

I'm not a robot



Innate behavior examples

Learning outcomes are crucial in understanding behavioral biology, which is the study of the biological and evolutionary bases behind changes in behavior. The concept that behaviors evolved due to natural selection's pressures is not new, and various scientists have studied animal behavior for decades. Biologists focus on ethology, while psychologists explore comparative psychology, with other scientists studying neurobiology. The goal of behavioral biology is to differentiate between innate behaviors, driven by genetics, and learned behaviors, shaped by environmental influences. Innate behaviors are important because they are "hard-wired" into an organism, eliminating the risk of incorrect learning. On the other hand, learned behaviors are flexible and dynamic, allowing for changes in response to environmental shifts. Innate behaviors include movement and migration, where organisms respond to stimuli without prior learning. Examples of innate movements include reflex actions, kinesis (undirected movement), orthokinesis (speed adjustment), klinokinesis (increased turning), phototaxis (movement towards light), chemotaxis (movement towards chemical signals), and geotaxis (movement in response to gravity). Fixed action patterns are another type of innate behavior, characterized by a specific sequence of actions performed in response to a stimulus. These patterns can be crucial for survival, such as the mating behaviors exhibited by some species. Understanding these complex behaviors is essential for comprehending the intricate relationships between organisms and their environments. A pattern is a series of movements triggered by a stimulus, continuing even after it's removed. A classic example is seen in three-spined sticklebacks, small freshwater fish that turn red and become aggressive during mating season. Scientists have observed these fish reacting aggressively to objects painted with red on the bottom, despite their odd shapes. Similarly, wildebeests migrate 1800 miles each year in search of better grazing lands, following a clockwise pattern. While migration is often thought to be an innate behavior, some species can choose whether or not to migrate (facultative migration). For example, owls may only migrate when food sources are scarce, but stay put when they're plentiful. Foraging behaviors also play a crucial role in animal survival, with optimal foraging strategies favored by natural selection. Even solitary animals must mate, often involving complex signaling and displays, known as mating rituals. Group-living animals exhibit various behaviors, including selfish, altruistic, and cooperative actions that benefit themselves or others within the group. It appears that when both parties benefit from an action, certain behaviors come into play. These actions all involve some kind of interaction or communication between fellow members of the species. Animals communicate with each other using signals such as visual cues, pheromones, sound, and touch. For example, in the case of three-spined stickleback fish, a red patch on their underside triggers males to become aggressive and females to mate. Different types of communication include instinctual or learned behaviors, or a combination of both. These signals differ from human language, which is unique to our species and perhaps some primates and cetaceans. Pheromones are chemicals secreted by individuals to trigger specific actions in others of the same species. They're commonly used among social insects but also employed by many other species to attract mates or mark food trails. Even humans respond to certain pheromones, such as axillary steroids, which affect our perception of others and can synchronize menstrual cycles, according to one study. The role of pheromones in human communication remains a topic of debate and ongoing research. Songs serve as aural signals that require the recipient's attention. Bird songs, for instance, identify the species and help attract mates. Whale songs travel long distances underwater due to their low frequency. Dolphins use various vocalizations to communicate with each other. Male crickets produce chirping sounds using specialized organs to lure mates or deter rivals. Courtship displays are visual behaviors designed to entice potential partners into mating. These displays involve a series of steps and rituals, as seen in the common stork's mating ritual depicted in Figure 4. Aggressive displays, like a dog baring its teeth to assert dominance, also occur frequently in nature. These displays communicate not only aggression but possibly even fighting ability, serving as a mechanism to reduce actual conflicts within a group. Animals engage in various displays to gauge an opponent's strength before a confrontation, making it easier to decide if fighting is worth the risk. However, game theory suggests that some of these displays might overstate an animal's actual abilities, serving as a bluff to intimidate the rival. If this tactic proves successful more often than not, natural selection would favor such dishonest behavior. Distracting displays are used by birds and certain fish to lure predators away from their vulnerable young. This selfless act benefits the offspring more than the parent, who risks its own safety to perform the display. In some species, like primates, individuals use physical contact to communicate within their group. Examples include grooming, shoulder or tail touching, embracing, lip contact, and greeting ceremonies observed in the Indian langur. The killdeer bird exemplifies altruistic behavior by faking a broken wing to divert predators from its eggs. Similarly, social insects like worker bees prioritize maintaining the queen's fertility over reproduction, while meerkats stand sentry to warn their colony of potential threats. Wolves and wild dogs also share food with absent pack members, and lemurs care for unrelated infants. While these behaviors appear altruistic at first glance, it may not be entirely selfless. Scientists have debated whether such actions provide overall evolutionary advantages or help the altruistic individual pass on its genes. One explanation lies in the concept of "selfish gene theory," which proposes that even seemingly altruistic acts can benefit related individuals who share identical genes. Mammal parents and Emperor penguins illustrate this, as they make sacrifices for their offspring to ensure the survival of their genetic lineage. The selfish gene theory remains a topic of discussion among scientists, with some questioning its accuracy in explaining altruistic behaviors between less-related individuals. Benefiting from seemingly altruistic behavior is a common phenomenon observed in nature. For instance, social insects like bees and ants prioritize the well-being of their queen due to their genetic relationship, which indirectly enhances the workers' reproductive fitness. This concept, known as kin selection, highlights how individuals can elevate their inclusive fitness by sacrificing some of their own fitness for the benefit of relatives. Interestingly, these altruistic behaviors may not be purely selfless but rather a calculated move that boosts an individual's overall fitness either directly or through indirect means. In various animal species, including monkeys, cooperation is observed in unexpected ways. A classic example is seen in certain monkey species where individuals will groom each other without any apparent direct gain. However, this behavior comes with the expectation of reciprocity, and both parties benefit from the interaction. From