

Santa's Sleigh



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Christmas Eve is a very busy time at the North Pole. All the elves are packing the sleigh with wonderful presents while Father Christmas has a delicious mug of hot chocolate before he sets out delivering presents around the world.

Santa's sleigh is a magical vehicle and the flight mode is powered by crushed candy canes! Patch the Elf has been sent to the candy cane machine to collect enough candy canes to power the sleigh for the entire trip around the world! But the candy cane machine is malfunctioning; Patch needs to reboot it by typing in the correct code into the keypad.



Solve the clues and puzzles to discover the passcode number needed to reboot the candy cane machine so that Santa's sleigh can fly.

The clues could be anywhere, so you need to keep your eyes peeled and your mind sharp!

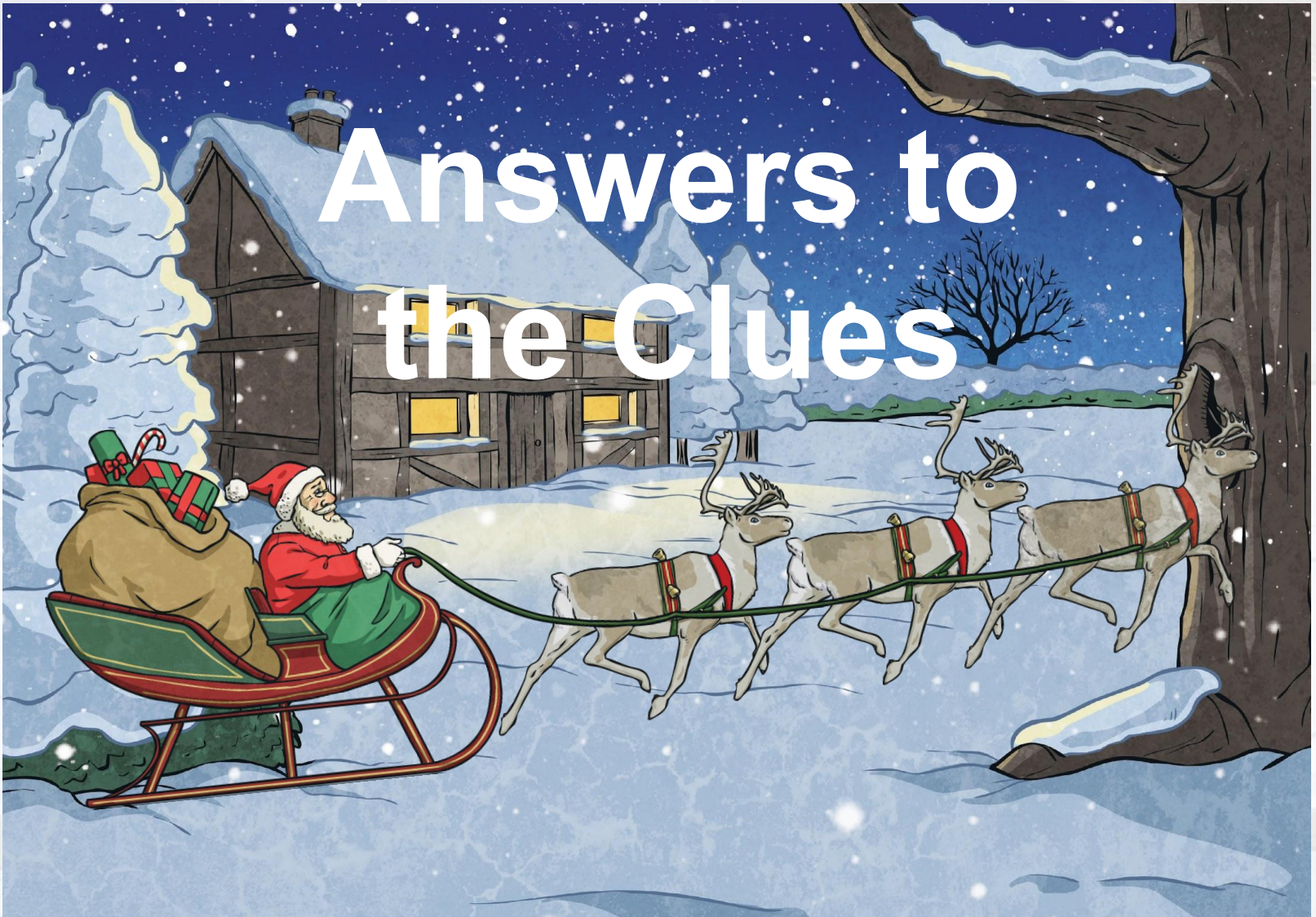
Santa's Sleigh

The Rules

- You can work in small groups.
- When you find a clue, work together to solve the puzzle.
- Write your answer down on your answer sheet.
- Once you have discovered the passcode number for the candy cane machine, check it with your teacher to discover if you have successfully rebooted the machine so that Santa's sleigh will be able to fly.




