Three Short Games

Ideal for Traveling in the Car

(1) Make a Word Game: Players alternate by attaching a letter onto the previous string of letters. Whomever puts in a letter that makes a legal English word (No place names or Names of People), LOSES. If they think that the letter attached by their opponent DOES NOT lead to a legal word, then they can say "I Challenge", and the person has to defend their choice. If they fail to find a legal word, they lose their defense, but if they can say a legal word, the challenger loses.

Here are some example games: Player A: "H"; Player B: "Hu"; Player A: (thinking of the word "Huge" says, "g" to make it "Hug", Player B says, "You made the word "Hug", you lose. Next game: Player B: "T"; Player A: "Th"; Player B: (Thinks, I'm going to make him spell "Thou") says "o" to make the word "Tho"; Player A: "r", to make the word "Thor" (remember, no names of people); Player B: "I challenge". Player A replies, " I was making the word 'Thorn'". Challenge denied, player A wins.

(2) Fizz-Bang is a fun "math" game that I have played in a group of three to six, or in a classroom (usually nearing the end of the day on a Friday). There are only three rules, and I usually say one and play a bit and then bring in rule 2, and they play a bit, and then I bring in rule 3 – Cut-throat FIZZ-BANG. Rule number 1: start counting from 1 and whenever you come to a number that is divisible by FIVE, or CONTAINS a FIVE, you do not say the number, but instead say, "FIZZ".

So, a game goes like this (I usually go up and down the rows in a classroom): 1, 2, 3, 4, FIZZ, 6, 7, 8, 9, FIZZ, 11, 12, 13, 14, FIZZ, 16, 17, 18, 19, FIZZ, etc. Usually they have no trouble with rule 1. If they say the wrong thing, like say "15" instead of "FIZZ", or if they say the wrong number, or if they hesitated to long, (I yell, "Hesitation"), then the game stops and you start again from "1". Remember if they get to the 50's, everything is a "FIZZ" because all the numbers in the 50's CONTAIN a FIVE. Also, 55 would be FIZZ FIZZ, since it contains two 5's. (You might rule it should be FIZZ FIZZ FIZZ, since it also divisible by FIVE). Rule number 2 ups the complexity: If you have a number that is divisble by SEVEN, or CONTAINS a SEVEN, then you don't say the number, you say "**BANG**". ".

So, a game now goes like this: 1, 2, 3, 4, FIZZ, 6, **BANG**, 8, 9, FIZZ, 11, 12, 13, **BANG**, FIZZ, 16, **BANG**, 18, 19, FIZZ, **BANG**, 22, 23, 24, FIZZ, 26, **BANG, BANG,** 29, FIZZ, etc. Note the **BANG's** on the numbers 17 and 27, that CONTAIN a SEVEN. 35 would be FIZZ-BANG since it is divisible by both FIVE and SEVEN. Finally, I bring in the third rule: Whenever you say the **"BANG"** the ORDER CHANGES. So, if you have three players "A", "B", and "C", and player "A" says "6", then player "B" would say **"BANG"**, but it would now be player "A" show should say "8" since the order has changed and the flow goes backward. If player "A" hesitates, of player "C" says **"BANG"**, then the game is over. You can restart the game at Player "A", or at player "C", to let more students get involved.

As a teacher, you can make the game even harder by looking at the wrong player! So, in the above scenario, I might stare at player "C", to make them think that they are supposed to say something. A word of caution here, if you have some students who are a bit slower, you may not want them doing this. Also, if an error is made by a player such as Player "G", I usually carry on with player "H" saying "1" and player "I" saying "2" so that more students get involved AND so that the same students are not having the same number each time. I don't think I've ever had a class get throught the 70's correctly and say "FIZZ" for 80. Since every **BANG** is followed by a change in direction and 77 is **BANG BANG,** so the direction reverses twice and you keep going the same way, there are too many chances for errors there. I usually tell them if they can get to 81, then there is no homework for the weekend.

(3) The, "I was going to _____ and a I brought along a _____ and a _____", game. This is great for a group in a car or bus. I quite often played it when traveling with a team to a game. However, I have done

it with a group in a classroom. I start it by saying, "I was going to Victoria and I brought along a 'worm' and a 'lizard' ". Then the next person says, "I was going to Victoria and I brought along a 'ball' and a 'canary". I replied that she was "WRONG", and went on the third person, who said, "I was going to Victoria and I brought along a 'pen' and a 'guitar". I replied that she was "WRONG". When eventually it comes back to me, I said, "I was going to Victoria and I brought along a 'wigwam' and a 'lariat". The play keeps going with usually me saying each person is still wrong.

