

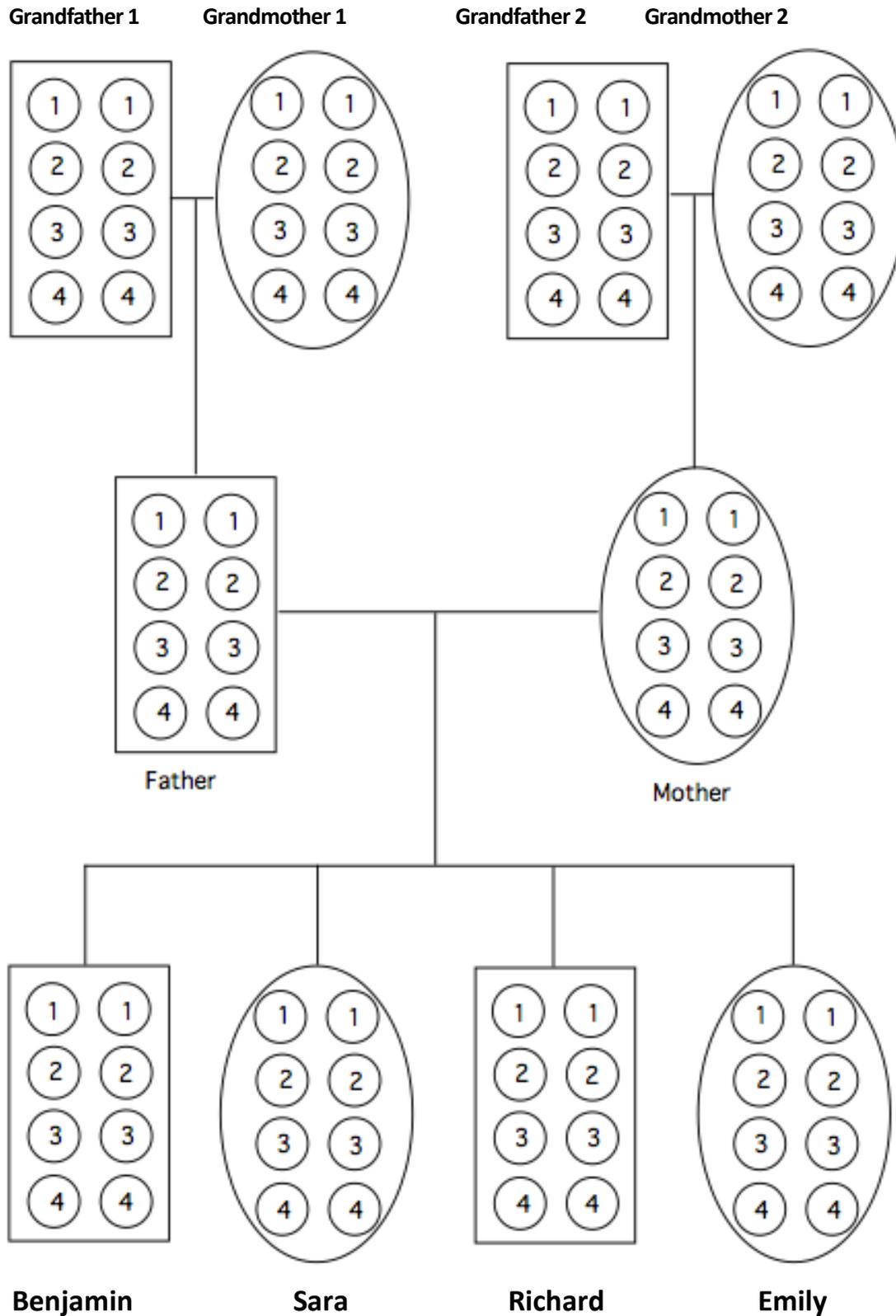
**Essential Question: How do living things inherit their genetic characteristics?**

**Act 8: Skittles Genetics:**

**Purpose:** I can accurately predict the outcome of genetic crosses by using the principles of Mendel's genetics.

**Instructions:** Follow the Lab instructions taped to your lab station. Complete all three sections.

**NOTE:** Place and Color the Dominant Allele on the Left side of each Gene Pair if Heterozygous



**Data Table Instructions:** Analyze the data for your offspring. Fill the Genotype (what the alleles for each gene are on the DNA) and the Phenotype (what the child actually looks like).

