a grabber claw, then blasts paper dots using a confetti shooter.
5. The villain reaches out with a grabber claw, then puffs soapy suds with a bubble blower.
6. The villain swings a heavy magnet crane, then flashes a bright red siren light.
7. The villain swings a heavy magnet crane, then sprays slippery lube from an oil squirter.
8. The villain swings a heavy magnet crane, then puffs soapy suds with a bubble blower.
9. The villain swings a heavy magnet crane, then flies off using a spinning propeller hat.
10. The villain blasts air from a jet nozzle, then flies off using a spinning propeller hat.
11. The villain reaches out with a grabber claw, then flashes a bright red siren light.
12. The villain reaches out with a grabber claw, then sprays slippery lube from an oil squirter.

Answer Key

The Great Toy Factory Mix-Up

Culprit: Sprocket

magnet crane · propeller hat · square chassis · solar panel · rusty gear

Trail: Start 21 → Clue 1 18 → Clue 2 11 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Place value (tens & ones)): "THE THIEF HAS NO BUBBLE BLOWER"

What number has 3 tens and 1 one? = 31 (T) · What number has 4 tens and 1 one? = 41 (F) · What number has 8 tens and 7 ones? = 87 (S) · What number has 1 ten and 7 ones? = 17 (H) · What number has 2 tens and 0 ones? = 20 (B) · What number has 3 tens and 4 ones? = 34 (N) · What number has 6 tens and 6 ones? = 66 (A) · What number has 7 tens and 1 one? = 71 (R) · What number has 7 tens and 5 ones? = 75 (L) · What number has 8 tens and 4 ones? = 84 (E) · What number has 8 tens and 0 ones? = 80 (O) · What number has 5 tens and 8 ones? = 58 (I) · What number has 8 tens and 5 ones? = 85 (U) · What number has 2 tens and 6 ones? = 26 (W)

Clue 2 (Addition): "THE BOT HAS A SQUARE BODY"

$17 + 20 = 37$ (T) · $42 + 45 = 87$ (S) · $11 + 28 = 39$ (E) · $65 + 30 = 95$ (D) · $23 + 44 = 67$ (H) · $27 + 48 = 75$ (O) · $9 + 13 = 22$ (B) · $29 + 13 = 42$ (A) · $22 + 9 = 31$ (R) · $32 + 30 = 62$ (U) · $33 + 30 = 63$ (Y) · $23 + 45 = 68$ (Q)

Clue 3 (Subtraction): "A RUSTY GEAR SLOWS THEM DOWN"

$81 - 28 = 53$ (A) · $64 - 27 = 37$ (T) · $78 - 21 = 57$ (U) · $93 - 8 = 85$ (H) · $28 - 8 = 20$ (M) · $61 - 33 = 28$ (R) · $94 - 31 = 63$ (O) · $61 - 1 = 60$ (S) · $88 - 40 = 48$ (N) · $85 - 36 = 49$ (W) · $50 - 16 = 34$ (L) · $54 - 35 = 19$ (E) · $52 - 17 = 35$ (D) · $73 - 19 = 54$ (Y) · $107 - 39 = 68$ (G)

Clue 4 (Skip counting): "A SOLAR PANEL SHINES ON TOP"

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

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

$6 + \underline{\quad} = 7 = 1$ · $6 + \underline{\quad} = 10 = 4$ · $4 + \underline{\quad} = 15 = 11$ · $5 + \underline{\quad} = 10 = 5$ · $3 + \underline{\quad} = 6 = 3$ · $2 + \underline{\quad} = 4 = 2$ · $5 + \underline{\quad} = 12 = 7$ · $10 + \underline{\quad} = 16 = 6$ · $4 + \underline{\quad} = 16 = 12$ · $6 + \underline{\quad} = 14 = 8$ · $5 + \underline{\quad} = 15 = 10$