



Name: _____ Hour: _____


Brick Genetics: Soybean Style


Directions: With a group of 3-4, you will be predicting traits in soybeans, calculating genotype and phenotype probabilities, and creating models of your soybean plants using interlocking building bricks.


Flower Color:

Soybean flower color varies from purple to white. Purple is a dominant trait and white is a recessive trait. Incomplete dominance can also occur where the flower is not purple or white, but a shade in between. When writing out the genotype, flower color can be represented by the letter W.

1. For the following soybean flowers, write the genotype, then label the genotype as homozygous dominant, homozygous recessive, or heterozygous. Describe the phenotype of each flower.

a.  Genotype: _____
Genotype Label: _____
Phenotype: _____

b.  Genotype: _____
Genotype Label: _____
Phenotype: _____

c.  Genotype: _____
Genotype Label: _____
Phenotype: _____

2. Using a coin, you will determine the flower genotype of two soybean plants. You will flip the coin four times. The first two flips will give you the alleles for parent plant #1 and the second two flips will give you the alleles for parent plant #2.

Heads represents a dominant allele and tails represents a recessive allele.

Ex: If you flip 2 heads in a row the alleles for the plant would be, "WW". If you flip a heads and then a tails (or a tails then a heads), "Ww" and if you flip two tails, "ww".

Parent Plant #1 Genotype: _____

Parent Plant #2 Genotype: _____



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Flower Color Continued:

3. Place the two genotypes of your parent plants onto the Punnett Square below, calculate the genotypes, and answer the questions that follow:.

	_____	_____

- a. What is the genotype ratio of the offspring? _____
- b. What is the phenotype ratio of the offspring? _____
- c. What color flower has the highest probability of showing up with this parent cross? _____
4. Cross two of the offspring above, show your work below:

	_____	_____

- a. Use your interlocking building bricks to create a model of the MOST LIKELY phenotype to occur with this cross. Explain your reasoning below:



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Directions: With a group of 3-4, you will be predicting traits in soybeans, calculating genotype and phenotype probabilities, and creating models of your soybean plants using interlocking building bricks.

Pod Color:

Soybean pod color varies from black to tan. Black is a dominant trait and tan is a recessive trait. Incomplete dominance can also occur where the pod is not black or tan, but a shade of brown. When writing out the genotype, pod color can be represented by the letter L.

1. For the following soybean pods, write the genotype, then label the genotype as homozygous dominant, homozygous recessive, or heterozygous. Describe the phenotype of each pod.

a.



Genotype: _____

Genotype Label: _____

Phenotype: _____

b.



Genotype: _____

Genotype Label: _____

Phenotype: _____

c.



Genotype: _____

Genotype Label: _____

Phenotype: _____

2. Using a coin, you will determine the pod color genotype of two soybean plants. You will flip the coin four times. The first two flips will give you the alleles for parent plant #1 and the second two flips will give you the alleles for parent plant #2.

Heads represents a dominant allele (L) and tails represents a recessive allele (l).

Parent Plant #1 Genotype: _____

Parent Plant #2 Genotype: _____



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Pod Color Continued:

3. Place the two genotypes of your parent plants onto the Punnett Square below, calculate the genotypes, and answer the questions that follow:

	_____	_____

- a. What is the genotype ratio of the offspring? _____
- b. What is the phenotype ratio of the offspring? _____
- c. What color flower has the highest probability of showing up with this parent cross? _____
4. Cross two of the offspring above, show your work below:

	_____	_____

- a. Use your interlocking building bricks to create a model of the MOST LIKELY phenotype to occur with this cross. Explain your reasoning below:
