

Lesson Plan

NEUROHEADWAY

Neuroscience Into Education

Lesson plan text for the teacher.

The Dictionary of Emotions

It is a very effective game for children to learn to internalize their emotions. Cards are used where students write, in large letters, the names of an emotion: sadness, joy, anger, etc. Then they have to make a drawing inspired by those emotions and the emotional and / or physical response.

The Jar of Good News

This game is specially designed to boost optimism and positive thoughts in students. Every time a good news occurs in the context of the class (a birthday, the birth of a little brother or sister, a personal achievement of a child, etc.), the students must write or represent it with a drawing and deposit it in a jar. The contents of this jar can be debated and at the end of the course you can make a mural with all the good news that have happened.

----- At the end of the presentation of the Power Point students should answer the following questionnaire:

1. What is self-awareness?
2. What does empathy mean?
3. What is emotion?
4. Define Empathy

A.- The teacher must do 2 types of questionnaires of 2 questions each and distribute them to the students.

B.- The objective of this activity is: To check students' understanding of the subject.

Power point Example

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How skin senses work

The “device” that our body uses to “sense” the environment is called receptor.

We find 3 big kinds of receptors in our skin:

- 1) Thermoreceptor → to sense Temperature.
- 2) Mechanoreceptor → to sense “mechanical stress”. For example, hugs or caresses.
- 3) Nociceptors → to sense Pain.

How does one receptor work?

- There are many types of biological receptors (sensory receptors).
- Receptors have different shapes, sizes and architecture.
- However, they all work with the same basics:
 1. The receptor receives information – The stimulus.
 2. The stimulus “activates” the receptor. – The receptor potential
 3. The receptor sends the information to the brain. – The action potential.

The Touch: tactile information.

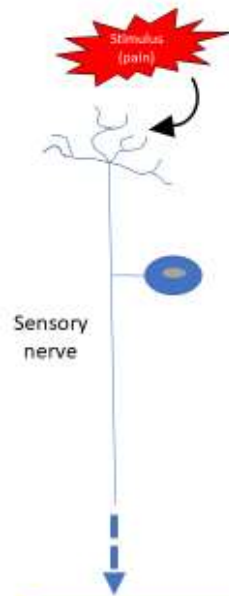
- It is mainly perceived by mechanoreceptors.
- There are 7 main mechanoreceptors types along our skin.

Mechanoreceptors of the skin	External receptors	Meissner's corpuscles
		Merkel Nerve endings
		Bulboid corpuscles
		Ruffini endings
		Hair Follicle receptors
	Inner receptors	Pacinian corpuscles
		Ruffini corpuscles

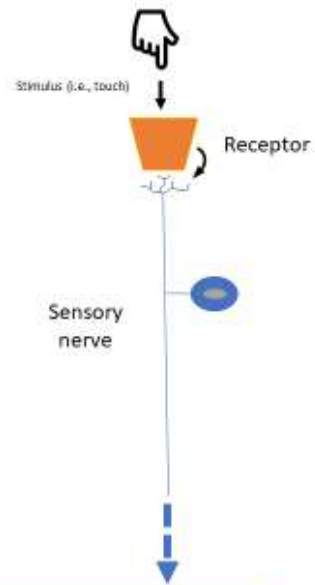
Temperature

- To sense temperature we have thermoreceptors.
- We have thermoreceptors all over the skin, the eyes, the blood vessels...
- It is very important for us to perceive the Temperature of our environment, and also the Temperature of our body.
- We may differentiate 4 kinds of thermoreceptors according of the stimuli they perceive:
 - a) Cold.
 - b) Heat.
 - c) Extreme cold.
 - d) Extreme heat.

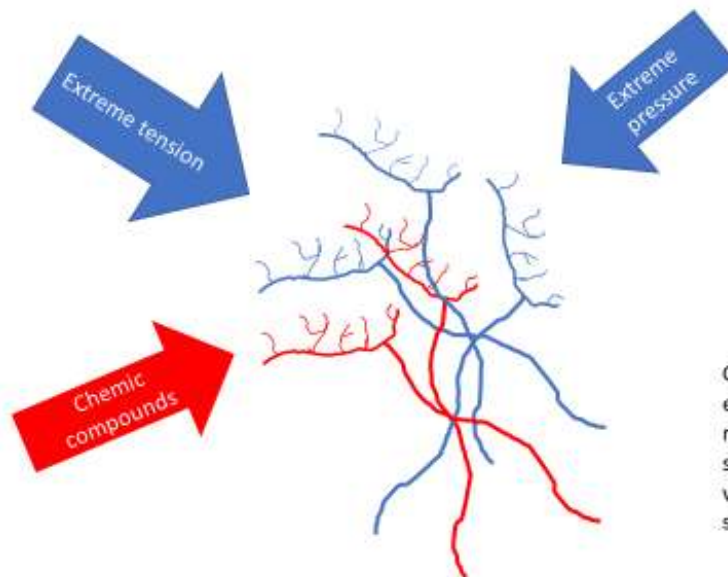
Free nerve ending



Non-free nerve ending



Central Nervous System



Group of different free nerve endings (blue, mechanoreceptors; red, chemoreceptors) in a pain sensory structure. This structure would be reactive to both kind of stimuli.