Gradually it gets back to me again and I say, "I was going to Victoria and I brought along a 'weasel' and a 'lanyard". (In my last school each student had to wear an identification around their neck, hanging on a lanyard, so they all knew that word). By now, one or two students get what's going on and when Elizabeth Gibbons says, "I was going to Victoria and I brought along an 'elephant' and a 'gargoyle". I replied that she was "RIGHT". And more and more get it, until ,with many hints, maybe, all get it. In order for you to really get it, you must know my name is **W**ayne **L**outet, and the words that indicate what I am bringing along to Victoria (or Vancouver, or New York, or London, or wherever you are going) must start with the first letters of my first and last name. So the combination of "**W**orm – **L**izard", or "**W**igwam – **L**ariat", or "**W**easel – **L**anyard" all begin with the letters "**W**" and "**L**". As you can see **E**lizabeth **G**ibbons was correct to say the combination of "**E**lephant – **G**argoyle". For some a bit slow on the uptake, you may have to really help them with hints or give them one of the things names etc.

Answers to last week's Problems

I'll give you the answers right now, and come back by Tuesday with the how those answers are worked out. I am running a bit behind time here.

(1) Take a really deep breath (as much as your lungs will hold) and hold it for ten seconds, then exhale. In the year 44 BC, Julius Caeser was assassinated by being stabbed a number of times. What is the probability that a molecule of air, that he breathed out on his dying breath, has just been breathed in by you now, some 2 053 years later?

ANSWER: About 99.97% of the time, you'll breathe in at least one of Julius Caeser's molecules.

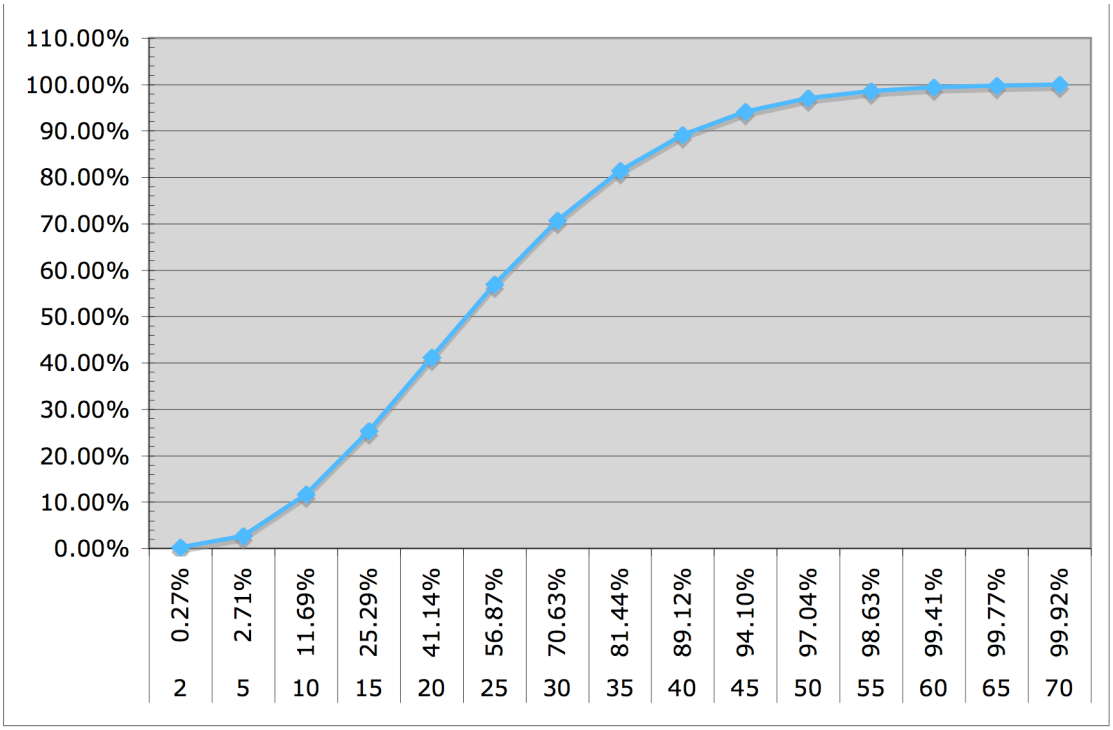
(2) I am in a gathering of 30 people. A buddy of mine looks around and bets me $20.00 that two people in our group have the same birthday. Assume 365 days in the year, and there are thirty people including yourself and your buddy. Do you take the bet?

ANSWER: No, the cut off point is 23 people! At 23 people it is a 50 – 50 bet. Below that the probability is less than 50% that at least two will have the same birthdays, above 23 people, the probability is greater than 50% that at least two will have the same birthdays. At 30 people the probability is about 60% that at least two will have the same birthdays. I will show you a spreadsheet and graph about this below and on the next page.

