ETHOLOGY

This is the study of behavior.

**Behavior** is the outwardly expressed course of action produced in organism in response to the stimuli (change in environment) from a given situation. Those animals that respond appropriately to changes in their environment are more likely to survive and reproduce.

Plant behaviour i.e. restricted to movements produced by growth or turgor changes and is stereotypes and predictable i.e. tropism and taxes.

# FORMS OF BEHAVIOUR

# There are two types of behaviour i.e. innate and learned behaviour.

# INNATE BEHAVIOUR

# These are inborn behaviours. They are a collection of responses that are predetermined by the inheritance of specific nerve or cytoplasmic pathway in organisms rather than single behaviour.

# They are purposely for survival values and economize the nerve pathway since they have few demand to the nervous system.

# They include: orientation (taxes and kineses), simple reflexes and instincts (biological rhythms, territorial behaviour, courtship, mating, aggression, altruism, social hierarches and social organization.

# All plant behaviour is innate.

**TAXES**

A taxis or tactic response is a movement of the whole organism in response to an external directional stimulus. Movements may be towards the stimulus (positive,+), away from the stimulus (negative,-) or a particular angle to the stimulus and are described according to nature of stimulus.

### Examples of taxis

* Euglena swims towards light and said to be positively phototactic.
* Earth worms move away from light and are therefore negatively phototactic.
* Mosquitoes move towards the carbon dioxide source in order to find food.
* Moving toward a source of sent to find ripe fruit/food.
* Planaria move against water currents, moths and butterflies fly in to the wind i.e. positively rheotactic.

### Importance of taxis

* Helps an organism to find food
* Enables an organism to avoid unfavorable environment.
* Enables organisms to find mates

### KINESIS

### A kinetic response is a non – directional movement response in which the rate of movement is related to the intensity of the stimulus and not the direction of the stimuli.

### For example of kineses

* Woodlice like damp conditions. If the environment is too dry, they will move more often (although in random directions), until they find a damp environment. They will then move less often to try and stay in that environment. Note that the movement is non- directional but the organism simply moves more, or less in response to a stimulus.

It is important to emphasize that wood lice don not move up the gradient of humidity. They simply move more in a non-humid environment. Eventually sheer chance they are likely to reach a more humid environment. The result of this behavior is that wood lice spend most of their time in moist habitats.

* When a light is turned on, the cockroach will quickly start running - not necessarily away from or towards the light. This is kinesis, as it is just movement as a response to the stimulus of the light being turned on and not associated with a direction.
* Kinesis is movement triggered by increased activity such as an animal that is cold, hot, hungry or angry.
* The direction of movement of the tentacles of hydra in search for food is random and slow, but if saliva or water fleas are placed close to the hydra, the rate of movement of the tentacles increases.

### Importance of kinesis

* It increases the chances of finding resources and favorable conditions by sheer luck.

**SIMPLE REFLEXES**

A simple reflex is an involuntary stereotyped response of part of an organism to a given stimulus.

**Example of reflex**

* Escape response of the earthworm i.e. when they hit an obstacle they quickly disappear into their burrows.
* Quick removal of hands from a hot object.
* Balance and posture of the organism.
* Blinking in response to a sudden movement.

**Importance reflex behavior**

* + - Rapid response to a stimulus, helps minimizes any damage to the body from potentially harmful conditions, such as touching something hot.
    - Knee jerk help us in balance
    - Reduce energy that would be required to plan and actively execute every tiny movement we make.
    - Reduces chances of the earthworm being eaten by foxes or other predators.

# INSTINCTS

These are complex inborn stereotyped behaviour patterns of immediate adaptive values to the organism and are produced in response to sudden changes in the environment. They are unique to each species and differ from simple reflexes in their degree of complexity.

**Characteristic of instincts**

* They are genetically inherited and not acquired i.e. they develop independent of the environment.
* Have immediate adaptive value to the organism e.g. short lifecycles in insects prevents modification in behaviour occurring as a result of trial and error learning.
* Produced unconsciously in response to sudden change in the environment hence also called neuronal economy measures since they provide organisms with a ready – made set of behaviour response.
* They are similar in all members of a species and develop even in isolation.

Instinctive behaviours include: biological rhythms, territorial behaviour, courtship and mating, agonistic behaviour, social hierarchy and altruistic behaviours.

1. **Biological rhythms**

These are behavioural activities that occur at regular intervals within organism. They are also called **biorhythms**. Biorhythms that involve an internal clock or pacemakers or hormones are called **endogenous rhythms** e.g. drosophila emerges from pupae at dawn, and cockroaches are most active at the onset of darkness and just before dawn.

