Homeostasis and Behavior

1. What is a stimulus?

2. Circle the stimulus in the following two examples.
   
   *Example:* An animal is cold so it moves into the sun.
   
   *Example:* Getting a drink when you are thirsty.

3. What is a response?

4. Circle the response in the following two examples.

   *Example:* An animal is cold so it moves into the sun.
   
   *Example:* Getting a drink when you are thirsty.

For the following statements, circle the stimulus and underline the response:

5. You are hungry so you eat some food

6. A rabbit runs away when it sees a coyote.

7. You are really cold so you put on a jacket.

8. A clam swims away quickly after sensing a starfish.

9. You take out an umbrella because it is raining.

10. Sunlight is coming through an apartment window and the plant is bending toward the light.

11. A cat falls in the bathtub and jumps out screeching.
12. Plants can also respond to stimuli. These are called tropisms. Can you remember some of the tropisms?

_________________________       ___________________________          ____

13. What is an external stimulus?

_________________________       ___________________________          ____

14. Circle the stimulus in the following examples.
   Example: You feel cold so you put on a jacket.
   Example: A snake lunges at a rabbit so it runs away.
   Example: It is a very hot, sunny day so a dog sits in the shade.

15. What is an internal stimulus?

_________________________       ___________________________          ____

16. Circle the stimulus in the following examples.
   Example: You feel hungry so you eat some food.
   Example: A cat feels thirsty so it drinks water.
   Example: A dog feels sick, so it’s body triggers a fever.
17. Amy runs hard during a race. The levels of carbon dioxide in her bloodstream increase, becoming higher than normal. Describe what the stimulus and response is in this situation.

Complete the chart for the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>What is the Stimulus?</th>
<th>Is this an internal or external stimulus?</th>
<th>What is the Response?</th>
</tr>
</thead>
<tbody>
<tr>
<td>18. You have a stomach ache and decide to lay down.</td>
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<tr>
<td>19. A bird is thirsty and drinks some water.</td>
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<td>20. A mouse sees a cat and hides under a log</td>
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<td>21. You see a spider and scream.</td>
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<td>22. A dog sits when it is given a treat.</td>
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<td>23. Winter is coming so a squirrel stores nuts</td>
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</tbody>
</table>
24 The process by which an organism's internal environment is kept stable in spite of changes in the external environment is called –

A growth  
B digestion  
C homeostasis  
D respiration

25 A signal that comes from inside the body and causes an organism to react in some way is called a(n) –

F external stimulus  
G response  
H internal stimulus  
J message

26 A signal that comes from outside the body and causes an organism to react in some way is called a(n) –

A external stimulus  
B response  
C internal stimulus  
D message

27 Identify the statement that describes a cat’s response to an internal stimulus

F A cat eats when it feels hungry.  
G A cat runs in the house to get out of the rain.  
H A cat hisses when it sees a dog.  
J A cat purrs while it is scratched.
28 Identify the statement that describes a bird’s response to an external stimulus.

A  A bird sings a song to attract a mate.
B  A bird cleans its feathers after landing in a tree.
C  A bird flies away when it sees a cat nearby
D  A bird eats when it feels hungry.

29 Earthworms live in the soil and prefer dark, moist environments. When they see light, they respond _________ by moving away from it. This is a response to an __________ stimulus

F  negatively, external
G  positively, external
H  negatively, internal
J  positively, external
30 Which of these is an example of a plant responding to an internal stimulus?

A an apple on a tree ripening
B the stem of a sunflower bending toward light
C a leaf closing when a bee brushes against it
D the roots of a tree growing downward toward gravity

31 Dina is relaxing by walking her dog on a warm, sunny afternoon. Dina feels sweaty, and she sees her dog is panting. Which is the most likely stimulus causing these responses in both Dina and her dog?

F hunger
G high temperature
H thirst
J light from the sun

32 Which word best describes the response the seedlings are showing?

Figure 13.1

A taxis
B tropism
C stimulus
D hibernation

33 As a frog develops from a tadpole to an adult frog, it goes through changes that are signaled by hormones within its body. For example, its tail disappears and it grows legs. Which best describes the role of hormones in changing a tadpole into a frog?

F The hormones are external stimuli.
G The hormones are internal stimuli.
H The hormones are threatening stimuli.
J The hormones block tadpole responses.