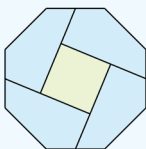


# Christmas Holiday 2018

## Deputy First Minister's Maths Challenge



The Scottish  
Mathematical  
Council












Scottish Government  
Riaghaltas na h-Alba  
gov.scot

# Puzzle 1 - Christmas sudoku

Complete the grid - you may only have one of each item in a column and row.




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# Puzzle 2 - Santa's label machine



Each sack holds 4 presents. Each present gets a name label and each sack has one extra label for the address so Santa doesn't get lost.

How many labels will be needed for (a) 3 sacks (b) 5 sacks (c) 8 sacks?

 $\times$   $+$   $=$  

 $\times$   $+$   $=$  

 $\times$   $+$   $=$  

How many filled sacks could be delivered with (d) 17 labels (e) 29 labels (f) 41 labels?

Challenge: Why not play against someone and work out the answers for different numbers of sacks of your choice, or even trickier, numbers of sacks for different numbers of labels.

Can you see the formula that helps to solve these questions?

# Puzzle 3 - Calling all carol singers

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Yuletide Street has 90 houses. A group of Primary 4 carol singers visit every 4th house. A group of Primary 6 carol singers visit every 6th house. **How many houses are visited by both groups?**

P3 and P7 join in, stopping at every 3rd house and every 7th house respectively. **Is there a house that is visited by all 4 classes? If so, what is the house number?**



**Challenge:** If the whole school from P1 to P7 went carol singing following the same rules, how many more houses in Yuletide Street would there need to be so that all classes visit the same house?

**HINT –** Make sure that the number of the class matches the number of the house they first visit. For example, P3 first visit 3rd house, P7 first visit 7th house.

# Puzzle 4 - Santa and the Twelve Elves

## Meeting, eating and greeting

After delivering all of the presents, Santa and his team of twelve elves meet up for Christmas dinner. They sit down at a round table and each person is given a glass of fizzy drink. They clink glasses with the person next to them on their right and the person next to them on their left.



How many clinks of glasses are there?

Before the food is served Santa and the elves get to pull a cracker with everyone else at the table. Crackers are sold in boxes of 12.

How many boxes of crackers are required?



## Who sits where?

Santa goes to have a nap as he is exhausted!

The elves like to keep things in order - which is how you all get your presents on time, after all - so they sit at the table in an order. They choose to sit so that the elf they are next to going round the circle has something in common with them linked to colour.

Cut out the elves and place them in an order that will do this—making sure you are able to explain what they have in common. Try to make it something specific, such as “they are wearing green shoes” or “they are holding a present wrapped in blue and red”.

### Elves by the pair - for 2 players

Place the twelve elves face down on a table. Player 1 picks up an elf and looks at it (without showing it). Player 1 says a feature of the elf that they wish to match, for example “the bobble of the hat is red” and picks up another card. If the 2 elves match in the way that was said, that player keeps both elves, if not they are both placed back down and the cards are rearranged. The winner is the player with more pairs at the end.

Extra: Are there any features which might give you a greater chance of collecting a pair?





Issued to Primary 6 pupils in Scotland for Christmas holiday maths family fun.  
Developed in partnership between the Scottish Government and The Scottish Mathematical Council.

Solutions and workings will be published at [blogs.gov.scot/making-maths-count](https://blogs.gov.scot/making-maths-count) on 4 January 2019.

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### Parents and carers

Please check out Parentzone Scotland at [www.education.gov.scot/parentzone](http://www.education.gov.scot/parentzone) and Parent Club [www.parentclub.scot/](http://www.parentclub.scot/) for more ways to enjoy numeracy and maths.