Answers to the Clues




Clue 1

Reveal


Work out the hidden numbers in these number sequences.


4	8	12	16	20		28	32
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8	16	24	32		48	56	64
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12	16		24	28	32	36	40
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32	40	48	56	64		80	88
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48	44	40	36	32		24	20
----	----	----	----	----	-----------------------------------------------------------------------------------	----	----

96	88	80	72	64	56		40
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36		28	24	20	16	12	8
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72		56	48	40	32	24	16
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Put the hidden numbers in order from smallest to largest. Which is the largest?

Find the digit-sum of this number.

20, 24, 28, 32, 40, 48, 64, 72 **$72 = 7 + 2 = 9$**

This is the **first** digit of the number you need to reboot the candy cane machine.

9

Clue 2

Reveal

									
8	3	4	6	1	7	5	9	0	2

Are these decimal numbers comparison statements **true** or **false**?






 >
 



 False




 <
 


 True

 >
 


 False

If there are more true statements, then the **second** digit you need to reboot the candy cane machine is:

1

If there are more false statements, then the **second** digit you need to reboot the candy cane machine is: 6

6

Clue 3

Reveal

Use the codebreaker to reveal a mixed-up Christmas word.

A	B	C	D	E	F	G	H	I	J	K	L	M
3	4	5	6	7	8	9	10	12	15	16	18	20

N	O	P	Q	R	S	T	U	V	W	X	Y	Z
21	24	27	28	30	33	40	48	56	64	72	80	96

Calculation	Answer	Letter
11×3	33	s
3×8	24	o
$\underline{\quad} \div 8 = 2$	16	k
7×3	21	n

Calculation	Answer	Letter
$40 \div \underline{\quad} = 8$	5	c
$\underline{\quad} \div 4 = 10$	40	t
$36 \div \underline{\quad} = 3$	12	i
3×3	9	g

Turn over the matching object card to reveal the **third** digit you need to reboot the candy cane machine.

stocking = 5

Clue 4

Reveal

Solve this number riddle by using inverse operations:

Patch the Elf is busy making yo-yos in Santa's Workshop.

I multiply the number of yo-yos Patch makes by 4.

I then add 200,

and divide by 2.

I end with the number 120.

How many yo-yos did Patch the Elf make? **10**
yo-yos

Find the digit sum of this answer.



$$10 = 1 + 0 = 1$$

This is the **fourth** digit of the number you need to reboot the candy cane machine.

1

Clue 5

Reveal

									
8	3	4	6	1	7	5	9	0	2

Calculate the answers to these addition and subtraction calculations:

			+		=	772
			-		=	796
			-		=	784

Colour the answers in on the mosaic.

The picture will reveal the **fifth** digit you need to reboot the candy cane machine.

2

Clue 6

Reveal

Count how many mince pies there are. Find $\frac{1}{4}$ of this number.



This is the **sixth** digit you need to reboot the candy cane machine.

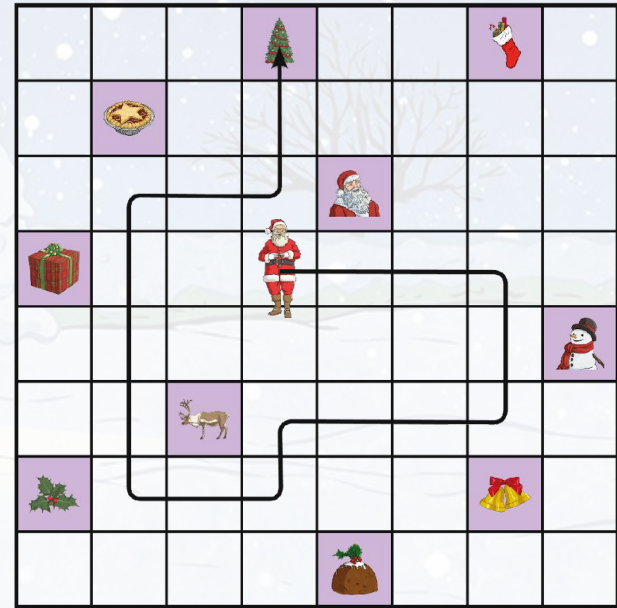
$$\frac{1}{4} \text{ of } 12 = 3$$

Clue 7

Reveal

Follow the directions. Which Christmas object does Father Christmas finish on?

- 1.3 squares right
- 2.2 squares down
- 3.3 squares left
- 4.1 square down
- 5.2 squares left
- 6.4 squares up
- 7.2 squares right
- 8.2 squares up



8	3	4	6	1	7	5	9	0	2

This is the **seventh** digit you need to reboot the candy cane machine.

