

Homeostasis Scenarios

Answers

A decorative graphic consisting of several horizontal lines of varying lengths and colors (teal, light blue, white) extending from the right side of the page towards the center.

Mr. Packard's Definition

Homeostasis: the body's attempt to keep the conditions inside the body the same (unchanging)

OR

Maintaining a constant internal environment

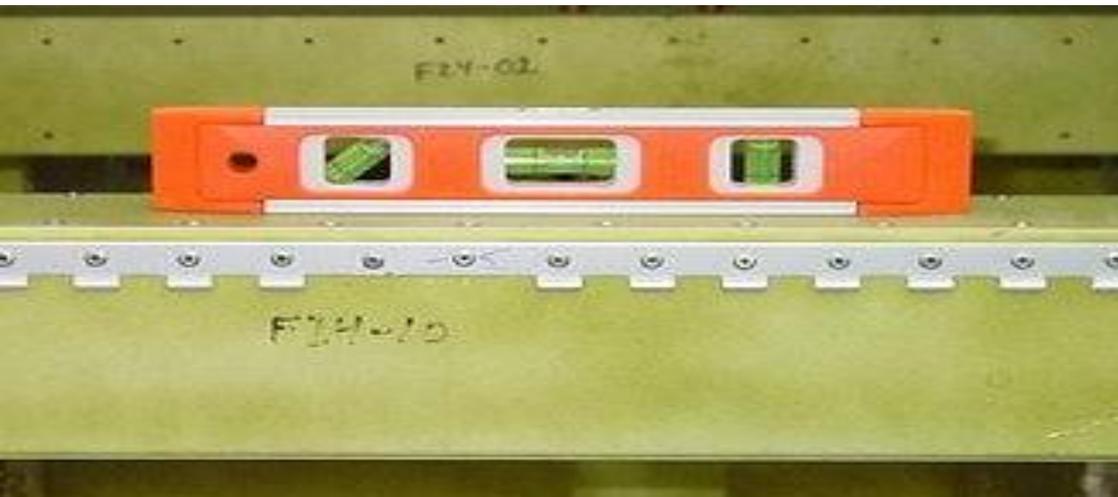
Other Synonyms: equal, balanced, unchanging, constant, equilibrium, stable

Examples of homeostasis:

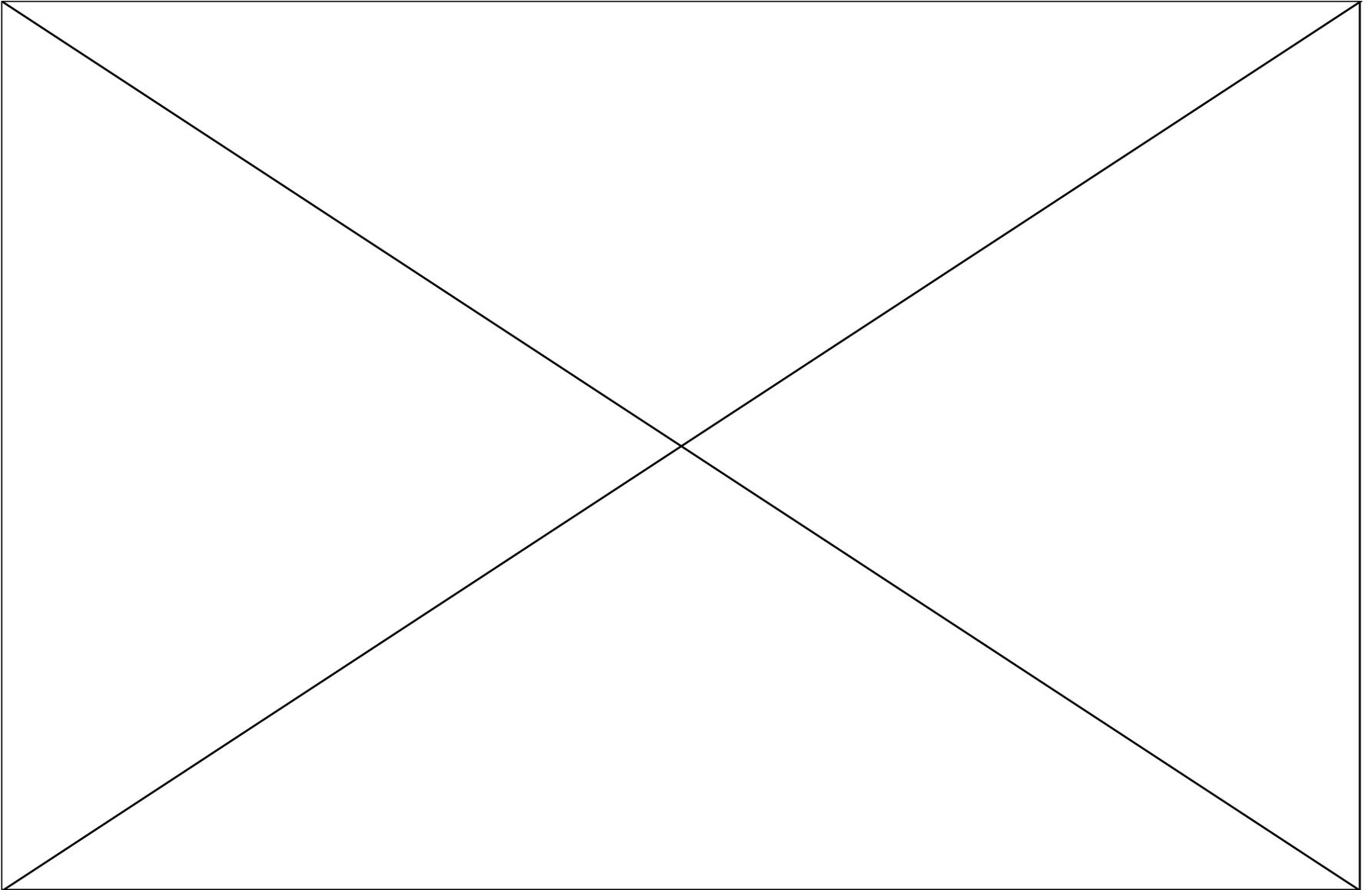
- Temperature control
- Amount of water in the body
- Amount of glucose (sugar) in the blood stream
- Amount of waste in the body
 - Levels of oxygen
 - Levels of CO₂
- Size of pupil (light regulation)
 - Blood pressure (blood flow)
 - Hormone levels
- Levels of vitamins & minerals in the blood



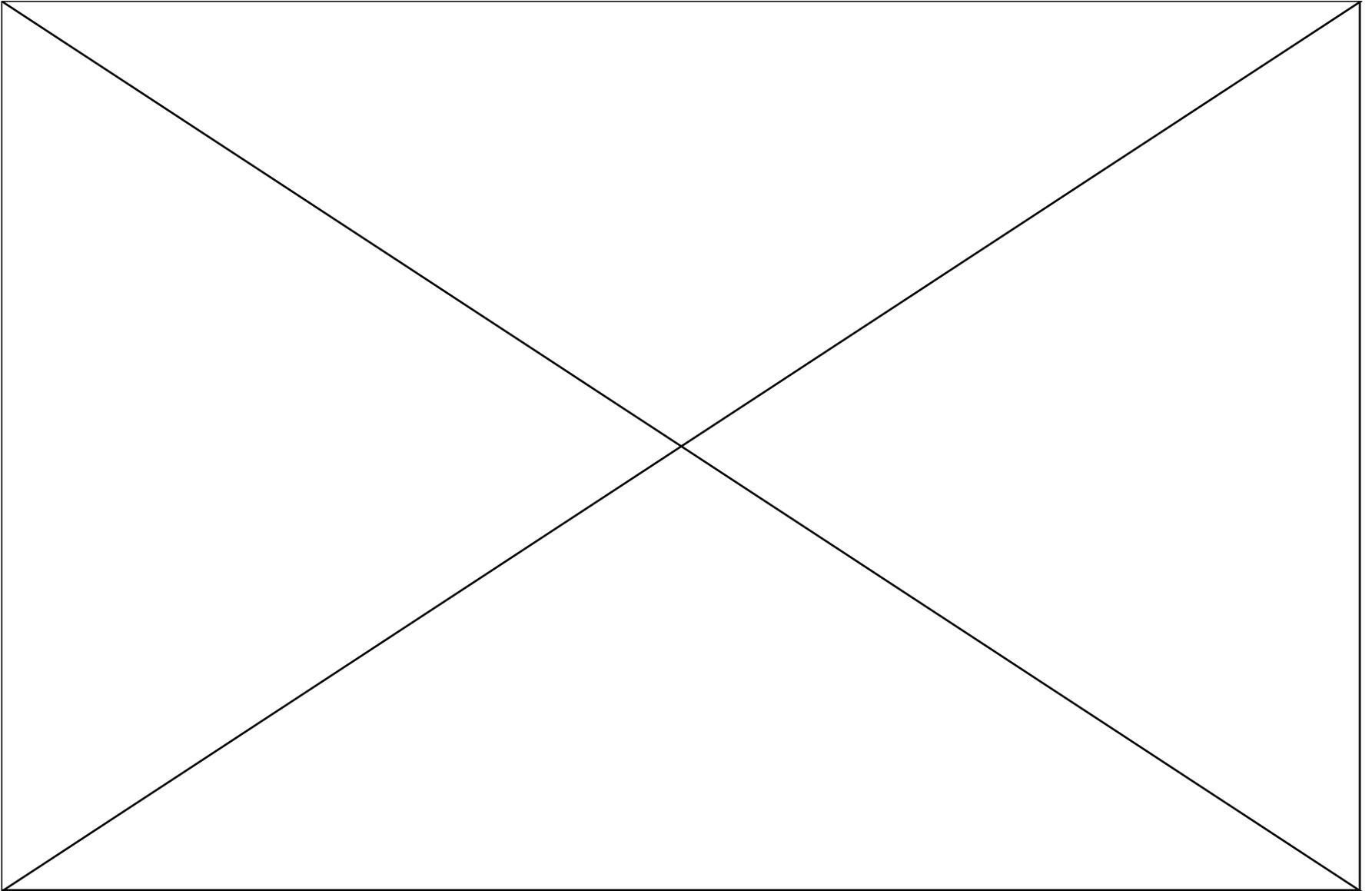
Choose a picture from the notes, or this slide, that best represents homeostasis to you.



