Hiss-teria: Psychology in Action Years 11-12

These pages will assist you in your note taking during the psychology presentation.

1. For what reasons would Perth Zoo need to utilise learning theories with their animals?

   a. _____

   b. _____

   c. _____

2. During the session complete the grid below by ticking which learning theories apply to the following animals.

	Komodo Dragon	Sumatran Orangutan	Spotted Hyaena	Southern White Rhino
Classical Conditioning				
Operant Conditioning				
Observational Learning				
Systematic Desensitisation				

3. During the session explain the following terms as they apply in operant conditioning:

   Positive: _____

   Negative: _____

   Reinforce:_____

   Punish: _____

4. Give an example of the following:

   Positive reinforcement: _____

   Negative reinforcement: _____

   Positive punishment:_____

   Negative punishment: _____

Perth Zoo
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5. Consider the case study of the Komodo Dragon.

   a. What is the objective of the training?

   b. What is the role of the target stick?

   c. What is used as a reinforcer?

   d. What type of conditioning and reinforcement is this?

6. Watch the footage of the Spotted Hyaena training session and answer the following questions.

   a. What reinforces Kigana's behaviours throughout the session?

   b. When are the reinforcements applied?

7. a. What is a bridge?

   b. What type of conditioning is a bridge?

   c. Draw the conditioning sequence:

8. During the injection desensitisation process, what must happen if at any stage the Rhino appears distressed?

_____

_____

_____

9. Summarise the factors which may alter the effectiveness of the consequences of Conditioning.

CONDITIONING FACTOR	DESCRIPTION
1.	
2.	
3.	
4.	

10. How has observational learning benefited Perth Zoo's orangutan **breeding** program?

_____

_____

_____

11. How has observational learning benefited Perth Zoo's orangutan **release** program?

_____

_____

_____

_____

12. Describe in your own words how systematic desensitisation training is performed using the snake phobia as an example.

Activity Sheet 1: Quantitative and Qualitative Data Collection

Readily observed behaviours can produce data that can be quantified and analysed statistically.

Choose two individuals from the Hamadryas Baboon troop in the African Savannah and then complete the behaviour observation task to test the following hypothesis.

HYPOTHESIS: There will be a significant negative correlation between grooming behaviour and aggressive behaviour within a troop of Hamadryas Baboons.

Name of observer (s):_____

Name of time keeper (s):_____

Name of scribes (s):_____

Date:_____ Time: _____AM/PM

Characteristics of individual A & B observed (distinguishing marks, size colour, scars):

_____

Age: Infant (I) Juvenile (J) Sub Adult (SA) Adult (A) Sex: M ☐ / F☐ / Unknown

Weather (circle one from each group): Sunny/overcast/raining
hot/warm/cold
still/windy

Observation intervals: Using the behaviour key record your chosen animal's behaviour every 5 seconds. Make sure everyone in your group has a role (e.g. time keeper, scribe or observer).

	A	B		A	B		A	B		A	B
0			65			125			185		
5			70			130			190		
10			75			135			195		
15			80			140			200		
20			85			145			205		
25			90			150			210		
30			95			155			215		
35			100			160			220		
40			105			165			225		
45			110			170			230		
50			115			175			235		
55			120			180			240		
60											

Activity Sheet 1: Behaviour Key

Activity:

R	Resting	W	Walking
S	Sitting	St	Standing
Fo	Foraging	Fe	Feeding
Ru	Running	Cl	Climbing
Ch	Chasing	BC	Being Chased
U	Unseen		

Visual and Vocal Interactions:

S	Sexual behaviour	MB	Mounting Behaviour (MM, FF)
MA	Mild Aggression	SA	Serious Aggression
Sub	Submission	V	Vocalising

Interactions:

PA	Playing alone	PO	Playing with others
GS	Groom Self	BG	Being Groomed
GA	Grooming Another	HA	Holding Another
BH	Being Held	OC	Other Contact

A guide to aggressive behaviour signals in Hamadryas Baboons:

Aggression Level	Mild Aggression	Serious Aggression	Submission
Signal	Staring, Raising eyebrows	Open mouth with canines exposed, charging, hitting	Rump display, avoidance, being mounted

Back at school – Using your data

1. Analyse the data from your quantitative observation to illustrate how the animal that you observed used that portion of its day.

a. Calculate percentages of time spent in different behaviours.
$$\frac{\text{Number of minutes doing behaviour of interest}}{\text{Number of minutes doing all observed behaviours}} \times 100$$

b. Present your findings in an appropriate way. Consider the use of pie charts or bar graphs.

