

ANIMAL TRAINING
AT SEAWORLD & BUSCH GARDENS
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INTRODUCTION TO ANIMAL BEHAVIOR

A. Definition of behavior.

1. *Behavior* is anything an animal does involving action and/or a response to a stimulus. Blinking, eating, walking, flying, vocalizing and huddling are all examples of behaviors.
2. Animals behave in certain ways for four basic reasons:
 - to find food and water
 - to interact in social groups
 - to avoid predators
 - to reproduce
3. Animal behaviors usually are adaptations for survival. Some behaviors, such as eating, or escaping predators are obvious survival strategies. But other behaviors, which also are important for survival, may not be as easily understood. For example why does a flamingo stand on one leg? By tucking the other leg close to its body, the bird conserves heat that would otherwise escape.
4. *Ethology* is the scientific study of an animal's behavior in the wild. It is easier to observe and record behavior than to interpret it. When studying animal behavior, observers must take care not to be *anthropomorphic* – that is, to mistakenly connect humanlike characteristics to animals. Although humans and animals share some traits, we have no way of knowing for sure why an animal is doing something.

B. Animal intelligence.

1. How intelligent are animals? Animals often are thought of as intelligent if they can be trained to do certain behaviors. But animals do amazing things in their own habitats. For example, certain octopuses demonstrate complex problem--solving skills. Compared to other invertebrates, octopuses may be quite intelligent. Chimpanzees (*Pan troglodytes*) are considered to be the most intelligent of the apes because of their ability to identify and construct tools for foraging.
2. Accurately rating the intelligence of animals is difficult. Trying to measure animal intelligence using human guidelines would be inappropriate. In fact, a reliable and consistent intelligence test for humans has yet to be developed.

LEARNING

A. Definition of Learning.

1. While some animal behaviors are inborn, many are learned from experience. Scientists define *learning* as a relatively permanent change in behavior as the result of experience. For the most part, learning occurs gradually and in steps.
2. An animal's genetic makeup and body structure determine what kinds of behavior are possible for it to learn. An animal can learn to do only what it is physically capable of doing. A dolphin cannot learn to ride a bicycle, because it has no legs to work the pedals, and no fingers to grasp the handle bars.

B. Classical conditioning.

1. One of the simplest types of learning is called *classical conditioning*. Classical conditioning is based on a *stimulus* (a change in the environment) producing a *response* from the animal.
2. Over time, a response to a stimulus may be *conditioned*. (Conditioning is another word for learning.) By pairing a new stimulus with a familiar one, an animal can be conditioned to respond to the new stimulus. The conditioned response is typically a reflex—a behavior that requires no thought.
3. One of the best known examples of classical conditioning may be Pavlov's experiments on domestic dogs. Russian behaviorist Ivan Pavlov noticed that the smell of meat made his dogs drool. He began to ring a bell just before introducing the meat. After repeating this several times, Pavlov rang the bell without introducing the meat. The dogs drooled when they heard the bell. Over time, they came to associate the sound of the bell with the smell of food. The bell became the stimulus that caused the drooling response.

C. Operant conditioning.

1. Like classical conditioning, *operant conditioning* involves a stimulus and a response. But unlike classical conditioning, in operant conditioning the response is a behavior that requires thought and an action. The response is also followed by a consequence known as a *reinforcer*.
2. In operant conditioning, an animal's behavior is conditioned by the consequences that follow. That is, a behavior will happen either more or less often, depending on its results. When an animal performs a particular behavior that produces a favorable result, the animal is likely to repeat the behavior. So, in operant conditioning, an animal is *conditioned* as it *operates* on the environment.
3. Animals learn by the principles of operant conditioning every day. For example, woodpeckers find insects to eat by pecking holes in trees with their beaks. One day, a woodpecker finds a particular tree that offers an especially abundant supply of the bird's favorite bugs. The woodpecker is likely to return to that tree again and again.

