

Name: \_\_\_\_\_ Hour: \_\_\_\_\_ Date: \_\_\_\_\_

### Mendelian Genetics Worksheet

1. For each genotype below, indicate whether it is heterozygous (He) or homozygous (Ho).

AA \_\_\_\_\_

Ff \_\_\_\_\_

Kk \_\_\_\_\_

Bb \_\_\_\_\_

Gg \_\_\_\_\_

LL \_\_\_\_\_

Cc \_\_\_\_\_

HH \_\_\_\_\_

Mm \_\_\_\_\_

DD \_\_\_\_\_

li \_\_\_\_\_

Nn \_\_\_\_\_

Ee \_\_\_\_\_

Jj \_\_\_\_\_

Oo \_\_\_\_\_

2. For each of the genotypes below determine what phenotypes would be possible.

Purple flowers are dominant to white flowers

Round seeds are dominant to wrinkled seeds.

PP \_\_\_\_\_

RR \_\_\_\_\_

Pp \_\_\_\_\_

Rr \_\_\_\_\_

pp \_\_\_\_\_

rr \_\_\_\_\_

Brown eyes are dominant to blue eyes

Bobtails in cats are recessive to long tails.

BB \_\_\_\_\_

TT \_\_\_\_\_

Bb \_\_\_\_\_

Tt \_\_\_\_\_

bb \_\_\_\_\_

tt \_\_\_\_\_

3. For each phenotype below, list the genotypes (remember to use the letter of the dominant trait)

Straight hair is dominant to curly.

Pointed heads are dominant to round heads

\_\_\_\_ straight

\_\_\_\_ pointed

\_\_\_\_ straight

\_\_\_\_ pointed

\_\_\_\_ curly

\_\_\_\_ round

4. Set up Punnet squares for each of the crosses listed below.

Round Seeds are dominant to wrinkled seeds

Rr x rr

|  |  |
|--|--|
|  |  |
|  |  |

What percentage of the offspring will be round?

RR x rr

|  |  |
|--|--|
|  |  |
|  |  |

What percentage of the offspring will be round?

RR x Rr

|  |  |
|--|--|
|  |  |
|  |  |

What percentage of the offspring will be round?

Rr x Rr

|  |  |
|--|--|
|  |  |
|  |  |

What percentage of the offspring will be round?

5. A TT (tall) plant is crossed with a tt (short plant).

What percentage of the offspring will be tall? \_\_\_\_\_

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|  |  |

6. A Tt plant is crossed with a Tt plant.

What percentage of the offspring will be short? \_\_\_\_\_

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|--|--|
|  |  |
|  |  |

7. A heterozygous round seeded plant is crossed with a homozygous round seeded plant.

What percentage of the offspring will be homozygous (RR)? \_\_\_\_\_

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8. A homozygous round seeded plant is crossed with a homozygous wrinkled seeded plant.

What are the genotypes of the parents? \_\_\_\_\_ x \_\_\_\_\_

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9. In pea plants purple flowers are dominant to white flowers.

If two white flowered plants are cross, what percentage of their offspring will be white flowered? \_\_\_\_\_

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10. A white flowered plant is crossed with a plant that is heterozygous for the trait.

What percentage of the offspring will have purple flowers? \_\_\_\_\_

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|--|--|
|  |  |
|  |  |

11. Two plants, both heterozygous for the gene that controls flower color are crossed.

What percentage of their offspring will have purple flowers? \_\_\_\_\_

What percentage will have white flowers? \_\_\_\_\_

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12. In guinea pigs, the allele for short hair is dominant.

What genotype would a heterozygous short haired guinea pig have? \_\_\_\_\_

What genotype would a pure breeding short haired guinea pig have? \_\_\_\_\_

What genotype would a long haired guinea pig have? \_\_\_\_\_

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13. Show the cross for a pure breeding short haired guinea pig and long haired guinea pig.

What percentage of the offspring will have short hair? \_\_\_\_\_

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|  |  |

14. Show the cross for two heterozygous guinea pigs.

What percentage of the offspring will have short hair? \_\_\_\_\_

What percentage of the offspring will have long hair? \_\_\_\_\_

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|  |  |

15. Two short haired guinea pigs are mated several times. Out of 100 offspring, 25 of them have long hair. What are the probable genotypes of the parents? **SHOW THE CROSS TO PROVE IT!**

\_\_\_\_\_ x \_\_\_\_\_

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