

# You've Got Some Nerves!

**Grade Level or Special Area:** Third Grade

**Written by:** Melissa Packer, The Pinnacle Charter School

**Length of Unit:** Five lessons and a Culminating Activity (six days, one day = 45 minutes)

## I. ABSTRACT

This science unit furthers students' knowledge of the nervous system and how it relates to the rest of their body. Through a variety of activities, students study the brain, spinal cord, and nerves. They also have the opportunity to become junior scientists and use the Scientific Method to discover how nerves work.

## II. OVERVIEW

- A. Concept Objectives (adapted from the *Colorado State Standards for Science*)
  - 1. Recognize that the human body is made up of systems with structures and functions that are related and serve different functions in growth and survival.
  - 2. Know and understand the characteristics and structure of living things.
  - 3. Understand the processes of science investigation and design, conduct, communicate about, and evaluate such investigations.
- B. Content from the *Core Knowledge Sequence*
  - 1. Science: The Human Body (p. 82)
    - a. The Nervous System
      - i. Brain: medulla, cerebrum, cerebellum
      - ii. Spinal cord
      - iii. Nerves
      - iv. Reflexes
  - 2. The Scientific Method (not in *Core Knowledge Sequence*)
- C. Skill Objectives
  - 1. Students will make a KWL chart to help review concepts taught in first grade.
  - 2. Students will generate questions regarding the nervous system.
  - 3. Students will label the three main parts of the brain.
  - 4. Students will identify the function of each of the three main parts of the brain.
  - 5. Students will create a model of the spinal column.
  - 6. Students will draw a picture of a spinal column and copy a paragraph.
  - 7. Students will play "telephone" to simulate nerves talking to each other.
  - 8. Students will copy a paragraph about nerves.
  - 9. Students will perform an experiment pertaining to reflexes.
  - 10. Students will use the Scientific Method.

## III. BACKGROUND KNOWLEDGE

- A. For Teachers
  - 1. Simon, S. *The Brain*
  - 2. Stille, D. *A True Book: The Nervous System*
  - 3. Hirsch, E.D., Jr. *What Your Third Grader Needs to Know*
- B. For Students
  - 1. The Nervous System – 1<sup>st</sup> grade Core Knowledge concept
  - 2. The Skeletal System – 3<sup>rd</sup> grade Core Knowledge concept
  - 3. The Muscular System – 3<sup>rd</sup> grade Core Knowledge concept

## IV. RESOURCES

- A. Simon, S. *The Brain* (Lesson One)

- B. Stille, D. *A True Book: The Nervous System* (Lessons One, Two, Three, Four, and Five)

## V. LESSONS

### Lesson One: Prior Knowledge/Introduction (approximately 45 minutes)

#### A. Daily Objectives

1. Concept Objective(s)
  - a. Recognize that the human body is made up of systems with structures and functions that are related and serve different functions in growth and survival.
2. Lesson Content
  - a. Activating prior knowledge from first grade.
  - b. Introduction to the parts of the nervous system.
3. Skill Objective(s)
  - a. Students will make a KWL chart to help review concepts taught in first grade.
  - b. Students will generate questions regarding the nervous system.

#### B. Materials

1. Book *The Brain*, by Seymour Simon
2. KWL Chart (Appendix B) copied onto a transparency
3. Vis-à-vis marker
4. Overhead projector
5. Book *A True Book: The Nervous System*, by Darlene R. Stille
6. Student notebook (one per student)
7. Pencil (one per student)
8. Copies of Appendix C for grading (one per student)

#### C. Key Vocabulary

1. Nervous system: the body system that sends information to and from the brain

#### D. Procedures/Activities

1. Display the picture of the brain on p. 16 from *The Brain*, by Seymour Simon. Ask students what they see (a brain).
2. Display K-W-L chart overhead (Appendix B).
3. K = What We Know. Ask students to list what they already know about the brain and nerves (from first grade). List their suggestions on the overhead under the first column. Try to get at least five items listed.
4. W = What We Want to Know. Explain to students that they will be studying the nervous system, which includes the brain, nerves, and their spine. Ask them what kinds of questions to they hope to have answered in this unit. Try to get at least five questions listed.
5. Save this overhead! You will use it at the end of each lesson to help summarize in the “L” (What You Have Learned) column. By the end of the unit you should have a bullet in the “L” column for each day.
6. Have students copy the KWL chart into their notebook. Tell them to be sure to leave room in the “L” column because they will be using the chart each day to list the main idea of each lesson.
7. Read pgs. 5-12 of *A True Book: The Nervous System*, by Darlene R. Stille.
8. Ask if anyone has any additional questions they would like answered. If so, add these to the “W” column of the KWL chart and have students copy the additional questions into their notebooks.
9. Ask: “What is one thing you have learned today?” Take several student responses.

10. Say: “The main idea of what we read today is that the nervous system is like a computer that is made up of many parts that all work together to keep us going.”
  11. Write the following statement under the “L” of the KWL chart:  
**The nervous system is like a computer that is made up of many parts that all work and communicate together to keep us going.**
  12. Instruct students to copy the above statement under the “L” on their chart in their notebook.
- E. *Assessment/Evaluation*
1. Collect notebooks. Grade KWL chart using checklist (Appendix C).

