

## HEREDITY—keep this sheet!

Name \_\_\_\_\_

### MITOSIS

- Body cells divide forming identical \_\_\_\_\_ cells with the same number of *pairs of chromosomes* that the parent cell has.
- Responsible for growth of the organism, repair of injured tissues, and replacement of dead cells.

### MEIOSIS:

- Process of forming reproductive cells called \_\_\_\_\_, with only one chromosome from each of the parent cell's pairs. Gametes have *single chromosomes*, not pairs.

### HEREDITY:

- Gametes from two different partners combine to create a new cell that again has the *pairs of chromosomes* that normal body cells have. Each pair is made up of one chromosome from each \_\_\_\_\_ gamete.
- The new cell will undergo MITOSIS and develop into a new organism (*offspring*), with characteristics that are "passed on" or \_\_\_\_\_ from each parent. The offspring are considered a new \_\_\_\_\_.

### GREGOR MENDEL:

The scientist who first studied how inherited traits get *passed on* from parents to offspring. He grew \_\_\_\_\_ in his garden and discovered that he could predict which traits (such as short or tall, purple or white leaves, wrinkled or smooth peas) an offspring plant might have based on the type of parent plants he cross-fertilized.

## SOME VOCABULARY YOU NEED TO BE ABLE TO TALK HEREDITY:

### PHENOTYPE:

\_\_\_\_\_ (Tall or short, purple or white leaves, etc.)

### GENOTYPE:

- \_\_\_\_\_
- represented by a single letter. (T for tall, W for white)
  - CAPITAL LETTERS = \_\_\_\_\_ trait (priority over recessive)
  - LOWER CASE LETTERS - \_\_\_\_\_ trait
- So, instead of T for tall and S for short, we have:  
\_\_\_\_\_ = Tall      \_\_\_\_\_ = Short

Each trait is represented by a pair of letters called \_\_\_\_\_. This is because there are two chromosomes. One gene for the trait is on each chromosome.

Example: For the height of a plant, the plant's genotype could be:

<u>Genotype</u>	<u>Phenotype (appearance)</u>
TT	_____
Tt	_____ *remember that the T is DOMINANT
tt	_____

\_\_\_\_\_:

Today, we can use a chart to figure out the probability (likelihood) of getting certain traits in offspring, based on the characteristics of each parent. If we know the GENOTYPE of each parent, we can predict what GENOTYPE their offspring will be:

### PUNNETT SQUARE DIRECTIONS:

1. Write down the GENOTYPE for each parent in a multiplication format:  
Tt x Tt
2. Separate each allele into a separate box on the square-top row for one pair, left column for the other.
3. Where the squares intersect in the middle, combine each allele to find out the new type.
4. Write down the *ratio* of new allele pairs. This represents the *probability* of the offspring inheriting each Genotype in the square.

Tt x Tt