Biorhythms that are controlled by external factors like photoperiods, lunar rhythms, waves, smell, sound, magnetic fields, moon and stars are called **exogenous rhythms** e.g. courtship displays, nesting behaviours of birds in spring, feeding in lugworm, migration of certain bird species in autumn, swimming and mating of some species.

**Significance of biorhythms**

* Important for orientation of organisms (taxes and kineses).
* Migration of fish, turtles, birds and some insects over long distances using sun and star as a campus.
* Some animals e.g. honey bees, ants use the sun as a compass in locating food and their homes.
* Returning to native streams by salmon fish to breed after several years at sea.

### Advantages of migration, a biorhythm

* Young animals may learn when and where to migrate by following their parents.
* Return to special breeding sites that do not require adequate food supply and no or few predators.
* Move to where food/prey is available when not breeding.
* With the young maximizes feeding opportunity.
* Stationary can mean increased predation risk.
* Allows different members of the species to meet and breed.
* Utilization of the earth’s scattered food resources.
* Stationary animals also save food stores and hence reduce on the competition with other species.
* Enables the escape of the constant harsh weather changes.

**Disadvantages of migration**

* + Large amount of energy required to travel long distances.
  + Problems and risks of navigation.
  + Risk of forgetting sites or not being able to find again.
  + Leave home territory empty allowing for invaders, and then fights on returning.
  + Risk at temporary stopovers from lack of local knowledge about predators.
  + Vulnerable to weather changes or poor conditions in one year.
  + Many decisions required including optimal fuel load and optimal time of departure.
  + Other risks like the change from salt to freshwater or vice versa for some fish.
  + Evolutionary maladaptive behaviour in some cases; e.g. green turtles feed on eastern coast of South America but breed on Ascension Island (south Atlantic).
  + Risks of night-time migration if animals normally active in day-time (e.g. bat predation of birds).

**b) Territorial behaviours**

A territory is an area held and defended by an organism or group of organisms against organisms of the same or different species. These behaviours are common in all vertebrates except amphibians.

### Advantages of territorial behaviour

* They promote social behaviour.
* It limits mating to fit individuals produce vibrant off springs.
* Improves food access since some animals hunt in groups.
* Ensures that each mating pair of organism and their offspring are adequately spaced to receive a share of the available resources e.g. food and breeding space.
* Protection against intruders or predators.
* Allow sharing of resources with those organisms that cannot guard their families.
* Allow one sex, the male to defend an area to which females are attracted for mating.

**Disadvantage of territorial behaviour**

* Weak animals are denied sex
* Limit population density and other good qualities are lost
* Promote spreading of diseases
* May lead to extinction in case of disaster.

**c) Courtship and mating (reproductive behaviours)**

Courtship is a complex behavior pattern designed to stimulate organism to sexual activity, and is associated with pair formation in those species where both sexes are involved in rearing off springs such as baboons. Courtship behavior is controlled by **motivational** and **releasing stimuli** and leads to mating.

Motivational stimuli include photoperiods, rising levels of reproductive hormones, maturation of gonads, behavioural activities like colouration changes, increase in size of body parts like plumage in birds, mating calls, postural displays in grebes, use of chemical sex attractants (pheromones) in butterflies and moths.

The signals in courtship to attract member of the opposite sex may include sight, sound, smell, etc.

Releasing stimuli include reaching climax during copulation that terminates mating.

Through courtship conflicts, it leads to tighten of the pair bond between the mating pair and the synchronization of gonad development so that gametes mature at the same time.

### Functions of courtship

* Allows the male mate with female when gonads are functional
* Enables the mates to select opposite sex with the best quality enabling the community to evolve into the adapted individuals.
* Tightens the bond between the mating pair.
* Enable the male and female to look after the off spring together.

**d) Aggression (agonistic behaviour)**

aggression is a group of behavioural responses including threat postures, rituals and physical attakcs of other organisms besides predation.

They are usually directed towards members of the same sex and species.

Examples

* Horned animals resort to butting contests
* Siamese fighting fish resort to threat postures involving increasing their apparent size.

Agonistic behaviours may include displacement activity and vacuum activity.

### Displacement activity involves an organism performing ac action which is trivial and irrelevant to the situation like during courtship and mating. E.g. preening of feathers by a bird on egg when confronted by a predator instead of flying or attacking the predator; scratching an ear, unnecessary running a hand through one’s hair, fist clenching, fist banging, nail biting, straightening clothes, finger drumming, etc. in humans under conflict.

