

## Problems from Stories

Teachers on a problem solving course in Kent produced examples of how to use fiction as a starting point for mathematics. We hope you will try some of these out and develop this idea. Any more contributions for future bulletins would be welcome.





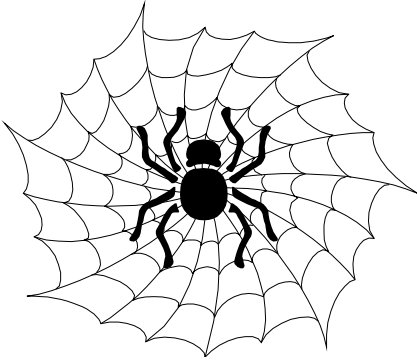
## Willy the Wizard

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Anthony Browne



- How many teams could you put out if there are 22 players in a squad?
- If Willy has 75p pocket money per week, how long would he have to save to buy a pair of football boots that cost £9.60?
- What percentage/fraction of a football pitch is the penalty area?
- If Willy's football colours are red, blue, green and yellow, how many different combinations of strip could there be?
- Seven goals were scored between Manchester United and Liverpool, what are the possibilities of the score?
- How long does it take Willy to get to bed once he has cleaned his boots?
- What are the possible combinations if Willy changes his routine?



## The Very Busy Spider

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Eric Carle

- How much thread does the spider spin in a day?
- Is it always the same length?
- How long did she take to spin the web?
- What time did she start and at what time did she finish?
- How does the spider spin her web?
- What shapes can you see in her web?



## The Great Pet Sale

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**Mick Inkpen**

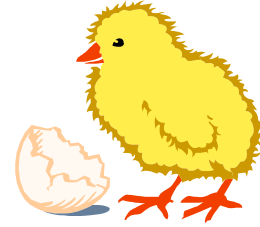
- Which pets could you buy with 20p?
- How much change from a £1.00 would you get if you bought the assorted brown creatures?
- If you bought two Komodo Dragons, which single coin would you use?
- How many Komodo Dragons could you buy for £1.00
- How much do all creatures beginning with 'P' cost?
- Order the birds from biggest to smallest.
- How much change would you get from 50p if you bought a turtle, a tortoise and a skink?
- Is the boy really able to buy all those pets for only £1.00?
- How much would you spend if you bought a salamander, a skink and a gecko? Find out how many different ways you can make the total.
- Half of the rat's whiskers were missing. If he had six whiskers left, how many did you have to start with?
- The boy had £1.00. What combination of coins could he have in his pocket?
- How big would the box need to be to hold all of the assorted little brown creatures?
- Make plasticine models of animals to sell in the "pet shop". Give them price labels. Buy and sell them to your friends. Select a coin and buy the exact number of pets.



## Fast Fox Goes Crazy

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Alan Ahlbey



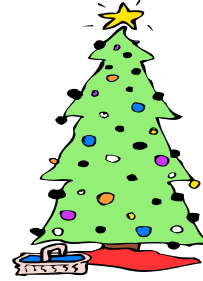
- How many chickens are in a sack?
- Which does fox find easier to catch - bouncing, jumping, running chick?
- What could you design to help fast fox catch the chickens?
- How could fast fox make sure he doesn't count chickens twice?
- How many chickens would fox catch in 3 sacks, 4 sacks etc?



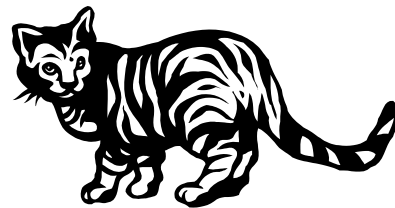
## Mog's Christmas

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Judith Kerr



- To create a timetable of their day using digital or analogue clocks.
- Identify shapes used as Christmas tree decorations, identify properties. Create nets of these.
- Give a Christmas present to each member of Mog's family. Using a budget, what would they be able to buy? Create a spreadsheet. (Extend to discounts)
- How much wrapping paper would be needed to wrap each present?
- Design wrapping paper using patterns, tessellation's, rotational and reflective symmetry.
- Create a menu for Christmas dinner - prices, costing. List all items needed.
- If each person gave everybody else a present, how many presents would there be?
- How heavy were the presents, postage?
- Paper chains. Each piece of paper is a given length. How many would you need to create a chain to cover one side of a room?

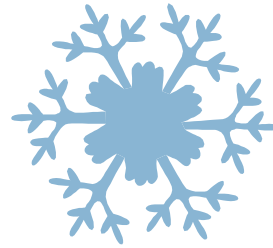




## Jolly Snow

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Jane Hissey



- What are the properties of snowflakes? (Number of sides, symmetrical, angles, tessellation).
- Design and make a sledge large enough for all the animals to fit in. How can you make it go faster / slower / further?
- Make snowflake biscuits for all the animals so that they each have two. How many will there be?
- Is it easier to catch a ball thrown by a friend or by yourself? Test your answer.
- Selection of containers - order them in size of capacity. How will you be able to check that you were right?



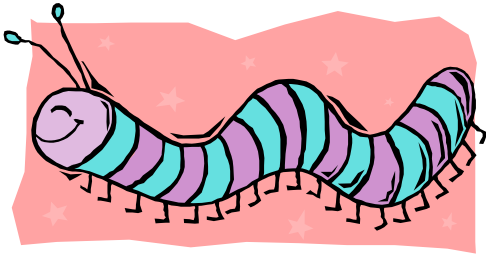


## The bad-tempered Ladybird

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Eric Carle

- How long does it take for the ladybird to arrive back where it started?
- Are all the animals in the book the same? How could you classify them?



## The Very Hungry Caterpillar

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Eric Carle

- If there was more than one caterpillar, how much food would be consumed in a week?
- If the caterpillar continues eating, how much would he eat in a fortnight? One month?
- If he weighs 5g on Sunday and puts on 0.25g per day, how much would he weigh after one week? One month?
- How healthy is his diet in a week?
- Sort the food into:
  - healthy / not healthy
  - has seeds / has no seeds
  - grows on trees / does not grow on trees



## Sonny's Wonderful Wellies

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Lisa Stubbs

- How much water will fill / half fill the paddling pool?
- Selection of wellies - how many pairs can you make? Which is the smallest/largest size?
- What is the mean, median, mode?
- Which footprint has the biggest area? How will you check it? (using squared paper)



## Mog on Fox Night

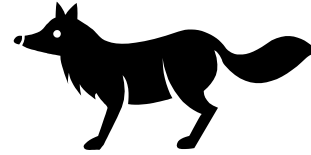


- Ordinal numbers. First, second, third.
- How many eggs would Mog eat if she had - One each day?  
- Two each day?
- How many boxes of eggs would you buy?
- Can you make an egg box to hold the number of eggs Mog eats?
- Drawing plan of kitchen and garden - tables, bowls, dustbins, bin bags, door, fridge, cupboard.
- How big would the bag need to be to hold 6, 7, 10 eggs?



## One Warm Fox

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## Nick Butterworth

- Different size parcels - order them from heaviest to lightest.
- How will you test that you are correct?
- Selection of clothes - which are the warmest, have repeating patterns?
- Selection of clothes and toys - find the pairs, which ones will fit the toys?
- How do you know?

