Write down pairs of fractions that total 1.

$\frac{6}{10} + \frac{4}{10}$ $\frac{7}{10} + \frac{3}{10}$

$\frac{3}{100} + \frac{97}{100}$ $\frac{11}{50} + \frac{39}{50}$

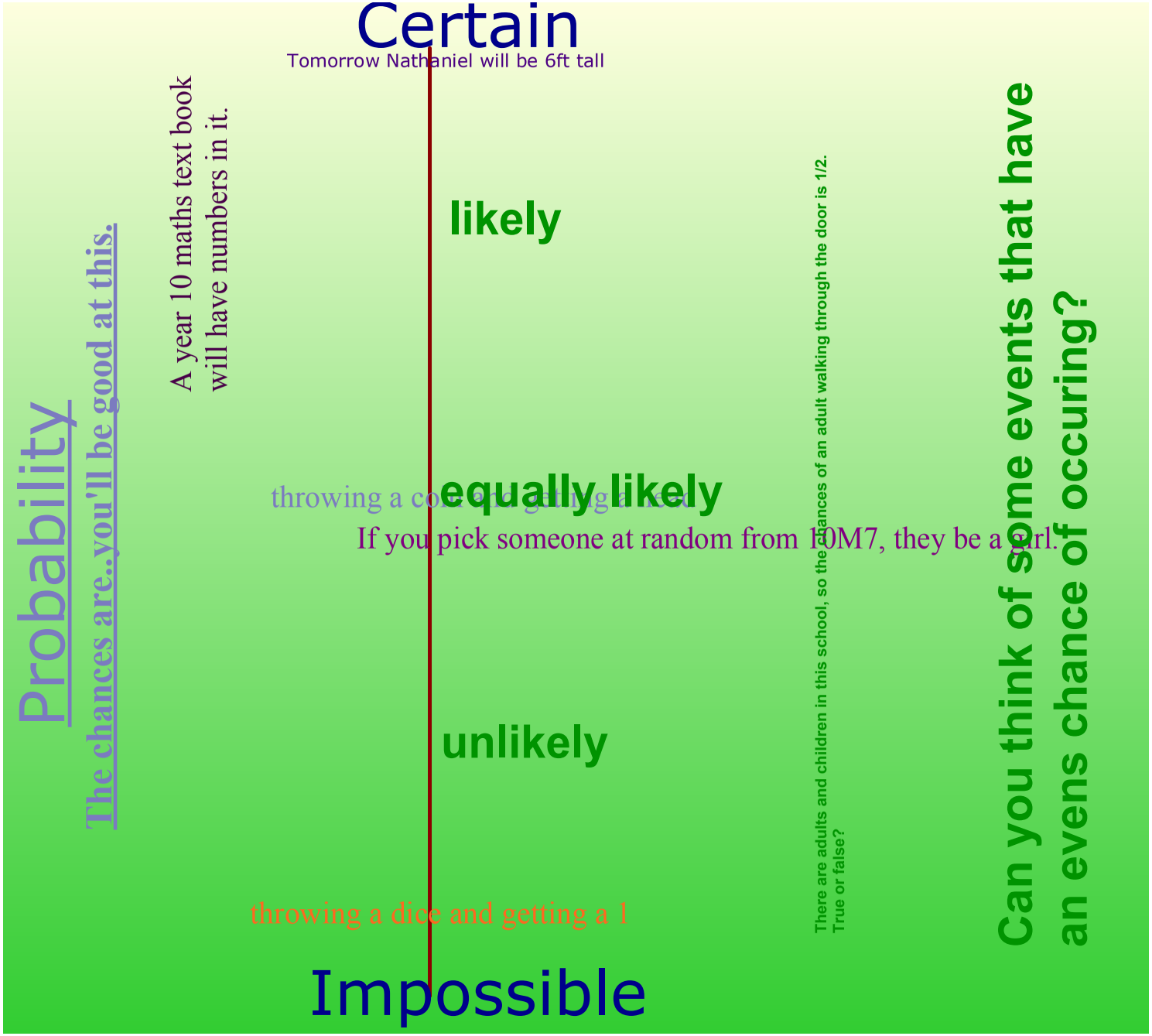
$\frac{2}{3} + \frac{1}{3}$ $\frac{1}{5} + \frac{4}{5}$ $\frac{1}{4} + \frac{3}{4}$

