ANIMAL BEHAVIOUR

Behaviour refers to all the observable actions, reactions, and activities performed by organisms in response to internal or external stimuli.
Ethology is the scientific study of animal behaviour.
These activities may be voluntary or involuntary and are aimed at helping the organism survive, reproduce, and adapt to its environment.
Animal behaviour is controlled by the nervous system, endocrine system, genetic factors, and environmental influences. The two forms of behaviour are; innate behaviour and learned behaviour.

INNATE (INSTINCTIVE) BEHAVIOUR

Innate behaviour refers to inherited patterns of behaviour that an organism is born with and can perform correctly without prior learning, training, or experience.
Innate behaviour patterns include; simple reflexes, orientations (taxes and kineses) and instincts. Instincts are complex and include; biological rhythms, territorial behaviour, reproductive behaviour, agonistic behaviour, altruistic behaviour, communication, social hierarchies and social organisation.

Characteristics of innate behaviour

- Inborn: They are present at birth and do not need to be learned from parents or the environment.
- Genetically controlled: They are inherited from parents through genes and are passed from one generation to another.
- Stereotyped: The behaviour follows a fixed pattern and is performed in the same way each time.
- Automatic: They occur naturally once the appropriate stimulus is received.
- Species-specific: Members of the same species usually perform the behaviour similarly.
- Relatively permanent: They change very little during the lifetime of the organism.
- Triggered by stimuli: Specific environmental signals called stimuli initiate the response.

TYPES OF INNATE BEHAVIOUR

1. SIMPLE REFLEXES

Simple reflexes are rapid, automatic, involuntary responses to specific stimuli without conscious control. They are usually fast, controlled by the spinal cord, protective in function and occur through a reflex arc.
Examples:

- Blinking of the eye.
- Sneezing.
- Knee-jerk response.
- Withdrawal of the hand from a sharp or hot object.

Mechanism of a simple reflex action (Reflex arc)

A reflex action begins when a stimulus is detected by receptors and an impulse is sent via a sensory neurone to the spinal cord. In the spinal cord, it passes through a relay neurone and is transmitted to a motor neurone, which stimulates an effector such as a muscle or gland to produce a rapid response.
The brain becomes aware of the stimulus after the response has occurred, which explains the speed advantage of reflexes.

SIGNIFICANCE OF SIMPLE REFLEXES

- Rapid protection from harm: Immediate withdrawal from painful or damaging stimuli reduces tissue injury like cuts and burns due to very short response time.
- Protection of vital organs: Reflexes like blinking, coughing, and pupil constriction protect sensitive structures and maintain normal functioning.
- Homeostatic maintenance: Automatic adjustments such as pupil reflex regulate internal conditions, ensuring stable functioning in changing environments.

2. TAXES (TAXIS)

Taxes are directional movements of an organism in response to a directional stimulus.
The movement is either towards the stimulus (positive taxis) or away from it (negative taxis).
In taxis, the direction of movement depends on the direction of the stimulus. The organism does not simply increase or decrease activity, but instead orients its body and moves in a specific direction relative to the stimulus source.
Some types of taxes include:

- **Phototaxis**: Movement in response to light e.g. insects moving towards light.
- **Chemotaxis**: Movement in response to chemicals e.g. bacteria moving toward nutrients.
- **Geotaxis**: Movement in response to gravity e.g. earthworms moving downward.
- **Rheotaxis**: Movement in response to water currents e.g. fish swimming against water currents.
- **Thermotaxis**: Movement in response to temperature e.g. organisms moving toward favourable temperatures.

SIGNIFICANCE OF TAXIS

- Movement towards favourable environments: Positive taxis allows organisms locate essential resources such as light for photosynthetic organisms or nutrients for bacteria, improving survival chances.
- Avoidance of harmful conditions: Negative taxis allows organisms to move away from unfavourable conditions such as extreme heat, toxins, or predators, reducing risk of death.
- Efficient environmental positioning: Taxis ensures organisms quickly reach optimal conditions without random searching, conserving energy needed for survival.

3. KINESIS

Kinesis is a non-directional movement response to a stimulus, where the rate of movement or rate of turning changes depending on the intensity of the stimulus.
Unlike taxis, the organism does not move towards or away from the stimulus in a directed way. Instead, its activity level changes based on how favourable or unfavourable the environment is. If conditions are unfavourable, the organism tends to move more rapidly or change direction more frequently, increasing the chance of leaving that area. If conditions are favourable, movement slows down, causing the organism to remain longer in that area. This increases survival efficiency without requiring directional sensing.
Types of kinesis include:

- **Orthokinesis**: The speed of movement changes with stimulus intensity e.g. woodlice move faster in dry conditions.
- **Klinokinesis**: The rate of turning changes with stimulus intensity e.g. woodlice turn more frequently in dry conditions.

