

NAME: \_\_\_\_\_ PERIOD: \_\_\_\_\_

# Offspring Traits

<b>Objective 1: Distinguish between inherited and traits</b>			
<b>Objective 2: Predict why certain traits (e.g. structure of teeth, body structure, coloration) are more likely to offer an advantage for survival of an organism.</b>			
<b>Objective 3: Provide examples of traits that provide an advantage for survival in one environment but not other environments</b>			
<b>Objective 4: Cite examples of changes in genetic traits due to natural and manmade influences (e.g. mimicry in insects, plant hybridization to develop a specific trait, breeding of dairy cows to produce more milk.)</b>			
<b>Objective 5: Relate the structure of organs to an organism's ability to survive in a specific environment (e.g. hollow bird bones allow them to fly in air, hollow structure of hair insulated animals from hot or cold, dense root structure allows plants to grow in compact soil, fish fins aid fish in moving in water)</b>			
Assignment	Objective	Points Possible	Points Earned
#1 Acquired vs. Inherited Discussion	Obj.1	5	
#2 Adaptations Powerpoint	Obj.2, 4	5	
#3 Beak Adaptation Lab	Obj.2, 3, 5	10	
#4 GMO's	Obj.4	10	
#5 Adaptations of Living Organisms	Obj.1, 2, 3	20	
Total		50	

**1. Acquired vs. Inherited Reading & Discussion** *Read – pg 90-92*

1. *Before completing the reading, write inherited or acquired underneath the “Before reading” column.*

2. *After reading, go back through the list and write “inherited” or “acquired” in the “After reading” column. This will show how your understanding has changed.*

<u>Trait</u>	<u>Before reading</u>	<u>After Reading</u>
Height		
Strong muscles		
Dark hair		
Freckles		
Ability to read		
Riding a bicycle		
Hazel eyes		
Hardworker		
Good dancer		
Musical ability		
Bushy eyebrows		

Define Trait:

Define Acquired characteristic:

Define Inherited characteristic:

### Acquired and Inherited -

In all of Mendel's experiments, the **structural traits** he observed in the plants were inherited from the parent plants, like color. These **structural traits** are called inherited traits. Some traits are learned, like playing the piano, and are called acquired traits. These are not inherited from parents. The chart below lists some inherited and acquired traits. Fill in the rest with your own examples.

ACQUIRED	INHERITED
Good at basketball	Eye color
Artistic ability	Hair Color
Good at Math	Height

**Inventory of My Traits-** How similar are you to others in your group? Complete this inventory and compare with the inventories of the people in your table group.

1. I have a widow's peak	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. I have detached earlobes	<input type="checkbox"/> Yes	<input type="checkbox"/> No
3. I have hitchhiker's thumb	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4. I can roll my tongue	<input type="checkbox"/> Yes	<input type="checkbox"/> No
5. I have dimples	<input type="checkbox"/> Yes	<input type="checkbox"/> No
6. I am right-handed	<input type="checkbox"/> Yes	<input type="checkbox"/> No
7. I have freckles	<input type="checkbox"/> Yes	<input type="checkbox"/> No
8. I have naturally curly hair	<input type="checkbox"/> Yes	<input type="checkbox"/> No
9. I have a cleft chin	<input type="checkbox"/> Yes	<input type="checkbox"/> No
10. I have allergies	<input type="checkbox"/> Yes	<input type="checkbox"/> No

