Probability!

Name _____

Motivation: What does it mean when the meteorologist says there's a 25% chance of rain today?

EXAMPLE 1: Coin Tosses

Toss a coin 10 times. Record the number of "heads" and number of "tails" you get.

As a class, what fraction of our coin flips were "heads"?

If you flip a fair coin, what are the chances it lands on "tails"?

1st toss / 2nd toss	``Heads''	``Tails''
``Heads''		
``Tails''		

If you flip a fair coin twice, what are the chances it lands on "tails" twice?

What are the chances it lands once on "heads" and once on "tails"?

EXAMPLE 2: Rolling a die

If you roll a fair die, what is the probability of rolling each number on the die?

	1	2	3	4	5	6
probability						

What is the probability of rolling a number less than 4?

EXAMPLE 3: Gene expression

Gregor Johann Mendel studied pea plants in 1860's and discovered that the color of the peas of parents plants affected the color of the peas in the daughter plants. We inherit a single copy of each gene from each of our parents. The gene we actually *see*, however, depends on how *dominant* or *recessive* it is.

If a baby receives a "brown" gene, (s)he will have brown eyes. Fill in the tables below with the eye color of a baby born to parents with the genes shown.

Table I

1st gene / 2nd gene	``Brown''	``Brown''
``Brown''		
``blue''		

Table II

1st gene / 2nd gene	``Brown''	``blue''
``Brown''		
``blue''		

What are the chances a baby born to parents in Table II has blue eyes?