2. Which behaviours recorded would you consider aggressive, cooperative or solitary? Classify the recorded behaviours in the table below.

Aggressive	Cooperative	Solitary

3. What kinds of factors may have affected the types of behaviours that were shown during your observation period? What factors may trigger aggressive behaviours?

4. Was there observed grooming behaviour preceding or following aggressive behaviour within the troop?

5. Demonstrate how your findings confirm or disprove the hypothesis that grooming minimises aggression within a troop of Hamadryas Baboons?

Activity Sheet 2 – Qualitative Data Collection

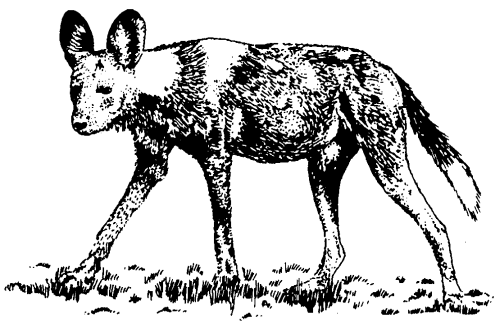
Duration: 5 minutes

As a comparison, qualitative data can be collected from one of the following groups of animals: Slender-tailed Meerkats or African Painted Dog.

To carry out this exercise:

- Work in pairs (one student observes and the other records everything their animal does)
- Refer to the Appendices for background information on your animal
- Choose one focal animal in the group to observe
- Observe your focal animal for five minutes
- List all the observed activities in the space provided

Animal: Slender-tailed Meerkat ☐ African Painted Dog ☐



Activity Sheet 3: Animal communication

Communication is a way of conveying messages to another individual. These messages can be **verbal** where words are used, or **non-verbal.** The table below outlines many ways that animals communicate with one another. Utilise exhibit signage and observational data to complete the table below.

For each form of communication describe its purpose, provide an example of an animal that makes use of this type of communication and how it was used.

FORM	FUNCTION	ANIMAL OBSERVATION
Olfactory Communication (Smell) Example:		
Visual Communication Example:		
Tactile Communication (Touch) Example:		
Distance Example:		
Posture Example:		

Activity Sheet 4: Operant Conditioning

Design an operant conditioning program for any of these domesticated animals:

- Cat - Dog -Bird

Consider the following:

- What are some behaviours you can teach a pet?
- What are some different ways that people train their pets?
- What is something that your pet has learned to do or learned not to do?
- What is the objective of the conditioning program *i.e.* what will you want the animal to do or not do?
- How is the desired behaviour reinforced or undesirable behaviour extinguished?
- When are the reinforcement(s) applied?
- What methods or processes will ensure the effectiveness of the consequences? For example, how will you ensure the animal carries out the behaviour for other individuals in your family?

