

Lesson 2B: “How Did People Developed Breeds of Dogs?”

Overview:

Purpose:

The purpose of this activity is to describe how and why different dog breeds were developed and propose and critique hypothesis about how and why wild wolves might have been selectively bred to help early human settlements.

Performance Expectation

- Obtain and communicate information from text and verbal presentations about the physical and behavior traits, health issues, and breeding history for dog breeds and possible trait variations that would have been selected for in wild wolves to help early human settlements.

Scientific Principles (re)Discovered in this Activity

- ▲ Humans have dramatically influenced the physical and behavioral traits of organisms (such as dogs, cats, horses, cattle, and plants) and their gene pools of populations by selective breeding them over many generations.

Description of the Lesson

Students choose a case study of a dog breed to learn more about the breeding history of this type of dog and its physical and behavioral traits. They work in teams to develop a list of trait variations in wild wolves that people might have noticed and found useful in early human settlements. And they describe how selective breeding might have removed some traits that would help dogs compete against wild wolves in natural ecosystems.

In the reading students learn more about domestication of animals and the results of an experiment to attempt to domesticate foxes. They develop a hypothesis about why house cats might have been first domesticated from wild cats through selective breeding.

Lesson Details:

Time 60 min.

Materials

Per Student

- 1 Individual copy of Case Study 1 student activity sheet PDFs found on the teacher dashboard page or in the zip file for Case Study Introduction handout and printouts
- Highlighter
- An individual copy of Reading 2.2 – Domestication (to be assigned for completion outside of class)

One copy of each of these for every 4 Students

- Data packets: 1A, 1B, 2C, 2D, 3E, and 3F PDFs also found on the teacher dashboard page or in the zip file for Case Study Introduction handout and printouts

For Teacher

- The Case Study Board
- The Driving Question Board

Lesson Outline and Timing*Launch*

- Review the reading and review the Case Study Board (5 min.)

Explore

- Assigning group members to a different case study and each member reads and summarizes their findings (10-15 min.)
- Teams construct two to three hypotheses (20-25 min.)

Summarize

- Teams share out parts of their explanations with the class (15 min.)

Lesson Enactment Detail***Launch:***

Review the Case Study Board, pointing out the 9 animals they looked at the first day. Ask students which of these were dogs. Ask students what in the reading helped them figure out more about “Why These Creatures Look The Way They Do?” Did we figure out why dogs look the way they do? Some students may say no, but others may suggest ideas related to alleles, and traits, and selective breeding.

If time permits, ask students to brainstorm some ideas about today’s lesson question, “How Did People Develop Breeds Of Dogs?”

Tell students that they are going to try to explain why dogs look the way they do by learning more about the history of selective breeding of some breeds of dogs, and develop a hypothesis for why dogs were first domesticated from wild wolves.

Explore:

Pass out a copy of In-class Case Study 1 Student Activity Sheet to each student in teams of 3 to 5 people.

Read through directions 1-4 on page 1 with students, Have each team to have each member in the group pick one of the 6 dog breeds to further research on (1A, 1B, 2A, 2B, 3A, 3B) and fill in their choices with their team on page 1. Once assigned student should come up to pick up their corresponding data packet.

After working independently on their research and recording their ideas on page 2 of the activity sheets have teams regroup and brainstorm some ideas for the last three pages together. If time is short, you can ask groups to pick only one of the three hypotheses to focus on.

Remind students fill in only the lined section of the last three pages, and save the box below on each page for note taking during representations.

After all groups have completed at least one hypothesis together, have the groups decide which ideas they want to share with the class (if they answered more than one hypothesis): hypothesis #1, #2, or #3.

Summarize:

Pick a student from each group to share which question they answered and their group hypothesis. Remind other students to ask questions, and link in ideas of their own or of other students. Tell them they can keep track of ideas they hear in the box below each hypothesis (#1, #2, #2), but remind them that the reason they are writing notes is so that they can link together each other’s ideas, critique and revise ideas, and link in any evidence that they think is relevant from their case study research or computer activities.

Homework to Assign:

Tell students that they will read about other types of animals that have domesticated tonight and develop some ideas for selective breeding programs they think would be useful or interesting to conduct. Assign Reading 2.2- Domestication.. It is available on the teacher resource page for the unit. Simply click on the blue link for each activity under the student assignments section to download the pdf of the homework or case study.

ModelSim Evolution Unit -- Teacher Page

TEACHER: MichaelNovak
PERIOD: 4073

HUBNet Instances: hubnet/Evolution3_8-8uqHuntersCamouflage.rlogo.

| In-class Activity | In-class Steps or handout | Estimated Time | Out of class assignment based on this activity |
|---|---|---|--|
| 1: Introduction to the Case Studies Board | Case Study Board Introduction | Option 1: 40-60 min. Option 2: 10-15 min. | Reading 1.1 – Interactions In Ecosystems |
| 2: Selective Breeding | 2.1 to 2.8 Case Study #1 | 60 min. | Reading 2.1 – Selective Breeding Complete Case Study #1 |
| 3: Natural Selection: Predation | Case Study #1 3.1 to 3.7 | 60 min. 1st part of lesson is not on the computer, the 2nd part is. | Reading 3.1 – Natural Selection |
| 4: Natural Selection: Food & Metabolism | 4.1 to 4.9 | 60 min. | |
| 5: Genetic Drift and Case Study #2 | 5.1 to 5.13 Case Study #2 <small>(printed in color for each student)</small> | 120 min. 1st part of lesson is on the computer, the 2nd part is not. | Reading 5.1 – Random Events Reading 5.2 – Genetic Drift Population Size |
| 6: Adaptation Explorations | 6.1 to 6.10 | 60 min. | Reading 6.1 – Adaptation and Survival |
| 7: Adaptation Experimentation | 7.1 to 7.11 | 60 min. | Take of digital photo of an environment and send it to web based email to access tomorrow at school Reading 7.1 – Adaptation for Sexual Selection |
| 8: Speciation | 8.1 to 8.13 | 60 min. | Reading 8.1 – Speciation Reading 8.2 – Adaptive Radiation |
| Final Case Study | Case Study #3 | | To be completed in class or out of class |