## **Lesson Two: Brain Drain**

- A. *Daily Objectives*
1. Concept Objective(s)
    - a. Recognize that the human body is made up of systems with structures and functions that are related and serve different functions in growth and survival.
    - b. Know and understand the characteristics and structure of living things.
  2. Lesson Content
    - a. The brain: medulla, cerebrum, cerebellum
  3. Skill Objective(s)
    - a. Students will label the three main parts of the brain.
    - b. Students will identify the function of each of the three main parts of the brain.
- B. *Materials*
1. Picture or model of the human brain
  2. Book *A True Book: The Nervous System*, by Darlene R. Stille
  3. The Brain diagram and definitions copied onto a transparency (Appendix D)
  4. Overhead projector
  5. Copies of brain (Appendix E), one “head” per student
  6. Scissors (one pair per student)
  7. Glue sticks (one per student)
  8. Student notebook (one per student)
  9. Pencil (one per student)
  10. KWL Chart from first lesson (Appendix B) copied onto a transparency
  11. Vis-à-vis pen
  12. Copies of Appendix F for grading (one per student)
- C. *Key Vocabulary*
1. Medulla: also called the brain stem, it connects the brain to the spinal cord
  2. Cerebrum: the center of thought, feeling, and remembering, it also controls muscle movements
  3. Cerebellum: the part of the brain that controls balance and coordination
- D. *Procedures/Activities*
1. Show the class a picture or model of the human brain.
  2. Tell students: “This is a picture (model) of a real brain. There are many parts in your brain that work together, but perform different functions. We will learn about the three main parts today.”
  3. Read pgs. 13-17 of *A True Book: The Nervous System*.
  4. Pass out one “head” from Appendix E to each student.
  5. Pass out scissors and glue sticks.
  6. Instruct students to cut out their “head,” being sure to stay outside the line.
  7. Instruct students to glue their “head” onto the next clean page in their notebook.

8. Display transparency “The Parts of the Brain” (Appendix D). Cover up the definitions using a note card or piece of paper.
  9. Instruct students to draw lines and label their head just like the picture on the overhead.
  10. Point to the cerebrum. Say: “The cerebrum is the ‘thinking brain.’ It controls your thoughts, feelings, and remembering. It is also the largest part of your brain. When you study for a test or practice your math facts, you are using your cerebrum.”
  11. Point to the cerebellum. Say: “The cerebellum is the part of your brain that controls balance and coordination. Try to pat your head and rub your tummy at the same time. Your cerebellum is working hard to try to coordinate your arms to do the activity you want them to do. You use your cerebellum when you play sports, walk, and even write.”
  12. Point to the medulla. Say: “The medulla, also called the brain stem, connects your brain to the rest of your body. Messages are constantly being sent from your brain to the rest of your body and back. Even right now your brain is sending messages through your medulla to your lungs that say ‘breathe!’”
  13. Uncover the definitions. Instruct students to copy the definitions into their notebooks, under their “head.”
  14. Display KWL chart from first lesson.
  15. Ask students to turn back to their KWL chart.
  16. Ask: “What was the main idea of our lesson today?” Take several student suggestions. Write the following statement (or something similar) under the “L” column:  
**Our brains are made up of three main parts: the cerebrum, the cerebellum, and the medulla.**
  17. Instruct students to copy the above statement under the “L” on their chart in their notebook.
- E. *Assessment/Evaluation*
1. Collect notebooks. Grade brain diagram and definitions using checklist (Appendix F).

### **Lesson Three: Spinal Tap**

- A. *Daily Objectives*
1. Concept Objective(s)
    - a. Recognize that the human body is made up of systems with structures and functions that are related and serve different functions in growth and survival.
    - b. Know and understand the characteristics and structure of living things.
  2. Lesson Content
    - a. Spinal cord
  3. Skill Objective(s)
    - a. Students will create a model of the spinal column.
    - b. Students will draw a picture of a spinal column and copy a paragraph.
- B. *Materials*
1. Model of backbone (see Appendix A: Teacher’s Guide for instruction)
  2. Book *A True Book: The Nervous System*, by Darlene R. Stille
  3. Wooden spools: 4 large, 10 medium, 12 small (per group of four students)
  4. 2 ft. length of string or twine (per group of four students)
  5. One 1” wooden button (per group of four students)
  6. Masking tape (two small pieces per group of four students)

7. Transparency of Appendix G
  8. Overhead projector
  9. Student notebook (one per student)
  10. Pencil (one per student)
  11. KWL Chart from first lesson (Appendix B) copied onto a transparency
  12. Vis-à-vis marker
  13. Copies of Appendix H for grading (one per student)
- C. *Key Vocabulary*
1. Spinal cord: the bundle of nerves that begins at the brain stem and runs down the back; it is the connector for the brain to the rest of the body
- D. *Procedures/Activities*
1. Show teacher-made model of backbone. Ask: “Does anyone know what part of the body this is a model of?” Take several student suggestions, but do not deny nor confirm.
  2. Say: “Let’s read about this mysterious part.”
  3. Read pgs. 19-23 of *A True Book: The Nervous System*, by Darlene R. Stille.
  4. Put students into groups of four.
  5. Pass out supplies to make models.
  6. Instruct students in making model as follows:
    - a. Thread one button onto one end of the string and affix with a small piece of masking tape.
    - b. From other end, thread four large spools onto the string.
    - c. Thread 10 medium spools onto the string.
    - d. Thread 12 large spools onto the string.
    - e. Affix remaining string to last small spool with a small piece of masking tape.
  7. Have students inspect their models.
  8. Say: “The spools represent the backbone that protects your spine. The string in the middle represents your spine. Bend the model around. Notice how the spools are not attached to one another – this is important because it allows your spine to bend and move while still staying protected.”
  9. Display transparency of Appendix G.
  10. Instruct students to open their notebooks to the next clean page.
  11. Instruct students to copy the paragraph shown on the overhead into their notebook. Once finished with the paragraph, the students should try copying the drawing from the overhead.
  12. Display KWL chart from first lesson.
  13. Ask students to turn back to their KWL chart.
  14. Ask: “What was the main idea of our lesson today?” Take several student suggestions. Write the following statement (or something similar) under the “L” column:  
**The spinal cord is the connector for the brain to the rest of the body.**
  15. Instruct students to copy the above statement under the “L” on their chart in their notebook.
- E. *Assessment/Evaluation*
1. Collect notebooks. Use rubric (Appendix H) to grade copied paragraphs.

