

Animal Behavior HW

Resources:

Campbell Textbook Chapters: 51, 45, 48, 49

Open Stax Chapters 36.7

<https://openstax.org/books/biology-ap-courses/pages/36-7-behavioral-biology-proximate-and-ultimate-causes-of-behavior>

Lesson 1: Intro to Behavior

Watch each video linked below and answer the questions associated with it:

1. Courtship video: <https://www.youtube.com/watch?v=nWfyw51DQfU>

- a. Of what evolutionary purpose is courtship?
- b. From the males' perspective, why is courtship important?
- c. From the females' perspective, why is courtship important?

2. Territory defense video:

https://www.youtube.com/watch?v=fQI5KUfM2xc&feature=player_embedded

- a. Describe the types of behaviors that are required in order to maintain a territory.
- b. True or False: Animals always fight to the death in order to defend territories. Explain your answer
- c. From both the males' and females' perspective, why is territory defense important?

3. Migration video: <https://www.youtube.com/watch?v=HYM6LqDJLiM&t=5s>

- a. Why do you think that migration exists?
- b. Why so you think that calving is tied to migration?

4.. Insight Learning video: <https://www.youtube.com/watch?v=fPz6uvIbWZE>

- a. Based on what you've seen, define "Insight Learning."
- b. Do you think that all animals capable of insight learning? Explain your answer.

6. Honeybee Hive video: https://www.youtube.com/watch?v=LU_KD1enR3Q

- a. Of what advantage is living together for some organisms?

- b. What behaviors/strategies are employed to allow organisms to function and live together?
 - c. Why is communication so important to group-living organisms? How do bees accomplish communication?
 - d. List 3 communication strategies that you can think of from other species.
7. All of these video clips are about different types of animal behaviors. While they don't constitute all of the possible behaviors that animals exhibit, they do give you an idea of the variety of behaviors that can be seen. Come up with your own definition of behavior that encompasses all of the examples in the videos as well as other examples that you can think of in the animal kingdom.
8. Distinguish between the following pairs as they relate to animal behavior:
- a. Nature vs. Nurture-
 - b. Insight learning vs. Trial-and-Error learning-
 - c. Reflex vs. Cognition-
 - d. Social behaviors vs. Agonistic behaviors-
 - e. Cost vs. Benefit-
 - f. Stimulus vs. Response-
 - g. Classical vs. Operant conditioning-

Lesson 2: How behavior is studied

Use the video at:

<https://www.khanacademy.org/science/biology/crash-course-biology-science/v/crash-course-biology-124> and the power point on animal behavior to help you address these questions;

1. What two things limit an animal's behavior? Define these terms.
2. Why is behavior able to be acted upon by natural selection? Give at least 2 reasons.
3. Is behavior due to nature, nurture, neither or both? Explain your answer.
4. There are 2 main schools of thought on Animal Behavior, the first is called Ethology. Niko Tinbergen, a famous ethologist proposed a series of questions that scientists must ask When studying behaviors. List them.
5. Distinguish between proximate and ultimate causes of behavior. In your answer, identify which of the questions from #4 go with each cause?

6. What is imprinting? Is it learned or innate? Explain your answer.

7. A second school of thought on studying animal behavior is that of Behavioral Ecology, which focuses on the cost/benefit analysis of animal behaviors. It's motto is TANSTAAFL, which stands for "There Ain't No Such Thing As A Free Lunch," meaning that for every behavior, there is an energetic cost that the organism must contend with. One classic example is the Optimal Foraging Model. Describe how the model works and exemplifies TANSTAAFL (Hint: your answer should involve the concept of trade-offs).

8. A famous scientist once answered when asked to explain inclusive fitness "I'd gladly lay down my life for 5 brothers or 9 cousins." Explain how this statement fits the idea of inclusive fitness.

9. Watch the video at: <https://www.youtube.com/watch?v=jKtOXvA14X4> to answer the following:

- a. Define Altruism-
- b. Describe Hamilton's equation to define altruism. How does it relate to your answer in #8 above?

Lesson 3: Physiology of Behavior: Endocrine and Nervous Systems

Use the link

<http://2012books.lardbucket.org/books/beginning-psychology/s07-02-our-brains-control-our-thought.html>

Read 3.2 Our Brains Control Our Thoughts, Feelings, and Behavior

1. Locate the four major sections or *lobes* of the brain and summarize their function for the organism:

Lobe	Associated with...

2. What is the “old brain”? Mammals have developed portions of the brain beyond the “old brain” that provide more advanced functions. Think of examples of these advanced functions and write a statement to relate that function to one of the behaviors discussed in class or homework.
3. Do you think all animals experience emotion? What aspects of brain structure might lead you to believe that they do or do not?

Section 3.3 outlines how scientists study the brain with different methods and technologies. Read if it interests you.

Read 3.4 Putting It All Together: The Nervous System and the Endocrine System

1. Explain how stimuli from the environment affect the brain. How does the brain deliver instructions on behavior to the rest of your body? (hint: What is a neuron? Are there different types?)
2. The nervous system does not work alone. The endocrine system works in conjunction with the nervous system to regulate behavior among other things. Describe the endocrine system in your own words.
3. Complete the chart of MAJOR GLANDS of the endocrine system:

	on/Associated Hormones

4. Highlight the glands that are part of the “old brain” discussed earlier.
5. Recall a time when you were threatened or stressed. What physiological reactions did you experience in the situation? What aspects of the endocrine system do you think created those reactions?