4. Humans learn by the same principles. We learn that when we push the power button on the remote control, the television comes on. When we put coins into a vending machine, a snack comes out.
 5. Animal trainers apply the principles of operant conditioning. When an animal performs a behavior that the trainer wants, the trainer administers a favorable consequence.
- D. Positive reinforcement.
1. A favorable consequence is a positive stimulus – something desirable to the animal. When an animal performs a behavior that produces a positive result, the animal is likely to repeat that behavior in the near future.
 2. The positive result is termed a *positive reinforcer* because it reinforces, or strengthens the behavior. When a positive reinforcer immediately follows a behavior, it increases the likelihood that the behavior will be repeated. It must immediately follow the behavior in order to be effective.
- E. Stimulus discrimination.
1. As an animal learns behaviors, it also learns the various situations to which they apply. The more behaviors an animal learns, the more it must learn to make distinctions – that is to discriminate – among the situations.
 2. *Discrimination* is the tendency for learned behavior to occur in one situation, but not in others. Animals learn which behavior to use for each different stimulus.
- F. Shaping of behavior.
1. Most behaviors cannot be learned all at once, but develop in steps. This step-by-step learning process is called *shaping*.
 2. Many human behaviors are learned through shaping. For example, most begin by riding a tricycle. The child graduates to a two-wheeler bicycle with training wheels, and eventually masters a much larger bicycle, perhaps one with multiple speeds. Each step towards the final goal of riding a bicycle is reinforcing.
 3. 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.
- G. Extinction of behavior.
1. If a behavior is not reinforced, it decreases. Eventually it is extinguished altogether. This is called *extinction*. Animal trainers use the technique of extinction to eliminate undesired behaviors. (In animal training, when a trainer requests a particular behavior and the animal gives no response, this is also considered an undesired behavior.) To eliminate the behavior, they simply do not reinforce it. Over time, the animal learns that a particular behavior is not producing a desired effect. The animal discontinues the behavior.

2. When using the extinction technique, it is important to identify what stimuli are reinforcing for an animal. The trainer must be careful not to present a positive reinforcer after an undesirable behavior. The best way to avoid reinforcing an undesired behavior is to try to give no stimulus at all.

H. Observational learning.

1. Animals often learn through observation, that is, by watching other animals. *Observational learning* can occur with no outside reinforcement. The animal simply learns by observing and mimicking. Animals are able to learn individual behaviors as well as entire behavioral repertoires through observation.
2. At SeaWorld, killer whale calves continually follow their mothers and try to imitate everything they do. This includes show behaviors. By a calf's first birthday, it may have learned more than a dozen show behaviors just by mimicking its mother.
3. At Busch Gardens, a young chimpanzee learns foraging and social behavior from watching its mother and other members of the group. Baby black rhinos (*Diceros bicornis*) are especially close to their mothers. A calf relies on its mother's protection until it is completely weaned. This close tie allows young rhinos to learn defense and foraging behavior.
4. Adult animals trained alongside experienced animals may learn a faster rate than if they were trained without them.

ANIMAL TRAINING PHILOSOPHY

A. Animal training philosophy at SeaWorld and Busch Gardens.

1. Trainers create an environment that is fun, interesting, and stimulating for the animals.
2. Trainers reinforce desirable behavior with a variety of rewards, and do not draw attention to undesirable behavior.
3. Trainers build strong and rewarding relationships with the animals based on a history of positive and stimulating interaction.

B. Creating the training environment.

By far, the most critical aspect in animal training is creating a positive environment. Trainers and keepers strive to make training fun, interesting, and stimulating for the animals. In doing so, the animals are motivated to participate. Trainers have developed several techniques to create a positive, motivating environment.

