The Mystery of the Secret Santa

It is Christmas Day and Noel and his family have been eating lots of festive food, listening to their favourite Christmas music and opening their presents. As the family are opening the last of the presents, Noel spots something at the back of the tree. It's a small present that has this label attached to it.

To Noel,

Follow the clues to reveal my identity.

Merry Christmas!

From Secret Santa

Help Noel solve the clues to reveal the identity of the Secret Santa.

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Name	Age	Relationship	Eye Colour	Favourite Christmas Food	Christmas Clothing
Eleanor	14	neighbour	green	mince pies	jumper
Lewis	65	colleague	brown	candy cane	socks
Andrew	29	family	green	gingerbread	pyjamas
Marie	53	friend	blue	turkey	socks
Dominic	40	family	blue	candy cane	jumper
Sanjay	36	colleague	hazel	turkey	jumper
Mei	71	neighbour	brown	mince pies	pyjamas
Nora	45	friend	hazel	mince pies	socks
Gerwin	35	friend	brown	candy cane	socks
Melanie	48	colleague	green	candy cane	pyjamas
Toby	54	colleague	brown	turkey	jumper
Louisa	37	friend	hazel	gingerbread	jumper
Senan	21	neighbour	brown	turkey	socks
Mario	46	friend	blue	gingerbread	pyjamas
Xian	10	neighbour	green	candy cane	jumper
Abigail	8	family	blue	gingerbread	pyjamas
Jack	22	family	brown	mince pies	socks
Selma	56	colleague	hazel	mince pies	pyjamas
Brian	35	friend	blue	turkey	socks
Maeve	61	family	blue	candy cane	jumper
Solene	43	neighbour	brown	gingerbread	socks
Craig	23	family	hazel	mince pies	pyjamas
Jane	50	colleague	green	turkey	jumper
Francesca	33	neighbour	brown	gingerbread	pyjamas

Clue 1: Compare the Fractions and Mixed Numbers

Use a <, > or = symbol to make each statement true. Then, count how many of each symbol you have used to reveal a clue about the age of the Secret Santa.

If there are more > symbols, the Secret Santa's age is a multiple of 5.

If there are more = symbols, the Secret Santa's age is an even number.

If there are more < symbols, the Secret Santa's age is an odd number.

$\frac{1}{3}$ ☐ $\frac{6}{18}$

$\frac{6}{10}$ ☐ $\frac{3}{4}$

$\frac{10}{6}$ ☐ $1\frac{1}{3}$

$\frac{5}{8}$ ☐ $\frac{4}{6}$

$1\frac{1}{10}$ ☐ $\frac{110}{100}$

$\frac{14}{5}$ ☐ $3\frac{1}{10}$

$\frac{4}{6}$ ☐ $\frac{16}{24}$

$\frac{4}{7}$ ☐ $\frac{3}{5}$

<	=	>

Clue 1: The Secret Santa's age is _____.

Clue 2: Simplifying Fractions

Match each fraction in the table to its simplified form above. Then, rearrange the words on the remaining fraction cards to spell out the next clue to reveal information about the relationship between Noel and the Secret Santa.

$\frac{1}{4}$ has	$\frac{1}{2}$ is	$\frac{2}{7}$ family	$\frac{1}{6}$ Noels's
$\frac{3}{5}$ colleague	$\frac{3}{10}$ friend	$\frac{5}{8}$ got	
$\frac{1}{3}$ a	$\frac{7}{10}$ not	$\frac{4}{9}$ neighbour	$\frac{2}{5}$ their

$\frac{14}{35}$ =	$\frac{8}{32}$ =	$\frac{25}{40}$ =	$\frac{36}{60}$ =
$\frac{11}{66}$ =	$\frac{63}{90}$ =	$\frac{16}{56}$ =	Remaining Words

Clue 2: The Secret Santa _____ or _____.