8

Clue 8

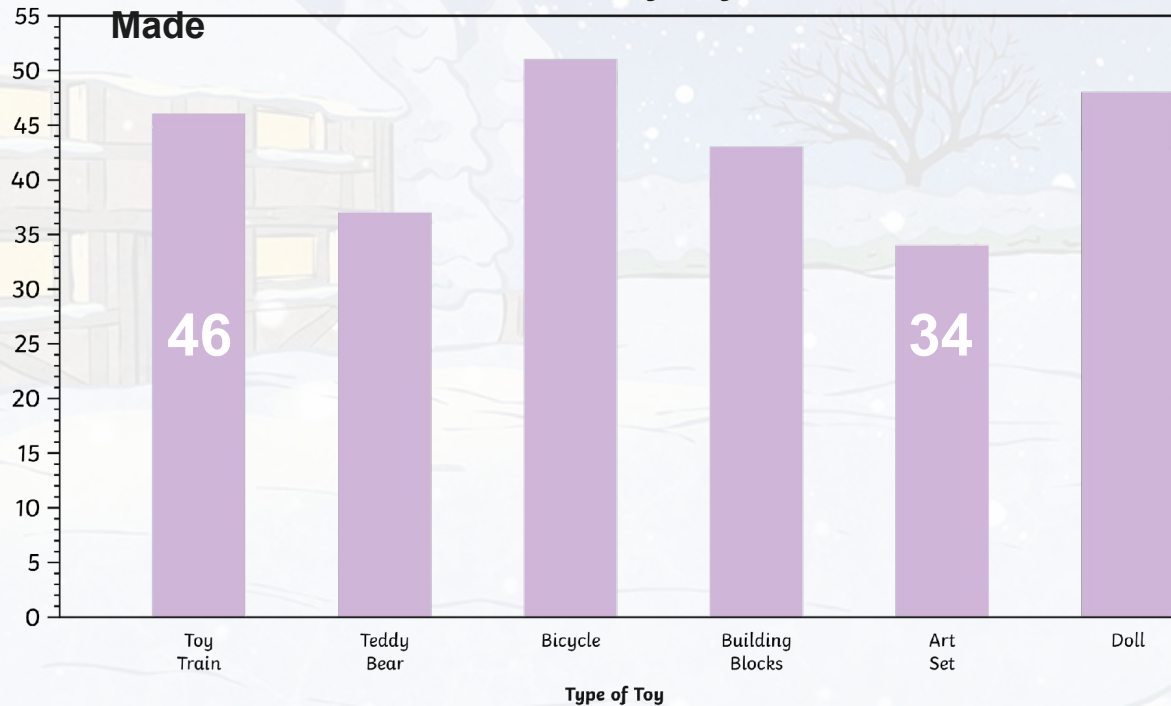
Reveal

How many more toy trains did the elves make than art sets?

Find the digit sum of this answer.

$$46 - 34 = 12$$
$$1 + 2 = 3$$

A Bar Chart to Show How Many Toys the Elves Have Made



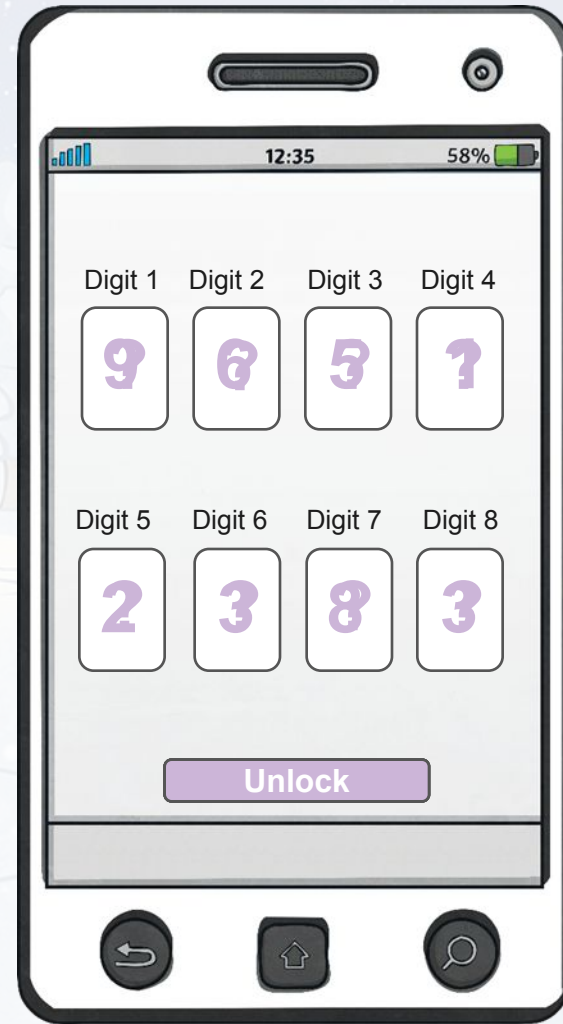
This is the **eighth** digit you need to reboot the candy cane machine.

3

Reboot the Candy Cane Machine



Tap your number passcode in to the machine to see if you can reboot it and make the candy canes so Santa's sleigh can fly.





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