

A.P. Biology 2015  
Ch 51 - Animal Behavior

Name \_\_\_\_\_

Is species behavior modified by natural selection? \_\_\_\_\_ (Yes / No)  
Is behavior influenced by environmental factors? \_\_\_\_\_ (Yes / No)

**What Is Behavior?**

Most of an animal's behavior is expressed by its \_\_\_\_\_ system.  
How does your 7 lb. Textbook define "behavior"? \_\_\_\_\_

**1.1**  
**Behavior Has Both Proximate and Ultimate Causes**

\_\_\_\_\_ Proximate Causes  
\_\_\_\_\_ Ultimate Causes

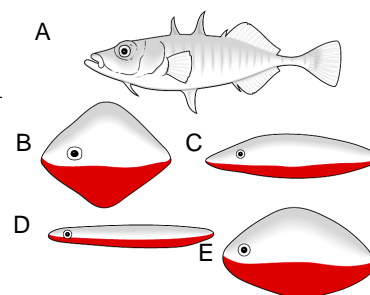
A. Answer questions regarding the adaptive advantage of a behavior  
B. Is a description of a behavioral trigger or the behavior itself.

**Classical Ethology**

Behavioral biology is also known as the science of \_\_\_\_\_.  
A fixed action pattern (F\_P) is a sequence of \_\_\_\_\_ acts that is essentially \_\_\_\_\_  
and usually carried out to \_\_\_\_\_ once \_\_\_\_\_.  
An FAP is triggered by an environmental stimulus known as a \_\_\_\_\_.



What kind of fish is pictured to the left? \_\_\_\_\_  
Which fish (to the right) produces *no* response in the male stickleback? \_\_



(in class) Where does a mayfly lay eggs naturally?  
(in class) Why did the mayfly lay eggs on the pavement?  
Are sign stimuli and FAPs an important part of behavioral research today? \_\_\_\_\_ (Yes / No)

**Migration**

What type of bird uses the North Star to migrate? \_\_\_\_\_

**Rhythms**

What is a circadian rhythm? Example

What is a circaannual rhythm? Example

**Communication** (define) -

Signal -

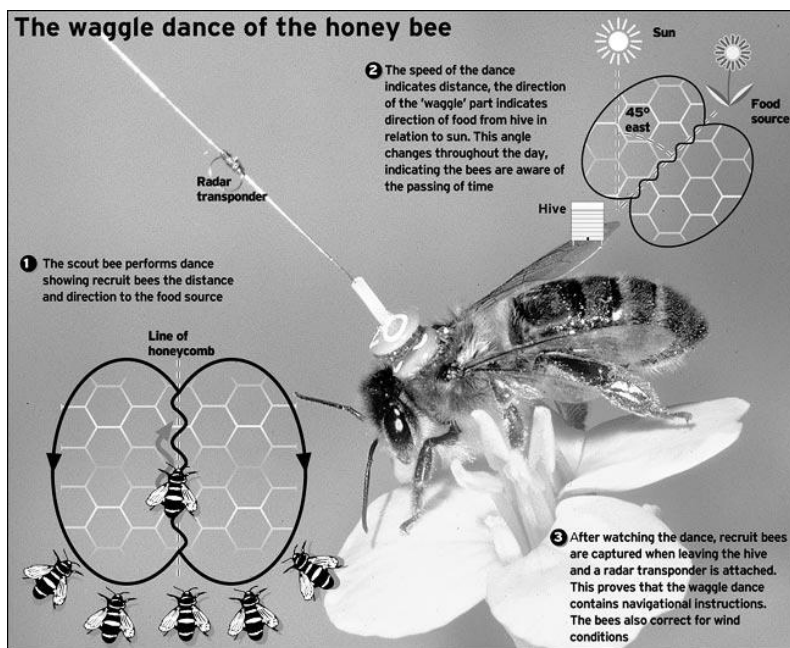
What types of signals do nocturnal animals use? Why?

What types of signals do diurnal animals use? Why?

The Dance of the Honeybee

What information can bees share?

Pheromones (define) and what are they used for?



**51.2 Learning**  
Innate Behavior

Do innate behaviors vary as the environment changes? \_\_\_\_\_ (Yes / No)



(in class)

What kind of bird is this? \_\_\_\_\_  
To what does this bird have an aversion? \_\_\_\_\_  
Where do non-aversion kittiwake chicks end up? \_\_\_\_\_

Behavior Results From Both Genes and Environmental Factors

In the classic "Nature vs. Nurture" argument, "nature" refers to g\_\_\_\_\_ and "nurture" calls into play the e\_\_\_\_\_.  
In biology, we realize that \_\_\_\_\_ (both / neither) play an important role in governing behavior.  
Are most behaviors caused by *single* genes or *groups* of genes? \_\_\_\_\_

Learning is the modification of b\_\_\_\_\_ based upon e\_\_\_\_\_.

\_\_\_\_\_ Do innate behaviors improve with practice?  
A. No, they do NOT improve with practice.  
B. Yes, they improve a LITTLE with practice.  
C. Yes, they improve a LOT with practice.

Why can't baby birds fly? (Thought question!)