## **Lesson Four: Getting On Our Nerves**

### **A. Daily Objectives**

1. Concept Objective(s)
  - a. Recognize that the human body is made up of systems with structures and functions that are related and serve different functions in growth and survival.
  - b. Know and understand the characteristics and structure of living things.
2. Lesson Content
  - a. Nerves
3. Skill Objective(s)
  - a. Students will play “telephone” to simulate nerves talking to each other.
  - b. Students will copy a paragraph about nerves.

### **B. Materials**

1. Book *A True Book: The Nervous System*, by Darlene R. Stille
2. Transparency of Appendix I (Nerves Copy Paragraph)
3. Pencil (one per student)
4. Student notebook (one per student)
5. Overhead projector
6. KWL Chart from first lesson (Appendix B) copied onto a transparency
7. Vis-à-vis marker
8. Copies of Appendix J for grading (one per student)

### **C. Key Vocabulary**

1. Nerves: fibers that send messages to and from your brain

### **D. Procedures/Activities**

1. Say: “Pinch yourself on the arm gently. Not enough to hurt, but so you feel the pinch. The nerves in your arm around where you pinched just sent an immediate message to your brain that said ‘someone just pinched my arm.’ Think of nerves like telephone lines. They send messages to and from your brain like telephone lines send messages from your phone to other people’s phones and back.”
2. Read pgs. 24-37 of *A True Book: The Nervous System*, by Darlene R. Stille
3. Instruct students to stand in a straight line.
4. Say: “We’re going to pretend we are all nerves, except for the last student in line. That student is the brain, and they will have to react to whatever message the nerves send him (or her). The brain then sends a message back through the nerves to me to tell me how to react.”
5. Whisper a message to the first student. A few examples might be: your right hand just touched a hot stove; your nose just smelled fresh cookies; your ear just heard a loud crash.
6. Tell the first student “nerve” to turn around and whisper the message to the second nerve, and the second should whisper the message to the third, as if you were playing telephone.
7. The second to last student should whisper the message to the “brain.” Ask the student “brain” to react to the message. In other words, if the message was that the hand touched the hot stove, the brain’s message would be to pull the hand away.
8. The brain then needs to send his/her message back through the nerves (reverse telephone) to the teacher.
9. When the first “nerve” gets the message, they share it with the teacher, who should react how the brain told them to. In the hot stove example, the teacher would jerk their hand away.
10. Ask students to return to their seats.

11. Say: “We just saw how nerves work, but of course it’s much faster than that. Reaction time is almost instant – over 1,000 messages of every kind are sent every second.”
  12. Display Appendix I transparency.
  13. Instruct students to open their notebooks to the next clean page.
  14. Instruct students to copy the paragraph shown on the overhead into their notebook. Once finished with the paragraph, the students should try copying the drawing from the overhead.
  15. Display KWL chart from first lesson.
  16. Ask: “What was the main idea of our lesson today?” Take several student suggestions. Write the following statement (or something similar) under the “L” column:  
**The nerves are pathways for messages to and from the brain.**
  17. Instruct students to copy the above statement under the “L” on their chart in their notebook.
- E. *Assessment/Evaluation*
1. Collect notebooks. Use rubric (Appendix J) to grade copied paragraphs.

### **Lesson Five: Knee-jerk Reaction**

- A. *Daily Objectives*
1. Concept Objective(s)
    - a. Recognize that the human body is made up of systems with structures and functions that are related and serve different functions in growth and survival.
    - b. Know and understand the characteristics and structure of living things.
  2. Lesson Content
    - a. Reflexes
    - b. The Scientific Method
  3. Skill Objective(s)
    - a. Students will perform an experiment pertaining to reflexes.
    - b. Students will use the Scientific Method.
- B. *Materials*
1. Book *A True Book: The Nervous System*, by Darlene R. Stille
  2. One pair of safety goggles for every pair of students
  3. One cotton ball for each pair of students
  4. Transparency of Scientific Method (Appendix K)
  5. Copies of Appendix K (one per student)
  6. Pencil (one per student)
  7. Student notebook (one per student)
  8. Overhead projector
  9. KWL Chart from first lesson (Appendix B) copied onto a transparency
  10. Vis-à-vis marker
  11. Copies of Appendix L for grading (one per student)
- C. *Key Vocabulary*
1. Reflex: an automatic reaction your body makes that does not involve the brain
  2. The Scientific Method: the set of procedures scientists use to explain why things happen the way they do
  3. Hypothesis: a possible explanation for the details a scientist has observed