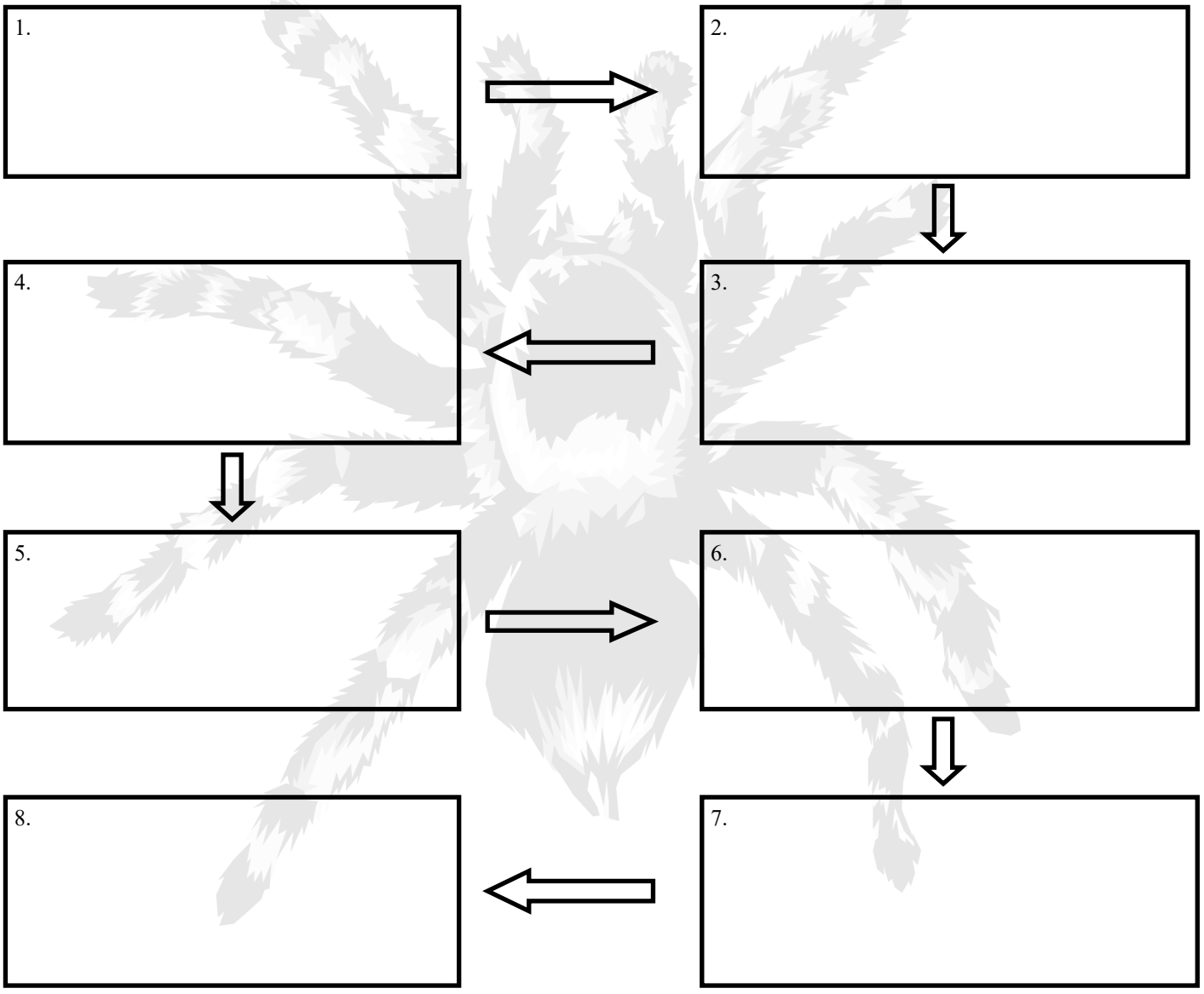
After designing your program answer the following questions:

- What is an example of an inherited or innate behaviour in a pet and a learned behaviour in a pet?
- How do you distinguish an innate behaviour from a learned behaviour?
- What are some common mistakes owners make in training their pets?
- Which animals have reputations for being intelligent? Are these reputations true?
- How does an animal's brain affect its intelligence?

Activity Sheet 5 – *Along came a spider*
Systematic Desensitisation

Arachnophobia is an abnormal fear of spiders and other arachnids (this may include scorpions). Not only is arachnophobia the most common animal-based phobia, it is among the most common of all phobias. Though many arachnids are harmless, a person with arachnophobia may still panic or feel uneasy around one. In some cases, even a realistic drawing or an object resembling a spider can also evoke a fear response.

Create a hierarchy of graduated exposure therapy for a person who has arachnophobia.



Appendix 1

Hamadryas Baboon (*Papio hamadryas*)

Group Structure

The Hamadryas Baboon has an unusual four-level social system:

Name of Group	Description of Group
Harem or Unimale Group	One male and up to ten females which the males lead and guard.
Clan	Two to four harems unite repeatedly to form a clan, often to forage together during the day. Males in the clan tend to be related.
Band	Two to four clans can unite to form a band which will sometimes travel together and fight other bands as a unit.
Troop	Several clans come together to form one troop before they go to sleep.