Through decades of experience, SeaWorld, Busch Gardens, and Discovery Cove animal trainers and keepers have learned that a variety of interactive sessions contributes to the enrichment and well being of the animals. These interactive sessions fall into six categories:

1. *Learning sessions* involve a formal training process for the animals, in which trainers condition specific behaviors. Learning sessions provide a series of challenges that enrich the animals' environment. They also provide valuable information about how animals learn. These sessions are important to the continued learning and mental stimulation of the animals.
2. *Exercise sessions* are essential to an animal's health and well-being. Exercise sessions of varying length consist of high-energy behaviors.
3. *Relationship sessions* allow time for a trainer and animal to develop mutual trust, which enhances the degree of learning. A trainer spends one-on-one quiet, interactive time with the animal. A strong, rewarding relationship between trainer and animal is an important part of our animal training program foundation.
4. *Play sessions* provide time in the day when trainers and animals interact with "games" and "toys." Trainers learn through experience which games and toys the animals appear to enjoy. In many instances trainers learn new reinforcers for the animals by observing the types of activities the animals choose.
5. *Husbandry sessions* are very important for the day-to-day health care of the animals. Husbandry sessions make up a large portion of training time for all animals. Killer whales at SeaWorld are trained to present their tail flukes so veterinarians can draw blood. They are also trained to slide out from the water onto a scale to get weighed.
6. *Shows* provide an opportunity for SeaWorld, Busch Gardens to educate the public about the behavior, physiology and ecology of numerous animals. The shows follow a basic format, but the behaviors, show segments, and reinforcers continually change. This makes each show different for the animals and is more stimulating for them than if the shows were always the same.

C. Environmental enrichment.

1. Trainers and keepers are devoted to the proper care and management of their animals. One of the ways they do this is to create a complex and stimulating environment with lots of variety. This is called *environmental enrichment*.
2. One environmental enrichment technique is to create changes in an animal's daily activities. Animals are provided with activities they seem to find interesting and stimulating, including play sessions with trainers and other animals.
3. Animals are challenged mentally and physically by engaging in foraging behaviors. To encourage this, SeaWorld trainers hide food treats in the polar bear (*Ursus maritimus*) habitat, in crevices and in snow and ice. African elephants at Busch Gardens enjoy large popsicles of frozen fruit and vegetables on a hot day.
4. Another way trainers provide a rich and positive environment for the animals is to present "toys" to them. Under trainer supervision, the animals

interact visually or physically with these *environmental enrichment devices*. The toys vary depending upon the animal. Animals may interact visually with mirrors, brightly colored cones, balls, and animal shaped cut-outs. They may physically interact with floating plastic barrels, large plastic hoops, and large ice blocks. Animals are also challenged mentally with mazes, puzzles, and obstacle games.

D. Behavior repertoire.

1. Animal training is an ongoing process throughout an animal's life. An animal can become bored if it is asked to do the same behaviors over and over. Trainers and animals develop new behaviors and modify current behaviors to keep the animals physically and mentally challenged.
2. Animals have the potential to learn extensive repertoires of behaviors. An experienced animal may learn as many as 200 behaviors. Maintaining existing behavior is as equally important as training new behaviors.

E. Reinforcing desirable behavior.

1. Reinforcing desirable behavior is one of the cornerstones of animal training. It's a very simple concept, but a very complex undertaking. The reinforcer tells the animal, "Yes, you have done that well." It motivates an animal to repeat the desired behaviors and to stay interested.
2. Trainers must also take care *not* to reinforce undesirable behavior, while keeping an animal motivated at the same time.

F. Reinforcement variety.

1. A variety of interesting, stimulating reinforcers is essential to successful training. If reinforcers become routine and predictable, animals may become bored, unmotivated, frustrated, and even aggressive. Variety is much more motivating to the animals.
2. Trainers and keepers use food more frequently during the early stages of the training process. Soon they introduce other primary reinforcers. Trainers also condition new reinforcers – strong, trusting relationships with the animals helps trainers present new reinforcers in a positive manner. Positive reinforcers include back scratches, rub downs, grooming, toys, favorite activities, squirts with a water hose, ice cubes, puzzle games, and one-on-one time.
3. Animals may not respond in the same way to the same reinforcers – each animal may have its favorites. Therefore, the trainer must learn which reinforcers individual animals prefer. Again, a strong relationship with the animal is key. Knowing an animal's personality and carefully observing its body language and behavior helps trainers evaluate reinforcers.
4. New behaviors are trained using a *continuous* schedule of reinforcement (every correct response is reinforced to assure learning). Trained behaviors are maintained on a *variable ratio* reinforcement schedule. Variable ratio means that animals are not automatically reinforced after each behavior. They do a number of behaviors before they are reinforced. The number

varies randomly from one occasion to another. At SeaWorld and Busch Gardens, experience has shown that a random schedule of reinforcement is more effective than a fixed one. Through years of application, trainers have determined that a variable ratio reinforcement schedule stimulates and motivates better behavior and produces higher response rates, than other reinforcement schedules.

