

## Remote Learning Packet

*NB: Please keep all work produced this week. Details regarding how to turn in this work will be forthcoming.*

**April 6-10, 2020**

**Course:** 7 Science

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### Weekly Plan:

Monday, April 6

- ☐ Review Your Chapter 15 Section 1 Outline
- ☐ Read the Teacher Notes provided with the lesson today
- ☐ Neuron Anatomy Review

Tuesday, April 7

- ☐ Review Your Chapter 15 Section 2 Outline
- ☐ Read the Teacher Notes provided with the lesson today
- ☐ Nervous System Action-Reaction Lab

Wednesday, April 8

- ☐ Review Your Chapter 15 Section 3 Outline
- ☐ Senses Activity
- ☐ Hearing Test Lab

Thursday, April 9

- ☐ Review Your Chapter 15 Section 3 Outline
- ☐ Smell and Taste Experiment

Friday, April 10 — No School!

### Statement of Academic Honesty

I affirm that the work completed from the packet is mine and that I completed it independently.

I affirm that, to the best of my knowledge, my child completed this work independently

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Student Signature

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Parent Signature

**Monday, April 6**

- Review Your Chapter 15 Section 1 Outline
- Read the Teacher Notes provided with the lesson today
  - ◆ Test Yourself — this is the second (or third or fourth) time you are seeing this information, can you recount these definitions to a family member from memory?
- Complete the Neuron Anatomy Review Found After Today's Notes

**TEACHER NOTES!**

## The Nervous System

### Purpose

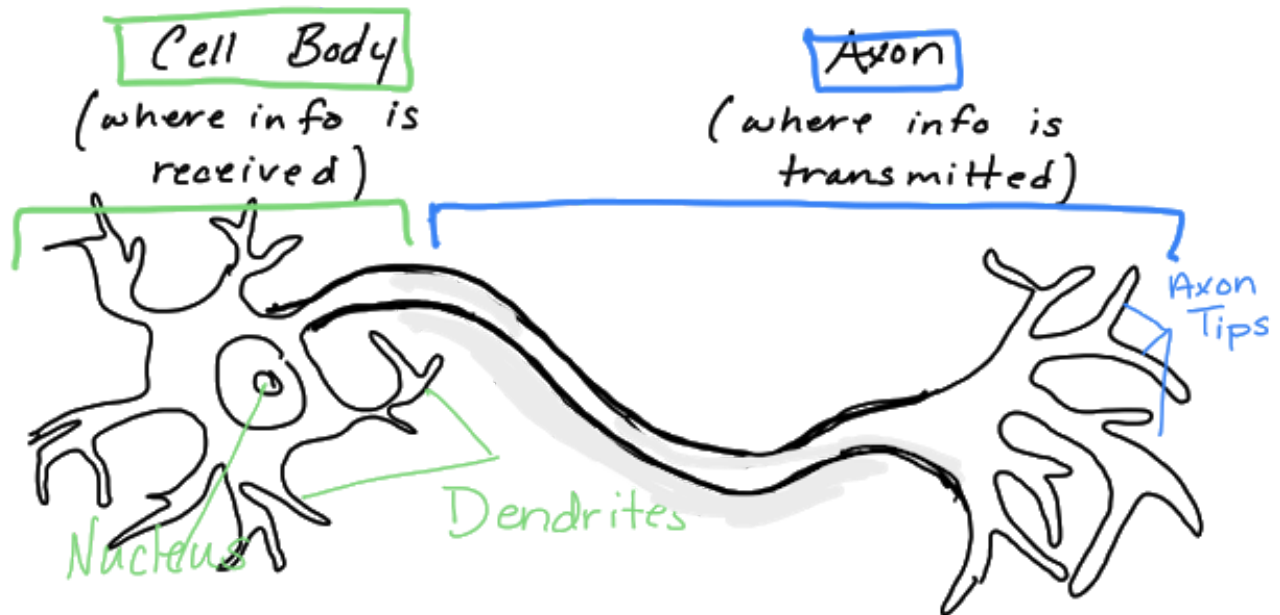
- Receives information (stimuli) from inside and outside of our body from nerves and sensory organs and sends it to the brain.
- Body transmits information back telling the body how to respond
- All this is done to MAINTAIN HOMEOSTASIS

