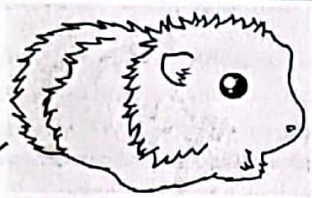
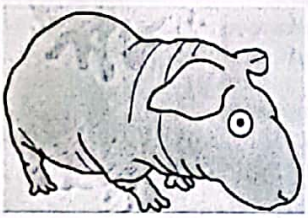
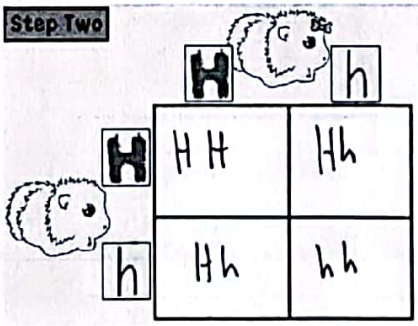
Amoeba Sisters Video Recap: Monohybrid Crosses (Mendelian Inheritance)

Vocabulary practice! Fill in missing boxes assuming that having hair for guinea pigs follows Mendelian inheritance, where the H dominant allele codes for hair and h codes for a lack of hair (hairless).

Image	Genotype	Heterozygous or Homozygous?	Phenotype
	HH ~~Hh~~	1. either one are true ~~Heterozygous~~ Homozygous	2. has hair
	3. hh	4. homozygous	Hairless
5.	6. Hh	Heterozygous	7. Also has hair

8. An **allele** is a form of a gene.

In the Punnett square on the right, how many H/h alleles does a baby guinea pig inherit from the **mother**? 1
How many H/h alleles does a baby guinea pig inherit from the **father**? 1.



If a baby girl guinea pig looks almost identical to its mother, does this then mean that it inherited more alleles from its mother? Explain. (Hint: Think about the vocabulary words **dominant** and **recessive**.)

it probably recieved a dominant Allele from its mother, while it got a recessive Allele from its father

Mysterious Fred: A Guinea Pig Test Cross

There is a teacher from Texas that loves hairless guinea pigs. In guinea pigs, the dominant allele H codes for the trait of having hair and the allele h codes for the trait of being hairless. (Assume Mendelian inheritance). Let's say that this teacher receives her wish of finding a hairless guinea pig at a pet store and names her Genevieve. She finds another guinea pig at a store with hair that she names Fred.

While she can be certain of Genevieve's genotype, how could she determine what genotype Fred is? She can do a **test cross**! A test cross involves breeding an organism with a dominant trait (like Fred) with an organism that exhibits a recessive trait (like Genevieve).

9. Genevieve has the genotype hh.

10. Fred's genotype could be Hh or HH.

11. If Fred was genotype Hh and bred with Genevieve...

12. Please draw Punnett Square below to show prediction for offspring.

	h	h
H	Hh	Hh
h	hh	hh

13. If Fred was genotype HH and bred with Genevieve...

14. Please draw Punnett Square below to show prediction for offspring.

	h	h
H	Hh	Hh
H	Hh	Hh

15. Explain in your own words how the offspring from the test cross could help determine Fred's genotype.

If all of the offspring had hair, then fred's genotype must be HH. if two had hair & two were hairless, then fred's genotype must be Hh.

16. What could be some weaknesses with using a test cross to determine Fred's genotype?

By random chance, it is, while improbable, it is possible to misjudge if fred was based kids, even when he/she is heterozygous.