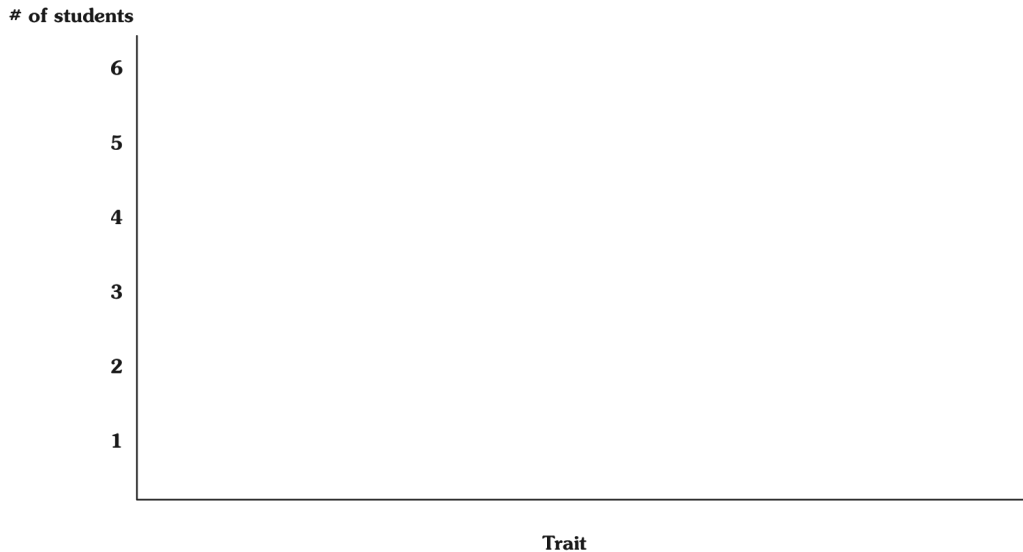
### Inventory of My Traits -Data Table

Once you and your group have compared your traits, fill in the data table below by counting the number of people who marked “yes” and the number people who marked “no” for each trait. Write these numbers in the spaces provided.

Traits	Yes (#)	No (#)
Widow’s Peak		
Detached earlobes		
Hitchiker’s thumb		
Tongue Rolling		
Dimples		
Right-handed		
Freckles		
Naturally curly hair		
Cleft chin		
Allergies		

### An Inventory of My Traits - Graph

Make a bar graph showing how many people in your group answered “yes” for each trait. Be sure to label each trait under the bar you draw for it.



## 2. Adaptations PPT *(Related reading pages 98-113)*

1. Who is Charles Darwin? What did he discover?

2. What are the 3 conditions that must be met for Natural Selection to occur?

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- 
- 

3. What is an adaptation?

- An \_\_\_\_\_ or \_\_\_\_\_ in the \_\_\_\_\_ or \_\_\_\_\_ of an organism that makes it more suited to its environment.

4. Two Types of Adaptations:

1. \_\_\_\_\_: physical features of an organism that helps them to survive.

- Camouflage
- Mimicry- \_\_\_\_\_  
\_\_\_\_\_
- Chemical Defense
- Other examples of structural adaptations: \_\_\_\_\_  
\_\_\_\_\_

2. Behavioral Adaptations: \_\_\_\_\_  
\_\_\_\_\_

- Examples: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. What is artificial selection? Give an example of artificial selection.

### 3. Beak Adaptation Lab

Welcome to the 'Galapagos Islands'. You are one of many species of highly colorful and diverse birds. Your species has evolved to eat very specific food types. Because of this your species has different structural adaptations (such as your beak, which is very specialized). In this lab you will be able to observe first hand what it means to adapt, the pitfalls of being food specific, and what the perils of competition are. One word of caution – the 'beaks' are tools – NOT WEAPONS. Have fun!

Pre-lab questions:

1. What utensil have you been given to represent your "beak"? \_\_\_\_\_
2. What type of food do you assume will be easy for you to eat according to beak type? (look on the board for food types) \_\_\_\_\_
3. Will your beak allow you to eat quickly or force you to eat slowly? \_\_\_\_\_
4. If you must compete with your own 'species' for limited food supplies, will your beak help you compete or hurt you? \_\_\_\_\_
5. What will help or hurt you in this competition? \_\_\_\_\_

*Trial 1:* You and one other person each have an empty cup in front of you (this represents your stomach). You are different "species" of birds. Between you is a full plate of various foods (this represents the food available in the environment). WITH YOUR BEAK pick up as much food as possible from the full plate and put it on your own plate. Each piece of food must be moved individually. You may NOT pick up the full plate with your hands, or scoop food over to yours or pick up any piece you drop on the table. You have 2 minutes from the word GO!