SIGNIFICANCE OF KINESIS

- Keeps organisms in favourable conditions: Kinesis increases movement in unfavourable environments, making it more likely that the organism will leave and find better conditions for survival.
- Reduces risk exposure: In harmful conditions like dryness or high temperatures, increased activity reduces time spent in danger, lowering mortality risk.
- Energy-efficient adaptation: Once favourable conditions are reached, reduced movement conserves energy, improving survival efficiency.

4. BIOLOGICAL RHYTHMS

Biological rhythms are regular, repeated patterns of physiological or behavioural activities that occur in organisms over specific periods of time.

Biological rhythms help organisms coordinate activities such as sleeping, feeding, migration, reproduction, and hormone release with predictable environmental changes like day and night, seasons, or tides. These rhythms are controlled by internal timing mechanisms called biological clocks, but they are often synchronized by external stimuli known as zeitgebers ("time givers"), such as sunlight, temperature, or tides. Biological rhythms may occur over different time intervals:

- **Circadian rhythms**: Occur roughly every 24 hours e.g. sleep-wake cycle.
- **Circannual rhythms**: Occur yearly e.g. migration, hibernation.
- **Tidal rhythms**: Linked to ocean tides.
- **Lunar rhythms**: Linked to phases of the moon.

Examples:

- Humans sleep at night and wake during the day.
- Birds migrate seasonally.
- Bats become active at night.
- Marine organisms respond to tidal cycles.

SIGNIFICANCE OF BIOLOGICAL RHYTHMS

- Energy conservation: Rest and activity cycles reduce unnecessary energy expenditure.
- Synchronization with environment: Allows organisms to match activities with favourable environmental conditions, such as feeding when food is available.
- Predator avoidance: Some animals become active at safer times, reducing risk of predation.
- Preparation for environmental change: Seasonal rhythms help organisms prepare for migration, hibernation, or breeding before conditions change.

5. TERRITORIAL BEHAVIOUR

Territorial behaviour is the behaviour shown by an organism in defending a particular area against others of the same or different species.

A territory is an area occupied and defended by an animal because it contains important resources such as food, mates, nesting sites, or breeding grounds.

Animals establish territories through behaviours such as marking, vocalizations, displays, chasing, or fighting. Territories may be temporary or permanent depending on the species and environmental conditions. Some animals defend territories only during breeding seasons, while others maintain them throughout the year.

Territorial behaviour is common in many mammals, birds, fish, reptiles, and insects.
Examples:

- Lions defend hunting territories from rival prides.
- Birds sing to warn other birds away from nesting areas.
- Dogs mark territory using urine scent marks.
- Male fish attack intruders entering breeding spaces.

SIGNIFICANCE OF TERRITORIAL BEHAVIOUR

- Reduces competition for resources: Territories help ensure individuals have access to sufficient food, water, and shelter by spacing individuals apart.
- Provides protection and safety: Defended areas offer secure places for resting, nesting, or hiding from predators.
- Prevents overcrowding: Spacing individuals apart reduces conflict and resource depletion.
- Improves access to resources: Animals within territories can feed and survive more efficiently.

6. REPRODUCTIVE BEHAVIOUR

Reproductive behaviour refers to the patterns of behaviour associated with reproduction which ensure successful production and survival of offspring.
Reproductive behaviour includes activities that help organisms attract mates, achieve fertilization, and care for offspring after birth or hatching. These behaviours are usually controlled by hormones, environmental stimuli, and instinctive responses. They are important because reproduction is essential for the continuation of a species. Different species show different reproductive strategies depending on their environment and survival needs. The major stages of reproductive behaviour include:

(a) COURTSHIP BEHAVIOUR

Courtship behaviour is the series of displays or actions performed by an organism to attract and select a mate before mating occurs.
Courtship helps individuals identify suitable mates of the same species and assess reproductive fitness. It may involve sounds, dances, colour displays, scent release, nest building, or gift offering.
Courtship also reduces aggression between males and females and increases chances of successful mating.
Examples:

- Male peacocks spread colourful feathers.
- Birds perform mating dances and songs.
- Male frogs call to attract females.
- Some insects release pheromones.