$\frac{3}{7} + \frac{4}{7}$ $\frac{1}{10} + \frac{9}{10}$ $\frac{1}{2} + \frac{1}{2}$

$\frac{3}{160}$

$\frac{1}{9} + \frac{8}{9}$ $\frac{4}{9} + \frac{5}{9}$

Heads I win, tails you lose


Certain
Tomorrow Nathaniel will be 6ft tall
likely
A year 10 maths text book will have numbers in it.
Probability
The chances are..you'll be good at this.
equally likely
throwing a coin and getting a head
If you pick someone at random from 10M7, they be a girl.
unlikely
There are adults and children in this school, so the chances of an adult walking through the door is 1/2.
True or false?
Can you think of some events that have an evens chance of occuring?
throwing a dice and getting a 1
Impossible

The Probability Scale: Using words and fractions

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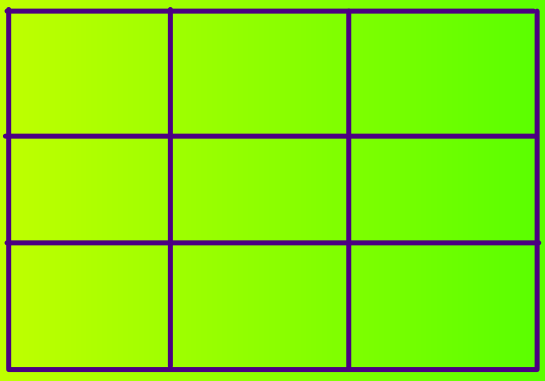
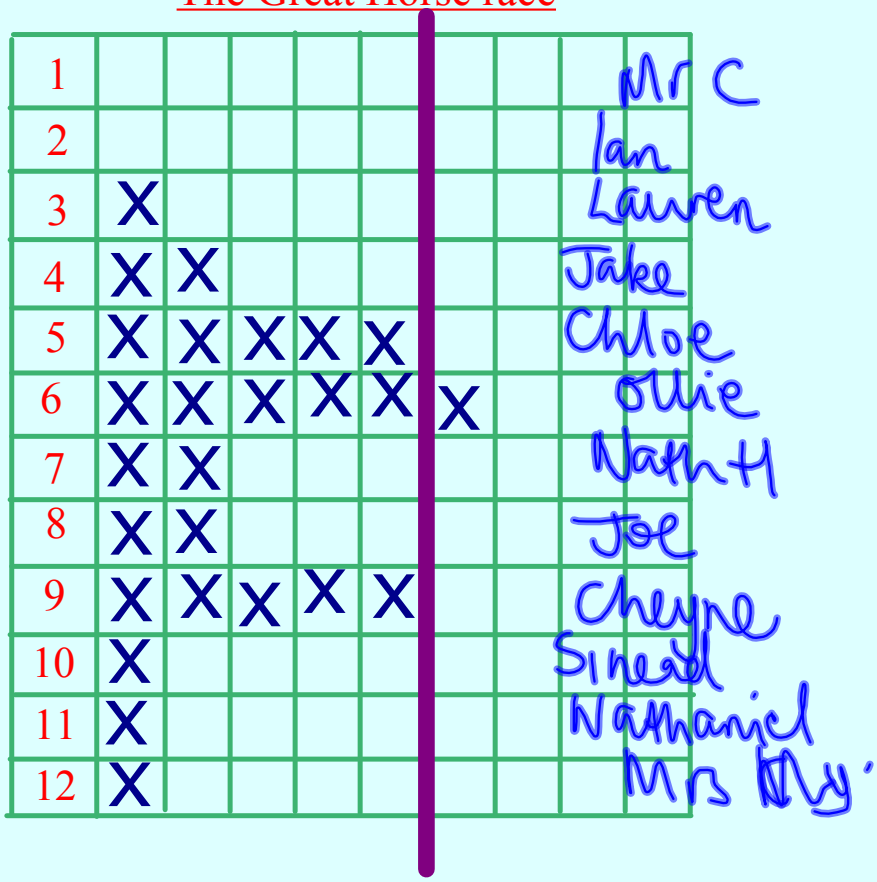


Two dice bingo

X

The Great Horse race



A sample-space diagram to show the outcomes for rolling two dice.

