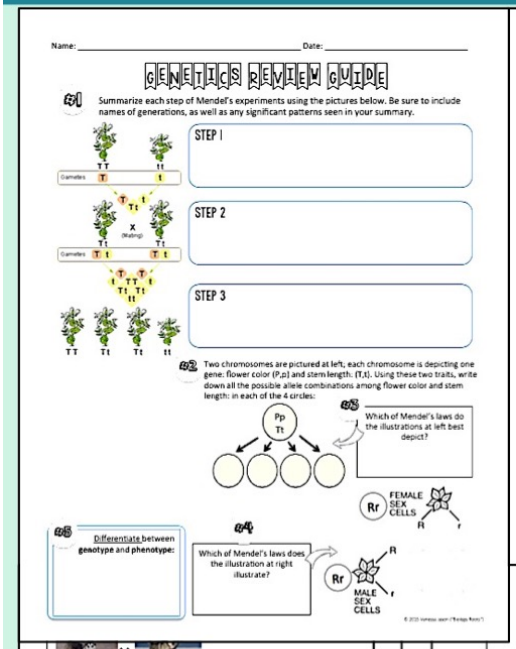
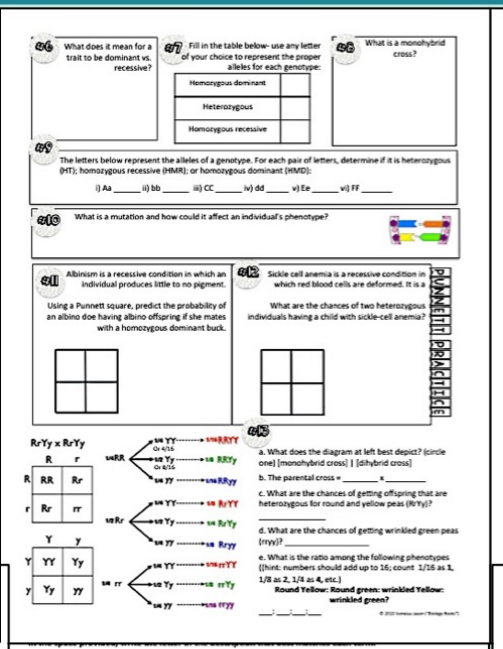
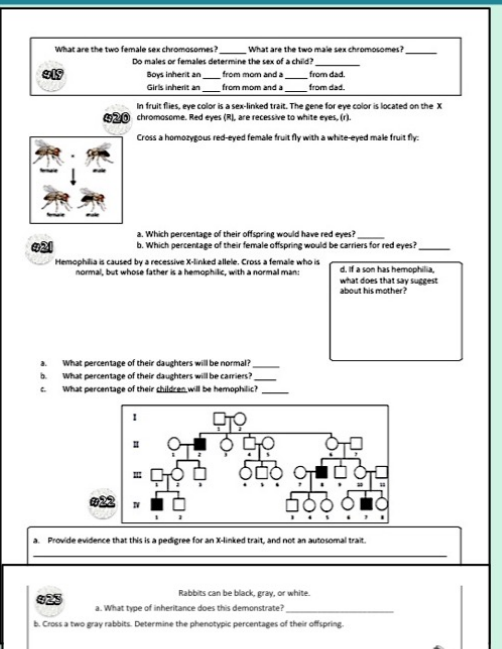
GENETICS

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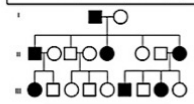
a) A man and woman both have freckles and they are both heterozygous for the trait. They have three children, and none have freckles. What is the predicted probability vs. actual results. Explain why real examples do not always follow the Punnett square.

b) The same man and woman are having their 4th child a few years later. What is the **most likely** phenotype the child will have? (Freckles or no freckles?):

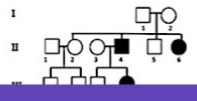
c) Do the phenotypes of the current offspring have anything to do with the phenotypes of future offspring? Why or why not?

Make a key for the following pedigree symbols: normal male, normal female, affected male, affected female, carrier male, carrier female:

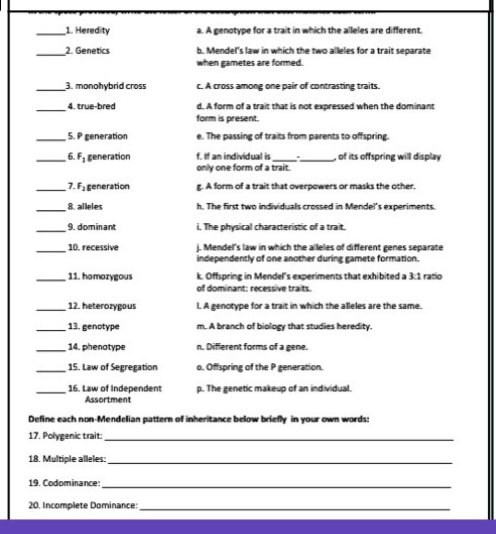
Are carrier symbols always seen in pedigrees, even if the individual is a carrier? Y/N _____



Is the pedigree at left autosomal dominant or autosomal recessive? Provide evidence from the pedigree to support your answer.