Social Behaviour

Males are the dominant members of all baboon social groups and a male may try to either attract or kidnap females to start his own harem when he reaches puberty. Harem-less males will also join a harem with an old resident male and serve as a 'stud' while the older male remains as a patriarch and leads the harem. The dominant male or patriarch will also be the focus of the females' grooming attention. A hierarchy also exists amongst the females and with the highest status female usually positioned closest to the dominant male.

Males will sometimes raid other harems for females, resulting in aggressive fights and should a 'kidnapped' female have an infant already, the new male may kill the offspring. Therefore, female counter-strategies may include mating with multiple males or offering the new male many mating opportunities but without the risk of falling pregnant. This is known as a deceptive oestrus cycle where the rump area swells, but without being fertile. This behaviour could to prevent the new male killing the offspring of the previous dominant male.

Visual Communication

Social presenting (submissive display): females and juvenile males present the hindquarters or rump to dominant males.

Staring (threatening display): eyes are fixed on stimulus, the eyebrows are raised and the scalp is retracted, and the facial skin stretched by moving the ears back.

Head-bobbing (threatening display): head bobs up and down.

Tension yawning (threatening display): mouth is opened fully to reveal the canines.

Vocal Communication

Two-phase bark: A deep, loud call, emitted by adult males, repeated at 2-5 second intervals. Used when a predator is threatening the troop or when there is aggression between males.

Rhythmic grunts (friendly call): A low, soft call given by all Hamadryas Baboons except infants. May be made when one individual is approaching another.

Shrill bark (distress call): A call emitted by all Hamadryas Baboons except adult males. Other members of the troop will flee upon hearing this call.

Appendix 2

African Painted Dog (*Lycaon pictus*)

Group Structure

A group of African Painted Dogs is called a pack.

At 14-30 months of age females will leave their birth pack and join other packs that lack sexually mature females. Males typically stay with the pack into which they were born. Most other social mammals are matriarchal, where a group of related females forms the core of the pack.

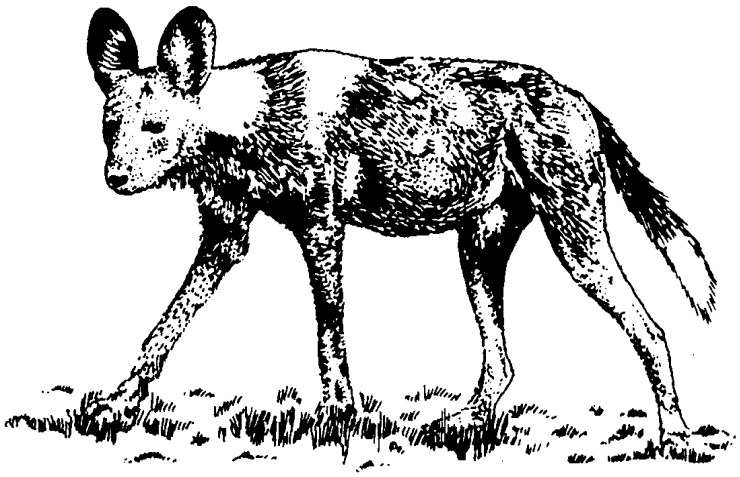
Females compete for access to males that will help to rear their offspring. In a typical pack there are 50% more males than females, and the dominant female is usually the mother of the pups. This unusual situation may have evolved to ensure that packs do not over-extend themselves by attempting to rear too many litters at the same time.

The species is also unusual in that other members of the pack including males may be left to guard the pups whilst the mother joins the hunting group, in smaller packs, leaving adults behind to guard the pups may decrease hunting efficiency. African Painted Dogs are unlike other large carnivores in that they rarely fight among themselves, either for food or dominance.

Communication

African Painted Dogs are the most social of all canines. They lick the mouth of an alpha member and submission is indicated by exposing their bellies and throats to a dominant dog. Members of a pack vocalise to help coordinate their movements during hunting. Its voice is characterized by an unusual chirping or squeaking sound, similar to a bird.