Data Table 1 – Phenotypes and Genotypes for our Family’s Children		
<b>Benjamin</b>	<b>Genotype</b>	<b>Phenotype</b>
1. Eye color (B, b)		
2. Tongue Roll (F, f)		
3. Earlobe Attach (I, i)		
4. Hair (C, c)		
<b>Sara</b>	<b>Genotype</b>	<b>Phenotype</b>
1. Eye color (B, b)		
2. Tongue Roll (F, f)		
3. Earlobe Attach (I, i)		
4. Hair (C, c)		
<b>Richard</b>	<b>Genotype</b>	<b>Phenotype</b>
1. Eye color (B, b)		
2. Tongue Roll (F, f)		
3. Earlobe Attach (I, i)		
4. Hair (C, c)		
<b>Emily</b>	<b>Genotype</b>	<b>Phenotype</b>
1. Eye color (B, b)		
2. Tongue Roll (F, f)		
3. Earlobe Attach (I, i)		
4. Hair (C, c)		

Data Table 2 – Key: Skittles color combinations showing the Genotype in offspring			
Trait - Alleles	Skittle Colors= Trait (Genotype)	Skittle Colors= Trait (Genotype)	Skittle Colors= Trait (Genotype)
1. Eye Color (B, b)	2 Brown= Brown Eyes (BB)	Brown/Blue= Brown Eyes (Bb)	2 Blue= Blue Eyes (bb)
2. Tongue Roll (F, f)	Red= Rolling (FF)	Red Pink= Rolling (Ff)	Pink/Pink= Not Rolling (ff)
3. Earlobe Attach (I, i)	2 Purple= Attached (II)	Purple/Green= Attached (Ii)	2 Green= Not Attached (ii)
4. Hair (C, c)	2 Orange= Curly (CC)	Orange/Yellow= Wavy (Cc)	2 Yellow= Straight (cc)
Type Combination	Homozygous Dominant	Heterozygous	Homozygous Recessive
<b>The Darker Colored Skittle in every pair or alleles is the Dominant Allele for the Trait</b>			

**Student Review:** 1-Below Standard, 2-Approaching Standard, 3-Standard, 4-Above Standard  
Use the scale to evaluate completeness & correctness of the job. Put score, Initial & date in boxes.

Score

Initial/Date

**Analysis Questions** Please answer in complete, quality, correct sentences **using data from the Lab.**

1. Were any of your four children exactly alike (this is a **Genotype** question). If so, tell which ones. If not, tell which two were most similar in the four characteristics. USE DATA

2. Tell which of your children most closely looks like (**Phenotype**) their **mother** considering the four genetic characteristics used. Explain which characteristics look the same. USE DATA

3. Tell which of your children most closely looks like (**Phenotype**) their **father** considering these four genetic characteristics. Explain which characteristics look the same. USE DATA

4. **EC/Challenge:** Tell which of your children most closely resembles (Phenotype) **Grandmother 2** in these four genetic characteristics. Explain which characteristics look the same. USE DATA

5. **EC/Challenge:** If one of your parents gives a dominant allele for **each** mating, and the other gives a recessive allele, what is the chance that each child will show the recessive phenotype for that gene? USE DATA

6. **EC/Challenge:** Draw a complete Punnet square for this problem.

A mother is homozygous recessive for straight hair (cc) and the father is heterozygous for wavy hair (Cc), what is the percent chance that the children will have:

	Number	Percentage
Curly hair (CC)	_____	_____
Wavy hair (Cc)	_____	_____
Straight hair (cc)	_____	_____
Phenotype Ratio	_____	_____