Puzzles and Quizzes - Day

## **Really Quite Tricky Egg Problem!**

You are given two eggs, and a ladder with 100 steps. Both eggs are identical. If an egg is dropped and does not break, it is undamaged and can be dropped again. However, once an egg is broken, that's it for that egg.

Your task is to find out the highest step from which an egg will **not** break when dropped. What is the worst case (maximum) for the number of drops it will take?



(Here is an example to get you started: suppose you drop the first egg from the  $50^{th}$  step and it breaks. You now know the answer is between 1 and 49 but you only have one more egg so have to try  $1^{st}$ ,  $2^{nd}$ ,  $3^{rd}$  etc until you find the answer. If it is the  $49^{th}$  step you will have to make a worst case maximum of 50 drops in total. You can do much better than this!)

## <u>Quiz – Survival (you can do this individually or debate it as a group):</u>

You and your companions have just survived a crash of a small plane. Both the pilot and co-pilot were killed in the crash. It is mid-January, you are in Northern Canada, and it is 25 below zero. Snow is on the ground, and the countryside is wooded with several rivers. The nearest town is 20 miles away. You are all dressed in normal (non-Winter) clothes. There is no mobile phone signal.

The following items are all that you managed to salvage from the wreckage (everything else on the plane is unusable):-

Axe	BALL OF	BOTTLE OF	Box of	CHOCOLATE
	COTTON WOOL	WHISKY	MATCHES	BAR (1 EACH)
	00		With Matches	
Емртү	EXTRA SHIRT	HEAVY-DUTY	LOADED	PLASTIC MAP
<b>BISCUIT TIN</b>	(1 EACH)	CANVAS(5x5m)	PISTOL	
FIN				

Your task is to rank these in order of importance for your survival (1 = most).