

## Dice trolling Probability

AMELIA So, who's making the tea today? Usual numbers? 1, 2, 3, 4, 5 and 6.

GARETH Oh, not again... I always make the tea! This dice is biased and I'm going to prove it.

Look, 10 days and I've had to make the tea 4 times, that's 40% of the time, which is much greater than a sixth! Yes, Ok a proportion of 0.4, Nigel.

AMELIA Ok Gareth, give it time. See how it goes after a month.

You know, you could be right Gareth. Maybe we do need a new, fairer dice.

GARETH Give it time.

Looks like this dice really is weighted, which makes it biased. It's been a year and the proportions have been fairly stable for a while now.

We've got Catherine making tea about 50% of the time, or 0.5. Everyone else is around 0.1. 10%.

AMELIA So how many times would I expect to make the tea in a month?

GARETH If we use 4 weeks for a month, that's 20 working days, multiplied by 0.1 is 2 times. But Catherine would have to do it 20 multiplied by 0.5, which is 10 times. We'd better get a new dice.

AMELIA Well yes, but Catherine does make a nice cuppa...

AMELIA/GARETH Give it time!