### Main Parts

1. Central Nervous System (CNS)
  - Brain
  - Spinal Cord
  - Nerves
2. Peripheral (PNS) Nervous System
  - Nerves
  - Sensory Organs

NERVES (found in both CNS+PNS) are bundles of NEURONS

## Neurons Have Two Main Parts



Cell Body (Latin "cella" meaning small room)

- holds the nucleus and other cell machinery
- surrounded by **dendrites** (Greek "dendron" meaning tree) that collect information and send information to the brain

Axon (Greek "axon" meaning axis)

- transfers/relays/passes on the messages being sent from the **dendrites**.
  - \* These messages are called **NERVE IMPULSES**
- **Axon Tips** make contact with the dendrites of the next neuron to relay **nerve impulses**

# 3 Types of Neurons

## Sensory Neurons

Get information  
from Sense  
Organs

## Motor Neurons

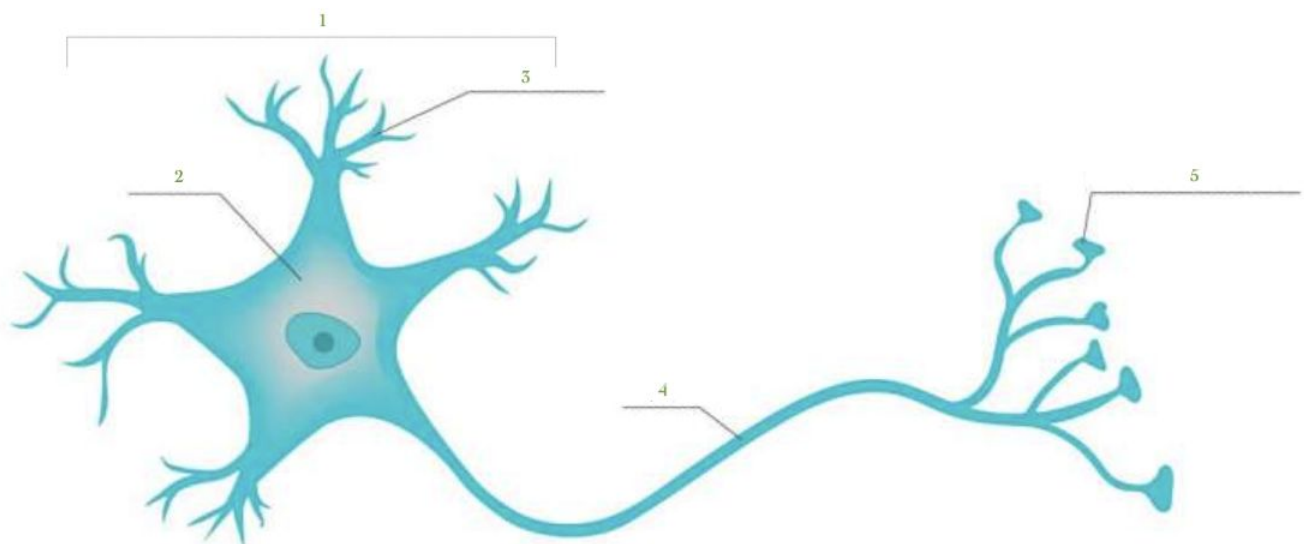
Send responses  
from the brain—  
often to muscles  
to get things  
done.  
(think about the  
motor of a car—  
it gets things done!)

## Interneurons

Send  
information  
to and  
from the  
brain.  
The link  
between  
sensory +  
motor  
neurons and  
the brain.

### Neuron Anatomy Practice

See if you can name each of the five parts of the neuron and tell what each does. If you can't the first time, review your notes and try again!



**Tuesday, April 7**

→ Review Your Chapter 15 Section 2 Outline

→ Read the Teacher Notes provided with the lesson today

◆ Test Yourself — this is the second (or third or fourth) time you are seeing this information, can you recount these definitions to a family member from memory?

