

Tree diagrams

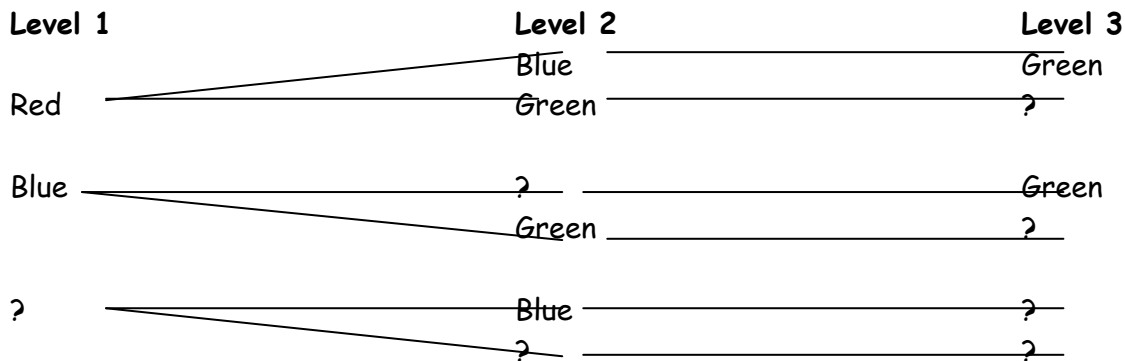
I am learning to use tree diagrams to show all the possibilities of an event.



Painting Towers

Paul's Painting Shop has been asked to paint a three storey tower. His instructions are that he can use red, blue or green but that every level must be a different colour. There are three levels. Steve needs your help to work out how many different ways he could paint the building.

1) Help Paul complete the tree diagram below by filling in the missing branches so Paul can work out how many different ways he can colour the tower.



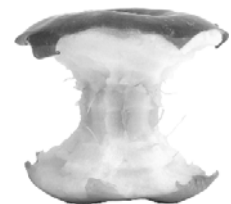
2) How many different ways could Paul colour the tower?

3) There is a one in six chance that Paul will choose to colour the tower red then green then blue. What is the probability he will colour the tower green then red then blue?

4) What is the probability Paul will colour the tower blue then green then blue? (Hint: think carefully about this question.)

Fruit in lunch boxes

Jack loves to have two pieces of fruit for school. He eats one for morning tea and one for lunch. He insists that the two pieces of fruit are different. Jack's family have bananas, pears, apples and grapes at home.



5) To answer the following questions you will need to complete the tree diagram on the following page.

6) How many different fruit combinations could Jack have?

7) Out of the twelve possible combinations how many involve Jack having a banana?

8) What is the probability that Jack will choose to have a grape for morning tea and a banana for lunch?

9) How many combinations involve Jack having grapes?

Morning tea

Lunch

Banana

Pear

Apple

Grape

Pear

?

Apple

Grape

Apple

?

?

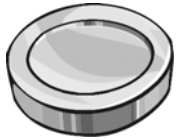
?

?

?

?

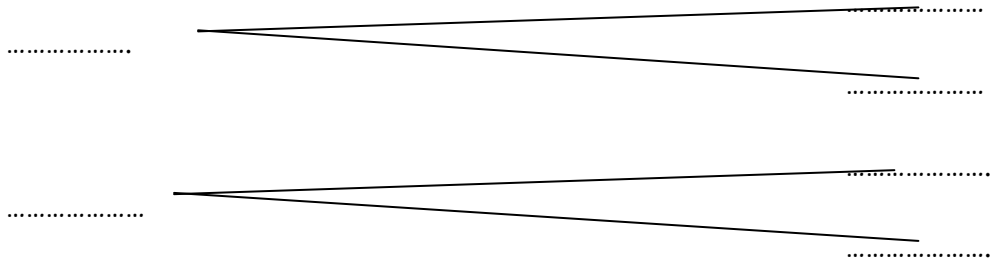
?



Flicking coins

Stefan was flicking two coins. He notices that he seems to get a combination of heads and tails more often than he gets heads and heads.

10) Complete the empty tree diagram below to find out whether Stefan is correct.



11) How many possible outcomes are there?

12) Of those outcomes how many options involve getting heads twice?

13) Of all the possible outcomes how many involve getting a combination of heads and tails?

14) Was Stefan correct to think that a combination of heads and tails comes up more regularly than two heads?

15) Get two coins and flick them ten times. Did you find that a combination of heads and tails comes up more regularly than two heads?

