

## Determining Genotypes

1. Read the question thoroughly!
2. If not already given, determine what letter should be used to represent the alleles.
  - a. Remember to use the letter of the dominant trait.
    - i. Ex.) Round seeds are dominant (R)  
Wrinkled seeds are recessive (r)
    - ii. Ex.) Yellow seed color is dominant (Y)  
Green seed color is recessive (y)
3. Determine if the alleles for the trait are the same or different.

Hybrid → Different  
Heterozygous →

Purebred → Same  
Homozygous →

- a. If the alleles are the same, use the same letter twice for the particular parent when completing the Punnett square.
  - b. If the alleles are different, use the capital & the lowercase letter for the particular parent when completing the square
4. Once you have determined the correct alleles you should be using for each parent, follow the rules for completing a Punnett square given in lecture.

## EXAMPLES

**Directions:** Read the given statement and determine the letter that should be used to represent each trait.

1. Round seeds are dominant to wrinkled seeds.

D: \_\_\_\_\_ R: \_\_\_\_\_

2. Yellow seed color is dominant to green seed color.

D: \_\_\_\_\_ R: \_\_\_\_\_

3. Green pod color is dominant to yellow pod color.

D: \_\_\_\_\_ R: \_\_\_\_\_

4. Smooth pod cover is dominant to wrinkled pod color.

D: \_\_\_\_\_ R: \_\_\_\_\_

5. Widow's peak is dominant to non-widow's peak.

D: \_\_\_\_\_ R: \_\_\_\_\_

6. Cleft chin is dominant to non-cleft chin.

D: \_\_\_\_\_ R: \_\_\_\_\_

7. Huntington's disease is dominant to non-Huntington's disease.

D: \_\_\_\_\_ R: \_\_\_\_\_

8. Dimples are dominant to non-dimples.

D: \_\_\_\_\_ R: \_\_\_\_\_

9. Brown eyes are dominant to blue eyes.

D: \_\_\_\_\_ R: \_\_\_\_\_

10. Brown eyes are dominant to green eyes.

D: \_\_\_\_\_ R: \_\_\_\_\_

## EXAMPLES

*Directions:* Read the given statement & determine the allele combination for each parent or organism.

1. Paul's mom is a purebred for blue eyes. Paul's dad is a purebred for brown eyes.

Mom: \_\_\_\_\_ Dad: \_\_\_\_\_

2. Rachel's mom is hybrid for widow's peak. Rachel's dad doesn't have a widow's peak.

Mom: \_\_\_\_\_ Dad: \_\_\_\_\_

3. One seed has a yellow pod cover. The other is heterozygous for green pod cover.

Yellow: \_\_\_\_\_ Green: \_\_\_\_\_

4. One seed is homozygous for smooth pod cover. One seed is heterozygous for smooth pod cover.

Seed 1: \_\_\_\_\_ Seed 2: \_\_\_\_\_

5. Michael's parents are both heterozygous for cleft chin.

Mom: \_\_\_\_\_ Dad: \_\_\_\_\_

6. David's parents are purebred for blue eyes.

Mom: \_\_\_\_\_ Dad: \_\_\_\_\_

7. Sarah has dimples. Sarah's mom does not but her dad does.

Mom: \_\_\_\_\_ Dad: \_\_\_\_\_

8. Lawrence's dad was diagnosed with Huntington's disease. Lawrence doesn't have Huntington's disease.

Mom: \_\_\_\_\_ Dad: \_\_\_\_\_

9. Seth has blue eyes. His mother also has blue eyes. His dad has brown eyes.

10. Louis has green eyes. Louis' mom also has green eyes as well as his sister. However, Louis' dad is a hybrid for brown eyes.

Mom: \_\_\_\_\_ Dad: \_\_\_\_\_

## EXAMPLES

**Directions:** Complete the Punnett squares that go with each of the last 10 examples.

1. 


2. 


3. 


4. 


5. 


6. 


7. 


8. 


9. 


10. 