5. Trainers continually learn about the relationships between reinforcers and animal behaviors through direct contact and observation. Recording data daily is essential. In this way, animal trainers contribute to the knowledge of the animal's behavior as well as its ability to learn.

G. Least Reinforcing Scenario (LRS).

1. What happens if a trainer requests a particular behavior and the animal does not respond, or the animal responds with undesired behavior? At the SeaWorld and Busch Gardens parks, incorrect behavior is followed by a training technique called the *Least Reinforcing Scenario* (LRS).
2. The LRS has two parts. The first part is a consequence for incorrect behavior. This occurs when the trainer does not reinforce the animal 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 environment. (Changes in the environment may accidentally reinforce the behavior.) This brief time period is a stimulus to the animal to remain calm and attentive. This stimulus provides a new opportunity for reward. 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.
3. The LRS is not a fixed posture. It is a flexible system enabling the trainer to deliver the LRS in a variety of contexts. The trainer does not ignore the animal but must monitor its behavior. The trainer must do everything possible not to respond to inappropriate behavior. Reinforcing the animal for calm, attentive behavior following the LRS helps the animal learn from its mistakes. An animal never is forced to respond to a situation, nor is it ever punished.
4. When used consistently, the LRS technique eventually decreases undesired behavior and increases calm and attentive behavior. The LRS helps reduce frustration that might result from the lack of reinforcement. It teaches the animal to respond without aggression.

H. Building a relationship.

The key to successful training is building a strong and rewarding relationship between trainer and animal. This relationship is based on a history of positive and stimulating interaction. By creating a motivating environment and reinforcing desirable behavior, trainers and keepers have great success in developing strong relationships with their animals.

A. Foundation.

In addition to reinforcement, communication and target recognition are also the basic building blocks of how animals are trained at SeaWorld and Busch Gardens. Trainers can use these basics in almost every training situation. Once they are established, an animal can learn new behaviors more quickly.

B. Communication.

1. Communication is difficult between two people who don't speak the same language. So imagine what it's like to communicate with another species! It is the responsibility of the trainers to find some way for the animal to understand them. Reinforcers let an animal know when it has performed the desired behavior.
2. Reinforcement must immediately follow the behavior in order to be effective. A delay of only a few seconds may accidentally reinforce the wrong behavior. But, it's not always possible to instantly reinforce an animal while it's performing – it may be across the pool from the trainer. Trainers must have some other way to communicate to animals when they perform correctly. To do this, trainers use a signal.
3. This signal is called a *bridge signal*. The bridge signal “bridges” the gap of time that occurs between the behavior and its reinforcement. Bridge signals vary with species. For whales and dolphins, the bridge is usually a whistle or a light touch. For animals like sea lions, river otters, and primates the word “okay” is a bridge. The word “nice” is also used with primates, and “good” for birds.
4. Each animal is trained to recognize a bridge signal. Before reinforcing an animal, the trainer sounds a bridge signal. Through continual pairing with reinforcers, the bridge signal becomes a conditioned reinforcer. The animal quickly learns that when it hears the bridge signal, reinforcement is coming. The bridge signal can then be used to reinforce the animal the instant it performs the correct behavior. It also becomes the stimulus for the animal to return to the trainer.

