Winter Maths
Challenge Cards

1. Here are the daytime temperatures for one week in December:

Mon	Tues	Wed	Thurs	Fri	Sat	Sun
4°C	4°C	3°C	1°C	2°C	-1°C	0°C

What is the mode temperature?

What is the mean temperature to the nearest °C?

What is the median temperature?

2. Here are the overnight temperatures for one week in December:

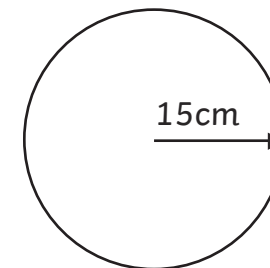| Mon	Tues	Wed	Thurs	Fri	Sat	Sun
-1°C	-2°C	0°C	1°C	-2°C	-3°C	-2°C

What is the mode temperature?

What is the mean temperature to the nearest °C?

What is the median temperature?

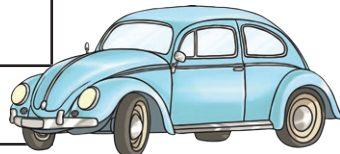3. Here is a plan of a Christmas cake:

15cm

What is the diameter in cm?

Write down how you worked out the diameter.

One of the dimensions of this circle is 94cm. What might this be?

4. Due to severe winter weather conditions, there are some road closures and are three alternative routes for Andy to get to work from Sheffield to Manchester:

Via Stocksbridge	41 miles
Via Tideswell	49 miles
Via M62	72 miles

To use the app on his phone, he needs the distances to be in kilometres. Convert the distances to km and round them to one decimal place.
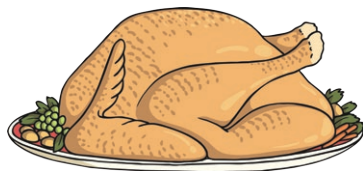
5. An outdoor shop is holding a winter sale with 30% off everything from the Summer festivals range, work out the sale prices from these original prices:

Item	Original Price
Two-man tent	£150
Raincoat	£35
Sleeping bag	£25
Air bed	£18
Camping stove	£21

6. Guideline for cooking a turkey are:

- **Take out of the fridge 1 hour before cooking so it gets to room temperature;**

- **Cook for 20 minutes per kg;**

- **Then cook for a further 90 minutes.**

If I have an 8kg turkey and I want it to be ready for 3pm, when do I have to get it out of the fridge?

7. Sarah has £50 to spend on Christmas presents. She buys the following list. Find the total cost of the gifts and how much change she has left.
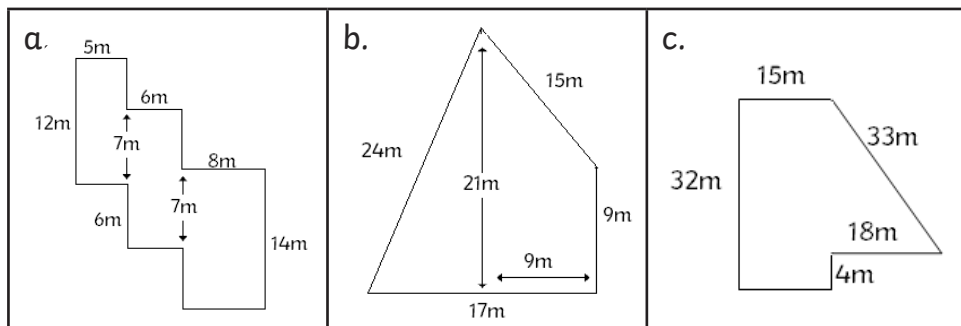
Wash bag £7.99

CD £6.75

Shirt £18.50

Socks £4.25

Stationery set £9.99

8. A farmer wants to start a Christmas tree farm and it looking at an area to fence off for planting trees. Work out the area and perimeter of each of these designs so he can work out which works out the best cost in terms of fencing and tree area.

a.

5m
6m
12m
7m
8m
6m
7m
14m

b.

15m
24m
21m
9m
9m
17m

c.

15m
33m
32m
18m
4m

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9. The local theatre are putting on a winter Panto. The theatre has 768 seats in total in rows of 24. How many rows of seats are there?

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10. The community centre manager wanted to buy some chocolate figures for all the children who came to groups at the hall. Work out the cost for each group and the total cost for all the gifts.

Group	Chocolate item	Cost per item	Number in group	Total group cost
Playgroup	Reindeer	£1.49	31	
Scouts	Santa	£1.99	25	
Karate	Robin	£1.80	16	
Dance	Tree	£1.55	17	
TOTAL for all groups:				

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11. In the local Panto, there were 768 seats in the theatre. An adult ticket costs £18.50 and a child's ticket costs £11.50. If there is a full house and 75% of the seat are taken by children, what will the theatre take in ticket sales?

12. Think of an advent calendar that goes up to Christmas Eve and list the following numbers:

a. **All the prime numbers**

b. **All the factors of 24**

c. **Numbers that are multiples of both 3 and 4**

13. Four bakeries in the town had 200 mince pies to sell the weekend before Christmas. Here's the fraction of what was sold in each shop half-way through the weekend:

Shop	Fraction Sold
The Bun Guys	$\frac{3}{4}$
Great British Bake Off	$\frac{5}{6}$
Bun Boy Three	$\frac{6}{8}$
Rise and Shine	$\frac{8}{12}$

Put the shops in order by the amount of mince pies they had sold from least to most.

14. Dave had baked a Christmas cake; Geoff's share was 3/8 of the cake, Tom's share was $\frac{1}{4}$ of the cake. What fraction did Dave have left?

Dave baked a second cake; Susan had 4/12, Sharon had 1/6 and Norman had 1/3. What fraction of Dave's second cake did he have left?

15. Sally writes her name using block capital letters. What is the 2D shape name for an L and the Y?

SALLY

She also writes the word Xmas. What is the 2D shape name for the X?

XMAS

There's a bonus for finding out what 3D shape the M is.