D. *Procedures/Activities*

1. Ask: “When you go to the doctor and s/he taps your knee with their little rubber hammer, what are they checking?” (reflexes) “Today we are going to read about reflexes.”
2. Read pgs. 38-42 of *A True Book: The Nervous System*, by Darlene R. Stille
3. Say: “Today we’re going to do an experiment following the Scientific Method. The Scientific Method is the set of procedures that all scientists follow to explain why things happen the way they do.”
4. Pass out the Scientific Method forms.
5. Display the Scientific Method form of the overhead.
6. Say: “We are going to go through the Scientific Method step-by-step. We will perform the experiment, then we will record our results.”
7. Say: “We begin with the observation. This is when a scientist sees something and they can’t quite figure it out, and decides to get to the bottom of it. Today we’re going to talk about blinking. We all blink, constantly, several times per minute. But why?”
8. Next to “observation” on the transparency, write: **“Everyone blinks constantly, several times per minute.”**
9. Instruct students to copy the observation from the overhead.
10. Say: “Next, the scientist must come up with a hypothesis. A hypothesis is a possible explanation for the details the scientist has observed. I hypothesize that blinking is a reflex.”
11. Next to “hypothesis” on the transparency, write: **“I hypothesize that blinking is a reflex.”**
12. Instruct students to copy the hypothesis from the overhead.
13. Say, “Next we must make a testable prediction. In other words, we need to state how we plan to prove our hypothesis. Our prediction is that if someone throws something at our eyes, we will blink as a reflex to protect our eyes.”
14. Next to “prediction” on the overhead, write: **“I predict that if something is thrown at my eyes, I will blink as a reflex.”**
15. Instruct students to copy the prediction from the overhead.
16. Say: “The next step of the Scientific Method is to describe the procedures of the experiment you are going to perform. We need to list each step we take, and we need to be sure we follow every step when performing the experiment. Sometimes a scientist has to perform an experiment several times in order to get consistent results. It’s important to follow the same, exact steps each time, otherwise your results may not be the same.”
17. Next to “procedures” on the overhead, write:
  1. **One person sits in a chair while wearing safety goggles.**
  2. **The other person stands about 3 feet away, facing the person in the chair.**
  3. **The person standing should toss a cotton ball toward the eyes of the seated person.**
  4. **Record if the seated person blinked or not.**
18. Instruct students to copy the procedures from the overhead.
19. Say: “You will perform your experiment three times, each time recording your results on the form. If the person blinks, simply write “blinked.” If they don’t blink, then write “didn’t blink.” Complete sentences are not necessary when recording results. We will write sentences later.”
20. Put students into pairs and pass out materials.
21. Instruct students to begin their experiments.

22. When students have completed their experimenting, have them return to their seats.
  23. Ask: “Who would like to share their results?” Call on a variety of students. The overwhelming majority should have found that when a cotton ball is thrown at the eyes, even when wearing safety goggles, the eyes blink.
  24. Say: “When we look at our results, we can safely conclude that blinking is a reflex.”
  25. Next to “conclusion” on the overhead, write: **“Our results prove that blinking is a reflex.”**
  26. Instruct students to copy the conclusion from the overhead.
  27. Display KWL chart from first lesson
  28. Ask: “What was the main idea of our lesson today?” Take several student suggestions. Write the following statement (or something similar) under the “L” column:  
**Reflexes are an automatic reaction your body makes that do not involve the brain.**
  29. Instruct students to copy the above statement under the “L” on their chart in their notebook.
- E. *Assessment/Evaluation*
1. Collect Scientific Method sheets, use checklist (Appendix L) to grade.

## VI. CULMINATING ACTIVITY

- A. Administer Nervous System test (Appendix M). Collect and grade with answer key (Appendix N).

## VII. HANDOUTS/WORKSHEETS

- A. Appendix A: Teacher’s Guide
- B. Appendix B: KWL Chart
- C. Appendix C: KWL Checklist
- D. Appendix D: The Brain Definitions and Diagram
- E. Appendix E: Student Copy of Brain
- F. Appendix F: Brain Grading Checklist
- G. Appendix G: Spinal Cord Copy Paragraph
- H. Appendix H: Spine Paragraph Rubric
- I. Appendix I: Nerves Copy Paragraph
- J. Appendix J: Nerves Paragraph Rubric
- K. Appendix K: The Scientific Method
- L. Appendix L: Scientific Method Grading Checklist
- M. Appendix M: Nervous System Test
- N. Appendix N: Nervous System Test Answer Key

## VIII. BIBLIOGRAPHY

- A. Hirsch, E.D., Jr. *What Your Third Grader Needs to Know*. New York: Bantam Dell Publishing, 2001 0-385-33626-8.
- B. Simon, S. *The Brain*. New York: Scholastic, 1998. 0-590-65079-3
- C. Stille, D. *A True Book: The Nervous System*. New York: Children’s Press, 1997. 0-516-26270-X
- D. VanCleave, J. *The Human Body for Every Kid*. New York: John Wiley & Sons Incorporated, 1995. 0-471-02408-2
- E. “Scientific Method” movie (on-line). Available URL:  
<http://www.brainpop.com/science/scientificinquiry/scientificmethod/>, 2000-2003.

## **Appendix A Teacher's Guide**

### A Note on Notebooks

In my classroom, I use composition notebooks for the student science notebook. I like them because they don't fall apart easily. However, a spiral notebook or a folder with prongs to hold loose leaf paper, or even a 3-ring binder will work. I collect them after each lesson and store them on a bookshelf so they do not get lost or ruined. We use the same notebook for all of our science units, so that by the end of the year they have a third grade science "textbook." These books make wonderful keepsakes!

### Make Your Own Backbone Sample – Lesson Three

#### Materials:

- 2 ft. of string or twine
- Wooden spools (4 large, 10 medium, 11 small)
- 1 wooden button (1")
- masking tape

#### Steps:

1. Thread button onto one end of the string.
2. Affix the button to the string with a small piece of masking tape.
3. From other end, thread four large spools onto the string.
4. Thread 10 medium spools onto the string.
5. Thread 12 small spools onto the string.
6. Affix remaining string to last small spool with a small piece of masking tape.