Clue 3: Multiplication Grid

Multiply the fractions in the multiplication grid and write each answer in the simplest form. Then, match each answer to the corresponding word in the table below. Rearrange the words to spell out the next clue and reveal the eye colour of the Secret Santa.
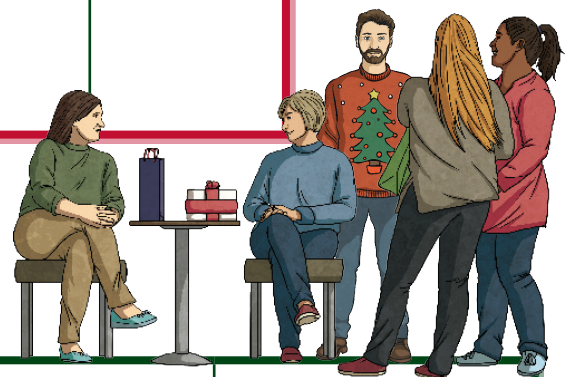
x	$\frac{2}{3}$	$\frac{7}{10}$	$\frac{1}{4}$
$\frac{3}{5}$			
$\frac{4}{9}$			

$\frac{4}{36}$	$\frac{8}{27}$	$\frac{14}{45}$	$\frac{6}{15}$
blue	Secret	the	Noel's
$\frac{6}{12}$	$\frac{10}{15}$	$\frac{1}{9}$	$\frac{1}{5}$
they are	not	brown	colour
$\frac{2}{5}$	$\frac{28}{90}$	$\frac{21}{50}$	$\frac{3}{20}$
eyes	hazel	are	Santa's

Clue 3: _____.

Clue 4: True or False?

Identify whether each mathematical statement is true or false and tick the correct column. Each answer is given in its simplest form.

If there are more true answers, the Secret Santa is wearing Christmas pyjamas.

If there are more false answers, the Secret Santa is wearing Christmas socks.

	True	False
$\frac{2}{8} + \frac{5}{2} + \frac{9}{4} = 5$		
$3\frac{4}{10} - \frac{8}{3} = \frac{11}{15}$		
$\frac{7}{9} - \frac{3}{11} = \frac{74}{99}$		
$\frac{10}{8} + 1\frac{6}{7} = \frac{23}{56}$		
$\frac{55}{100} - \frac{2}{5} = \frac{53}{95}$		
$2\frac{1}{12} = \frac{14}{12} + \frac{4}{6} + \frac{1}{4}$		
$\frac{84}{24} - 3\frac{1}{3} = 2$		
Total		

Clue 4: The Secret Santa is wearing Christmas _____.

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Clue 5: Ordering Fractions

Order each group of fractions order from smallest to greatest. Then, add the fractions highlighted together and write the answer in its **simplest form**. Match the answer to a word to reveal the favourite Christmas food of the Secret Santa.

$\dfrac{2}{3}$ $\dfrac{3}{4}$ $\dfrac{1}{2}$ $\dfrac{7}{4}$ $\dfrac{4}{3}$

smallest   greatest

$\dfrac{8}{10}$ $\dfrac{11}{8}$ $\dfrac{15}{4}$ $\dfrac{4}{10}$ $\dfrac{9}{4}$

smallest   greatest

$\dfrac{4}{6}$ $\dfrac{3}{7}$ $\dfrac{10}{3}$ $\dfrac{5}{3}$ $\dfrac{9}{7}$

smallest   greatest

$\dfrac{7}{10}$ $\dfrac{7}{5}$ $\dfrac{6}{9}$ $\dfrac{11}{9}$ $\dfrac{4}{10}$

smallest   greatest

$$\frac{\square}{\square} + \frac{\square}{\square} + \frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$$

$\dfrac{7}{2}$	$\dfrac{42}{30}$	$\dfrac{22}{6}$	$\dfrac{36}{10}$
turkey	gingerbread	mince pies	candy cane

Clue 5: The Secret Santa's favourite Christmas food is _____.

The Secret Santa is _____.