an evolutionary perspective, many previously attributed altruistic behaviors are found to be influenced by self-interest rather than genuine altruism. The concept of "pure" altruism, as seen in human behavior, is often difficult to apply to instinctual animal actions. Nevertheless, it's clear that heritable behaviors that enhance gene passage are favored by natural selection and can be applied to other species under specific circumstances. Significant energy is dedicated to finding and selecting a suitable mate, involving locating, attracting, and mating with a partner. During this process, two types of selection occur: intersexual selection, where individuals choose mates from another sex, and intrasexual selection, which involves competition for mates within the same sex. Intrasexual selection can be complex, relying on various cues such as visual, auditory, tactile, and chemical signals. For example, peahens often choose males with the brightest plumage. This type of selection frequently results in traits that don't enhance survival but are attractive to the opposite sex. Intrasexual selection involves displays of aggression, like rams butting heads, where the winner gets to mate. These rituals consume energy but lead to the selection of healthier and more dominant individuals. Three primary mating systems exist: monogamy, polygyny, and polyandry. Monogamous systems pair one male with one female for a breeding season, with some species forming long-term associations like the gray wolf. Several theories explain this system, including mate-guarding, where males prevent other males from mating, or male-assistance, where males help guard and rear their young. Polygyny involves one male mating with multiple females, leaving the female to care for most offspring. In resourced-based polygyny, males compete for territories rich in resources, then mate with females drawn to these areas. While the female benefits from a dominant male's genetic fitness, she loses out on male help with childcare. Given article text here Elephant seals exhibit harem mating structures where an alpha male controls resources and mates within the group. This contrasts with lek systems, where males perform displays in a communal area for females to choose from. Polyandrous mating occurs in pipefishes and seahorses, where males receive eggs from the female, fertilize them, protect, and give birth. Females can provide eggs to multiple males without carrying fertilized eggs. Psychologists identify behaviors as overt or covert. Overt behavior is openly displayed and observable, while covert behavior is hidden and subtle. The behaviorist school emphasized overt behaviors, but now acknowledges that human behavior is influenced by environment, psychology, emotions, and personal history. People who have had intentions are designed to deceive others. For instance, a spy might use them to get classified information from a government official in another country. However, we all need to hide our true feelings at times for social harmony's sake. For example, if someone doesn't like their partner's outfit, they'll probably want to keep that thought to themselves! Controlling and concealing our behaviors is necessary to avoid getting into trouble or breaking any rules. Conscious actions refer to the behaviors we're aware of performing. They can be either hidden or open, but the key feature is that we know we're doing them. In other words, it's any behavior that we're conscious of (and therefore usually in control of). Examples of conscious behaviors include deciding to be rude to someone, choosing what to wear for the day, or picking what food to order at a restaurant. Conscious actions are targeted by operant conditioning, where a parent, teacher, or social figure tries to shape someone's conscious behaviors through rewards and punishments. A key characteristic of conscious behavior is that it tends to be associated with personal responsibility. You get praised for consciously making positive choices and blamed for consciously making mistakes. If conscious behavior refers to things we're aware of doing, unconscious behavior is the opposite: it happens without us realizing it. Since we're not aware of it, it also tends to be beyond our control. By definition, we neither intended nor planned to engage in these behaviors. Often, they feel like they've happened automatically and before we could stop them. Examples of unconscious behaviors in humans include all the small actions our executive function does to keep us alive: breathing, blinking, digesting, and smelling. But there are also behaviors that we unconsciously do that are ingrained habits, such as slouching, a twitch, some facial expressions, mumbling, and speaking too loudly indoors. For these behaviors, we often rely on our close friends and family to alert us to them so we can become aware of them. We may also depend on therapists to help us identify and work through them, especially if they are destructive behaviors, such as unconscious rudeness. Note: Related topics include non-associative learning and rational behavior. Centuries of research into irrational behaviors have led to various theories on the matter. Freud posited that our actions are driven by innate desires and childhood complexes, while Watson studied how learned association and systematic desensitization can influence fear in children. Voluntary behavior refers to choices we make without coercion or force. Examples include attending a party or choosing not to attend one without consequences. Involuntary behaviors, on the other hand, are actions we cannot control, often linked to reflexive responses like flinching when something moves quickly by our face. In behavioral psychology, target behavior is a specific behavior that requires change through conditioning. Replacement behaviors, such as a dog sitting on command, can replace undesirable habits. Ethical behavior is driven by an individual's moral framework, which may be based on religious doctrine or philosophical principles. However, ethical standards are not universally agreed upon and may not always align with legal frameworks. Unethical behaviors, those that contradict a moral framework, are often policed through informal social pressure and can lead to social exclusion, guilt, and shame. Serious ethical violations can also result in legal consequences. Learned behaviors emerge from behavioral conditioning and contrast with innate behaviors, which are inherent characteristics we're born with. Innate and learned behaviors are two types of human actions that drive our interactions with others and the world around us. Innate behaviors stem from basic needs such as sustenance, shelter, and safety, whereas learned behaviors emerge through experiences and environmental influences. This concept is exemplified by Pavlov's dogs, which can learn to associate a stimulus with a response, such as salivating at the sound of a bell. Prosocial behaviors, on the other hand, are actions taken in consideration of others' interests, often taught by parents and schools. These include using manners, volunteering, sharing, taking turns, and respecting others. In contrast, replacement behavior involves replacing undesirable habits with more positive ones, such as training children to manage their temper or practicing deep breathing exercises when stressed. Collective behaviors occur when groups conform to a shared behavior, often leading to rejection of individual moral thinking. These can be spontaneous and unpredictable, such as during riots or moral panics, but also harmless, like following fashion trends.