- 1.
- 2.
- 3.



in Class { One of the simplest types of learning is h\_\_\_\_\_  
 How does a hydra respond to disturbance by light touch? \_\_\_\_\_  
 What does a white-tailed deer do to signal others in the pack that danger is near? \_\_\_\_\_

Learning during a specific time in development and that is generally irreversible is termed \_\_\_\_\_.

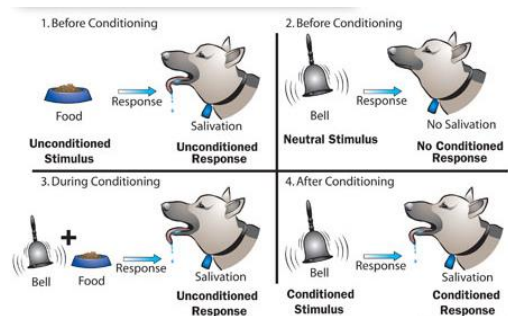


What famous behaviorist is pictured to the left? \_\_\_\_\_  
 What animals are following him? \_\_\_\_\_  
 Will these geese accept a bowling ball as a mother? \_\_\_\_\_ (Yes / No)  
 Imprinting is even stronger if a \_\_\_\_\_ is emitted by the "mother".  
 Imprinting is distinguished by a s\_\_\_\_\_ p\_\_\_\_\_, a limited time in an animal's development when learning can take place.

Spatial Learning (define & example) -

**Associative Learning**

The ability to associate one stimulus with another is called \_\_\_\_\_ learning.



**Classical Conditioning**

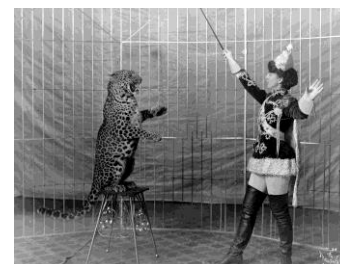
What is the name of the dog pictured to the left? \_\_\_\_\_

Who was the dog's owner? \_\_\_\_\_

What sound did the owner make to serve as a stimulus? \_\_\_\_\_

1. Was the dog's response behavioral or physiological? \_\_\_\_\_

Could I induce you to perform tasks if I utilized this method? \_\_\_\_\_



**Operant Conditioning** (also known as t\_\_\_\_\_ and e\_\_\_\_\_)

Give an example:

**Animal Cognition**

Cognition (define) -

The two animal groups that show the most highly developed cognitive powers are the 1. \_\_\_\_\_ and 2. \_\_\_\_\_.

The "smartest" birds are \_\_\_\_\_,

Social Learning (define and example) -

**51.3 Selection and Reproductive Success**

**Cost-Benefit Analysis of Foraging Behavior**

Food-obtaining behavior is called \_\_\_\_\_.

In the tidal pools of British Columbia, crows feed on \_\_\_\_\_.

A. How many times must a whelk be dropped from 2 meters to break the shell? \_\_\_\_\_

B. How many times must a whelk be dropped from 15 meters to break the shell? \_\_\_\_\_

Which has a more optimal cost benefit, A or B? \_\_\_\_\_

What is the best height for dropping and cracking whelk shells while saving energy? \_\_\_\_\_



Whelk

**Mating Systems Matching**

- |                     |                               |
|---------------------|-------------------------------|
| 1. ____ Promiscuous | A. Single male, single female |
| 2. ____ Monogamous  | B. Single male, many females  |
| 3. ____ Polygamous  | C. Many males, many females   |
| 4. ____ Most birds  |                               |

How does *certainty of paternity* influence parental care?

**51.4 Inclusive Fitness**

Are most behaviors caused by *single* genes or *groups* of genes? \_\_\_\_\_

**Altruistic Behavior**

Altruistic behavior is \_\_\_\_\_ (*Good / Bad*) for the local population but \_\_\_\_\_ (*Good / Bad*) for the individual. In common man terms, altruistic behavior is called "Takin' one for the \_\_\_\_\_."

Inclusive fitness -

Reciprocal altruism -

**RANDOM ADD-ON STUFF** – (we will do in class together)

**Taxis and Kinesis Matching**

- A. Taxis –
- B. Kinesis -

1. \_\_\_\_ A moth flies toward a flame.
2. \_\_\_\_ A protozoan swims, bumps, and swims away in a different direction.
3. \_\_\_\_ An earthworm crawls under a rock to avoid light.
4. \_\_\_\_ A minnow faces upstream in a current.
5. \_\_\_\_ A cockroach colony scatters in all directions when the lights come on.



**Agonistic Behavior**

**Agonistic** behavior is usually a c\_\_\_\_\_ between two members of \_\_\_\_\_ (*the same / different*) species to claim rights to either f\_\_\_\_\_ or a m\_\_\_\_\_. This behavior often involves rituals that are meant to establish which individual is "stronger" without harming the "lesser" individual. The behavior shown by the "loser" is termed s\_\_\_\_\_ behavior. Following this ritual, there is usually some type of \_\_\_\_\_ behavior during which peace is remade between the conflictants.

**Dominance Hierarchies**



Which combatant is at the **top** of the pecking order, A or B? \_\_\_\_\_

**Territoriality**

Territories are used for \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

The area in which an animal roams is called the \_\_\_\_\_.

What is the primary function of most bird songs/ \_\_\_\_\_

What is a "**conspecific**"?

What are two potential advantages of "play" in young animals?

- 1.
- 2.