### Brainpop.com – Lesson Five

In Lesson Five we discuss the steps of the Scientific Method. A great resource for a fun, short movie that demonstrates the steps can be found at [www.brainpop.com](http://www.brainpop.com). Brainpop offers short movies for a variety of science, English, technology, math, and health topics.

**Appendix B**  
**K-W-L Chart**

<b>What I <u>L</u>earned</b>	
<b>What I <u>W</u>ant to <u>K</u>now</b>	
<b>What I <u>K</u>now</b>	

**Appendix C  
KWL Checklist**

	<b>Yes 10 pts.*</b>	<b>No 0 pts.</b>
<b>Five sentences in “K” column copied.</b>		
<b>Five sentences in “W” column copied.</b>		
<b>One sentence in “L” column copied.</b>		
<b>Chart is neatly written.</b>		
<b>Total Points</b>	_____/40	
<b>Grade</b>		

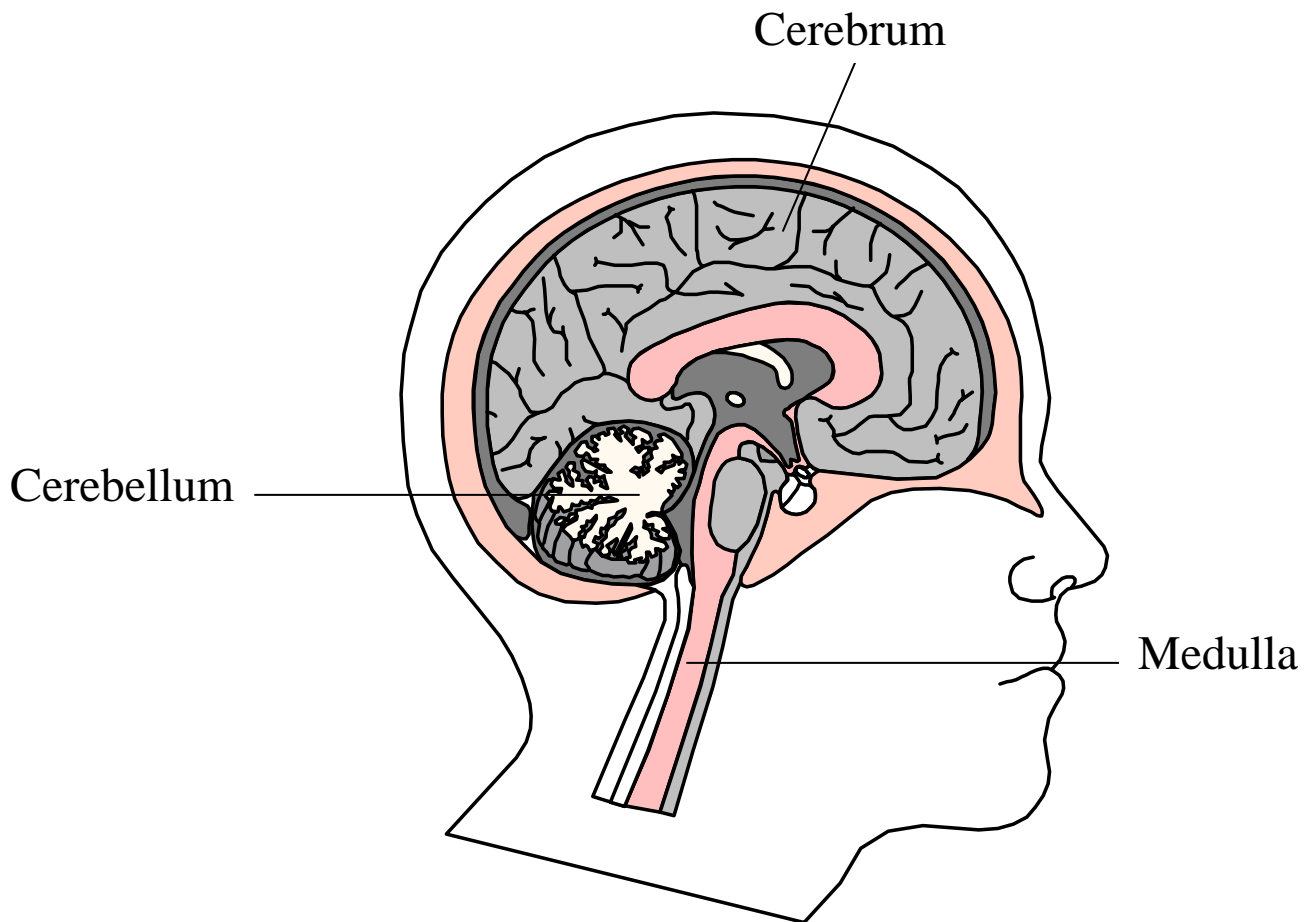
**\*NOTE: In the “Yes” column, give fewer points if not 100% acceptable.**

