

Eggsy Student Sheet (Adapted from Ms. Lau's Science)

PART 5: PUNNETT SQUARES

36. A **punnett square** can tell you the possible genotypes of babies a pair of parents could have.

37. Let's pretend you have 2 parents with the genotype Aa for each.

a. What are the possible alleles the baby can get from Parent 1?

Allele 1a

Allele 1b

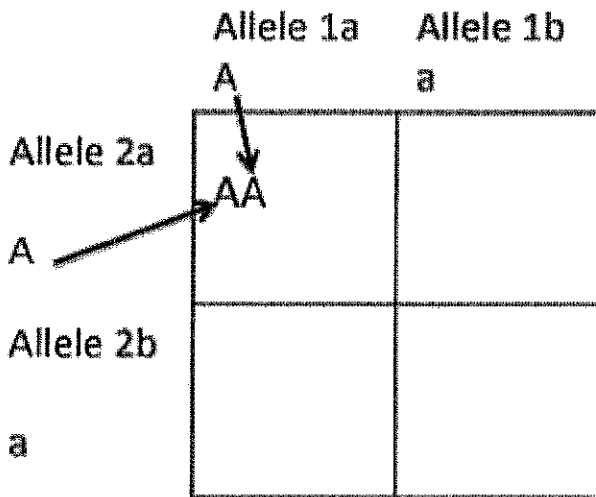
b. What are the possible alleles the baby can get from Parent 2?

Allele 2a

Allele 2b

38. Now write the alleles on the top and left side of the Punnett Square.

(This is already done for you)



39. Next fill in each box with the allele from each parent.

The first box is done for you.

40. Once complete, record the number of each

genotype: AA _____ Aa _____ aa _____

41. Now calculate the percentages for each genotype

using the following equation: $\# \text{ of genotypes} \div 4 \times 100$. With

parents Aa and Aa, each eggsy baby has these chances of

being born with the genotype: _____ % AA _____ % Aa _____ % aa

42. Now try on your own, but the parents are AA and Aa.

a. What are the alleles of Parent 1? _____

b. What are the alleles of Parent 2? _____

c. Fill out the Punnett Square. What percent chance will their first baby be

i. AA? _____

ii. Aa? _____

iii. aa? _____

d. If these parents have many many children, what percentage of these children will be each phenotype? _____

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43. Another example, but the parents are Aa and aa.

- What are the alleles of Parent 1? _____
- What are the alleles of Parent 2? _____
- Fill out the Punnett Square. What percent chance will their first baby be

i. AA? _____

ii. Aa? _____

iii. aa? _____

- If these parents have many many children, what percentage of these children will be each phenotype? _____

44. The parents are Aa and AA.

- What are the alleles of Parent 1? _____
- What are the alleles of Parent 2? _____
- Fill out the Punnett Square. What percent chance will their first baby be

i. AA? _____

ii. Aa? _____

iii. aa? _____

- If these parents have many many children, what percentage of these children will be each phenotype? _____

45. The final example, but now the parents are aa and aa.

- What are the alleles of Parent 1? _____
- What are the alleles of Parent 2? _____
- Fill out the Punnett Square. What percent chance will their first baby be

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i. AA? _____

ii. Aa? _____

iii. aa? _____

d. If these parents have many many children, what percentage of these children will be each phenotype? _____

46. If both parents are homozygous recessive, will any of their children have the dominant trait?

Why? _____

47. If both parents are heterozygous and they have 3 children will their children have different genotypes? Explain your answer. _____

Punnett square problems continued

Complete the following problems. List the parent genotypes, draw and fill in a Punnett square, and then list the offspring genotypes and phenotypes.

1. A homozygous dominant brown mouse is crossed with a heterozygous brown mouse (tan is the recessive color).
2. Two heterozygous white (brown fur is recessive) rabbits are crossed.
3. Two heterozygous red flowers (white flowers are recessive) are crossed.
4. A homozygous tall plant is crossed with a heterozygous tall plant (short is the recessive size).
5. A heterozygous white rabbit is crossed with a homozygous black rabbit.