→ Follow the directions below to complete a lab to test and understand your nervous system better.

◆ You must record your lab observations, data, and questions on a sheet of paper with a full heading. You should recreate the tables to record your data (unless you have the tables printed out).

### TEACHER NOTES

## The Central Nervous System (CNS)

- Composed of the Brain, Spinal Cord, and 100 BILLION Interneurons
- This is the CONTROL Station (does this remind you of our feedback loops?!)
- The CNS is so important for Homeostasis that the body has built-in protection for it

### To Protect The Brain

- skull
- hair
- 3 layers of connective tissue
- brain fluid

### To Protect The Spinal Cord

- safely tucked inside the vertebral column
- connective tissue and fluid (like the brain)

# The Peripheral Nervous System (PNS)

- Composed of the Sensory Organs and ONLY Sensory and Motor Neurons

\* no interneurons - these are only found in the CNS

- Includes 43 Nerve Pairs (bundles of neurons) to receive and deliver information to/from the brain to all parts of the body

- The PNS Controls Both
    - Voluntary Action (Somatic PNS)
    - Involuntary Actions (Autonomic PNS)
- \* Can you think of examples for each?

## **Nervous System Action-Reaction Lab**

"Adapted from the textbook, page 491"

### **Problem**

Do people's reactions vary at different times of day?

### **Materials**

meter/yard stick

two other objects of your choosing (for example: try a long piece of string, a dollar bill, or a wooden spoon from the kitchen)

### Observing a Response to a Stimulus

1. Have your partner hold a meter stick with the zero end about 50 cm above a table.
2. Get ready to catch the meter stick by positioning the top of your thumb and forefinger just at the zero position.

3. Your partner should drop the meter stick without any warning. Using your thumb and forefinger only (no other part of your hand), catch the meter stick as soon as you can. Record the distance in centimeters that the meter stick fell. This distance is a measure of your reaction time.

4. In addition to the meter/yard stick, pick TWO more objects to drop. For example, try using a dollar bill, a long piece of string, or a wooden spoon from your kitchen. You can use a meter/yard stick, a ruler, or a measuring tape to measure the results of the other two objects you have chosen. Drop the objects as described above and measure from the bottom of the object to the place where it was caught by your lab partner. This distance is a measure of your reaction time.

5. To find out whether people's reactions vary at different times of day, test your lab partner with the same three objects in the same way as described above, but at different times of the day. Try testing now, tonight after dinner, and tomorrow morning!

Use the chart below to record your data, or make your own chart like this one on your own notebook paper.

	Now	Tonight after Dinner	Tomorrow Morning
Meter/yard stick			
Item #2 (write name of object here)			
Item 3# (write name of object here)			

### Analyze and Conclude

1. In this lab, what is the stimulus? What is the response? Is this response voluntary or involuntary? Explain.
2. Why can you use the distance on the meter stick, or the measured distance on the other objects you used, as a measure of reaction time?
3. Based on your results, do people's reactions vary at different times of day? Explain.
4. Why is it important to control all variables (same person dropping the object, same person catching the object, same object being dropped, etc..) except the time of day.

## Wednesday, April 8

- Review Your Chapter 15 Section 3 Outline
- Complete the Senses Activity Described Below to Organize and Better Understand How Your Sensory Organs Work
  - ◆ You must complete this activity on a sheet of paper with a full heading. You should recreate the table to record your answers (unless you have the tables printed out).
- Complete the Hearing Test Lab Found After the Sense Activity
  - ◆ You must record your lab observations, data, and questions on *this same sheet of paper as the Senses Activity*. You should recreate the tables to record your table (unless you have the tables printed out).

### SENSES ACTIVITY

In 6th Grade, and again earlier this year, you studied the five senses — sight, smell, taste, touch, and hearing. Each of these senses has a specific sensory organ and external stimuli. Use your knowledge of the senses and your textbook if necessary (pages 500-507) to identify the correct organ and stimuli for each. The book also lists *balance* as a sense, can you determine what sensory organ and stimuli would describe this 6th sense?