SIGNIFICANCE OF COURTSHIP BEHAVIOUR

- Reduces unnecessary conflict: Courtship signals help prevent aggression between males and females before mating.
- Ensures species recognition: Individuals identify members of the same species, reducing wasted reproductive effort.
- Promotes selection of healthy mates: Displays and behaviours help organisms choose strong and genetically fit partners, improving offspring quality.
- Increases mating success: Proper courtship stimulates reproductive readiness in both sexes.

(b) MATING BEHAVIOUR

Mating behaviour refers to the activities directly involved in copulation and fertilization between male and female organisms.

Mating behaviour ensures transfer of gametes for reproduction. In many species, mating occurs during specific seasons when environmental conditions are favourable.

Behaviour during mating may include pairing, mounting, guarding mates, or synchronized reproductive activities.

Examples:

- Frogs clasp during external fertilization.
- Mammals copulate internally.
- Fish release eggs and sperm into water simultaneously.
- Some birds form seasonal mating pairs.

SIGNIFICANCE OF MATING BEHAVIOUR

- Ensures fertilization: Mating behaviour allows transfer of gametes for reproduction.
- Coordinates reproduction with favourable conditions: Many species mate during seasons that favour survival of offspring.
- Produces offspring: Mating directly leads to continuation of the species.
- Enhances genetic transfer: Successful mating allows passing of genes to the next generation.

(c) PARENTAL CARE

Parental care is the behaviour shown by parents in protecting, feeding, and caring for their offspring to increase survival chances.

Parental care may occur before or after birth/hatching and varies greatly among species. Some animals guard eggs, build nests, feed young, or teach survival skills.

Species that produce fewer offspring usually show greater parental care compared to species producing many offspring.

Examples:

- Birds feed chicks in nests.
- Mammals nurse and protect the young.
- Crocodiles guard eggs and hatchlings.
- Penguins keep eggs warm during incubation.

SIGNIFICANCE OF PARENTAL CARE

- Protects offspring from predators: Parents guard eggs or young ones against danger.
- Provides food and shelter: Young organisms receive nourishment and protection necessary for survival.
- Increases survival of immature offspring: Care improves chances that young reach adulthood.
- Supports development of learning in offspring: Young animals may learn feeding, communication, and survival skills from parents.
- Encourages social behaviour: Parental care contributes to development of cooperation and family structures.

7. AGONISTIC BEHAVIOUR

Agonistic behaviour refers to threatening, fighting, or defensive interactions between organisms, usually directed toward members of the same species, over resources.

Agonistic behaviour includes a range of conflict-related actions such as threats, displays, chasing, submission, and physical fighting. It helps organisms compete for important resources while often avoiding unnecessary injury through warning signals and dominance displays.

Agonistic behaviour may be triggered by competition, overcrowding, territorial invasion, protection of offspring, or mating opportunities. The interactions commonly involve two main components:

- **Aggressive behaviour**: Attacking, threatening, or dominating another organism.
- **Submissive behaviour**: Retreating or showing surrender to avoid serious injury.

Many animals establish dominance hierarchies through agonistic behaviour, reducing repeated conflicts within groups.

Examples:

- Male deer fight using antlers during the breeding season.
- Dogs growl and display teeth when threatened.
- Chickens establish pecking orders.
- Lions defend territory aggressively against rivals.

SIGNIFICANCE OF AGONISTIC BEHAVIOUR

- Protects resources: Aggression helps organisms secure food, shelter, territory, and water necessary for survival.
- Defence against threats: Animals use aggressive behaviour to protect themselves and offspring from predators or rivals.
- Reduces repeated conflict: Dominance hierarchies help minimize constant fighting within groups.
- Prevents overcrowding: Territorial aggression spreads individuals across available habitats and resources.
- Secure access to mates: Aggressive individuals may gain greater opportunities to reproduce.
- Threat displays, warning sounds, and submissive postures reduce harmful physical combat.

8. ALTRUISTIC BEHAVIOUR

Altruism is a type of behaviour in which an organism acts in a way that benefits another individual, often at some cost or risk to itself.

Altruistic behaviour occurs when an organism sacrifices time, energy, food, safety, or reproductive opportunities to help others survive or reproduce. This behaviour is common in social animals and may involve warning calls, food sharing, protection of young, or cooperative care. Although altruism may appear disadvantageous to the individual, it can increase the survival of closely related individuals who share similar genes.