**Appendix D**  
**The Brain Definitions and Diagram**  
**The Parts of the Brain**

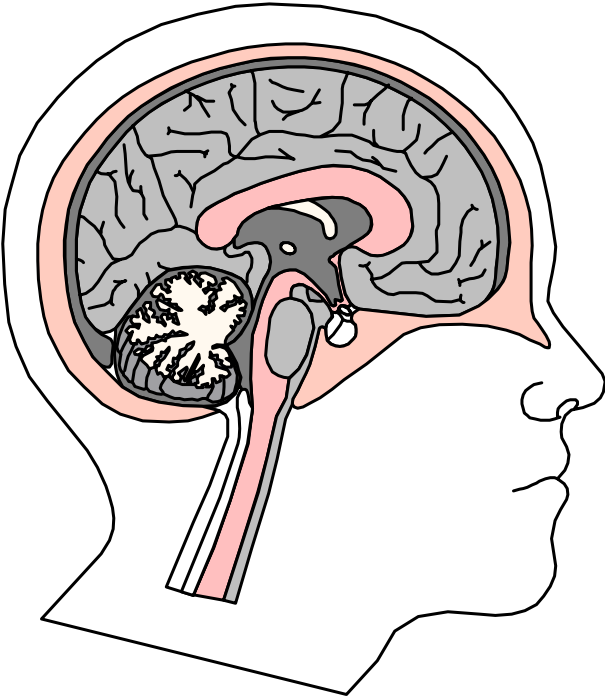
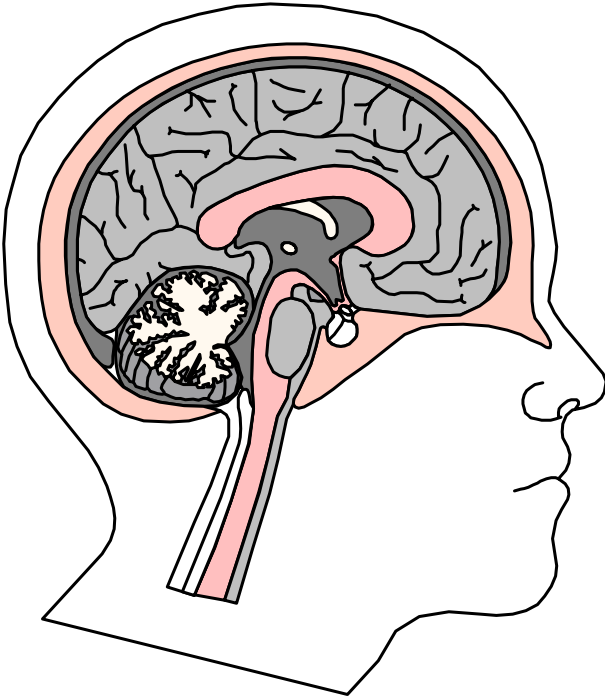
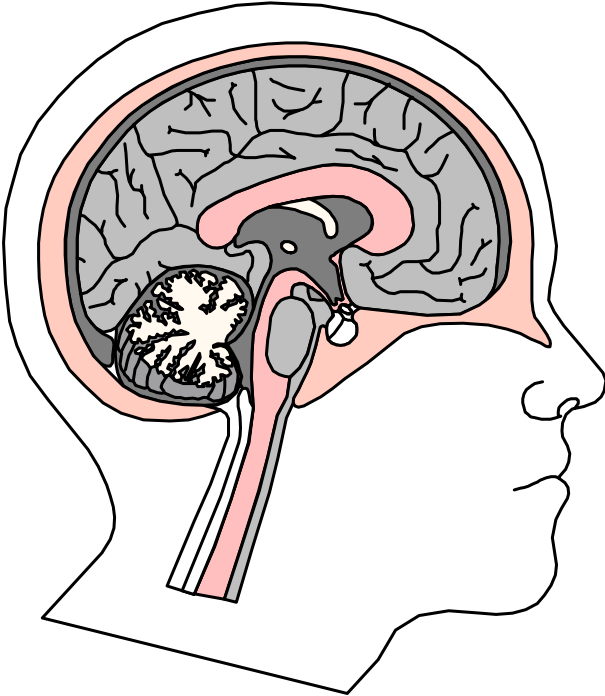
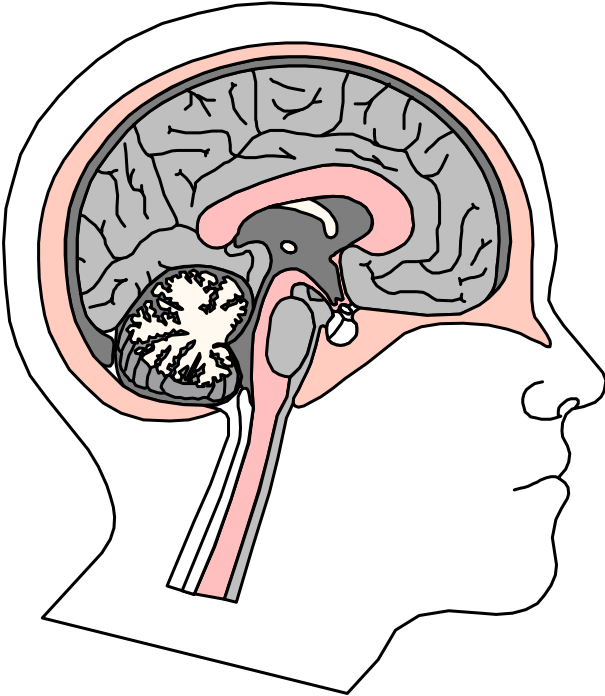
**Cerebrum:** the center of thought, feeling, and remembering, it also controls muscle movements