C. Target recognition.

1. To train an animal, trainers usually break down the behavior into a series of small steps. Trainers use their hands as a focal point. Animals are trained to come to the trainer's hand, touch it, and await the next signal. This behavior is called “targeting.” When a behavior takes place farther away, a tool called a *target* is used as an extension of the hand.
2. Just as a flagstick is a target that directs a golfer toward a golf hole, a target directs an animal toward a position or direction. For most animals, the target used is the trainer's hand or a long pole with a foam float or ball on one end. Other targets include a tap on the glass at the side of the pool or an ice cube tossed into the water.
3. Each animal is trained to follow the target.

- a. Trainers teach an animal to “target” by touching the target gently to the animal. The bridge signal is sounded, and the animal is reinforced. The trainer repeats this several times.
- b. The next step is to position the target a few inches away from the animal. The trainers wait for the animal to touch the target. By this time, the animal has learned that whenever it touches the target, it gets reinforced. When the animal moves toward and touches the target, the trainer immediately sounds the bridge signal, and the animal is reinforced.
- c. After several successful repetitions, the target is moved still farther away. Each time the animal touches it, the trainer bridges and reinforces. Eventually the animal will follow the target. The target may then be used to lead the animal through a series of steps to gradually perform complex behaviors.

THE CHALLENGES OF TRAINING

A. Environmental desensitization.

1. Animals are very aware of their environment and changes within that environment. As a basic part of training, trainers work with the animals to help them learn to accept unusual or unexpected changes in their environment. When animals become used to changes in the environment, it is known as *desensitization*.
2. Humans also desensitize to various stimuli in the environment. For example, when rain begins to fall, the sound of the water hitting the ground is noticeable. Eventually, the sound becomes less noticeable as we grow used to it. Soon we don’t even notice the sound of the rain at all.
3. Desensitization is extremely important in animal training for a number of reasons. For animals, various aspects of the show situation may be distracting. These distractions include other animals in the stage, two or more trainers, applause from the audience, loud voices, and music over the sound system. Animals learn to ignore these distractions and are reinforced for responding calmly to changes in the environment
4. Desensitization is also essential in animal health care and husbandry. Animals are trained to remain calm and ignore the veterinarians’ hands and medical equipment.
5. Here is a sample scenario of how trainers might desensitize a whale to having blood taken. The trainer begins by desensitizing the animal to touch. The trainer lightly touches the animal’s tail flukes. If the animal does not move or flinch, it is reinforced for its calm demeanor. Next, the trainer applies some pressure to the area where the needle will eventually go. If the animal shows no reaction, it is reinforced. Eventually, the animal will learn to calmly accept a needle inserted into its tail.

6. Desensitization may take several days to several weeks, depending on the animal. The process requires a great deal of patience and dedication.
- B. Working with different species and personalities.
1. Many of the animals at the BEC parks are gregarious species that live in social groups. Trainers help these animals learn to feel comfortable performing individually, as well as in groups.
 2. At the show stadiums, the animals move from backstage areas or pools to the mainstage area or pool, and back again, depending on the show segments. The animals learn to feel comfortable in every area or pool, alone or with combinations of other animals. Trainers and keepers carefully plan which animals will perform in which show, and in what combinations. This gives the animals plenty of variety and opportunities to learn.
 3. At Busch Gardens, flamingos are trained to parade through the park. The parade not only draws a crowd of curious guests, but it also draws on the flamingos' naturally gregarious behavior. The flamingos are first trained individually, then are eventually integrated into the crowd of other trained flamingos and participate in the parade.
- C. Trainer/animal interaction.
- Because of the desensitization training, SeaWorld trainers safely enter the water with various marine mammal species. This interaction creates unique behavioral enrichment opportunities for the animals. It also makes it easier for trainers to collect accurate data for health monitoring and research.
- D. Interactive programs.
1. One of the most common guest suggestions at SeaWorld and Busch Gardens parks is to offer more contact with animals. It seems almost everyone wants to make a connection with another species. SeaWorld, Busch Gardens, and Discovery Cove Adventure parks deliver a variety of hands-on animal experiences. But this relatively new venture has opened up a whole new world of challenges for animal trainers.
 2. There are two basic types of interaction programs: in-park and out-of-park. In-park interaction programs involve guest touching, feeding, and even wading with the animals. In more extended cases, guests even join in training sessions, giving signals and reinforcers. SeaWorld and Busch Gardens offer Adventure Camps, Interaction Programs, and Trainer for a Day Programs. These programs provide the opportunity for guests to be fully immersed in the world of animal care and training. Besides having an unforgettable adventure, guests come away with a greater appreciation of everything involved in training and caring for animals.
 3. Out-of-park programs are often referred to as "animal ambassador programs." These programs involve an animal trainer taking animals on the road – to schools, conventions, and even television shows – as ambassadors of the parks.