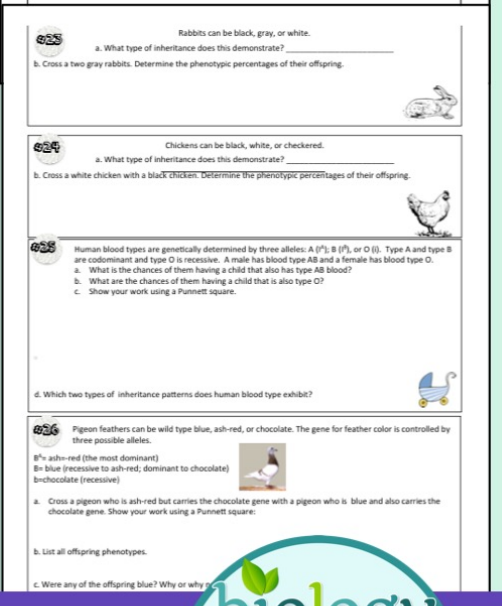
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_____1. Heredity	a. A genotype for a trait in which the alleles are different.
_____2. Genetics	b. Mendel's law in which the two alleles for a trait separate when gametes are formed.
_____3. monohybrid cross	c. A cross among one pair of contrasting traits.
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Define each non-Mendelian pattern of inheritance below briefly in your own words:

17. Polygenic trait: _____
18. Multiple alleles: _____
19. Codominance: _____
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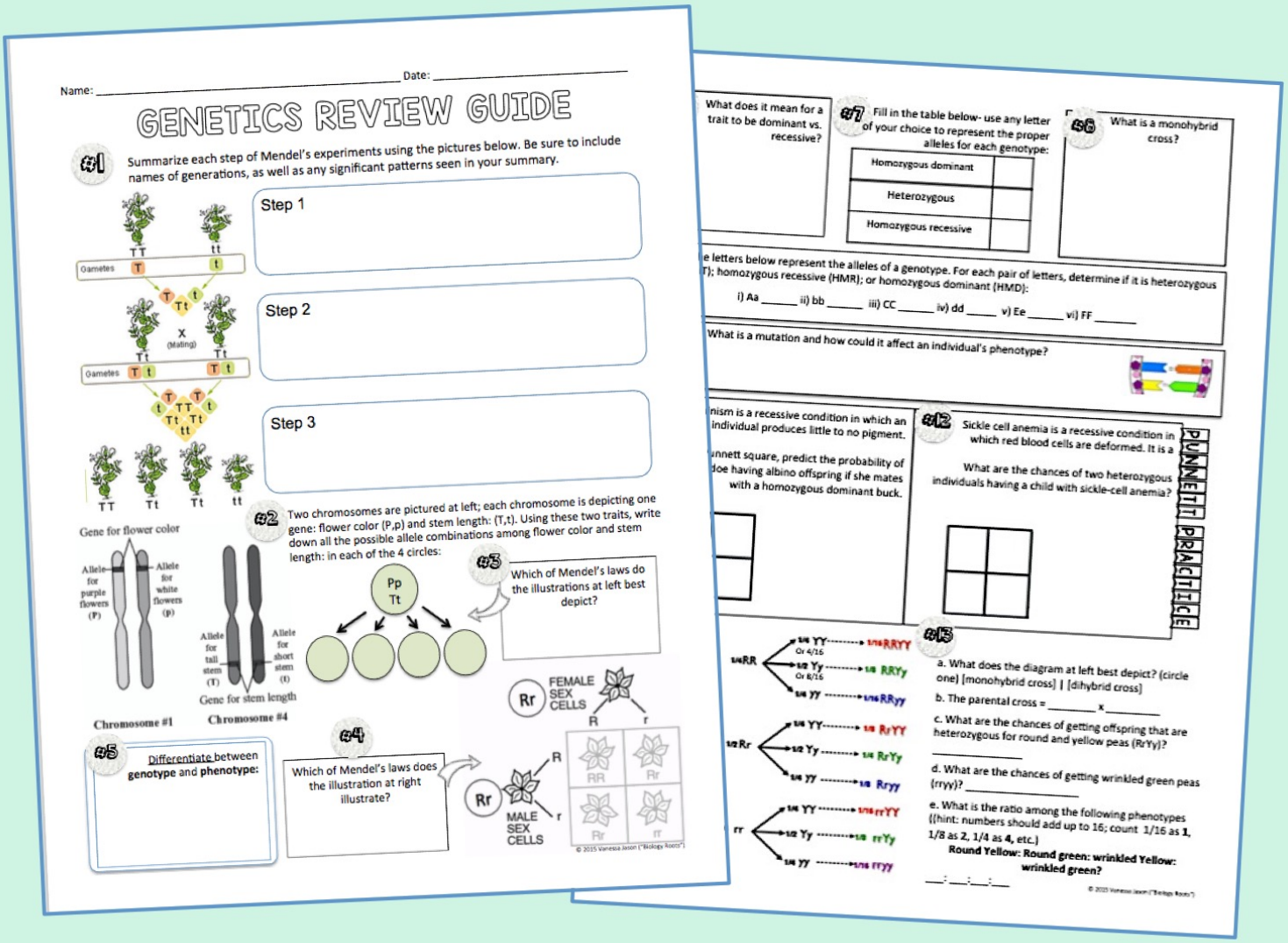
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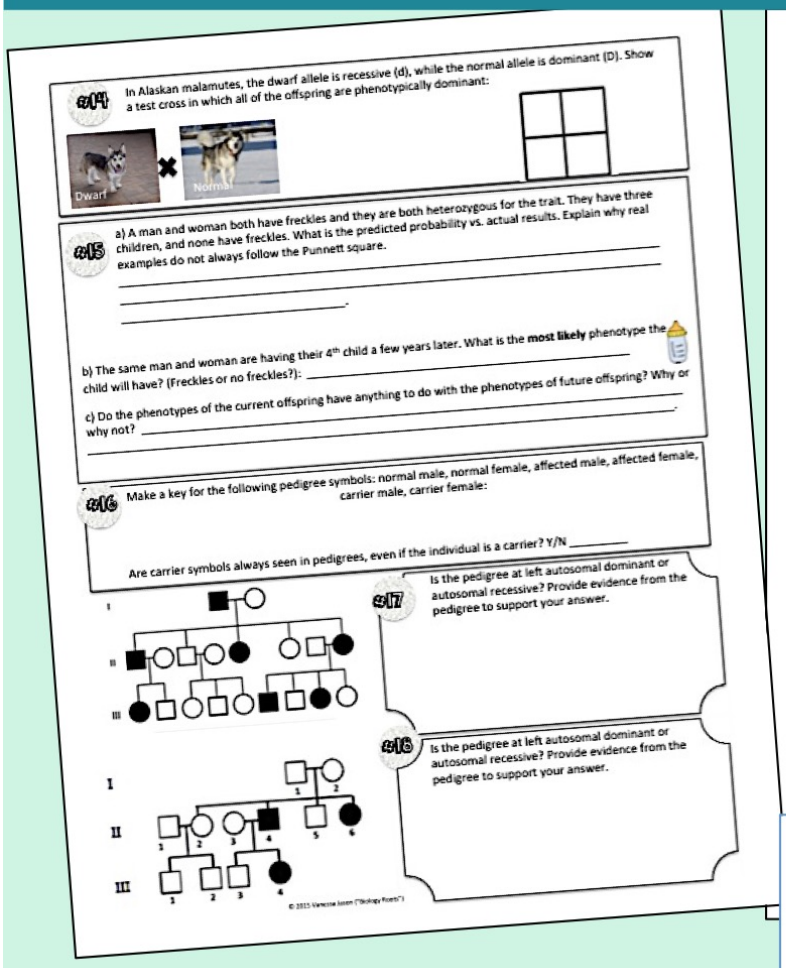
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Covers Mendel's experiments, Mendel's laws, Punnett squares, dihybrid crosses.

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#14 In Alaskan malamutes, the dwarf allele is recessive (d), while the normal allele is dominant (D). Show a test cross in which all of the offspring are phenotypically dominant:

Dwarf × Normal

#15 a) A man and woman both have freckles and they are both heterozygous for the trait. They have three children, and none have freckles. What is the predicted probability vs. actual results. Explain why real examples do not always follow the Punnett square.