+	1	2	3	4	5	6
1	2	3				
2	3					
3						
4						
5						
6						

p(0)= 0

p(1)= 0

p(2)= $\frac{1}{36}$

p(3)= $\frac{2}{36}$

p(4)= $\frac{3}{36}$

p(5)= $\frac{4}{36}$

p(6)= $\frac{5}{36}$

p(7)= $\frac{6}{36}$

p(8)= $\frac{5}{36}$

p(9)= $\frac{4}{36}$

p(10)= $\frac{3}{36}$

p(11)= $\frac{2}{36}$

p(12)= $\frac{1}{36}$

p(13)= 0

Extension: Find

1) p(even no.)=

2) p(prime no.)=

3) p(square no)=

4) p (not a 5) =

5) p (not a 7)=

Interact page 256- 257 sheet G53

Something to think about..

Tomorrow either it will rain or it won't rain, so the probability of it raining is 1/2.

Next door is a family with 4 boys. The next child will most probably be a girl.

If you throw a coin 50 times and get 48 heads and 2 tails the coin must be biased.

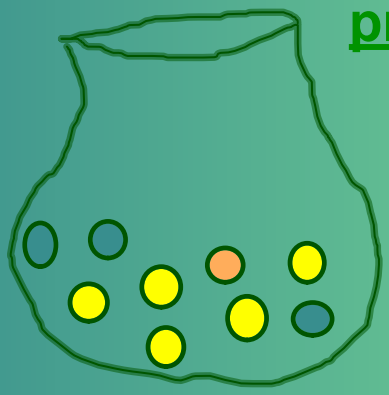
Everyone knows that some people are luckier than others.
And everyone has good days and bad days.
So the probability of throwing a 6 on a dice depends on who throws it and when.

If you throw a coin 50 times you will get 25 heads and 25 tails.

Bag A contains 4 red counters and 2 blue counters.
Bag B contains 5 red counters and 5 blue counters.
You are more likely to pick a red from bag A than you are from bag B.

True or false?

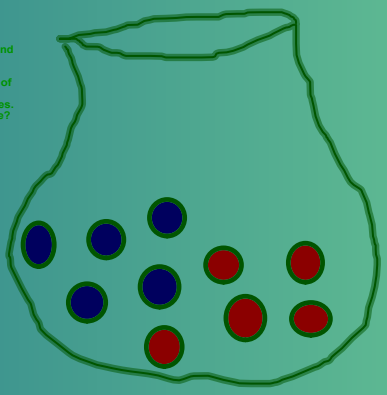
Using fractions to calculate probability

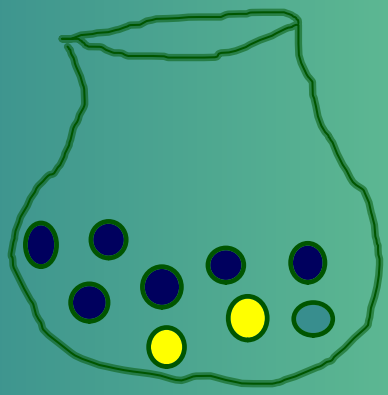


$p(\text{blue}) = \frac{3}{9}$

$p(\text{yellow}) = \frac{5}{9}$

If I add an extra blue and an extra red the probability of drawing a blue changes. True or false?