Bonds between pack members are continually reinforced at 'greeting ceremonies'. Before a hunt, African Painted Dogs greet each other with leaps, grunts, squeals and tail wagging. When angry or defensive, they produce a deep-throated low growl. Unfortunately, these methods of communication place the dogs in danger: any illness in the pack quickly spreads to all members. They are especially vulnerable to diseases carried by domestic dogs (e.g. distemper and rabies).



Hunting

African Painted Dogs hunt in packs. Like most members of the dog family it is a cursorial hunter, meaning that it pursues its prey in a long, open chase.

After a successful hunt, hunters regurgitate meat for those that remained at the den during the hunt, such as the dominant female and the pups. They will also feed other pack members such as the sick, injured or very old that cannot keep up. African Painted Dogs are the ***only*** carnivorous species to allow their young to feed first. The adults wait until the pups are finished before they will feed.

Appendix 3:

Slender-tailed Meerkat (*Suricata suricatta*)

Group Structure

A group of meerkats is called a mob, gang or clan.

Meerkats are small burrowing animals, living in large underground networks with multiple entrances which they leave only during the day. They are very social, living in colonies averaging 20-30 members. Usually, the alpha pair reserves the right to mate and normally kills any young not its own, to ensure that their offspring has the best chance of survival.

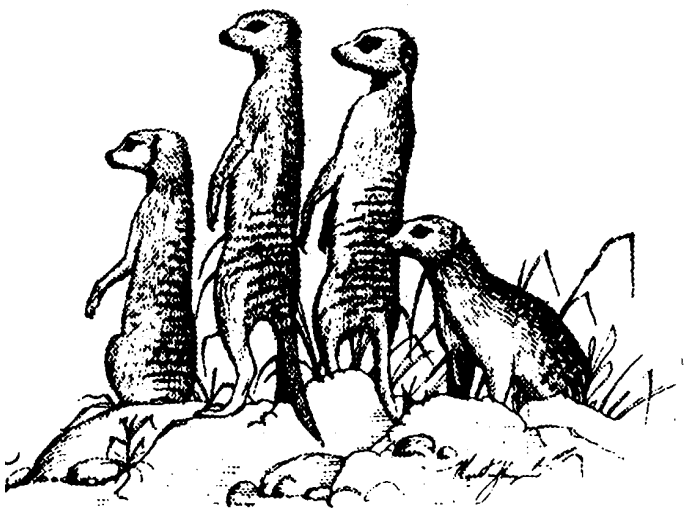
Social Behaviour

Meerkats demonstrate altruistic behaviour within their colonies. One or more meerkats act as a 'sentry' or lookout, while others are foraging or playing, to warn them of approaching dangers. When a predator is spotted, the sentry gives a warning bark, and other members of the gang will run and hide in one of the many bolt holes they have spread across their territory. The sentry is the first to reappear from the burrow and search for predators, constantly barking to keep the others underground. If there is no threat, the sentry stops signalling and the others feel safe to emerge.

Meerkats also baby-sit the young in the group. Females that have never produced offspring of their own often produce milk to feed the alpha pairs young, while the alpha female is away with the rest of the group. They also protect young from threats, often endangering their own lives to protect them. When danger is signalled, the babysitter takes the young underground to safety and is prepared to defend them if the danger follows. If retreating underground is not possible, she collects all young together and lies on top of them.

The young of most species learn solely by observing adults however meerkats actively teach their young. For example, meerkat adults teach their pups how to eat a venomous scorpion. They will remove the stinger and help the pup learn how to handle the creature.

Meerkats have also been known to engage in social activities, including what appear to be wrestling matches and foot races.



Communication

Animals in the same group regularly groom each other to strengthen social bonds. The alpha pair often scent-mark subordinates of the group to express their authority, and this is usually followed by subordinates grooming the alphas and licking their faces. This is also often practiced when group members are reunited after a short period apart. Most meerkats in a group are all siblings or offspring of the alpha pair.

Meerkats make at least 10 different vocalisations. These include a threatening growl and an alarm bark indicating the approach of snakes, birds of prey, or other predators. As they search for food they utter a "vurruk-vurruk".