**Cerebellum:** the part of the brain that controls balance and coordination

**Medulla:** also called the brain stem, it connects the brain to the spinal cord



**Appendix E**  
**Student Copy of Brain**  
Give one "head" to each student.



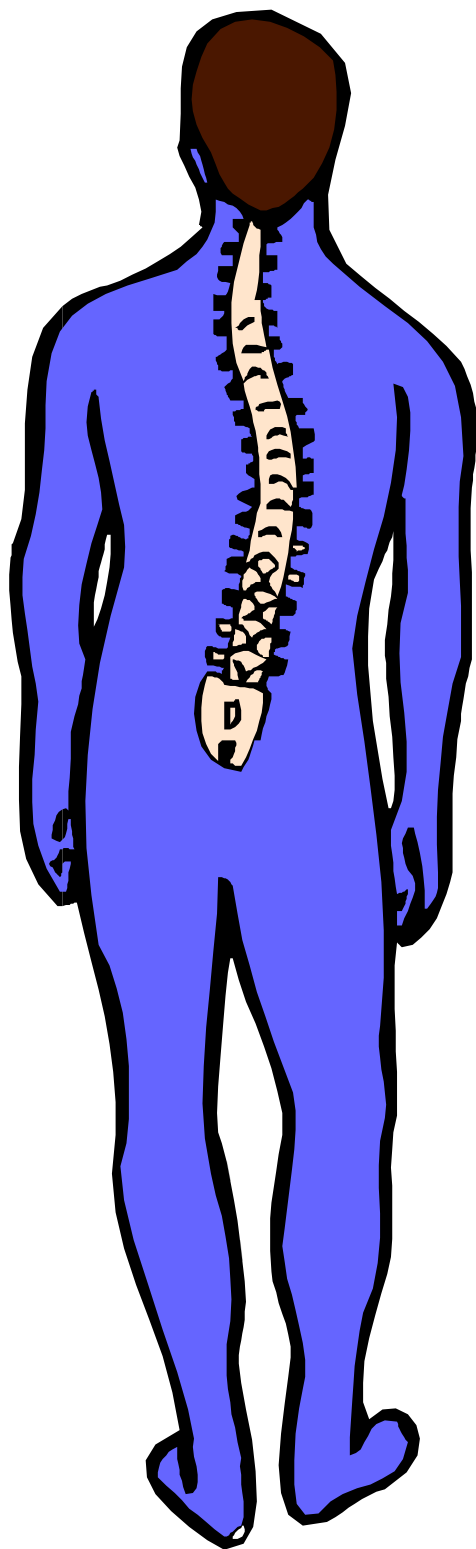
## Appendix F Brain Grading Rubric

Student Name: \_\_\_\_\_

**Directions:** Select one column for each row. Multiply points as shown to arrive at a total grade.

	<b>Deficient 0 points</b>	<b>Basic 1 point</b>	<b>Competent 2 points</b>	<b>Exemplary 3 points</b>
Definition of cerebrum. _____ x 2 = _____ pts.	Not copied correctly	Copied 50% correctly	Copied 75% correctly	Copied 100% correctly
Definition of cerebellum. _____ x 2 = _____ pts.	Not copied correctly	Copied 50% correctly	Copied 75% correctly	Copied 100% correctly
Definition of medulla. _____ x 2 = _____ pts.	Not copied correctly	Copied 50% correctly	Copied 75% correctly	Copied 100% correctly
Brain is glued into notebook and all parts are correctly labeled. _____ x 4 = _____ pts.	None of the parts are labeled correctly	1 part is labeled correctly		All parts are labeled correctly
Total Grade Points _____/30  Grade: _____	Comments:			

Appendix G  
Spinal Cord Copy Paragraph



## The Spinal Cord

The spinal cord is a “bundle” of nerves that extend from the base of the brain. It is the main connector from the brain to the rest of the body. The spinal cord is protected by the backbone. An injury to the spinal cord can cause paralysis. Spinal cells never grow back, so once they are damaged any injury is most likely permanent.

## Appendix H

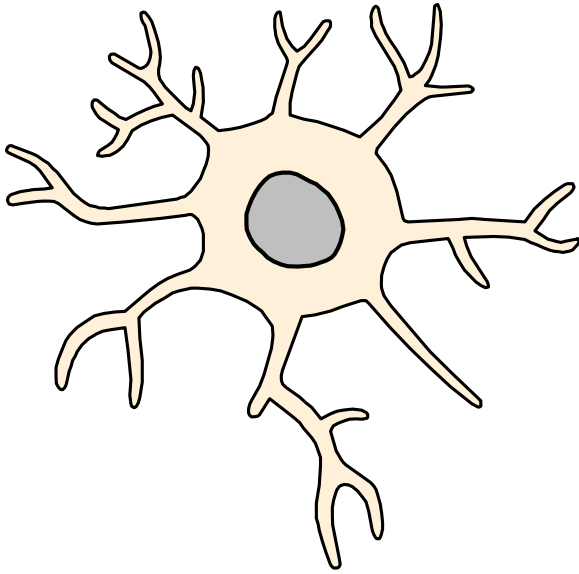
### Spine Paragraph Rubric

Student Name: \_\_\_\_\_

**Directions:** Select one column for each row. Multiply points as shown to arrive at a total grade.

	<b>Deficient 0 points</b>	<b>Basic 1 point</b>	<b>Competent 2 points</b>	<b>Exemplary 3 points</b>
Paragraph copied correctly. _____ x 5 = _____ pts.	Not copied correctly	Copied 50% correctly	Copied 75% correctly	Copied 100% correctly
Drawing of spine. _____ x 5 = _____ pts.	No drawing	Drawn with little or no detail	Drawn with some detail	Drawn in detail
Neatness _____ x 5 = _____ pts.	Sloppy	Some attempt at neatness	Neatly copied and drawn	Very neatly copied and drawn
Total Grade Points _____/30  Grade: _____	Comments:			