Sense	Sensory Organ	External Stimuli
<i>sight</i>		
<i>smell</i>		
<i>taste</i>		
<i>touch</i>		
<i>hearing</i>		
<i>balance</i>		



## HEARING TEST LAB

### Adapted from the “Try This” activity in the textbook on page 50

In this activity, you will determine whether one of a person’s ears hears better than the other one.

1. Hold a ticking watch next to the right ear of someone’s ear.
2. Slowly move the watch away from the ear. Stop moving it at the point where the person can no longer hear the ticking.
3. At, that point, measure the distance between the watch and the person’s ear. Test both their right and left ear.
4. Test another person in the same way if possible. Testing a second person is not required, but more data to evaluate is helpful.

Use the chart below to record the data from your experiment, or recreate a chart similar to this one on your own notebook paper.

	<b><i>Right Ear -</i></b> Record the distance from the ear where the person can no longer hear the ticking.	<b><i>Left Ear</i></b> Record the distance from the ear where the person can no longer hear the ticking.
Person #1		
Person #2 (optional)		

### Analyze and Conclude

1. How did the two distances compare?
2. Do you think this is an accurate way to evaluate someone’s hearing? Why or why not?
3. If you tested more than one person, how did their measurements compare?

## Thursday, April 9

→ Review Your Chapter 15 Section 3 Outline

→ Follow the directions below to complete the *Smell and Taste Experiment*

- ◆ You must record your lab observations, data, and questions on a sheet of paper with a full heading. You should recreate the tables to record your data (unless you have the tables printed out).

### ***Smell and Taste Experiment***

(Adapted from an experiment found on education.com)

#### **Questions**

- How does our sense of smell affect our sense of taste?
- Are all the taste sensations affected by smell in the same way?

#### **Observations**

The aroma of turkey on Thanksgiving, cookies baking in the oven, or freshly squeezed orange juice — the nose knows, recognizing these smells and associating them with certain tastes. Either good or bad our sense of smell plays a role in taste. A common example is a stuffy nose. When you get a cold and your nose is "stuffed up" it is nearly impossible to taste anything. When giving cough syrup parents often tell their kids to hold their nose so they don't taste the bitter medicine. In this experiment we will examine the relationship between smell and taste.

#### **Material Needed**

- Blindfold
- Paper cups
- Nose plug (you can use your fingers)
- Food: Sweet, Sour, Salty, & Bitter.
- Family member(s)

#### **Procedure**

1. Have your family members look at the four food samples. Based on their past experience, have them describe what flavors (sweet, sour, salty, or bitter) they expect each food to have. Record their guess in the data chart below.
2. Prepare the foods. Break the food into small pieces so the subjects do not recognize the flavor based on the texture of the food.
3. Place each sample into a plain paper cup.
4. Choose at least 1 family member (plus yourself), blindfold them, and have them plug their noses one at a time.
5. Give the first sample in a cup and pour the contents directly into their mouth. Do not allow them to handle the food sample directly in case they can recognize the food by touch. Have them guess the flavor and describe how it tastes. Record their guess.
6. Repeat steps 6-7 for the other food samples.
7. For the next part each subject will be blindfolded only without a nose plug so his or her sense of smell is intact.

8. Using the same foods from the first part have each subject taste and guess the flavor. Record their guess.
9. Organize your data into the chart below or one you recreate on your own notebook paper. Make sure to identify your four foods at the top.

		Food 1:	Food 2:	Food 3:	Food 4:
Family Member 1	guess				
	Blindfolded & Nose plugged				
	Blindfolded only				
Family Member 2 (or you)	guess				
	Blindfolded Nose plugged				
	Blindfolded only				

### Analyze and Conclude

1. Did the subjects guess the correct flavors while blindfolded & nose plugged?
2. Did the subjects guess the correct flavors while only blindfolded?
3. Were there some foods/taste sensations that could be correctly identified despite a lack of smell?