### Vacuum activity involves or occurs when motivation is high and no releaser presents itself e.g. showing irritation towards someone who is not the cause of the irritation but act as a substitute.

### Functions of agonistic behaviours

* A way of releasing stress.
* Displacement of other animals from a territory.
* Source of food.
* Defense of a male or offspring.
* Establishment of rank in social hierarchy.
* Reduces intraspecific conflicts.
* Avoid over fighting.

# e) Social behavior or social behaviours

This is a group of behaviour activities associated with number of individuals living together temporarily or permanently e.g. insects and most vertebrates.

They include pecking order/ dominance hierarchy where animals within a group are arranged according to status, size, strength, fitness and aggressiveness.

Examples

* Institutional organization of all human societies.
* Honey bee colony with a single fertile female (queen), several thousand sterile female workers and a few hundred fertile male drones each with a specific role (polymorphism)

**Significance of pecking order**

* Decreases the amount of individual aggression associated with feeding, selection of mate and breeding site.
* Avoids injury to the stronger animals which might occur if fighting was necessary to establish the hierarchy.
* Ensures that resources are shared out so that the fittest survive hence promotes evolution.
* Increases genetic vigour of the group by ensuring the strongest and genetically fittest animals have an advantage during reproducing.
* Species in large groups suffer less predators even when the predator is successful; The chance that one is picked is very low.
* Predators are more successful at catching large prey when hunting in groups than when hunting on their own.
* Wood lice buddle together and survive desiccation better.
* Honey bees build hives with an internal air- conditioning system created by thousands of work bees fanning with their wings
* Exclusive area for breeding and raising young.
* Space for sexual display and courtship.
* Spacing of animals avoids competition.
* Improves local knowledge of predators and resources.

### Disadvantages of group

* Competition for food, mates and shelter/space.
* Intraspecific competition may be a means of regulating population size
* Reduces individual’s chances of being eaten
* Cost of defending territory including risk of physical contact, and displays of strength.
* Difficult for smaller animals to hold territory; i.e. more likely to be attacked than larger animals
* Difficult to move if resources exhausted.
* Importance of territory size. If too large, then hard to maintain control. If too small, not enough hard to maintain if the territory is too large. If too small, not enough resources for effort of defending.
* Higher risk of predation if territory within predator’s territory.

# f) Altruistic behaviour

**Altruism** is a form of social behaviour where by one organism puts itself either at risk or personal disadvantage for the good of other members of the same species. Reciprocal altruism occurs when the altruist subsequently receives aid in return.

Examples

* Birds and monkeys call out warning to other in danger.
* Female monkeys carry and care for the babies of other monkeys.
* Preventing sterile female workers from producing offsprings yet they spend their lives looking after their brothers and sisters.
* Mutual grooming in monkeys.
* Food sharing in apes.

**Importance of altruism**

* Increases the frequency of those alleles common both to the donor and recipient(s) of the altruistic behaviour.
* Confers genetic advantages in kin by promoting survival and reproduction within the species.

# LEARNED BEHAVIOUR

**Memory**

This is the ability to store and recall the effects of experience and without it learning is not possible.

It is a biochemical event involving the synthesis of substances with in the brain. The active substance is ribonucleic acid. These change during learning resulting in to synthesis of specific memory proteins associated with learned behaviour.

In general, the larger an animal’s brain, the more it can learn though much of the brain has nothing to do with learning.

**LEARNING**

This is an adaptive change in individual behaviour as a result of previous experience.

Animals vary in how much they are capable of learning but the tremendous capacity for human learning is due to enlarged cerebral hemispheres with extensive cortical folding and organization

# TYPES OF LEARNING

### HABITUATION

This is the reduced response to continuous repetition of a stimulus not associated with reward or punishment.

### Examples of habituation

* Birds soon ignore the scarecrow which prevented them from landing when it was first placed in a field.
* Lack of continued response to strong odors is a common example of sensory habituation.
* Reduced response to tingling sensation of the coarse sweater.
* Reduced distraction from noise.

### Importance of habituation

* Enables young animals to understand neutral elements in the environment such as movements due to wind, etc.
* It enables an animal to save energy by not responding to non-harmful stimuli over and over again.
* Habituation helps to eliminate unnecessary responses.
* Helps an animal filter large amount of information received from the surrounding environment.

### ASSOCIATIVE LEARNING OR CONDITIONING

### This is any learning process in which a new response becomes associated with a particular stimulus. Or is learning attributed to temporary relationship between events.