Number of People	Probability of at least one match
2	0.002739726
3	0.008204166
4	0.016355912
5	0.027135574
6	0.040462484
7	0.056235703

Number of people	Prob at least 2
2	0.27%
5	2.71%
10	11.69%
15	25.29%
20	41.14%
25	56.87%
30	70.63%
35	81.44%

8	0.074335292	40	89.12%
9	0.094623834	45	94.10%
10	0.116948178	50	97.04%
11	0.141141378	55	98.63%
12	0.167024789	60	99.41%
13	0.194410275	65	99.77%
14	0.223102512	70	99.92%
15	0.25290132		
16	0.283604005		
17	0.315007665		
18	0.346911418		
19	0.379118526		
20	0.411438384		
21	0.443688335		
22	0.475695308		
23	**0.507297234**		
24	0.538344258		
25	0.568699704		
26	0.59824082		
27	0.626859282		
28	0.654461472		
29	0.680968537		
30	0.706316243		
31	0.730454634		
32	0.753347528		
33	0.774971854		
34	0.795316865		
35	0.814383239		
36	0.832182106		
37	0.848734008		
38	0.864067821		
39	0.878219664		
40	0.89123181		
41	0.903151611		
42	0.914030472		
43	0.923922856		
44	0.932885369		
45	0.940975899		
46	0.948252843		
47	0.954774403		
48	0.960597973		
49	0.965779609		
50	0.97037358		



(3) There are two baseball players, Player A and Player B. In the first half of the season, Player A has a greater batting average than Player B. In the second half of the season, Player A has a greater batting average than Player B as well. However, in the whole season, Player B has a greater batting average than Player A. How can that happen?

ANSWER:

First half, Player A:	At Bats: 200 ;	Hits: 60 ;	Batting Average: 0.300
First half, Player B:	At Bats: 100 ;	Hits: 29 ;	Batting Average: 0.290
Second half, Player A:	At Bats: 100 ;	Hits: 40 ;	Batting Average: 0.400
Second half, Player B:	At Bats: 200 ;	Hits: 78 ;	Batting Average: 0.390
Full Year, Player A:	At Bats: 300 ;	Hits: 100 ;	Batting Average: **0.333**
Full Year, Player B:	At Bats: 300 ;	Hits: 107 ;	Batting Average: **0.357**

So, although Player A had a higher batting average for BOTH halves of the season, if you look at the season as a whole, Player B had the higher batting average.

(4) Qwerty and I are flipping two coins. One slips off the table and onto the floor, while one is showing "HEADS". What is the probability that both are "HEADS" ? By the way, another way of saying the same problem is: Hey, Qwerty's family has two children, and I know Bobby, the boy. What is the probability that both are boys?

ANSWER: The probability is 1/3 if the problem is stated as above, that "ONE of them is showing Heads". Most people think it is ½. See the diagram below:

MINE	QWERTY	RESULT
Heads	Heads	**Heads – Heads**
Heads	Tails	**Heads** – Tails
Tails	Heads	Tails – **Heads**
Tails	Tails	Tails – Tails

Notice, that three of the final combinations that can happen, have a **Head** showing. So you could be observing any of those three combinations. Only 1 out of the three has the **Heads – Heads** combination, so

the probability is 2/3. Now, last week, I made an error in the question, and stated that Qwerty's slipped off the table and Mine was showing Heads. If that is the case, the table would look like this:

MINE	QWERTY	RESULT
Heads	Heads	**Heads – Heads**
Heads	Tails	**Heads** – Tails
Tails	Heads	Tails – Heads
Tails	Tails	Tails – Tails

Since you know mine is Heads, then we only have two combinations that fit that bill and only one of them is the the **Heads – Heads** combination, so the probability is now ½, just as most people would guess.

If you choose to tell the problem as whether two children are boys or not, then the table looks like this:

Child 1	Child 2	RESULT
Boy	Boy	**Boy – Boy**
Boy	Girl	**Boy** – Girl
Girl	Boy	Girl – **Boy**
Girl	Girl	Girl – Girl

We know that three of the final combinations that can happen, have a **Boy** showing. So you could be observing any of those three combinations. Only 1 out of the three has the **Boy – Boy** combination, so the probability is 2/3.

Now, notice, If you had said, "I know the YOUNGEST is a Boy", then the table looks like this:

Child 1	Child 2	RESULT
Boy	Boy	**Boy – Boy**
Boy	Girl	**Boy** – Girl
Girl	Boy	Girl – Boy
Girl	Girl	Girl – Girl

Now, you know you are looking at only TWO combinations where the YOUNGEST is a boy. Only one out of those two combinations have a "**Boy – Boy**" result, so the probability is now ½ that that happens.