4. For both types of interactive programs, desensitization is key. Training animals to be calm and yet responsive in the presence of numerous distractions is a priority. But the growth of the animal ambassador program has presented the most challenges of all. Animals must be trained to be calm and indifferent in a new world full of novel situations. Traveling in a carrier, meeting strangers, loud and sudden noises, bright lights, and sudden movements all are potentially negative stimuli to animals. Working step by step and using lots of positive reinforcement, trainers have had great success in desensitizing animal ambassadors.

THE MANY BENEFITS OF TRAINING

A. Educational value.

1. Over the years, millions of people have visited marine zoological parks to see animals. Most people do not have the opportunity to observe these animals in the wild. Visitors are not only entertained, but also educated. The unique ability to observe and learn directly from live animals increases public awareness and appreciation of wildlife.
2. Zoological parks teach the public about animals, their ecosystems, and conservation measures. A 2005 Harris Interactive® poll released by the Alliance of Marine Mammal Parks and Aquariums found 97% of respondents agreed that marine life parks, aquariums, and zoos "play an important role in educating the public about marine mammals they might not otherwise have the chance to see". Furthermore, 96% believe "marine life parks, zoos, and aquariums provide people with valuable information about the importance of oceans, waters, and the animals that live there". In addition, 93% agree that visiting a marine zoological park or aquarium "can inspire conservation action...and that people are more likely to be concerned about animals if they learn about them at marine life parks, aquariums, and zoos".
3. Through formal education programs, millions of students have been given the opportunity to experience many kinds of animals up close.

B. Husbandry and care of animals.

1. Routine medical examinations are essential to the health of all our animals. Animal training techniques help veterinarians, animal care specialists, trainers, and keepers to perform medical examinations more easily, and with less stress for the animals.
2. The animals are trained to present various parts of their bodies for examination, measurement, and blood sampling. They are trained to get on a scale, and even to urinate when signaled to do so. Most importantly, they are trained to hold still and remain calm throughout any examination. Trainers and veterinarians also are able to perform delicate procedures, such as taking x-rays and obtaining sonogram data.
3. Through observing and caring for the animals, park experts are able to maintain detailed husbandry records. These records can be a valuable

resource for the zoological community. More importantly, animal training techniques developed at SeaWorld and Busch Gardens have become a valuable tool. More than ever, zoological parks around the world are enjoying the benefits of using various animal training techniques in animal husbandry.

C. Breeding programs.

1. Training has been helpful in SeaWorld's killer whale breeding program. Through trained routine husbandry procedures, trainers and veterinary staff are able to closely monitor the health of a pregnant whale. These routine husbandry procedures are the key to healthy animals and a healthy, genetically diverse population.
2. In cooperation with the American Zoo and Aquarium Association (AZA), SeaWorld and Busch Gardens have successfully bred many endangered species. AZA's Species Survival Plan® (SSP) program is dedicated to the survival of selected species like the endangered black rhino.
3. Recent strides in the development of artificial insemination have also been aided through training. Females are trained to remain calm and still for several minutes while veterinarians introduce semen with medical equipment.