It is classified as **classical conditioning** and **operant condition**

1. **Classical conditioning**

Classical conditioning is the process by which a naturally occurring stimulus is paired with a stimulus in the environment, and as a result, the environmental stimulus eventually elicits the same response as the natural stimulus.

### Examples

* Saliva secretion elicited by the sight, smell of food or ringing a bell for lunch.
* A feeling of hunger in **response** to **the** smell of food.
* Birds avoid eating black and orange cinnabar moth larvae because of bad taste and avoid all similarly coloured larvae even though they may be nutritive.

### Operant conditioning, Instrumental or trial and error learning

This is a type of learning where behavior is controlled by consequences i.e. reward or punishment. Reward or punishment respectively increases or decreases future responses.

Associative learning efficiency is increased by repetition.

Examples

* Children learn to avoid hot red hot objects.
* A student completes his/her homework because he/she knows that he/she will be rewarded by action or praise.
* Workers often offered with the incentives and bonus complete their targets in time or regularly attend.
* Students or children follow rules strictly to avoid being nagged by the teachers or parents.

### LATENT LEARNING

This is when an animal learns about something unintentionally but the knowledge becomes useful at the time when it is necessary.

It is important because in most cases, the information learned is not always recognizable until the oment that it is needed to be displayed.

### Examples

* A signpost of a medical facility may be may be remembered when you are sick.
* Knowledge of the immediate environment of its burrow in mice helps it to escape predation.
* Chaffinches learning how to sing.
* A student taught special type of addition fails to demonstrate the knowledge until a test is administered.
* Infants learn to make and understand facial expressions.
* A child learns to chew.
* After witnessing an older sibling being punished for taking a cookie without asking, theyounger child does not take cookies without permission.

### Importance of learning

- Useful for socialization process, as children learn how to behave and respond to others by observing how their parents and other caregivers interact with each other and with other people

**INSIGHT LEARNING**

This is learning based on information previously learned by other behavioural activities. It is based on advanced perceptual such as thought and reasoning.

Intelligence is the ability to solve unfamiliar problems.

Insight is the highest form of learning.

Example

* Chimpanzees presented with a bunch of banana too high to reach stack up the boxes beneath the banana and climbs up to get them.

**IMPRINTING**

This is a simple and specialized form of learning occurring during receptive periods in an animal’s life.

Receptive period means that the behaviour only develops during this time.

Example

* Young animals like chicks, duckling and goslings will follow the first moving object they see after hatching.
* Learning to fly in birds.
* The smell of the migratory salmon, were hatched and to which they return to spawn.

### Importance of imprinting behavior

* Enables young animal to recognize its own mother from among the other adults of their species.
* In early childhood, human become imprinted on their brother and sister and subconsciously learn not to mate with them subsequently to prevent inbreeding.
* Enable animals to visually identify with other members of their species so they may choose appropriate mates later in life.
* Enable young one to get food from their parents.
* Enables offsprings to acquire rapidly skills possessed by the parent e.g. learning to fly in birds and in salmon learning features in environment.

