**Concept 1: Analyzing Animal Behaviour**

AP Bio 11

*Campbell* - Chapter 51: Animal Behaviour  
*Holtzclaw*  - Read:  252-253 and answer question Questions #27-30 on 256 and  pg. 328, Questions #1-3

**Behavioural Ecology**

Definition:  The study of the evolution of and the ecological basis of animal behaviour

* Both \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contribute to behaviour.

*You must know:*

* The difference between kinesis and taxis
* Various forms of animal behaviourand communication such as orientation behaviour, agnostic behaviour, dominance display, or mating behaviour, and how they are adaptive
* The role of altruism and inclusive fitness in kin selection
* How to design a controlled experiment

Ethology – the study of animal behaviour. There are two big questions that ethologists ask:

* How does it happen?

Discovery of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ causes. Answers to the ‘how could be:

* Why does it happen?

Discovery of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ causes. Studying why involves:

Example: the honey bee waggle dance!

**Types of Behaviours**

1. Type of Movement

* + Kinesis - a simple change in activity in \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to a stimulus. \_\_\_\_\_\_\_\_\_ movement.
  + Taxis - \_\_\_\_\_\_\_\_\_\_\_\_\_\_ movement towards or away from a stimulus. \_\_\_\_\_\_\_\_\_\_\_ movement. For example:

Is Pill Bug movement from a dry open area to a moist covered area Kinesis or Taxis? Why?

2. Innate behaviour 🡪 developmentally fixed and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Example: Fixed action pattern (FAP) is a sequence of unlearned events, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, instinctive, trigged by a stimuli.

* + - Example:

3. Imprinting 🡪 a combination of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ components. It’s limited to a \_\_\_\_\_\_\_\_\_\_\_\_ period in the organism’s life.

* + - Example:

4. Migration 🡪 navigation may be from detection of the earth’s \_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Can be triggered by temperature or sunlight.

* + - Example:

5. Circadian rhythms 🡪 occur on a daily cycle.

6. Signals 🡪 a behaviour that causes a change in the behaviour of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. It’s the basis for animal communication.

* Pheromones. Chemical hormones (
  + - Examples:
* Visual. Examples:
* Auditory. Examples:

7. Learned behaviour

* + Habitualization 🡪 a loss of responsiveness to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ that conveys little or no new information.
    - Example:
  + Cognitive mapping🡪 a representation in the nervous system of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ relationships between objects in the animals surroundings
    - Example:
  + Associative learning 🡪 ability to associate one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ feature to another.
    - Example:
* Classical conditioning 🡪 arbitrary stimulus becomes associated with an \_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Example:
* Operant conditioning 🡪 trial and error learning
  + Example:

**Selection as an Explanation of Behaviour**

1. Foraging behaviour is not only \_\_\_\_\_\_\_\_\_\_\_\_ but the mechanisms of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, recognizing and capturing food.

Optimal Foraging Model 🡪 the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of nutrition weighed against the \_\_\_\_\_\_\_\_\_\_ of obtaining food.

2. Mating systems

* + Promiscuous 🡪
  + [Monogamous](http://51_01AlbatrossCourtship_SV.mpg) 🡪
  + Polygamous 🡪

3. Agonistic Behaviours 🡪 ritualized \_\_\_\_\_\_\_\_\_\_\_\_\_that determine which competitor gains \_\_\_\_\_\_\_\_\_ to a resource such as food or a mate.

4. Altruism 🡪 animals behave in a way the \_\_\_\_\_\_\_\_\_\_\_ their individual fitness but \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the fitness of the population

Example:

[Inclusive fitnes](http://www.youtube.com/watch?v=rXCPaNWcTFo)s 🡪 the \_\_\_\_\_\_\_\_\_\_\_\_\_effect an individual has on proliferating its \_\_\_\_\_\_\_\_\_\_\_\_\_ by producing its own offspring and by providing aid that enables other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_to  produce offspring.

Kin Selection → the \_\_\_\_\_\_\_\_\_\_\_\_\_\_that favours this kind of altruistic behaviour by enhancing the reproductive success of\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.