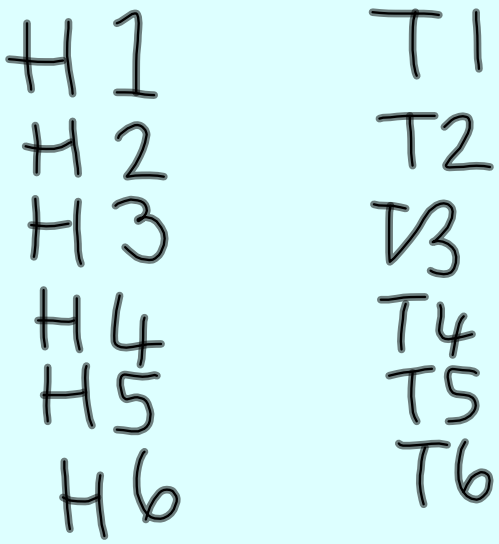


$p(\text{yellow}) = \frac{2}{9}$

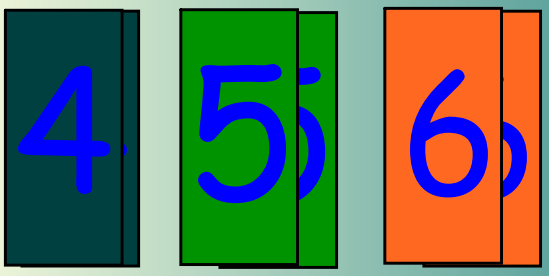
Interact 251-252

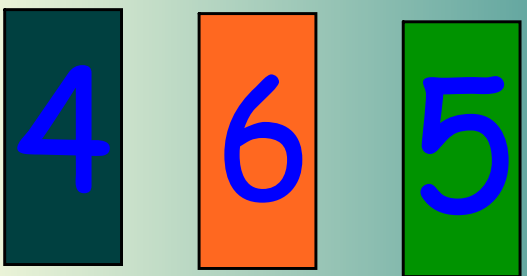
Listing Outcomes

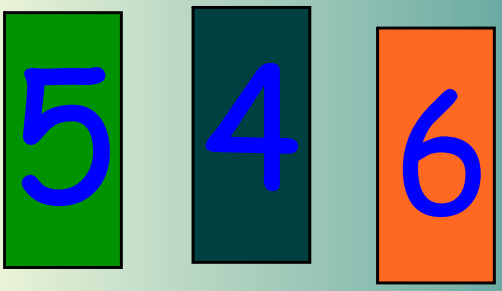
List the possible outcomes for throwing a dice and a coin.

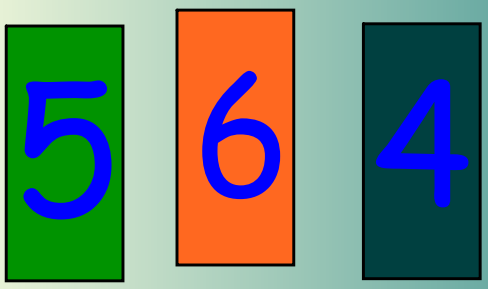


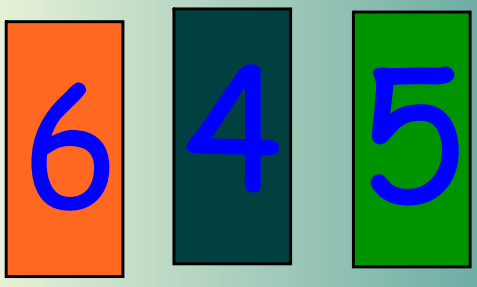
How many ways can you arrange these cards?