In some species, altruism also occurs through reciprocal cooperation, where individuals help each other with the expectation that assistance will later be returned.

Examples:

- Meerkats give alarm calls to warn group members of predators.
- Worker bees defend the hive despite dying after stinging.
- Birds help feed chicks that are not their own.
- Vampire bats share food with hungry group members.

SIGNIFICANCE OF ALTRUISTIC BEHAVIOUR

- Increases group protection: Warning calls and cooperative defence improve survival chances of group members.
- Enhances cooperation: Individuals working together can obtain food, defend territory, and avoid predators more effectively.
- Supports survival of relatives: Helping related individuals increases survival of shared genetic material.
- Improves social stability: Cooperative behaviours reduce conflict and strengthen group organization.

9. COMMUNICATION

Communication is the process by which organisms send and receive signals or information to influence the behaviour of other individuals.

Animals communicate using signals that convey information about danger, food, territory, mating, social status, or group coordination. Communication may occur between members of the same species (intraspecific communication) or between different species (interspecific communication).

Some communication behaviours are instinctive, while others may be learned.

Signals can be transmitted through different methods, including:

- **Visual signals**: Body posture, colour displays, gestures.
- **Auditory signals**: Sounds, calls, songs.
- **Chemical signals**: Pheromones, scent marking.
- **Tactile signals**: Touching, grooming.
- **Electrical signals**: Used by some fish.

Examples:

- Birds sing to attract mates or defend territory.
- Bees perform dances to show food location.
- Dogs growl to warn intruders.
- Ants use pheromones to guide colony members.
- Vervet monkeys give alarm calls for predators.

SIGNIFICANCE OF COMMUNICATION

- Warns of danger: Alarm signals help group members avoid predators or threats.
- Improves food acquisition: Communication allows organisms to share information about food sources.
- Reduces conflict: Threat displays and warning signals prevent unnecessary physical fights.
- Enhances group coordination: Communication helps organize hunting, migration, defence, and movement within groups.
- Attracts mates: Courtship signals help individuals find and select reproductive partners.
- Strengthens parental care: Parents and offspring communicate for feeding, protection, and recognition.
- Maintains social bonds: Signals help strengthen relationships within family or social groups.

10. SOCIAL HIERARCHIES AND ORGANISATION

Social hierarchies and organisation refer to the structured arrangement of individuals within a group, where members have different ranks, roles, and patterns of interaction that help maintain order and cooperation.

Many animals live in groups with organized social systems that determine how individuals interact, share resources, reproduce, and perform duties.

A social hierarchy is a ranking system in which some individuals have higher status or dominance than others. Dominant individuals usually gain priority access to food, mates, shelter, or territory.

A social organisation is the overall arrangement and cooperation of individuals within a group. Members may specialize in different roles such as leadership, defence, reproduction, or caring for young.

Hierarchies are often established through aggression, competition, displays, age, size, or experience. Once established, they reduce constant conflict because individuals recognize their positions.

Social organisation is common in insects, mammals, and birds.

Examples:

- Chickens form a pecking order.
- Wolves live in packs with dominant leaders.
- Bees have queens, workers, and drones.
- Primates organize into ranked social groups.

SIGNIFICANCE OF SOCIAL HIERARCHIES AND SOCIAL ORGANISATION

- Reduces conflict within groups: Established ranks reduce repeated fighting over resources.
- Promotes cooperation: Group members work together in activities such as hunting, defence, and caring for the young.
- Improves protection: Living in organized groups increases defence against predators.
- Increases efficiency: Division of labour allows different individuals to specialize in important tasks.

LEARNED BEHAVIOUR

Learned behaviour refers to behaviour patterns developed through experience, practice, observation, or interaction with the environment.

Characteristics of learned behaviour

- Acquired through experience: They develop after birth as the organism interacts with the environment.
- Not genetically inherited: They are not passed directly from parents through genes, although the ability to learn may be inherited.
- Flexible: The behaviour can change depending on experience or environmental conditions.
- Modified by practice: Repetition, reinforcement, or observation can improve or alter the behaviour.
- Depends on memory and nervous system development: More advanced nervous systems generally allow more complex learning.
- May be temporary or permanent: Some learned behaviours are easily forgotten while others remain for life.

TYPES OF LEARNED BEHAVIOUR

1. **HABITUATION**

Habituation is a simple form of learning in which an organism gradually reduces or stops responding to a repeated, harmless stimulus over time.

