

# Human Stimulus and Response

An animal uses its senses to detect the condition of its environment. If the conditions of an environment change then the animal will usually react to those changes.

Anything that causes a reaction is called a stimulus. What the effect the stimulus has on a living thing is called a response to the stimulus. Living things often move in response to a stimulus. If you hear someone call your name, you turn toward the sound. The sound of your name is a stimulus. Turning toward the sound is a response.

Humans respond to internal (from inside) and external (from outside) stimuli.

1. What is happening in this picture?

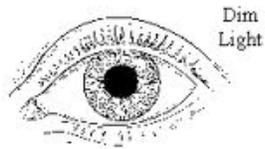
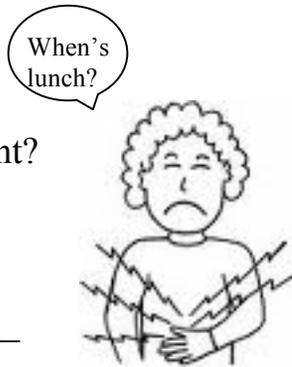
\_\_\_\_\_

2. What would be your response to this event?

\_\_\_\_\_

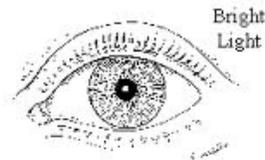
3. Is this an internal or external stimulus?

\_\_\_\_\_



3. What is happening in this event?

\_\_\_\_\_



4. What is the stimulus?

\_\_\_\_\_

5. Is this an internal or external stimulus? \_\_\_\_\_

## My Body's Reaction to Stress

Think about how a cat responds to stress. He turns sideways so he looks bigger. He fluffs out his fur and his tail so he looks even bigger. He bares his teeth. All these signs show you he's ready to fight and if he doesn't fight, he's getting ready to flee - to run away from danger. Cats really do have a physical reaction to stress. It's called the "fight or flight" response.

Believe it or not, people have this response, too. This response passed to us from our ancestors, who faced predators. We typically don't have to face predators but we do face stress. Think about the last time you were sent to the principal's office for something you did wrong or how you were feeling right before a test.

Look at the list below and place a check in the box that best describes how often you have each of the reactions.

Symptom	Often	Sometimes	Rarely	Never
Fast Heartbeat				
Fast Breathing				
Upset Stomach				
Dizziness				
Sweaty Palms				
Dry Mouth				
Cold Hands				



**Questions:**

1. Which are your most common responses to stress?

2. What do you do to beat stress?

Sometimes when we are stressed we might vomit or throw up. Vomit is made of half digested food or liquid that is mixed with your digestive juice that exits through your mouth. Vomiting can occur due to several reasons but the most common cause is infection. Some germs may enter your stomach along with the food you eat. These germs then cause your stomach to push the food up rather than down and you end up vomiting. Vomiting may not be related to food all the time. Sometimes, we may get dizzy while sitting in a roller coaster, riding a plane or traveling in a ship and we may end up vomiting. This is known as motion sickness.

Watch the video “Why we Vomit” from [www.missdoctorbailer.com](http://www.missdoctorbailer.com)

Determine if the reasons listed below are internal or external stimuli.

Reasons	Internal Stimuli	External Stimuli
Rollercoaster		
Bad Sushi		
Public Speaking		
Toxins		
Too Full		
Gory Movie		
Sight of Blood		
Drugs		

We have many defenses against the germs that make us sick. But when we are exposed to a large number of germs they can overwhelm the body’s first line of defense and get inside. When germs get into our body they release poisons to which our immune systems responds. One of ways our immune system responds to the stimulus of the germ’s poisons is to cause the body to get hot. This is called a fever. A fever helps in several ways. First, it causes our antibodies (germ fighters) to be produced more rapidly and second it slows down the reproduction of the germs. When body has a fever it is not in balance. The body then must find a way to cool itself. The body is able to cool itself through the production of sweat. When the thermal energy of the body builds up to a certain point the body releases fluid through the cells. This sweat then evaporates, cooling the body.

**Materials:** Dropper bottle of alcohol

**What To Do:**

1. Your teacher will place several drops of alcohol on your hand.
2. Observe how your hand feels as the alcohol evaporates.
3. Write your observations in the box below.

**Observations:**

**Questions:**

1. When germs get into the body they release poisons. Is this a stimulus or response? \_\_\_\_\_
2. How does our body respond? \_\_\_\_\_
3. How do the germs respond? \_\_\_\_\_
4. How does the body get itself back in balance? \_\_\_\_\_

\_\_\_\_\_

Name \_\_\_\_\_ period \_\_\_\_\_

## Exit Ticket

### *Stimulus and Response*

1. Someone drops a book on the floor and it makes a loud noise. At that time you turn and look at the person who dropped the book. The loud noise is an example of a –
  - A. Stimulus
  - B. Response
  - C. Tropism
2. In the scenario above turning and looking at the person who dropped the book is an example of a –
  - A. Stimulus
  - B. Response
  - C. Tropism
3. Which of the following would be considered an internal stimulus?
  - A. A friend punching your arm
  - B. Having a fever
  - C. Tripping over a rock
4. Which of the following would be considered an external stimulus?
  - A. Having a headache
  - B. A growling stomach
  - C. Having a light shined in your eyes

Name \_\_\_\_\_ period \_\_\_\_\_

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  - C. Response