- Write down how many pieces of any kind of food you picked up:
- Write down how many pieces of food you picked up that you think were made for your beak style:
- Did you and the other 'bird' compete for the same foods?
- You must pick up at least 20 pieces of food to survive and 30 to reproduce
  - Did you survive? \_\_\_\_\_
  - Did you pick up enough food to be able to reproduce \_\_\_\_\_

*Trial 2:* Instructions are the same as for trial 1 except this time you must only pick up the kind of food specified by your teacher. (4 food types as written on board). For this and each additional trial, picking up any other type of food represents a toxin in the environment and will cost you 2 points each. You have 2 minutes from the word GO!

- Write down how many pieces of any kind of food you picked up:
- Write down how many pieces of food you picked up that were made for your beak style:
- Did you and the other 'bird' compete for the same foods?
- You must pick up at least 20 pieces of food to survive and 30 to reproduce. (For each piece of food in your dish that is NOT specific to you subtract two)
  - Did you survive? \_\_\_\_\_
  - Did you pick up enough food to be able to reproduce \_\_\_\_\_

*Trial 3:* Instructions are the same as for trial 1 except this time you must only pick up the kind of food specified by your teacher (Two food types as written on board). You have 2 minutes from the word GO!

- Write down how many pieces of any kind of food you picked up here:
- Write down how many pieces of food you picked up that were made for your beak style
- You must pick up at least 20 pieces of food to survive and 30 to reproduce. (For each piece of food in your dish that is NOT specific to you subtract two)
  - Did you survive? \_\_\_\_\_
  - Did you pick up enough food to be able to reproduce? \_\_\_\_\_

*Trial 4:* Instructions are the same as for trial 1 except this time you and three other people each have an empty cup in front of you. This time two birds from a neighboring habitat have joined you in the race for survival. You are all the same “species” of birds. This time you must only pick up only the kind of food specified by your teacher (ONE type as written on board). You have 2 minutes from the word GO!

- Write down how many pieces of any kind of food you picked up:
- Write down how many pieces of food you picked up that were made for your beak style
- Did you and the others ‘bird’ compete for the same foods?
  - You must pick up at least 20 pieces of food to survive and 30 to reproduce. Did you survive? \_\_\_\_\_
  - Did you pick up enough food to be able to reproduce? \_\_\_\_\_
- How did your ‘beak’ help you survive?
- Did competition for the same food lessen your chances to reproduce?



## **4. Genetically Modified Organisms: Good or Bad?**

Should we keep GMOs in the food supply and/or should they be labeled on foods that contain them?

Your job is to write 2 persuasive paragraphs, showing both sides. We have watched a few videos, but you are welcome to research on your own. You will write a pro (yes) and a con (no) paragraph with supporting evidence. Then, share the opinions of your family members.

Part 1: Pro

Part 2: Con

Part 3: Family Opinion (list at least two family members and their opinion)

1.

2.

## 5. Adaptations of Living Organisms *Related reading- text pages 100-113*

Choose a plant or an animal. You and your partner must include all of the information below on the next page.

Requirements	Points Possible	Points Earned
<b>Habitat-</b> List habitat information, such as average temperature, rainfall, other associated organisms.	3	
<b>Structural Adaptations-</b> List 3 adaptations and how they work. DO NOT just stick to the obvious – go deep.	3	
<b>Behavioral Adaptations-</b> List 3 adaptations and how they work. DO NOT just stick to the obvious – go deep.	3	
<b>Inherited Traits-</b> List 3 inherited traits . DO NOT just stick to the obvious – go deep.	3	
<b>Acquired Traits-</b> List 3 acquired traits . DO NOT just stick to the obvious – go deep.	3	
<b>Survival-</b> Explain how your organism survives in its environment, competing against other organisms.	3	
<b>Completion and Neatness</b>	2	
<b>Total</b>	20	

### **Suggested Organism list: (but not limited to)**

Hedgehog, Koala, Pacific Walrus, Red Panda, Canadian Lynx, Bristlecone Pine Tree, Rose Bush, The Pitcher Plant, Eagle, Gray Whale, Moose, Beaver, Opossum, Mosquito.

### **Research:**

Organism: \_\_\_\_\_

Habitat: \_\_\_\_\_

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

Structural Adapations: \_\_\_\_\_

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

Behavioral Adapations: \_\_\_\_\_

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

Inherited Traits: \_\_\_\_\_

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

Acquired Traits: \_\_\_\_\_

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

Survival: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_