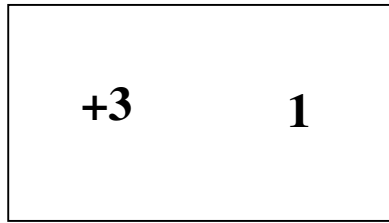## The Hunger Games Reaping Simulation

You received a piece of paper when you walked in to class today.

```
+3          1
```

The **first number** (+1 to +6) represents how many years you are going to add to your current age for today's lesson.

My current age: _____ + my first number _____ = my age for this project _____

Members of my family: _____ (current members living in your house, including yourself)

The **second number** represents whether you received tesserae or not. In the Hunger Games, tesserae represents additional food resources for families in need.

0 = you are not starving and you did not receive tesserae
1 = you are starving and your family has received tesserae each year since you were 12

Directions for determining your entries into the reaping

PART 1: AGE
Age 12 = 1, Age 13 = 2, Age 14 = 3, Age 15 = 4, Age 16 = 5, Age 17 = 6, Age 18 = 7

PART 2: TESSERAE

You must add 1 extra entry for every family member (including yourself) that received tesserae. These extra entries are cumulative.

For example, if you are 14 years old, your baseline number of entries would be 3 (for age). Added to this number would be your tesserae. For example, if you have 5 members in your family, the entries for tesserae at age 14 would be 5x3=15.

1.	On the basis of your age and your tesserae status, determine the number of entries you will have in the reaping lottery this year. Show all work here:
2.	Place your entries in the boy drawing or girl drawing using the small pieces of paper. Then write your number of entries in the correct column on the board.
3.	Given the grand total number of entries in our district (class) and for your gender, what is the probability that your name will be selected? Express your answer as both a fraction and a percentage round to the nearest hundredth (ex. 5.82%). **Calculator**
4.	Suppose you were a student in another class period. Would your chances (or probability) of being selected for the Hunger Games be the same? Why, or why not?
5.	Write an algebraic equation representing a person's total number of entries, E, for a given year if you did not receive tesserae. Define your variables and write your equation below.
6.	Write an algebraic equation representing a person's total number of entries, E, for a given year if you did receive tesserae each year, starting at age 12, for all family members. Define your variables and write your equation below.

7.	Katniss had 20 entries in the reaping, Peeta 5, Gale 42, and Prim 1. If there were 4,144 boy entries and 4,060 girl entries in District 12, what is the probability that each name would be drawn for the Hunger Games? (percentage, round to the nearest hundredth) **Calculator**
8.	What is the probability that both Peeta and Prim are drawn at the reaping? To determine to probability of both of these two events happening, you multiply each individual probability together. Show your expression and answer below. **Calculator**
9.	How many entries would you have if you were 18 years old, had 9 family members, and received tesserae for each of them every year since you were 12?
10.	Suppose you were in a math class of 24 students and each student randomly draws the name of a contestant from the Hunger Games. If your contestant wins the Hunger Games, you win a prize. Is this a fair game? Why or why not? Can you determine the probability of your contestant winning the Hunger Games? If so, write it as a fraction.
11.	How many orders are possible for the first, second, and third person eliminated?
12.	During the Hunger Games in the book, 24 contestants compete until one person is declared the winner. How many orders are possible in which the contestants could have been eliminated (assuming 1 contestant eliminated at a time)? **Calculator**
13.	Suppose as the Hunger Games tributes arrive at the capitol they each greet every other contestant one time. How many total greetings would there be? Use drawings or lists to help organize your thoughts. Show all your work.