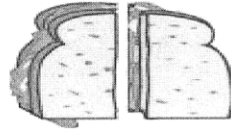


Problem Solving in Context

The Lighthouse Keeper's Lunch



- * Design a boat which will float and put Mr. Grinling in the boat.
- * It's a stormy day. What clothes should Mr. Grinling wear?
(Give a choice of fair and foul weather clothes.)
- * It's a warm sunny day. How many ways can Mr. Grinling dress?
(Give a choice of 2-3 T-shirts and 2 pairs of socks.)
- * A large box has been delivered to the lighthouse but it is too big to go up the twisty stairs. Can you help Mr. Grinling find a way to get the box to the top of the lighthouse?
- * Mr. Grinling is trapped in the lighthouse because the door is jammed. Suggest ways to get him out.
- * Apart from along the wire, what other ways could Mrs. Grinling send lunch to Mr. Grinling?
- * Mrs. Grinling has two types of sandwiches and two types of cake. How many different lunches could she make?
- * Design and make a model 'seagull-proof' lunch box container out of available materials.
- * Two other keepers visit Mr. Grinling. If all three shake hands with each other, how many handshakes are there altogether?
- * It is dark and the light has gone out. How could Mr. Grinling warn ships that rocks are near?

The children could predict other problems that may arise when Mrs. Grinling sends the lunch basket to Mr. Grinling.

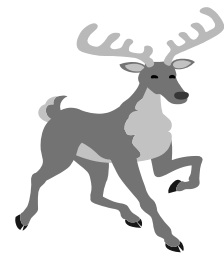


The Three Little Pigs

Here is a suggested problem from the story

- Make houses of different available materials.
- Which house do you think will stand up to the wolf's hot breath?
- Test this with a hairdryer.





Who will pull Santa's sleigh?

Name:

It is Christmas Eve, and Santa has to choose the reindeer that will pull his sleigh around the world. This year, Santa has a special way of selecting his reindeer.

There are 100 reindeer altogether, and each is looked after in its own stable by its own elf. Santa asks each elf to visit the stables. If a door is open the elf has to close it and vice versa.

To start with all the doors are closed.

- The first elf goes to all the stables and opens all the doors.
- The second elf goes only to every second stable so he closes doors, 2,4,6,8, etc.
- The third elf visits the third stable and every third stable after that, closing and opening doors.
- The fourth elf visits every fourth stable, the fifth elf every fifth stable and so on, until the 100th elf visits only the last stable.

The reindeer that Santa decides to take with him are those whose doors are open after all the elves have visited.

Find out

Which reindeer go?

Does Rudolph who lives in stable 100 go?

Other questions

If you are given a particular stable number, how can you decide if the reindeer in that stable will go?

Let's Go Christmas Shopping

Name:



Candle 3p



Christmas Tree 8p



Toy Dog 7p



Christmas Cards 2p



Stocking 5p

Put ten 1p in your purse.

1. What two things can you buy for 10p and have no change left?

I can buy aand a.....

2. Can you buy another two things for 10p? What are they?

I can buy a and a.....

3. Can you buy 3 things for 10p? What are they?

I can buy and a.....

and a



Reindeer Puzzle

Name:

Santa has a 36 metre length of fencing wire and four corner stakes.
He wants to make a four sided pen that would give his reindeer as
much space as possible.

What are the dimensions of the pen which he should build?



fencing wire



four corner stakes



Santa's Reindeer

Name

Santa sends his reindeer to Scotland to deliver the Christmas parcels.

A certain number of reindeer leave Lapland.

A third of them get lost due to bad weather, 45 give up due to exhaustion and 315 arrive safely in Stirling.

How many reindeer left Lapland?





Santa's Helpers

Name:

Santa has a factory hidden away in the faraway icy regions of Lapland, where all his Christmas presents are made. As everyone knows, Santa has a team of elves working for him. The problem is that all the elves look exactly alike. So that he can tell them apart, Santa makes the elves dress differently.

He has:

- *Three* different colours of tunics
- *Four* different colours of hat
- *Two* different colours of boots

The tunics can be *red, yellow or blue.*

The hats can be *green, orange, purple or white.*

The boots can be *black or brown.*

Find out how many elves can work with Santa so that each one is dressed differently.

