

Create a Baby Lab

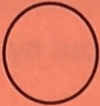














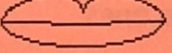
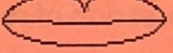
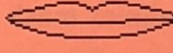




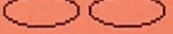










Purpose: To demonstrate the principles of Mendelian genetics and sex determination, including the concepts of allele, phenotype, genotype, dominant, recessive, codominant, homozygous and heterozygous by creating a simulated baby.










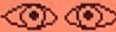
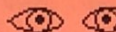

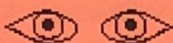

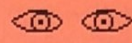

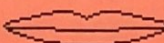










Materials: Two pennies, art supplies, paper.

Procedure:

- 1) Working with a partner, determine the genotype of the baby by flipping pennies. "Mom" flips one penny to choose an allele for her egg and "Dad" flips the other to choose an allele for his sperm. (Note that the sex of the baby is determined by dad alone. Boys are XY and girls are XX. Mom can give only an X but dad can give an X or a Y chromosome.)
- 2) Record the alleles which resulted from the coin flips, and put "sperm and egg" together. Write down baby's genotype for each trait in Table 1. Mom will flip a coin, and dad will flip a coin. If the coin lands on heads, it is expressed as an uppercase letter, and if it lands on tails, it is expressed as a lowercase letter. Dominant alleles mask the expression of recessive ones.
- 3) Record the resulting phenotype for each coin flip on each trait in Data Table 1 (provided).
- 4) Repeat steps 1, 2, and 3 for all traits and then draw, color, and name your creation. Remember that you are drawing a baby's face— (no tattoos, pierced ears, mustaches, etc.)

Create a Baby Lab: Genotype/Phenotype reference sheet

Trait	Homozygous for Allele #1	Heterozygous	Homozygous for Allele #2
Face Shape Genotype: Phenotype:	RR Round 	Rr Round 	rr Square 
Chin Shape Genotype: Phenotype:	NN Noticeable 	Nn Noticeable 	nn Less Noticeable 
Chin Dimple Genotype: Phenotype:	AA Absent 	Aa Absent 	aa Present 
Freckles Genotype: Phenotype:	FF Present 	Ff Present 	ff Absent 
Cheek Dimples Genotype: Phenotype:	DD Present 	Dd Present 	dd Absent 
Lip Thickness Genotype: Phenotype:	TT Thick 	Tt Thick 	tt Thin 
Eye Brows Genotype: Phenotype:	BB Bushy 	Bb Bushy 	bb Fine 
Eye Shape Genotype: Phenotype:	WW Wide 	Ww Wide 	ww Round 
Eyelashes Genotype: Phenotype:	LL Long 	Ll Long 	ll Short 
Ear Shape Genotype: Phenotype:	RR Long 	Rr Long 	rr Round 
Ear Lobes Genotype: Phenotype:	FF Free 	Ff Free 	ff Attached 

Trait	Homozygous for Allele #1	Heterozygous	Homozygous for Allele #2
Widow's Peak Genotype: Phenotype:	WW Present 	Ww Present 	ww Absent 
Hair Curliness Genotype: Phenotype:	C ₁ C ₁ Curly 	C ₁ C ₂ Wavy 	C ₂ C ₂ Strait 
Eyebrow Color Genotype: Phenotype:	D ₁ D ₁ Darker than hair 	D ₁ D ₂ Same as hair 	D ₂ D ₂ Lighter than hair 
Eye Width Genotype: Phenotype:	W ₁ W ₁ Close Together 	W ₁ W ₂ Average 	W ₂ W ₂ Far apart 
Eye Size Genotype: Phenotype:	S ₁ S ₁ Large 	S ₁ S ₂ Medium 	S ₂ S ₂ Small 
Mouth Size Genotype: Phenotype:	M ₁ M ₁ Wide 	M ₁ M ₂ Medium 	M ₂ M ₂ Narrow 
Nose Size Genotype: Phenotype:	P ₁ P ₁ Small 	P ₁ P ₂ Medium 	P ₂ P ₂ Large 
Birth Mark (mole) Genotype: Phenotype:	B ₁ B ₁ Left cheek 	B ₁ B ₂ Right cheek 	B ₂ B ₂ Absent 
Skin Tone Genotype: Phenotype:	S ₁ S ₁ Light 	S ₁ S ₂ Medium 	S ₂ S ₂ Dark 
Hair Color	AABB=Black AABb=Black AAbb=Red	AaBB=Dark Brown AaBb=Light Brown Aabb=Dark Blond	aaBB=Blond aaBb=Blond aabb=white (albino)
Eye Color	AABB=Deep Brown AABb=Deep Brown AAbb=Brown	AaBB=Greenish Brown AaBb=Light Brown Aabb=Gray-Blue	aaBB=Green aaBb=Light Blue aabb=Pink