1. A bag contains 12 blue and 8 green counters. 20 counters
A counter is chosen at random.

NO RED!

(a) Find the probability that the counter chosen is red. Answer 0

(b) Find the probability that the counter chosen is green.
Give your answer as a fraction in its lowest terms. Answer $\frac{8}{20} = \frac{4}{10} = \boxed{\frac{2}{5}}$

(c) 10 yellow counters are added to the bag.

Calculate the probability that a counter chosen at random is green or yellow.

8 green, 10 yellow, 30 counters.

18 yellow or green Answer $\frac{18}{30} = \frac{9}{15} = \boxed{\frac{3}{5}}$

2. The stem and leaf diagram shows the test scores of some pupils.

0	9
1	0 2 2 6 7 8
2	0 3 3 5 6 9
3	2 7
4	3

Key: 4 | 3 means a score of 43

(a) What was the lowest score? Answer 9

(b) What was the median score? 15 scores ⇒ pop out 8th one Answer 20

An extra pupil takes the test and scores 29.

(c) Add this score to the stem and leaf diagram and find the new median score.

now 16 scores ⇒ even split. Answer between 20 and 23

8 | 8 ⇒ 21.5

3. (a) Matthew has a dice with 3 red faces, 2 blue faces and 1 green face.
He throws the dice 300 times.
The results are shown in the table.

$\frac{3}{6} = \frac{1}{2}$ red

$\frac{2}{6} = \frac{1}{3}$ blue

$\frac{1}{6} = \frac{1}{6}$ green

Red	Blue	Green
153	98	49

RELATIVE FREQUENCY is probability for that question

(i) What is the relative frequency of throwing a red? Answer $\frac{153}{300}$

(ii) Is the dice fair?
Explain your answer.

You would expect 150 red, 100 blue, 50 green. ⇒ Yes, it looks fair

(b) Emmie has a dice with 4 red faces and 2 blue faces.
She throws the dice 10 times and gets 2 reds.
Emmie says the dice is **not** fair.
Explain why Emmie could be wrong.

10 times is not enough throws to say anything about the results.

4. The number of goals scored in 15 hockey matches is shown in the table.

Number of goals	Number of matches
1	2
3	1
5	5
6	3
9	4

goals x matches
1 x 2 = 2
3 x 1 = 3
5 x 5 = 25
6 x 3 = 18
9 x 4 = 36
84 goals altogeth

Calculate the mean number of goals scored. 15

84 goals in 15 matches

84 ÷ 15 = 5·6

Answer 5·6 goals

5. Dan and Doris are doing a survey on the type of music people buy.

(a) This is one question from Dan's survey.

Classical music is just for snobbish people.
Don't you agree?
Tick (✓) a box.

Strongly agree ☐ Agree ☐ Don't know ☐

Give two criticisms of Dan's question.

Criticism 1 leading question - telling you what to think.

Criticism 2 No disagree option

(b) This is a question from Doris' survey.

Do you buy CDs? ☐ Yes ☐ No

If yes, how many CDs do you buy on average each month?

☐ 2 or less ☐ 3 or 4 ☐ 5 or 6 ☐ More than 6

Give two reasons why this is a good question.

Reason 1 lots of options

Reason 2 no overlap in categories.