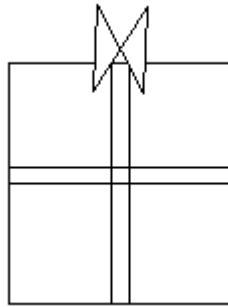


Teacher's Notes

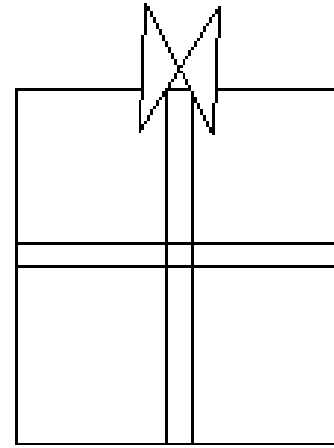
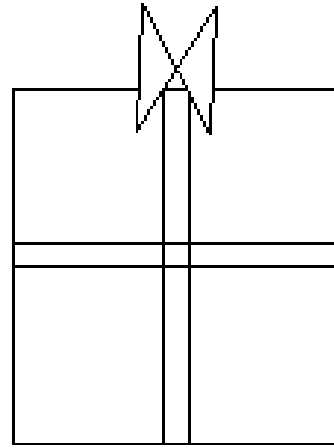
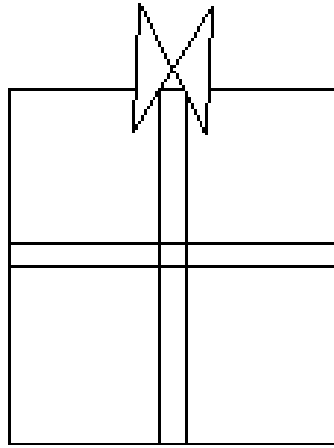
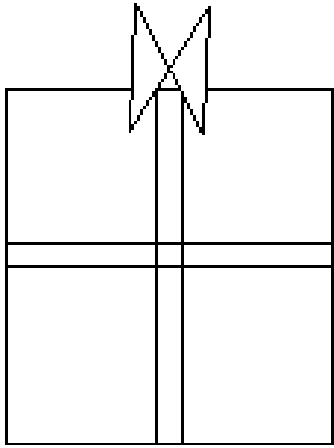
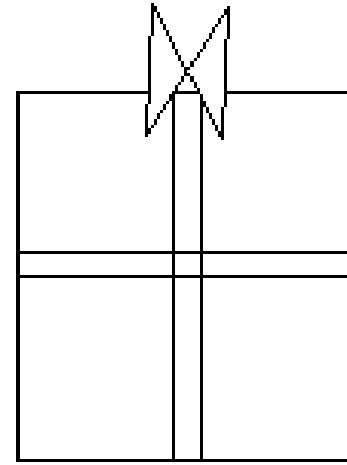
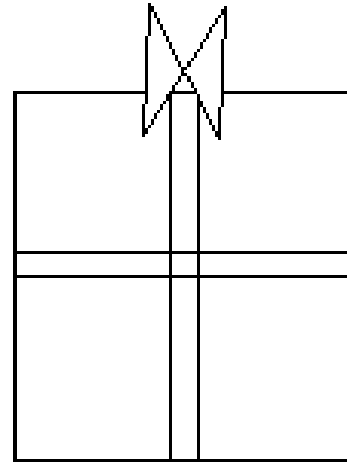
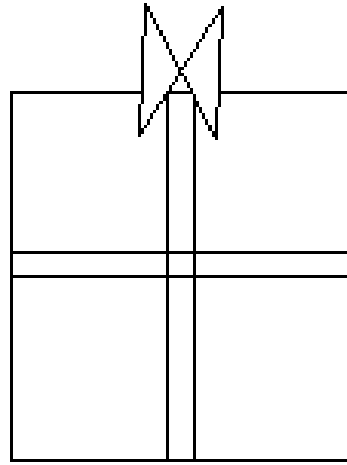
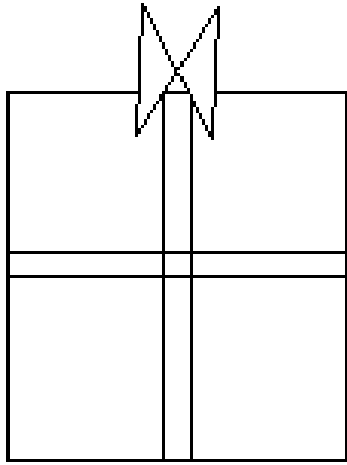
Wrapping a Present

With young children this activity will be more meaningful if you can provide some boxes, suitable wrapping paper and coloured ribbons.

Explain that a parcel is waiting to be wrapped for Christmas. There is red paper and green paper . There are yellow, blue, and white ribbons.



Ask them to colour in the present shapes as many different ways as possible, using the red and green paper and the three different colours of ribbons.





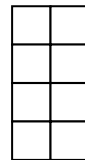
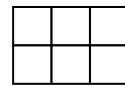
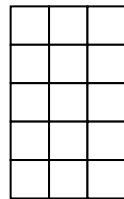
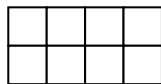
Santa's Sleigh Problem

Name:

You will need some multilink cubes for this task.

The parcel tray in this model of Santa's sleigh is 8 cubes long, 4 cubes wide 3 cubes deep.

Make these model parcels from multilink.



Fit them together so that they will all fit exactly into the parcel tray.

How many different ways can you find to do this?



Decision Time

Name:

Stephen is nearly eight years old. He is given a choice for Christmas.



- a) £15 towards the cost of his mountain bike or
- b) £1 for every different way that he could find of adding and subtracting whole numbers to make his age.