HOMEOSTASIS



HOW COLD IS TOO COLD?



You enter a sauna with a temperature of 110° F.

Your body's actual reaction:

1. Sweat is the primary way your body attempts to cool itself (as sweat evaporates it cools the body).
2. Pores on the skin open to release heat kept in the body.
3. Vasodilatation occurs by allowing more blood to flow through the capillaries near the surface of the skin to release heat.

On a dare, you jump into a pool that is 38 degrees F and the outside temperature is 32° F.

Your body's actual reaction:

1. Your skeletal muscles can shiver to attempt to create heat if your body temperature is too low.
2. Pores on your skin contract to contain heat (goose bumps).
3. You can also break down fat in the body to produce heat.
4. Vasoconstriction occurs by decreasing the amount of blood flowing through the capillaries near the surface of the skin to prevent heat loss.

On a whim, you take a trip to Arizona and the car breaks down in the middle of the desert on the hottest day of the year. There is no water and you have been stuck for 6 hours.

Your body's actual reaction:

1. The amount of sweat your body produces will begin to decrease as your body attempts to conserve water.
2. Only a small amount of the water will be used to make urine. The remaining water will be reabsorbed into the body.

After a tough loss, your coach decides to run a conditioning practice. At the end of the practice you have had 2 hours of nothing but running.

Your body's actual reaction:

1. Because you have depleted the amount of water in the body, the response from the body is to trigger your desire for water to replenish water lost.
2. When you are dehydrated, your metabolism is slowed and you need to drink to replenish the water lost (You will be thirsty).

Hanging out at the pool with your friends, you decide to dive to the bottom of the pool to see who can stay there the longest. After 30 seconds, you resurface as the winner.

Your body's actual reaction:

1. Your body wants to increase breathing to expel more carbon dioxide and replenish lost oxygen.

You've been at the movie theater, and you walk outside on a sunny day.

Your body's actual reaction:

1. The iris (the colored part of the eye) open the pupil (the hole in the eye) to allow sufficient amount of light into the eye in order to see properly. By moving from dark to light, the pupil would contract.

You leave the milk out over night, and although it seems rather warm, you decide to use it on your cereal in the morning.

Your body's actual reaction:

1. Your body will detect the large amount of bacteria in the food and will force your stomach to purge. (you puke)