Physical Education Reflex and Senses Paper details: Things to Complete Reflex & Senses Lab - You will need some 2-inch pieces of paper or index cards, a paperclip, a cotton ball or similar light object, something similar to a tendon hammer (the example in the video is a tv remote). \*If you do not have a ruler, you can print one out and use any long object -- at the end of each trial in the lab, just measure where you caught from the bottom of the object. REFLEXES Blink reflex If you have a face shield laying around from COVID, this is a great time to bring it back out for this activity. Put on the face shield and have a friend throw a cotton ball right at your face. Even though you have the shield on, notice how difficult it is to keep yourself from blinking. If you don't have a face shield, you can simply recreate the scenario from the video and use your hand. Patellar reflex This works best if your partner is sitting with their leg freely hanging from a bench (not touching the floor). Remember you are aiming for the patellar tendon, so feel for the bottom of the patella and aim below that. It may help to distract the person by asking them to do a math problem or count backwards so they are not anticipating the force. SENSES Two-point discrimination Unfold a paperclip or bobby pin so there are two distinct end points. Have your partner close their eyes for this activity; they are just using their sense of touch to tell you whether you touched them with ONE point or TWO. You will touch your partner's skin at various places and randomly change whether you touch them with one point or two. Also change the distance between the two points in your hand to see if they can feel how many points are touching them when they are close together or far apart. Start with the two points close together and then slowly widen the space between them and retouch...see how far apart the two points need to be for them to be able to identify that there are two individual ends touching them. Which areas of the body seem to have the greatest density of receptors (meaning they can tell when there are one or two points with the most accuracy) VISION Blind spot On a piece of paper or an index card, draw a filled-in circle and a plus sign on opposite ends (about 4 inches apart) Hold the card out in front of you as far as your arm reaches. Whichever side the + is on is the eye you will keep open and test. Close the other eye and keep looking at the +. Slowly move the + towards you until the dot disappears. Keep moving and it will reappear once you move past the blind spot. This happens because there is a part of your retina that doesn't have any photoreceptors because this is where the neurons head out of the eye by way of the optic nerve. Peripheral vision Similar to above, hold two cards in front of you and focus on one while slowly rotating your shoulder to move the other card away from the center. Notice where you are (angle) when you can no longer distinguish what is on the card. This can be more fun by using various shapes and colors and even words. Generally, make your objects about 1 inch high. Have someone hand you one of the cards while your arm is out past your peripheral vision and slowly move it inwards until you can identify the elements. What angle are you at when you can see the color? What angle are you at when you can read the word? What angle are you at when you can identify the shape? You will SUBMIT your reflection after completing all parts of the lab. Please remember to draw in aspects from the reading assignments to demonstrate that you are considering how the content fits together. You also need to properly cite and include references using APA format. Here is a word document Download word document with the reflection questions, it is also posted in the assignment page. Please type your answers on the word document and then upload the completed document as your assignment submission. Important Vocabulary Proprioception - the internal awareness of where your body parts are in relation to one another. For instance, you can close your eyes and know where you are holding your right arm right now. Proprioceptors - "receptors for self"; specialized receptors that receive stimuli from within the body in response to your position and movement. These receptors are located in tendons, and other tissues and can feel when you are moving. Examples include: muscle spindles (information about changes in muscle length), Golgi tendon organs (changes in muscle tension), vestibular apparatus (in the inner ear, involved in balance). Reflexes - predictable responses to a specific stimulus Spontaneous Movement - movements that are not induced directly by any specific stimuli in any predictable manner Reaction Time - the quickness with which a person voluntarily responds to a stimulus. NOT THE SAME AS A REFLEX Points to ponder We are exploring the development of the body and its ability to move from brain to senses and next we'll move to muscles. For voluntary movements, the thought has to occur that we want to move, or we sense a need for movement, then the signals move from the brain to the muscles to actually perform the movement. The muscles contract and pull the skeleton which creates the movement itself. Reflexes, on the other hand are automatic and happen without the thought and sometimes even only utilizing the spinal cord for messaging rather than traveling all the way to the brain. Reflexes are primitive and are based in the need to survive. What all is TRULY involved in the ability to selectively perform motor skills such as those we require in our classes? Could you map a skill from stimulus to thought to brain to motor signal to the actual muscles involved in completing the task? If development is more NURTURE based, which requires environmental factors that many of you brought up such as seeing others complete movements, having ample space to explore movement, etc., then how do infants without fully functioning vision and/or hearing develop movement skills? How would you expect their movement skills to look? Resources to investigate We are using several textbooks to achieve our purpose. This may seem like a pain to you...but it is saving you at least $100 on a textbook. Pay attention from week to week and make sure you are on the correct text and chapter. The link is embedded in the chapter (Chapter 7 below is a link to that chapter). I include the APA formatted reference as a model for you so you can see how to properly cite chapters in books. The DOI link is also a link but will require you to pay or log in again. So use the direct link.