Which choice should Stephen make?





Christmas Stockings

Name:

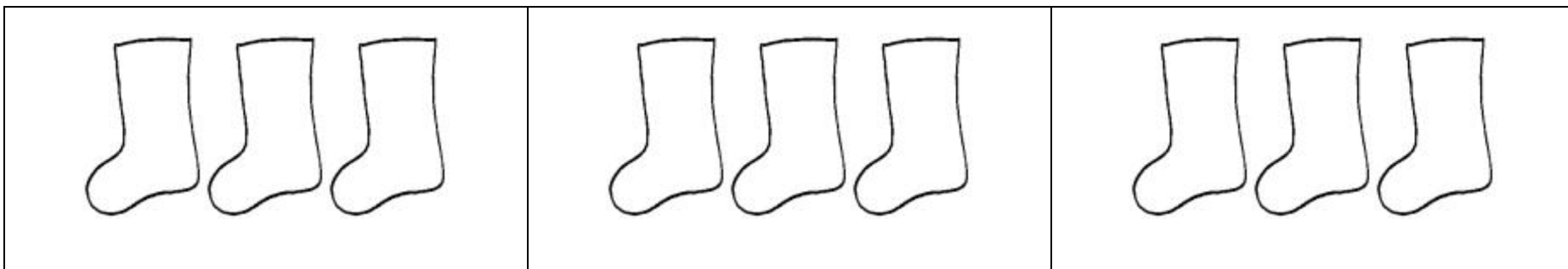
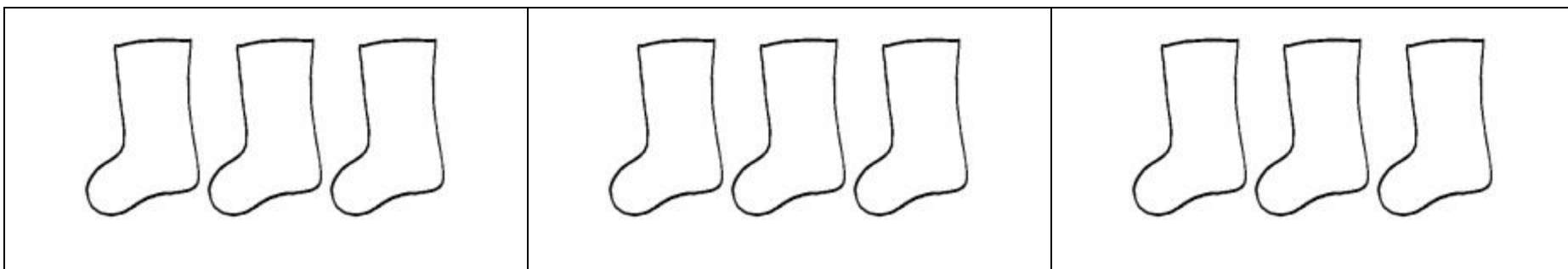
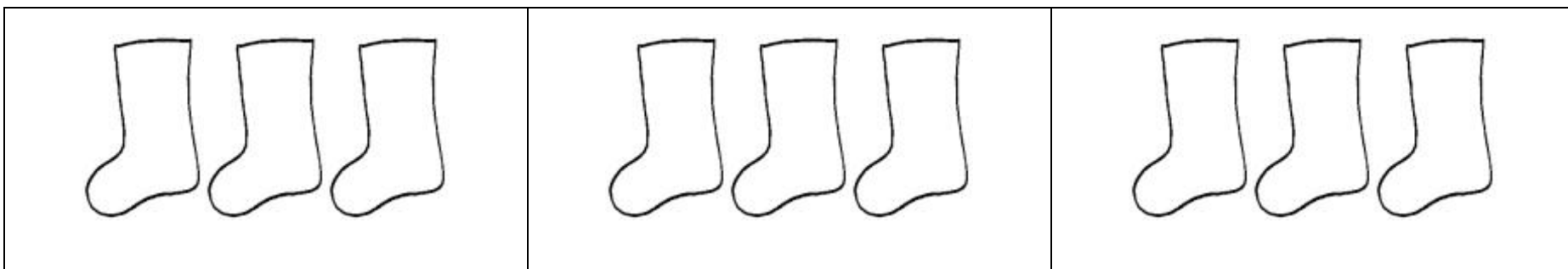


A red stocking, a green stocking and a blue stocking are hanging up on the fireplace.

Santa visits and he hangs them back up in a different order.

In how many different orders can he hang up the stockings?





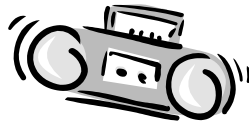
Filling Stockings

Name:

Here are five different presents.



Ball



Radio



Toy dog



Calculator and Notebook



Chocolate

How many different stockings can you fill if each stocking has three presents in it?



Stocking	Presents
-----------------	-----------------

1	Ball	Radio	Toy Dog
2			
3			
4			
5			
6			
7			
8			
9			
10			