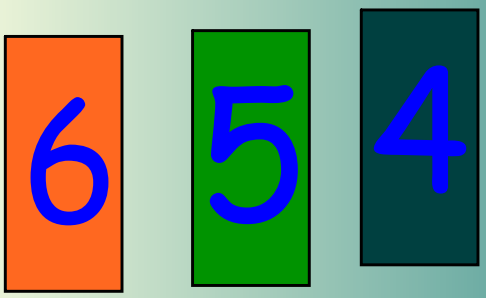




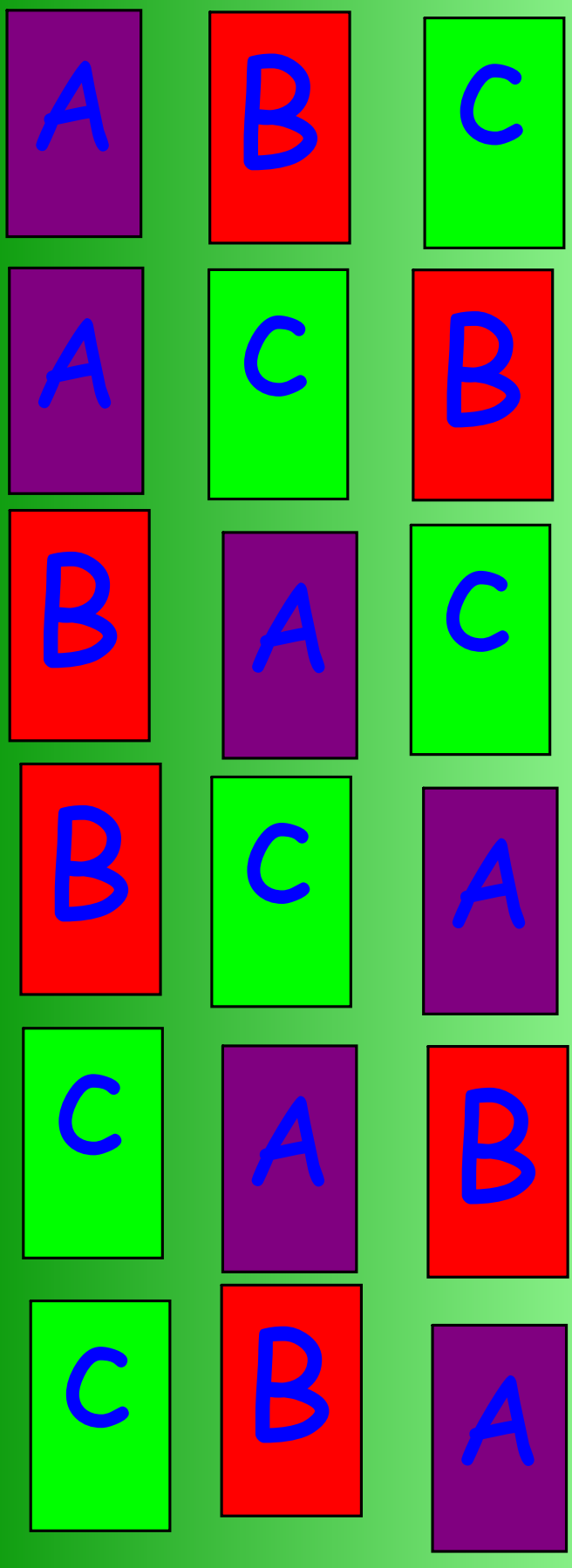








How many ways can you arrange the letters ABC?



Menu

Starters:

Melon

Green salad

Main Course:

Roast beef

Macaroni cheese

Pizza

What are the different combinations you could eat?

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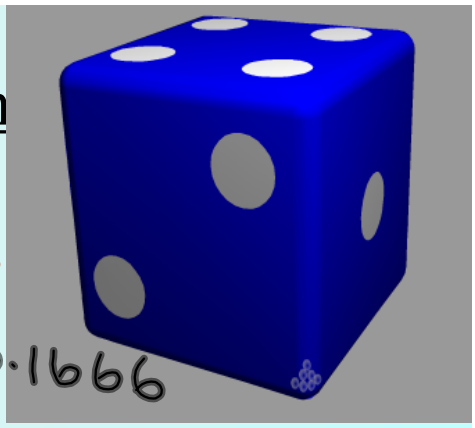
Expected Outcom



I throw a dice 12 times: how many 3s expect?

$p(1) = \frac{1}{6} = 0.1666$

Is this certain?

$p(1) = \frac{13}{62} = 0.209$

$p(2) = \frac{12}{62} = 0.193$

$p(3) = \frac{10}{62} = 0.16$

$p(4) = \frac{6}{62} = 0.096$

$p(5) = \frac{9}{62} = 0.145$

$p(6) = \frac{12}{62} = 0.193$

Dice score	Tally	Frequency
1		
2		
3		
4		
5		
6		

$p(1) = \frac{13}{62}$

Probability experiments

What's the probability of drawing out a blue cube?

Make a table:

Colour	tally

Draw out 10 cubes (one at a time).
Make a hypothesis about the contents of the box.
Draw out 10 more cubes.
What do you think now?
Now draw out 10 more.

simulation grid

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Get a selection of dice.
Make some unfair.
Game: You get one guess as to whether it is fair or unfair.
If you are wrong you have to sit out.

Make a fair dice and an unfair dice.
How many throws do you need in order to tell which is which?

Adding to 1

The probability of you being invited to tea with the queen is about 0.001

The probability of Mr Matthews hauling one of you out for a good telling off is 1/20.

Probability from a two-way table

10M7's TV watching preferences

	soaps	sport	films	series
boys				
girls				

If I picked someone at random what is the probability they prefer...

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Attachments

Fair or unfair.odp