# EXERCISE

1. Imprinting can be described as
   1. A behavior that involves recognizing a print mark

## An innate behavior that requires practice

* 1. Learning that occurs at a critical period in early development

## Learning that requires a sign stimulus.

1. Which one of the following patterns of behavior in rat would be a result of latent learning?
   1. Avoiding to eat poisoned food
   2. Associate smell with presence of food
   3. Young rat following their mother
   4. Being aware of escape route
2. Which of the following is **not** correct about instinctive behavior?
   1. Is permanent adaptive trait
   2. Can be developed in animals reared in isolation
   3. Allow synchronization of sexual behavior
   4. Develop independently of the environment
3. When same response is given to the same stimulus on different occasion, the behavior is said to be
   1. Instinctive
   2. Conditioned
   3. Imprinted
   4. stereotyped
4. Hormones influence behavior in the following ways except
   1. affecting the growth of nerve connections in the brain
   2. directly affecting nerve cell and synapses within the central nervous system
   3. altering the sensitivity of peripheral receptors
   4. inducing RNA changes to quicken the learning process
5. Which one of the following is an advantage of social behavior among animals?
   1. No incidence of cannibalism
   2. Decreased susceptibility to diseases
   3. Increased reproductive efficiency
   4. Decreased competition
6. Migration of birds during winter from temperate regions to the tropics is an example of
   1. Habituation
   2. Insight learning
   3. Imprinting
   4. Exploratory learning
7. Which one of the following is not a purpose for courtship behavior among animals?
   1. Establishing a territory
   2. Ensuring that both partners are sexually mature
   3. Establishing a pair bond
   4. Ensuring that both partners are ready for mating
8. Birds learn to ignore a scare crow that is left in the same spot for a long time. This type of behavior is called
   1. Associative learning
   2. Habituation
   3. Imprinting
   4. Conditioning
9. The type of learning that involves the immediate understanding and responding is
   1. imprinting
   2. associative learning
   3. insight learning
   4. habituation
10. Which one of the following, types of behavior is **least** learnt?
    1. Associative
    2. Instinct
    3. Imprinting
    4. Insight
11. Which one of the following does not result from territorial behaviors?
    1. Reduced competition within a herd
    2. Increased variation among off springs
    3. Reduced frequency of genes from weak individuals
    4. Increased inbreeding
12. Which is instinctive behavior?
    1. Courtship and display ceremonies in birds and insect
    2. Avoiding the capture of a distasteful insect by bird
    3. Migration of birds
    4. Chicks taking cover when a kite is passing
13. When an earthworm encounters an unfavorable stimulus it quickly withdraws. This is an example of
    1. A conditioned reflex
    2. An escape response
    3. Chemotaxis
    4. A terminating stimulus
14. Which one of the following best describes association learning?
    1. Preying bird avoiding to eat a bright colored caterpillar
    2. Rat eventually learning to transverse a maze if rewarded
    3. Chick following the first moving object it sees after hatching
    4. Chimpanzee using a stick to reach an object
15. Which one of the following would not be caused by seasonal changes in migratory birds?
    1. Hormonal changes
    2. Feeding behaviors
    3. Reproductive behaviors
    4. Plumage coloration
16. Which one of the following patterns of behavior in rats would be a result of latent learning?
17. Being aware of escape routes.
18. Avoiding to eat poisoned food.
19. Associating smell with presence of food.
20. Young rats following their mother.
21. What type of learning is exhibited by a predator when it avoids eating a brightly colored prey?
22. exploratory
23. habituation
24. associative
25. Trial and error Structured

**QUESTION**

1. (a) Give the meaning of each of the following forms of behavior.
2. Habituation (1mark)
3. Imprinting (1mark)
4. Instinctive behavior (1mark)
5. State the benefits of each of the above forms of behavior to an animal.
6. Habituation (2mark)
7. Imprinting (2mark)
8. Instinctive behavior (3mark)
9. (a) What is instinctive behavior? (1mark)
10. State two factors that influence instinctive behavior (2marks)
11. Territorial behavior is common among many animal species. Give
12. Four advantages of this behavior. (4marks)
13. Three disadvantages of this behaviors (3marks)
14. (a) What is displacement activity? (2marks)
15. State the ecological importance of each of the following forms of behavior.
    1. Territorial behavior (3marks)
    2. Courtship behavior (3marks)
16. Give two ways in which animals avoid predation (2marks)
17. (a) Explain the biological signification of the following forms of behavior
18. Territorial behavior
19. courtship

(b) Distinguish between learned and instinctive behavior.

23 a) Using examples, explain the meaning of displacement activity 6 marks

1. What’s the importance of each of the following forms of behaviors to the survival of organisms in the community?
2. territorial behavior (07marks)
3. courtship behavior (07marks)

**ANSWERS TO OBJECTIVE TYPE QUESTIONS**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | C | 6 | C | 11 | B | 16 | B |  |
| 2 | D | 7 | D | 12 | B | 17 | A |  |
| 3 | C | 8 | A | 13 | D | 18 | C |  |
| 4 | D | 9 | B | 14 | B |  |  |  |
| 5 | D | 10 | C | 15 | A |  |  |  |

1. (a) Give the meaning of ach of the following forms of behavior
   1. Habituating
   2. Imprinting
   3. Instinctive behaviours
2. State the benefit of each of the form of behaviour to an animal
   1. Habituation
   2. imprinting
   3. instinctive behaviour

### Solution

1. (i) Habituation is a form of learning in which an animal gradually ceases to respond to a continuously repeated stimulus not associated with reward or punishment.
2. Imprinting is a form of behavior in which a young animal learns to recognize and follow its parent right from the time it is born.
3. Instinctive behavior is is an innate (inborn), stereotyped response to one or more environment stimuli, characteristics of organism of a given species
4. (i) Importance of habituation
   * Enables a young animal to understand neutral elements in the environment such as movements due to wind.
   * It enables an animal to save energy by not responding to non-harmful stimuli over and over again.

