

Name: _____

Artificially Selecting Dogs

OVERVIEW

1. You will learn how artificial selection can be used to develop new dog breeds with characteristics that make the dog capable of performing a desirable task.
2. You will begin by examining canine features and their functions.
3. Then, you will be given a scenario that describes the type of task you need a new breed of dog to perform.
4. Next, you will select two existing breeds you feel will most likely produce a successful new breed and determine the resulting offspring's characteristics.

Procedure

1. You will be trying to artificially select a new dog with certain traits by crossing two existing breeds. Take out your "Ownership Card", put you and your partner's name on the card and follow the directions given in Part I.
2. Next, take out your "Dog Breeds" handout and review the descriptions given for each breed. Discuss this information with your partner and select two dogs that have the features most likely to produce a breed with the features you need. In Part II, write in the breed names and reasons for your selections.
3. Now, choose which dog will be the mother and which will be the father. Your breeding pair will produce 3 puppies, and each puppy will have a chance of inheriting traits from either the mother or father.
4. You will play "Rock, Paper, Scissors" to determine which trait is inherited by your puppy. One partner will be the mother, and the other will be the father. Keep track using the "Puppy Traits – Generation 1" worksheet provided.
 - a. Partner 1 wins = females (mother's) trait is inherited
 - b. Partner 2 wins = males (father's) trait is inherited
5. Repeat step 4 for the second puppy and again for the third puppy.
6. Now, pick the puppy you feel would get you closest to your goal. Explain in detail why this puppy is the best overall choice.

Ownership Card

Breeders' names: _____

Assignment: "You are a dog breeder. You have been contacted by a scientist who wants dogs that could be used to see and retrieve waterfowl (ducks and geese) from lakes in the area, so the birds can be tagged and re-released. The birds are very skittish (scare easily) and must be retrieved unharmed and with a minimum amount of stress."

Part I: Desired features of the new breed

For each feature below, circle the desired form you ideally want your dogs to have. Be thoughtful! For features that you do not think will affect your breed's ability to perform the given task, circle "any."

Physical features

Desired form

Smell:	above average	average	below average	any
Sight:	above average	average	below average	any
Hearing:	above average	average	below average	any
Speed:	above average	average	below average	any
Endurance:	above average	average	below average	any
Strength:	above average	average	below average	any
Coat color:	very dark	average	very light	any
Hair length:	long	average	short	any

Behavioral features

Trainability:	high	average	low	any
Disposition:	vicious	compatible	meek	any
Bark:	very loud	average	very quiet	any

Part II: Dog breeds chosen to mate: _____X _____(Generation 1)

Explain the reasons why you chose these two parents. Be specific!:

Puppy Traits - Generation #1

Physical features	Puppy #1	Puppy #2	Puppy #3
Smell:			
Sight:			
Hearing:			
Speed:			
Endurance:			
Strength:			
Coat color:			
Hair length:			
Behavioral features			
Trainability:			
Disposition:			
Bark:			

Puppy best suited to the task required: _____

Give the reasonings that you chose this final puppy. Be specific!:

Grading Rubric: Artificially Selecting Dogs Activity

Criteria	4 - Excellent	3 - Good	2 - Satisfactory	1 - Limited	0 - Not Evident
Part I: Desired features selected	All traits are selected thoughtfully and correctly based on the task; choices show a strong understanding of which traits matter and why.	Most traits are selected thoughtfully; minor errors or omissions.	Some traits are appropriate, but several choices are weak, unclear, or not fully connected to the task.	Few traits are appropriate; selections show limited understanding of the task.	No meaningful completion.
Part II: Parent breed choices	Two breeds are chosen <u>logically</u> and reasons are detailed, specific, and strongly connected to the desired traits.	Two breeds are chosen logically; reasons are clear but may lack some detail.	Breeds are somewhat appropriate, but reasons are general or only partly connected to the traits.	Breeds are poorly matched to the task; reasons are weak or unclear.	No meaningful completion.
Part III: Puppy trait tracking	All three puppies are completed accurately and neatly; traits are recorded for every category with very few or no errors.	Most traits are completed accurately; a few minor errors or missing items.	Some traits are recorded, but there are noticeable errors or omissions.	Many traits are missing or inaccurate; work is difficult to follow.	No meaningful completion.
Part IV: Best puppy choice and justification	Final puppy choice is clearly <u>identified</u> and justification is detailed, specific, and strongly supported by the recorded traits and task goal.	Final choice is clear and supported with good reasoning.	Final choice is identified, but the explanation is general or only partly supported.	Final choice is unclear or poorly supported.	No meaningful completion.
Completion, effort, and organization	Work is complete, neat, and easy to follow; shows excellent effort and care.	Work is mostly complete and organized; effort is evident.	Work is somewhat complete and somewhat organized.	Work is incomplete or poorly organized.	No meaningful completion.

Dog Breeds



Breed A
Tally Collie

Breed B
Floxich

Breed C
Gootagan

Breed D
Spalling

Breed E
Cruxtic

Breed F
Horvisianer

Physical features

Smell:	above average	average	above average	below average	average	above average
Sight:	average	average	average	above average	average	above average
Hearing:	above average	average	average	above average	above average	average
Speed:	average	above average	above average	above average	below average	average
Endurance:	below average	average	above average	average	above average	below average
Strength:	above average	above average	average	below average	average	below average
Coat color:	black	brown	white	white	brown	black
Hair length:	long	medium	long	short	medium	long

Behavioral features

Trainability:	average	average	high	high	low	high
Disposition:	meek	meek	vicious	meek	compatible	vicious
Bark:	average	very loud	average	very quiet	very loud	average