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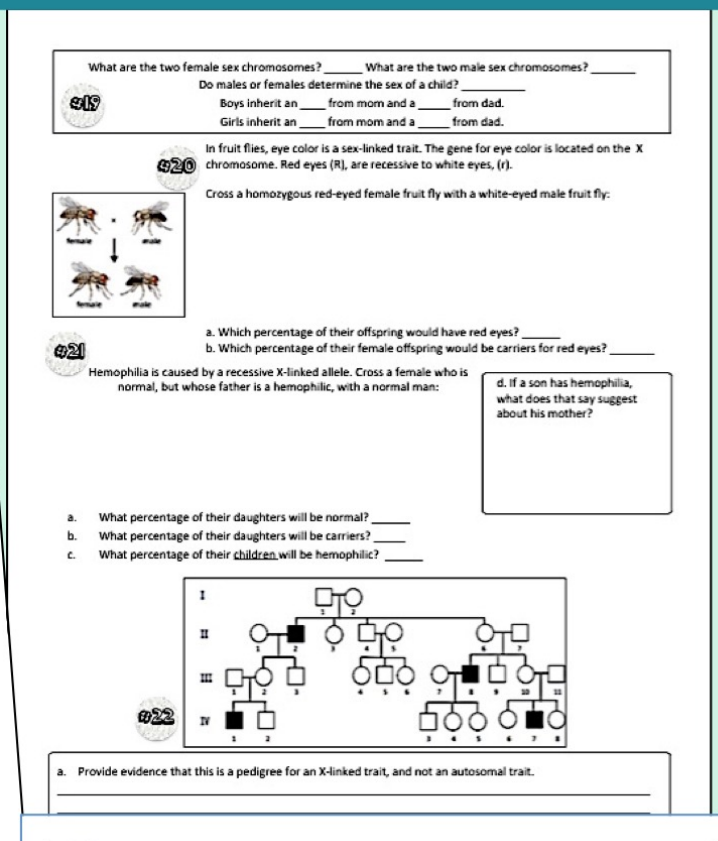
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Are carrier symbols always seen in pedigrees, even if the individual is a carrier? Y/N _____

#17 Is the pedigree at left autosomal dominant or autosomal recessive? Provide evidence from the pedigree to support your answer.

#18 Is the pedigree at left autosomal dominant or autosomal recessive? Provide evidence from the pedigree to support your answer.

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What are the two female sex chromosomes? _____ What are the two male sex chromosomes? _____

#19 Do males or females determine the sex of a child? _____

Boys inherit an ____ from mom and a _____ from dad.

Girls inherit an ____ from mom and a _____ from dad.

#20 In fruit flies, eye color is a sex-linked trait. The gene for eye color is located on the X chromosome. Red eyes (R), are recessive to white eyes, (r).

Cross a homozygous red-eyed female fruit fly with a white-eyed male fruit fly:

female × male → female, male

a. Which percentage of their offspring would have red eyes? _____

b. Which percentage of their female offspring would be carriers for red eyes? _____

#21 Hemophilia is caused by a recessive X-linked allele. Cross a female who is normal, but whose father is a hemophilic, with a normal man:

d. If a son has hemophilia, what does that say suggest about his mother?

a. What percentage of their daughters will be normal? _____

b. What percentage of their daughters will be carriers? _____

c. What percentage of their children will be hemophilic? _____

#22

a. Provide evidence that this is a pedigree for an X-linked trait, and not an autosomal trait.

#23 Rabbits can be black, gray, or white.

a. What type of inheritance does this demonstrate? _____

b. Cross a two gray rabbits. Determine the phenotypic percentages of their offspring.

#24 Chickens can be black, white, or checkered.

a. What type of inheritance does this demonstrate? _____

b. Cross a white chicken with a black chicken. Determine the phenotypic percentages of their offspring.

#25 Human blood types are genetically determined by three alleles: A (I^A); B (I^B), or O (i). Type A and type B are codominant and type O is recessive. A male has blood type AB and a female has blood type O.

a. What is the chances of them having a child that also has type AB blood?

b. What are the chances of them having a child that is also type O?

c. Show your work using a Punnett square.

d. Which two types of inheritance patterns does human blood type exhibit?

#26 Pigeon feathers can be wild type blue, ash-red, or chocolate. The gene for feather color is controlled by three possible alleles.

B^A= ash=-red (the most dominant)
B= blue (recessive to ash-red; dominant to chocolate)
b=chocolate (recessive)

a. Cross a pigeon who is ash-red but carries the chocolate gene with a pigeon who is blue and also carries the chocolate gene. Show your work using a Punnett square:

b. List all offspring phenotypes.

c. Were any of the offspring blue? Why or why not?

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Includes pedigrees and complex patterns of inheritance (X-linked, multiple alleles, codominance, incomplete dominance.

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Name: _____ Date: _____

GENETICS VOCABULARY REVIEW

In the space provided, write the letter of the description that best matches each term.



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21. X-linked Trait: _____

A one page vocabulary guide is also included to help students remember all those new terms!