Amoeba Sisters Video Recap: *Pedigrees*

Autosomal Recessive Pedigree

Directions: Consider a pedigree that is tracking an autosomal recessive trait, where two recessive alleles (tt) result in the inability to taste a chemical known as PTC. The ability to taste PTC is determined by the presence of a dominant allele (T). Complete the missing boxes in the chart. The first row has been done for you as an example!

**Note: The ability to taste PTC may be more complex than a simple gene trait.*

	Individual Phenotype	Shape (in Pedigree)	Shaded?
Male with genotype TT	*PTC taster*	*Square*	*No*
Male with genotype Tt	1. PTC taster	2. Square	3. NO
Male with genotype tt	4. inability	5. Square	6. yes
Female with genotype TT	7. PTC taster	8. Circle	9. NO
Female with genotype Tt	10. PTC taster	11. Circle	12. NO
Female with genotype tt	13. inability	14. Circle	15. yes

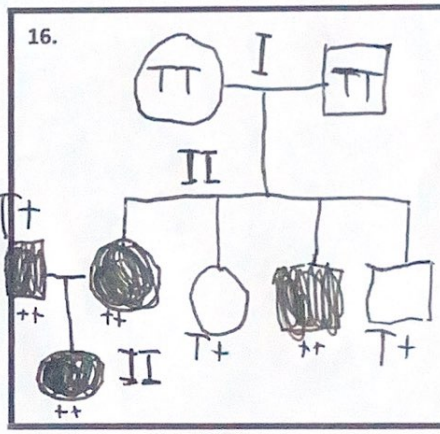
Design an Autosomal Recessive Pedigree!

A couple with **the ability to taste PTC** have two grown sons and one grown daughter. The sons have **the ability to taste PTC**. Their daughter is a **PTC non-taster**. She married a **PTC non-taster** man, and they have two sons.

Draw a pedigree in the box on the right that **fully represents the above scenario** and **tracks the inability to taste PTC (non-taster)**, which is caused by two recessive "t" alleles. In your illustrated pedigree, please make sure that:

(A) generations are listed as Roman numerals and the individuals are numbered.
(B) the correct shapes for males and females are used.
(C) the shapes that require shading are shaded.
(D) the **genotypes** are listed next to each pedigree shape.

16.



17. What is the **phenotype** of the sons in generation III? How do you know? Both might be tt because both parents are tt

Sex-Linked Pedigrees

Sex-linked traits that are tracked in pedigrees are typically on the X chromosome. Assume the following questions refer to colorblindness, which is a sex-linked recessive trait on the X chromosome.

18. Circle the genotype(s) that represent(s) a **female** with the sex-linked recessive trait.
X^BX^B X^BX^b X^bX^b X^BY X^bY

19. Circle the genotype(s) that represent(s) a **male** with the sex-linked recessive trait.
X^BX^B X^BX^b X^bX^b X^BY X^bY