

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.

Materials

- "Dog Packet" - includes: Dog Breeds handout, Ownership Card, Puppy Traits - generations 1 & 2.
- Blank Paper for drawing.
- 1 penny

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 use a penny to determine which trait is inherited by your puppy. Keep track using the "Puppy Traits – Generation 1" worksheet provided.
 - a. Heads = females (mother's) trait is inherited
 - b. Tails = males (father's) trait is inherited
5. Repeat step 4 again for the second puppy and again for the third puppy.
6. Now, pick the puppy you feel would get you closest to your goal. Identify this puppy below.

Puppy #: _____
7. After making your puppy selection, visit with a neighboring group, collect "trait" information for a puppy from that group you feel would most likely get you closer to your goal. Record these on the "Puppy Traits – Generation 2" handout.
8. Next, repeat steps 3, 4, and 5, except now use Puppy Traits – Generation 2 to record your data.
9. Pick the puppy from this second generation which you feel will provide a dog that can perform the assigned task.
Draw this puppy on your blank sheet of paper and label the significant features of this animal.

Ownership Card

Breeders' names: _____

Date: _____

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. 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)

Reason:

Part III: Dog breeds chosen to mate: _____ X Neighbor's Puppy (Generation 2)

Reason:

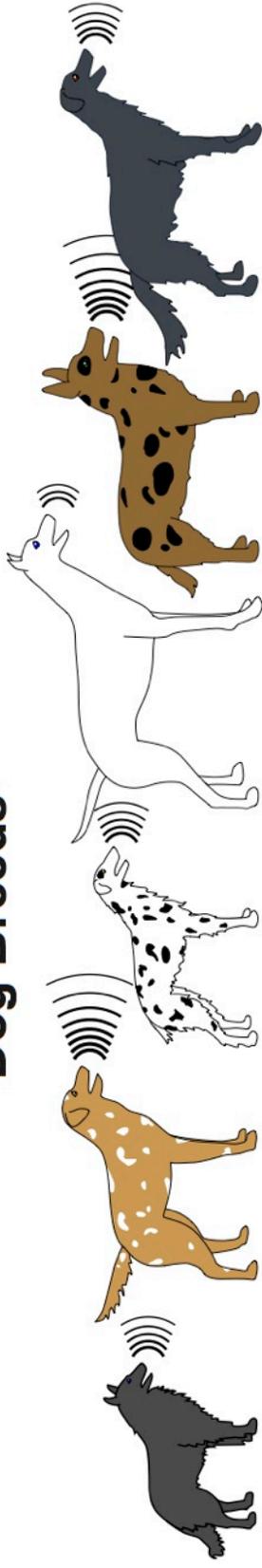
Puppy Traits - Generation # 1

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

Puppy Traits - Generation #2

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

Dog Breeds



Breed A
Tally Collie

Breed B
Floxich

Breed C
Gootagan

Breed D
Spalling

Breed E
Cruxtic

Breed F
Horvisianer

Physical features	Breed A	Breed B	Breed C	Breed D	Breed E	Breed F
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