D. Research.

1. Animal training has benefited research for many years. By training animals to respond to various stimuli in their environment, researchers can gather scientific information that would not otherwise be available. The information gathered at the parks, combined with the results of field observations, have contributed to the body of knowledge about many types of animals. Honing its skills for four decades, SeaWorld San Diego has led the way in marine mammal training and research.
2. With the help of SeaWorld's animal training department, researchers from Hubbs-SeaWorld Research Institute (H-SWRI) conducted an echolocation study involving a false killer whale (*Pseudorca crassidens*). Echolocation is the ability of some whales to produce sound waves that bounce off objects in the water. These echoes provide information about the underwater environment, enabling the whale to locate things and to navigate. Echolocation previously had been observed in bottlenose dolphins and killer whales, but had not yet been documented in false killer whales.
 - a. The whale was trained to return to its trainer if it detected a target in the water behind a visually opaque screen. If the target was not there, the whale was trained to remain still.
 - b. The whale's normal vocalizations changed to pulsed sounds, consistent with those made by echolocating whales. Scientists could see that the whale was using echolocation to search for the target.
 - c. Responses by the false killer whale were 90% to 95% accurate.

3. HSWRI researchers also were able to conduct studies on the vocal development of killer whale calves. Researchers verified that killer whale calves learn vocalization repertoires from their mothers, and pass them from generation to generation.
 - a. With the help of trainers, researchers were able to record calf vocalizations and track the development of the calf's vocalization repertoire. They compared the calf's repertoire to its mother's and those of the other whales in its environment.
 - b. The results of the study supported the hypothesis that a killer whale calf learns vocalization types from its mother.
 4. With the U.S. Navy, SeaWorld San Diego conducted swimming speed studies on bottlenose dolphins.
 - a. Researchers wanted to determine the maximum swimming speed of dolphins.
 - b. Using target training and reinforcers, trainers conditioned the dolphins to swim at their fastest possible speeds while researchers recorded the data.
 5. Busch Gardens keepers and Dr. William Barklow, a biology and physiology professor at Framingham State College in Massachusetts, used training techniques to study vocalizations in hippos.
 - a. With the help of the keepers, Dr. Barklow became one of the first scientists to observe, analyze, and document the vocalizations of hippos both above and below water.
 - b. Through more than nine years of studies, Dr. Barklow is determining how these massive animals use their bodies and environment to communicate.
 - c. Barklow's research indicates a level of social organization in hippos that was previously unknown to us.
 - d. Busch Gardens' part in the ongoing study is to document the hearing abilities of hippos. Keepers sound various tones under water. They have trained the hippos to respond to the tone by pressing a lighted pad.
 6. Sometimes animal training combines husbandry and research. Trained husbandry techniques help keepers and veterinarians obtain baseline data; meaning they can learn what is considered "normal" in a healthy animal. These baseline data can be used to more easily diagnose and treat ill animals, as well as help scientists around the world learn more about similar animal species. Advances in artificial insemination, made possible through our training techniques, may even aid in the conservation of endangered animal populations.
- E. Physical and mental stimulation.

1. In the wild, some animals are predators and some are prey for other animals. Hunting prey or escaping predators is essential for an animal's survival. Locating, pursuing, and capturing prey, as well as avoiding predators, pose physical and mental challenges for an animal.
2. At the Adventure Parks, animals neither have to hunt for their food, nor do they have to avoid predators. The parks' complex, interactive animal habitats and training sessions provide the animals with physical and mental stimulation. The play, learning, exercise, relationship, and show sessions help keep their bodies and minds active. Environmental enrichments provide them with a variety of stimulating challenges.

