The Training Game

Career Day

Grade Level

Grades 5-8

Engage

This activity is designed to start your students in recognizing themselves as scientists and thinking critically about problem-solving. The goal is to teach concepts through discovery and to encourage using scientific thought processes. As with all lessons provided, please feel free to adapt them according to your students' abilities. You may find it more successful to lead activities and discussions as a whole group rather than using individual Research Plan sheets. Certain scientific vocabulary may or may not be appropriate for your students' level of understanding. Take these ideas, make them your own and your students will have a greater chance at success.

How has animal care in zoos improved by including behavioral training into a keeper's duties?

Explore

1. Begin this lesson by explaining to students that they are going to explore how changes to animal keeper duties over the past several decades has improved the quality of animal care provided in zoos.
2. Brainstorm and record ideas to the above question. If your students are familiar with brainstorming and recording their ideas, break them into small groups. If your students need more guidance, work with them as a large group. Engage your students in a discussion of what they predict the answer to this question to be. More importantly, why do they think this?
3. If students are struggling to come up with ideas, prompt the discussion with questions such as: What would a zoo need to train a large animal, such as an elephant or rhino, to do? Why might it be beneficial to the animal to have it trained to do something important?

Explain

4. Explain to the students that they can research this question using the resources on the Zoo's Online Resource Library at http://resourcelibrary.clemetzoo.com/. Students can find information

regarding animal training, animal behavior, and animal careers that will give them more detail in answering the question.

Expand

5. Ask students to reflect on what they have learned and review their ideas of how to get the information they would need to answer the original research question. What are the steps in training an animal or person to do a task? Why might we need to train an animal to do something?
6. Explain to the group that you have an activity that might give them some additional insight into the complexities of behavioral training at a zoo.
7. Use the below instructions for The Training Game activity.
    a. Pick one student to be the "trainer" and 1-2 students to be the "animals."
    b. Have the "trainer" write down a behavior (example: jump up, jumping jack, turn around, sit, lay down, pick up an object, etc) that they will train the "animals" to do. Keep it a natural human behavior. The behavior should be shared with the teacher, but not anyone else.
    c. Remind the "trainer" and the "animals" that they do not speak the same language, so there should be no talking during the training session.
    d. Explain to all students that the methods used here involve positive reinforcement training. This is the process of following an action with something that the "animal" wants (use M&Ms or Skittles for this game), thereby causing an increase in the frequency of the behavior.
    e. Have one student observer use a stopwatch to measure the time it takes to train the full behavior.
    f. If the "animals" are having trouble learning the behavior, explain to the "trainer" that they can use approximations, or small steps that will build towards the final behavior, to let the "animals" know they are getting close to the desired behavior. These approximations can be rewarded to guide the "animals" towards the desired end result.
    g. How much time did it take the "animal" to learn the behavior? Try another behavior with another "trainer" and group of "animals".
    h. Repeat procedure one to two more times. What behavior was the quickest to teach? Which one the longest? (Have your students use math and graphing to answer these questions.)
8. Have students refer back to their notes on what a zoo might need to train a large animal to do. Have individuals or groups of students create a step by step guide for that task. How are the steps to training an animal to do something different from the steps for a person? Can you train any kind of animal to do anything? What restrictions might there be depending on the task and type of animal?

Assess

9. Monitor your students as they continue to research and develop their method for communicating their result. Make sure to help them continue their discussion on training techniques. Have your students share their results with the rest of the class. Allow time for student critique and comments.
10. Was the outcome the same as what they had predicted? Is it beneficial to the animal if they are trained to do a task?
11. If the students are working in small groups, observe their work and review what they are writing on the Research Plan. If working as a whole group, fill in the Research Plan together.

Standards

Next Generation Science Standards
Engineering Design MS-ETS1-2 Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

The Training Game

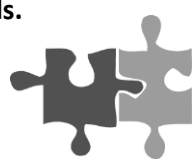
Supplemental Materials

My Research Plan

1. Questioning
State the problem.
Make a hypothesis.

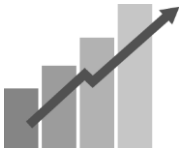
2. Planning
Make a plan by asking these questions (think, talk, write)

3. Implementing
Gather the materials.
Follow the procedures.
Observe and record the results.



4. Concluding
Draw a conclusion.

5. Reporting
Share my results (informal)
Produce a report (formal)



How has animal care in zoos improved by including behavioral training into a keeper's duties?