Habituation occurs when an organism is repeatedly exposed to a stimulus that has no beneficial or harmful effect. Initially, the stimulus may trigger a response, but as the organism learns that it is irrelevant, the response decreases. This is a form of non-associative learning, meaning it does not involve linking two stimuli or a stimulus with a reward. It helps organisms filter out unnecessary information from the environment so they can focus on important stimuli.

For example, animals may initially respond to repeated background noise or non-threatening movements, but eventually ignore them once they are recognized as harmless.

SIGNIFICANCE OF HABITUATION

- Prevents energy wastage on irrelevant stimuli: By ignoring harmless repeated stimuli, organisms conserve energy and focus only on meaningful threats or opportunities.
- Improves response to real danger: Reduced distraction from non-threatening stimuli allows quicker reaction to actual predators or environmental risks.
- Enhances sensory efficiency: The nervous system becomes more efficient by filtering out unimportant information, improving survival decision-making.

2. **ASSOCIATIVE LEARNING**

Conditioning is learning through association between stimuli and responses.

(a) CLASSICAL CONDITIONING (CONDITIONED REFLEX)

Classical conditioning is a form of associative learning in which an organism learns to link a previously neutral stimulus with a biologically significant stimulus, so that the neutral stimulus eventually produces a similar response on its own.

In classical conditioning, learning occurs through the formation of an association between two stimuli. Initially, a neutral stimulus (NS) does not produce any specific response. However, when it is repeatedly

paired with an unconditioned stimulus (UCS) that naturally produces an unconditioned response (UCR), the organism begins to associate the two. After repeated pairing, the neutral stimulus becomes a conditioned stimulus (CS) and triggers a conditioned response (CR) similar to the original response. This type of learning is automatic and does not involve conscious decision-making, but it allows organisms to predict important events in their environment.

Example:

For Pavlov's dogs;

- Food (UCS) = salivation (UCR)
- Bell (NS) + food (UCS) = salivation
- Bell alone (CS) = salivation (CR)

SIGNIFICANCE OF CLASSICAL CONDITIONING

- Enables prediction of important events: Organisms learn to associate environmental cues with rewards or danger, improving their ability to respond before harm occurs.
- Improves avoidance of threats: Animals can associate certain sounds, smells, or sights with predators or danger, allowing early escape responses that increase survival chances.
- Enhances adaptive behaviour: By learning environmental patterns, organisms respond more effectively to changing conditions without relying on genetic programming alone.
- Improved foraging efficiency: Learning to associate cues with food availability ensures better nutrition, supporting growth and reproductive capability.
- Increased mating success: Organisms may associate certain signals or environments with mating opportunities, improving chances of reproduction.
- Better parental care: Parents can associate offspring signals like sounds and smells with feeding or protection needs, increasing offspring survival.
- Supports behavioural flexibility: Unlike fixed innate responses, classical conditioning allows adjustment to new environmental conditions without genetic change.

(b) OPERANT CONDITIONING (TRIAL-AND-ERROR LEARNING)

Operant conditioning is a form of learning in which behaviour is modified by its consequences, so that actions followed by rewards are strengthened, while actions followed by punishment are weakened.
In operant conditioning, an organism learns by interacting with its environment through trial and error. When a behaviour produces a positive outcome (reward), it is more likely to be repeated in the future. When a behaviour results in a negative outcome (punishment or no reward), it is less likely to be repeated. Over time, the organism gradually learns to associate specific behaviours with their consequences, leading to improved survival and efficiency. This learning is flexible and allows adjustment to new situations.
These terms were used in conclusion:

- **Positive reinforcement**: Reward increases behaviour.
- **Negative reinforcement**: Removal of unpleasant stimuli increases behaviour.
- **Punishment**: Decreases likelihood of behaviour.

Example:

Skinner's box experiments, where animals such as rats learned to press a lever to receive food rewards.

SIGNIFICANCE OF OPERANT CONDITIONING

- Improves ability to obtain food and resources: Animals learn which behaviours lead to successful feeding, increasing survival chances in changing environments.
- Helps avoid harmful behaviours: Actions that lead to pain or danger are not repeated, reducing risk of injury or death.
- Enhances adaptability: Organisms can adjust behaviour based on experience, allowing survival in new or unpredictable environments.
- Improved mate competition: Learned behaviours can improve success in competition for mates or territory.

3. IMPRINTING

Imprinting is a rapid form of learning that occurs during a specific early life stage (critical period), in which a young animal forms a strong, often irreversible attachment to the first appropriate moving stimulus it encounters, usually its parent.

