Genetics Standard 1 Study Guide Name: _____ Block: ___

Identify, explain, and apply Mendelian genetics including laws, simple heredity, and use of Punnett Squares

Make the following vocabulary terms with the correct letter:

- Dominant : ___________
- Recessive: ______
- Heterozygous:
- Gamete: D.
- Mitosis: ____ E.
- Allele: _____A
- Zygote: _____\².
- Trait: _______

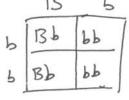
- A. Alternate form of a trait
- B. Allele that hides another
- e. Having two of the same alleles
- D. Cell that contains half the number of chromosomes
- E. Process of producing body cells
- F. Specific characteristic that varies among individuals
- G. Process of producing sex cells
- H. Allele that is hidden by another
- Having two different alleles
- J. Separation of traits so that only one allele from each parent is passed to offspring
- K-Cell produced after fertilization

Punnett Square Practice Problems:

For the following problems, find the genotype and phenotype ratios by constructing a Punnet Square.

1. If a heterozygous brown (B) mouse is crossed with a homozygous recessive white mouse, what are the genotype and phenotype ratios for the potential offspring?

| 6 | 1 phero |
|----|---------|
| Bb | Brown |
| ЬЬ | white |
| | |

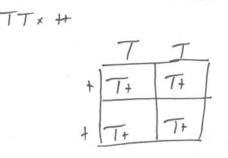


Goodype: 1/2 Bb: 1/2 bb

Pherotype: 1/2 Brown:

2. If a homozygous dominant tall (T) plant is crossed with a homozygous recessive (t) plant, what will be the genotype and phenotype ratios for the potential offspring?

| | 6 | P | |
|-----------|------------|-------|--|
| purent 1: | TT | TM) | |
| purent 2 | + + | short | |
| | | | |



prestoe: all Tall

| | or the freckle (F) trait and es, what will be the genoty $Ff \times Ff$ | has children with a wife who is also be and phenotype ratios for their potential Kids FFFFF Gero: 1/4 FF: 2/4 Ff: 1/4 FFFFFF pheno: 3/4 Freches: will have freckles? 1/4 No Freckles | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| What is the probability (| percent) that their children | will have freckles? /u No freckle | | | |
| | 1 or 75 % | | | | |
| | | | | | |
| Complete the following chart: | | | | | |
| Brown eyes (B) are dominant in Genotype | n humans, blue eyes (b) a <i>Phenotype</i> | re recessive. | | | |
| BB | Brown | | | | |
| B P | Brown | | | | |
| dd | blue | | | | |
| Fill In: The father of genetics, mender, used _ren _plumb to develop an | | | | | |
| understanding of genetics. To | day we know that <u>reios</u> | produces gametes. Gametes are | | | |
| hyloid , or have half the number of chromosomes as a normal cell. An example of gametes in | | | | | |
| humans are <u>sperm</u> or <u>eyy</u> ; an example in plants is <u>pollen</u> . When two gametes come together through a process called <u>fertilization</u> a <u>zyyote</u> is | | | | | |
| When two gametes come together through a process called <u>feet lization</u> a <u>zygote</u> is | | | | | |
| formed. (boby) | | | | | |
| Complete the following dihybrid cross: | | | | | |
| In rabbits, the coat color black dominant (B) over brown (b). Short hair is dominant (S) over long (s). In a cross between a heterozygous black short-haired male and a brown heterozygous short-haired female, what would be the ratios for genotype and phenotype of the F1 generation? | | | | | |
| BS Bs | b 5 bs | Parent 1 Genotype: 335 | | | |
| | bb 55 bb 53 | | | | |
| B655 , B655 x | 6665 6655 | Parent 2 Genotype: bb 53 | | | |
| Bb Ss x Bb ss x | bb Ss bbss | | | | |
| Bb5s x Bb55 x | bb55 bb55 | | | | |
| Genotype Ratios: Phenotype Ratios: | | | | | |
| | | | | | |
| 2 6655: 4 6655: - | 2 bbss 6 | - Bluck Short: 2 Bluck lury: 2 - brown Short: 2 brown long | | | |