**Worksheet: Dihybrid Crosses**

**Remember!**

**STEP 1:** Determine what kind of problem you are trying to solve.

**STEP 2:** Determine letters you will use to specify traits.

**STEP 3:** Determine parent’s genotypes.

**STEP 4:** Make your punnett square and make gametes

**STEP 5:** Complete cross and determine possible offspring.

**STEP 6:** Determine genotypic and phenotypic ratios.

**Example:** A tall green pea plant (TTGG) is crossed with a short white pea plant (ttgg).

TT or Tt = tall tt = short GG or Gg = green gg = white

TG TG TG TG

|  |  |  |  |
| --- | --- | --- | --- |
| TtGg | TtGg | TtGg | TtGg |
| TtGg | TtGg | TtGg | TtGg |
| TtGg | TtGg | TtGg | TtGg |
| TtGg | TtGg | TtGg | TtGg |

tg

tg

tg

tg

16 Tall/Green : 0 Tall/White : 0 Short/Green : 0 Short/ White

**After solving, make sure you’ve answered the questions asked!**

1. A tall green pea plant (TTGg) is crossed with a tall green pea plant (TtGg)

\_\_\_\_\_\_\_\_\_\_\_ X \_\_\_\_\_\_\_\_\_\_\_

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

\_\_\_\_ Tall/Green : \_\_\_\_ Tall/White : \_\_\_\_ Short/Green : \_\_\_\_ Short/ White

1. A tall green pea plant (TtGg) is crossed with a Short white pea plant (ttgg).

\_\_\_\_\_\_\_\_\_\_\_ X \_\_\_\_\_\_\_\_\_\_\_

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

\_\_\_\_ Tall/Green : \_\_\_\_ Tall/white : \_\_\_\_ short/Green : \_\_\_\_ short/ white

1. A Homozygous tall, green flowered plant is crossed with a Homozygous short white flowered plant.

\_\_\_\_\_\_\_\_\_\_\_ X \_\_\_\_\_\_\_\_\_\_\_

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

\_\_\_\_ Tall/green : \_\_\_\_Tall/White : \_\_\_\_ Short/green: \_\_\_\_ Short/White

4. In man, assume that spotted skin (S) is dominant over non-spotted skin (s) and that wooly hair (W) is dominant over non-wooly hair (w). Cross a marriage between a heterozygous spotted, non-wooly man with a heterozygous wooly-haired, non-spotted woman. Give genotypic and phenotypic ratios of offspring.

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

5. In mice, the ability to run normally is a dominant trait. Mice with this trait are called running mice (R). The recessive trait causes mice to run in circles only. Mice with this trait are called waltzing mice (r). Hair color is also inherited in mice. Black hair (B) is dominant over brown hair (b).For each of the following problems, determine the parent genotypes, determine possible gametes then construct a Punnet square to solve.

a. Cross a heterozygous running, heterozygous black mouse with a homozygous running,

homozygous black mouse

Parental genotypes \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Possible gametes \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_

Offspring phenotypic ratio \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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