Imprinting occurs shortly after birth or hatching, during a limited critical (sensitive) period when the young animal is biologically prepared to learn specific survival-related information. During this time, the organism learns to recognize and follow a particular object or individual, most commonly its mother. Once imprinting occurs, the behaviour is typically long-lasting and difficult to change, even if the original stimulus is removed or replaced. This ensures that the young animal remains close to a protective figure during early development, increasing its chances of survival.

Example:

Newly hatched ducklings follow their mother. If exposed to a human or object first, they may imprint on it instead.

SIGNIFICANCE OF IMPRINTING

- Ensures protection of young: By staying close to the parent, offspring are protected from predators and environmental dangers during vulnerable early stages.
- Guides survival learning: The parent often leads the young to food sources and safe habitats, improving early survival chances.
- Reduces risk of isolation: Imprinting ensures young animals do not become separated from their group, which could be fatal in many species.
- Supports species continuity: Correct imprinting ensures the young recognize and stay within their species group, maintaining successful breeding populations and prevents hybridization.

4. INSIGHT LEARNING

Insight learning is a form of advanced learning in which an organism solves a problem suddenly by understanding relationships between different elements in its environment, rather than through trial-and-error or repetition.

Insight learning involves cognitive processing where an animal appears to mentally “reorganize” information and reach a solution without gradual reinforcement. Instead of randomly trying behaviours and learning from consequences, the organism quickly understands how different parts of a problem relate to each other.

This type of learning usually occurs in animals with more developed nervous systems, such as primates and some birds. It is often demonstrated when an animal uses previously unrelated objects or actions in a new way to achieve a goal.

Example:

- A chimpanzee stacks crates to reach hanging food.
- A raven bends a wire to retrieve food from a container.

SIGNIFICANCE OF INSIGHT LEARNING

- Rapid problem solving in new environments: Animals can quickly adapt to unfamiliar challenges without needing repeated experience, improving survival in changing conditions.
- Efficient resource access: Enables organisms to obtain food or escape danger using creative solutions when normal methods fail.
- Reduces dependence on instinct or repetition: Allows survival even when innate behaviours are insufficient.

5. SOCIAL LEARNING (IMITATION)

Social learning is a form of learning in which an individual acquires new behaviours by observing and imitating the actions of other individuals, usually members of the same species.

In social learning, an organism does not learn through direct trial-and-error or conditioning alone. Instead, it watches the behaviour of others and copies successful actions. This allows information to spread quickly through a population without each individual needing to discover solutions independently.

Social learning is especially important in social species, where individuals live in groups. It enables behaviours such as foraging techniques, predator avoidance, and tool use to be transmitted across generations without genetic change.

Examples:

- Young chimpanzees imitate using tools to extract termites by observing adults.
- Birds learn songs by copying adults.
- Fish avoid predators by copying the escape behaviour of other fish.

SIGNIFICANCE OF IMITATION

- Rapid acquisition of survival skills: Individuals can quickly learn essential behaviours such as finding food or avoiding predators without needing direct experience.
- Reduces risk of trial-and-error: By copying others, organisms avoid dangerous mistakes that could lead to injury or death.
- Better social integration: Individuals that learn group behaviours effectively are more likely to be accepted in social groups, improving mating opportunities.

6. LATENT (EXPLORATORY) LEARNING

Latent learning is a form of learning in which an organism acquires knowledge or information without immediately showing it through behaviour.

The learning remains hidden (“latent”) until there is motivation or a reason to use it.

Latent learning occurs when an organism explores and gathers information about its environment without reinforcement or obvious rewards at the time of learning. The knowledge gained is stored mentally and may only become visible later when it becomes useful.

This type of learning often involves the formation of cognitive maps, that is, internal mental representations of surroundings that help organisms navigate or solve problems later. Unlike trial-and-error, the organism may appear not to have learned anything initially, but later demonstrates knowledge when motivated by hunger, danger, or another need.

Examples:

- Rat explores maze without reward, then later finds food rapidly.
- Dogs learn routes around a neighbourhood during walks.
- Birds memorize locations of food sources while exploring.

SIGNIFICANCE OF LATENT LEARNING

- Better navigation and orientation: Animals can remember locations of food, water, shelter, or escape routes, improving survival during future challenges.
- Rapid response in emergencies: Previously gathered environmental knowledge allows quick action when danger or opportunities arise.

END

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