(ii) Importance of imprinting

* enable a young animal to acquire rapidly skill possessed by the parents
* It also enables a young animal to closely follow its parents which gives it protection
* It enables the offspring to associate and identify with the species (iii)Importance of instinctive
* Animals solve quickly new problem without mistakes.
* It enables an animal to use its past experience in one situation to easily solve a similar problem.

1. Solution
2. Instinctive behavior refers to species – specific, protective or procreation activities of an individual in the environment influence.
3. Species type Genetic constitution

Exposure to behavior provoking stimuli.

(c ) (i) Advantages of territorial behavior

* The mating pair of organisms of the same species and their offspring are well spaced to receive the available resource e.g. food, space. Shelter.
* The available resources are protected and shared evenly amongst the population.
* Provides defense of an area in which organism live against organisms of the same or different species.
* It minimizes spread of diseases and parasites.
* Actual fighting between organisms which would detrimental to the species is rare and replaced by mere threats.
* The species protect and achieve maximum utilization of the habitat.
* Population growth is easily controlled.
* Intraspecific competition is reduced.
* Genes from strong organisms or the fittest are passed on to the next generation

(ii) Disadvantage of territorial behavior

* A lot of energy is lost in guarding the territory against intruders.
* May lead to death of weak individuals.
* Unfavorable genes carried by strong individuals end up being propagated to future generations.
* Individuals in the territory have limited choices of food and mates because tier supply is limited to those present in the territory.
* In case of a diseases outbreak, all individuals in the territory may die without escaping from it for fear of being killed by animals in other territories.

1. Solution.
2. Displacement activity is when an animals, faced with conflicting situation, performs an act which is trivially irrelevant to the situation in order to release the tension developed thereof. for example, after being annoyed, a man bangs a table

### Importance of territorial behavior

* + Provide defense of an area in which organisms live against organisms of the same or different species.
  + The mating pair of organisms of the same species and their offspring are well spaced to receive the available resources, e.g. food, space and shelter.
  + The available resource is protected and shared amongst the population Others:
  + Actual fighting between organisms, which would be detrimental to the species is rare and replaced by mere threats.
  + Intraspecific competition is reduced.
  + It minimizes spread disease and parasites.
  + Genes from strong organisms or the fittest are passed on to the next generation.

1. Importance of courtship behavior.
   * It leads to rise levels of reproductive hormones
   * It stimulates organisms to sexual activity.
   * It tightens pair bonding between the mating pair.

### Others:

* + It synchronizes time to produce offspring in right seasons.
  + It induces mating of individuals who accept each other.
  + It synchronizes gonad development, enabling gametes to mature at the same time, this ensures that fertilization occurs when mating takes place.

1. Mimicry Camouflage. **Others:**
2. Solution
3. (i) Territorial behavior ensures that each mating pair of organisms and their offspring are adequately spaced to receive a share of the available resources such as food and breeding space.
4. It ensures that available resources are protected and distributed evenly among the population. This is because the size of the territory formed depends on the amount of resource available.
5. It reduces actual fighting between organisms, which would be detrimental to the species, and replaces it with mere threats.
6. It promotes natural selection as it ensures that only the ‘fittest’ organisms find a territory, breed and thus pass on their genes to the next generation
7. Territorial behaviour also regulates population size as weaker organisms are out completed and fail to mate.
8. It also minimizes the spread of diseases and parasites, since organisms not belonging to a given territory are prevented from entering it.
9. Courtship stimulates organisms to sexual activity, thus increasing the chances of reproduction. This ensures the continuity of the species.
10. It tightens the pair bond between the mating pair, which result in the subsequent rearing of the offspring by both sexes.
11. It synchronizes gonad development so that gametes mature at the same time. This ensure that fertilization occurs when mating takes place.
12. It also synchronizes time to produce offspring in right seasons. This ensures that offspring are produced when resources are available or conditions are favorable to support them.
13. Courtship reduces inter-species mating. This is because it involves use of species specific set, of activates to attract members of the opposite sex. Hence membrane of different species fails to attract each other.
14. Differences between learned and instinctive behavior

|  |  |
| --- | --- |
| Learned behaviour | Instinctive behaviour |
| Mostly individual-specific.  Develops over time through experience or observation.  Absent within an individual at birth.  It greatly influenced by the environment. | Mostly species- specific In impulsive immediate  Present and complete within an individual at birth.  Is greatly independent of the environment. |