

Good Health is not a FLuke



Objective

Given a husbandry procedure, students will detail shaping steps for teaching the necessary trained behavior.

Materials

- Paper
- Pencils

Background

Routine physical examinations and laboratory tests may help detect illnesses in marine animals. Examinations may require samples of urine, feces, mucus, or blood. For example, tests run on blood samples can tell if the animal is fighting an infection (high white blood cell count). Blood samples from killer whales are routinely taken from the blood vessels on the underside of the tail flukes. Trainers have shaped whale behaviors to include a fluke presentation; that is, the whale rolls onto its back and places its flukes on the stage area. Veterinarians then take a sample. To train an animal it often is helpful to lead the animal through a behavior in small steps. SeaWorld trainers use their hands as focal points. When a behavior takes place farther away, a tool called a target is used as an extension of the hand. A target directs an animal toward a position or direction. How is an animal trained to follow a target? Trainers touch the target gently to the animal and reinforce the animal. This is repeated several times. Next the target is positioned a few inches from the animal. Trainers wait for the animal to touch the target. The animal has learned that when it touches the target, it gets reinforced, so it moves toward the target and touches it. Eventually the animal follows the target.

Action

1. Discuss the behaviors of killer whales. Use page 2 to discuss animal training with students. What tools do trainers commonly use? How do they “tell” a killer whale that a behavior was done correctly?
2. Have students form pairs or small groups. Students will detail the steps necessary to train a killer whale to present its tail flukes and allow a veterinarian to draw a blood sample. What training tools would they use? Would trainers need to link a series of behaviors? How would a trainer “tell” a killer whale to stay still?
3. After adequate time, ask student groups to present results. Does each group link the same behaviors? Does each group use the same reinforcers? Discuss differences.



Background

Marine mammals learn through operant conditioning.

Operant conditioning is a type of learning in which behaviors are altered by the consequences that follow them. When an animal performs a particular behavior and the consequences of that behavior are in some way reinforcing to that animal, the animal is likely to repeat that behavior. A reinforcer lets the animal know when it has performed the desired behavior and encourages the animal to repeat desired behaviors. Animal training at SeaWorld is based on reinforcing desired behaviors with a variety of rewards.

How do SeaWorld trainers reinforce the animals?

A reinforcer can be anything that the animal may perceive as favorable. A back scratch, a toy, a fish, or a favorite activity are all examples of reinforcers.

Learning occurs in steps.

Most complex behaviors cannot be learned all at once, but develop in steps. This step-by-step learning process is called shaping. When children learn to ride a bicycle, most begin on a tricycle, go on to ride a two-wheeler with training wheels, and eventually master a larger bicycle, maybe even one with multiple speeds. Each step toward the final goal of riding a bicycle is reinforcing. The animals learn complex behaviors through shaping. Each step in the learning process is called an approximation. An animal may be reinforced for each successive approximation toward the final goal of the desired trained behavior.

Signals communicate desired behavior.

In a show, the trainer may request many different behaviors of an animal. The animal is trained to differentiate, or discriminate, among the situations. How does an animal know when to do a particular behavior? Through pairing a visual, auditory, or tactile signal with behavior the animal has already learned. The signal is paired with the stimulus that originally elicits the response.

What about unwanted behavior?

What happens if an animal does not respond, or responds with undesired behavior after a trainer's request? At SeaWorld, incorrect behavior is followed by the Least Reinforcing Scenario (LRS). The LRS has two parts. The first part is a consequence for incorrect behavior. This occurs when the trainer does not reinforce the animals for the incorrect behavior. The second part is a stimulus providing an opportunity for reward: for two to three seconds the trainer is relaxed and attempts no change in the environment. This brief time period is a stimulus to the animal to remain calm and attentive. Following an LRS, the animal is reinforced for calm, attentive behavior. The animal may also receive an opportunity to perform another behavior that will result in reinforcement.