

JEOPARDY

How do Human Sensors Work?

Robot
Sensors

Human
Sensors

Sight

Sound

Touch
&
Smell

Taste

▶▶▶ Final Jeopardy ◀◀◀

100

100

100

100

100

100

200

200

200

200

200

200

300

300

300

300

300

300

400

400

400

400

400

400

500

500

500

500

500

500

Robot Sensors 100

This is what sensors send signals through to reach the
Computer brick

Question

Q: What are wires?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Robot Sensors

200

Name the sensor that allows the Robot to be capable of avoiding an object (not running into it) with no input from the user

Question

Q: What is the ultrasonic sensor?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Robot Sensors

300

Name the four Robot Sensors discussed in today's lesson.

Question

Q: What are the touch sensor, sound sensor, light sensor, and ultrasonic sensor??

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Robot Sensors

400

Name the sensor that requires input from you in order to navigate around a room

Question

Q: What is the sound sensor?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Robot Sensors

500

This is the only time that the Robot can act on information from its sensors.

Question

Q: What is if its program tells it to?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Human Sensors

100

Name the five senses

Question

Q: What are sight, hearing, taste, smell, and touch?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Human Sensors

200

Name the two senses that humans have to which Robots have no equivalent

Question

Q: What are smell and taste ?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Human Sensors

300

Describe the two parts of the nervous system

Question

Q: What is that the peripheral nervous system branches out to the sensors and muscles of the body and communicates with the central nervous system which comprises of the brain and spinal cord?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Human Sensors

400

Sensors in this part of the human body give the brain information about balance

Question

Q: What are the ears?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Human Sensors

500

We discussed certain sensors in blood vessels. These sensors detect the amount of this in the blood

Question

Q: What is acid?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Sight 100

Name the hole in the center of the eye

Question

Q: What is the pupil?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Sight 200

This is the term for bending light, something performed by the cornea and lens of the eye to direct light toward nerve cells in the back of the eye.

Question

Q: What is refracting?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Sight 300

Name the process performed by certain animals which is similar to how the ultrasonic sensor functions

Question

Q: What is echolocation?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Sight 400

Name the two different ways the light sensor can work

Question

Q: What are detect the amount of ambient light and detect the amount of generated light reflected off of an object?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Sight

500

Name the two types of nerve cells in the back of your eye, and what each type of nerve cell does

Question

Q: What are cones- which detect detail and color in good light- and rods- which detect the presence of objects in bad light?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Sound 100

Sound is made up of vibrations in the air called this

Question

Q: What are Sound Waves?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Sound 200

There are two sounds, sound A and sound B. Sound B causes the diaphragm to vibrate with smaller, more frequent vibrations. We can say this about sound B with respect to sound A.

Question

Q: What is sound B is softer but has a higher pitch?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Sound

300

This is the name of the thin piece of material that vibrates in the sound sensor

Question

Q: What is the diaphragm?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Sound

400

This is the name of the nerve that sends the signal from the cochlea's hair cells to the nervous system.

Question

Q: What is the auditory nerve?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Sound

500

Name the three structures in the ear that carry vibrations from the eardrum to the cochlea

Question

Q: What are the hammer, anvil, and stirrup?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Touch & Smell

100

This would happen if you lost the nerve endings in your fingers

Question

Q: What is you wouldn't be able to feel anything with your fingers?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Touch & Smell

200

When you smell something (for example a pizza), it's because you have breathed in this

Question

Q: What are small particles of the pizza?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Touch & Smell

300

Name the three main stimuli that human touch sensors can detect

Question

Q: What are pain, pressure, and temperature?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Touch & Smell

400

Itching and Tickling are small versions of these respective stimuli

Question

Q: What are pain and pressure?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Touch & Smell

500

Dogs can detect this many times the number of smells that humans can detect.

Question

Q: What is ten?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Taste

100

This is the name of the receptors that recognize tastes

Question

Q: What are taste buds?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Taste

200

These are the five different tastes recognized by humans

Question

Q: What are sweet, salty, bitter, sour, and umami?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Taste 300

This is the difference between taste and flavor

Question

Q: What is flavor is taste with smell, texture, and other sensations?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Taste

400

This is what umami tastes like

Question

Q: What is a savory, meaty flavor?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Taste

500

This is the name of the cells that
comprise taste buds

Question

Q: What are gustatory receptor cells?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Final Jeopardy

Describe the pathway of how sight occurs.

Question

Q: Question HERE?

100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500