CAREERS IN ANIMAL TRAINING

A. Background requirements.

1. When you apply for a job as an animal trainer, your prospective employer will assume you love animals. They will be much more interested in your education and experience. Parks have different educational requirements. At Busch Gardens, future keepers must have a college degree in Animal Husbandry, Animal Science, Zoology or a related field. For SeaWorld, a college degree is not required to be eligible for an animal training position, but it is preferred. Applicants are expected to complete some college coursework in biology, marine biology, zoology, and animal behavior or psychology.
2. Perhaps the best background a prospective trainer can bring to an interview is experience working with animals. Prior experience with large animals is preferred. Experience working with horses or birds, working on a farm, or volunteering at an animal hospital is beneficial. The more experience you have with different kinds of animals, the greater your chances will be of getting hired. And of course, applicants should exhibit a strong personal commitment to, respect for, and patience with animals.
3. At SeaWorld parks, animal trainers often work in and around water. They must have scuba and CPR certificates, as well as basic first aid skills. A job as an animal trainer requires a degree of physical strength and athletic ability. Strong swimming is a must. Applicants must be able to pass a rigorous swim test. The test includes a 67 m (220 ft.) freestyle swim and a 33 m (110 ft.) underwater swim. The applicant must also perform a 7.3 m (24 ft.) free dive to retrieve a relatively small weight and bring it to the surface. Regular exercise – particularly swimming – and a healthy, drug-free lifestyle will help prepare you for a career with animals.
4. Working with animals is only part of being a trainer. Animal trainers must perform and speak in front of large audiences. They may also be required to answer questions for tours and other small groups. Strong communication skills and experience in public speaking or drama are desirable traits among trainer applicants. A microphone test is part of the interview process.

5. Zoos and aquariums often hire qualified people from within their own ranks. Those hopeful for an animal training career may break into the field by taking a job in another department. Starting in any department is a good way to get “your foot in the door.” While gaining park experience and knowledge, you can establish yourself as a reliable and ambitious team member. This strategy may greatly increase your chances of working with animals in the future.
6. Finally, many professional organizations have special membership rates for nonprofessionals and students. You can learn more about animals and animal careers through these organizations’ newsletters. Also, by attending local workshops and national conferences, you might make some good contacts and get more information on how to chart a path toward an animal training career.

B. Apprenticeship.

1. An on-the-job apprenticeship is required of each new trainer. The apprenticeship period may last a year or more, even if new trainers have had animal training experience somewhere else. During their apprenticeship, new trainers learn animal training methods, and become familiar with the animals, their personalities, feeding, and care.
2. SeaWorld trainers may be apprentices for four years before doing waterwork segments with killer whales. Over time, apprentice trainers may become associate trainers, trainers, and senior trainers. Senior trainers perform in many park shows and help train apprentice trainers.
3. At Busch Gardens, keepers are trained by levels that vary in hands-on involvement with the animals. The Bird and Reptile Department requires keepers to complete eight phases of training levels. Within each phase, keepers must complete multiple tests and training courses before moving to the next phase. In other animal departments, keepers are required to complete specific courses and training related to animal behavior, health, and training. They must also learn park policies, computer competencies, and media training.

C. Additional career options.

After fully investigating the requirements and duties of animal trainers, you may decide to explore other career opportunities working with animals. You may also wish to investigate opportunities in veterinary medicine, animal husbandry, marine wildlife research, education, and the growing field of wildlife management and conservation.

CAN'T WAIT? TRAIN YOUR PET!

- A. Train your pet like real trainers do.
1. With a little know-how and a lot of patience, you can train your pet to perform many behaviors. You can apply animal training techniques to almost any kind of pet. Positive reinforcement is the key to strengthening behaviors. Use a variety of interesting, stimulating, and fun rewards—snacks, toys, a back scratch, or favorite activity are all good examples.
 2. Train behaviors in small steps so your pet doesn't fail too often and become frustrated. Give your pet a lot of attention and a variety of rewards for each correct response. Only reinforce a behavior you want your pet to repeat; don't call attention to incorrect behavior.
 3. Decide what behaviors to train your pet to perform by watching your pet's everyday activities. Does your dog like to retrieve toys? Give him praise when he brings a toy back to you. The next time he retrieves, place an object in his path that he has to jump over to reach you then immediately reward him for jumping. Keep reinforcement consistent.
- B. Pets on Stage.
1. The SeaWorld Adventure parks *Pets Rule!* show features a cast of animal-shelter-rescued cats and dogs, a green-winged macaw, and a potbellied pig. This animal experience helps guests see that training animals, whether exotic or domestic, begins with a strong relationship.
 2. When it's time to adopt a pet, consider visiting a local pet shelter. You'll be helping an animal that needs a loving home, and you'll gain a loyal, affectionate companion.