**Appendix I  
Nerves Copy Paragraph**



## **The Nerves**

**The nerves are pathways for messages between the brain, the spinal cord, and the rest of the body. Today we played a game like telephone to demonstrate**

**how nerves work. The nerves have to communicate with the brain in order to identify the things we see, touch, smell, hear, and taste. Reaction time is almost instant – over 1,000 messages of every kind are sent every second.**

## Appendix J Nerves Paragraph Rubric

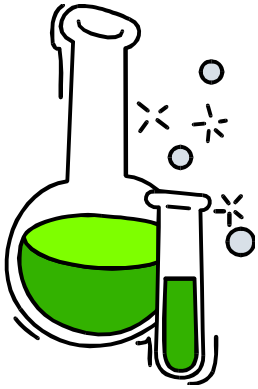
Student Name: \_\_\_\_\_

**Directions:** Select one column for each row. Multiply points as shown to arrive at a total grade.

	<b>Deficient 0 points</b>	<b>Basic 1 point</b>	<b>Competent 2 points</b>	<b>Exemplary 3 points</b>
Paragraph copied correctly. _____ x 5 = _____ pts.	Not copied correctly	Copied 50% correctly	Copied 75% correctly	Copied 100% correctly
Drawing of nerve. _____ x 5 = _____ pts.	No drawing	Drawn with little or no detail	Drawn with some detail	Drawn in detail
Neatness _____ x 5 = _____ pts.	Sloppy	Some attempt at neatness	Neatly copied and drawn	Very neatly copied and drawn
Total Grade Points _____/30  Grade: _____	Comments:			

Appendix K  
Scientific Method

# Scientific Method



Observation: \_\_\_\_\_

\_\_\_\_\_

Hypothesis: \_\_\_\_\_

\_\_\_\_\_

Prediction: \_\_\_\_\_

\_\_\_\_\_

Procedure: 1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

Results: Test 1: \_\_\_\_\_

Test 2: \_\_\_\_\_

Test 3: \_\_\_\_\_

Conclusion: \_\_\_\_\_

\_\_\_\_\_

## Appendix L Scientific Method Grading Rubric

Student Name: \_\_\_\_\_

**Directions:** Select one column for each row. Multiply points as shown to arrive at a total grade.

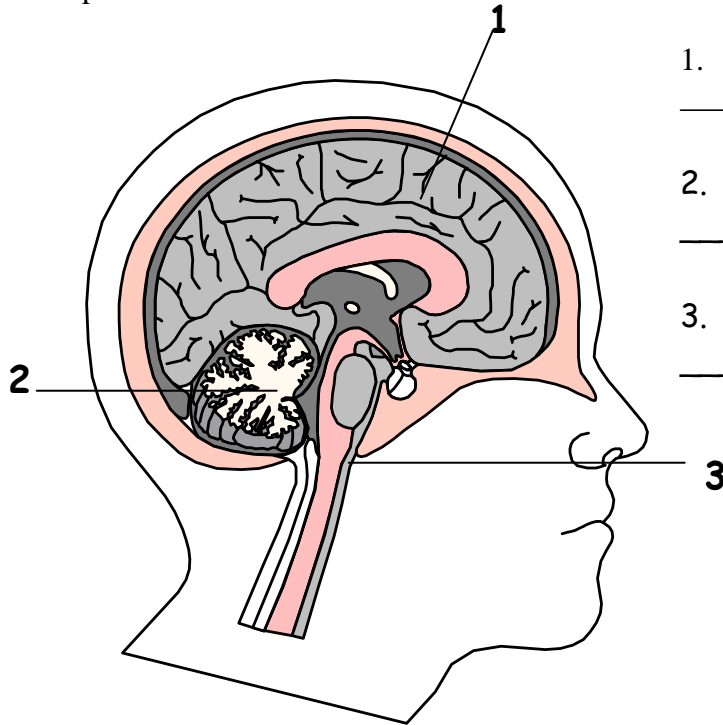
	<b>Deficient 0 points</b>	<b>Basic 1 point</b>	<b>Competent 2 points</b>	<b>Exemplary 3 points</b>
Observation copied correctly _____ x 2 = _____ pts.	Not copied correctly	Copied 50% correctly	Copied 75% correctly	Copied 100% correctly
Hypothesis copied correctly _____ x 2 = _____ pts.	Not copied correctly	Copied 50% correctly	Copied 75% correctly	Copied 100% correctly
Prediction copied correctly _____ x 2 = _____ pts.	Not copied correctly	Copied 50% correctly	Copied 75% correctly	Copied 100% correctly
Procedures copied correctly _____ x 2 = _____ pts.	No steps copied correctly	1-2 steps copied correctly	3 steps copied correctly	Copied 100% Correctly
Results recorded _____ x 5 = _____ pts.	No results recorded	1 set of results recorded	2 sets of results recorded	3 sets of results recorded
Conclusion copied correctly _____ x 2 = _____ pts.	Not copied correctly	Copied 50% correctly	Copied 75% correctly	Copied 100% Correctly
Total Grade Points _____/45  Grade: _____	Comments:			

**Appendix M, page 1  
Nervous System Test**

Name: \_\_\_\_\_

**The Nervous System**

Label the parts of the brain.



- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_

4. What is the main job of the cerebrum?

---

---

5. What is the main job of the cerebellum?

---

---

6. What is the main job of the medulla?

---

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## Appendix M, page 2

7. Name the three parts of the nervous system.

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

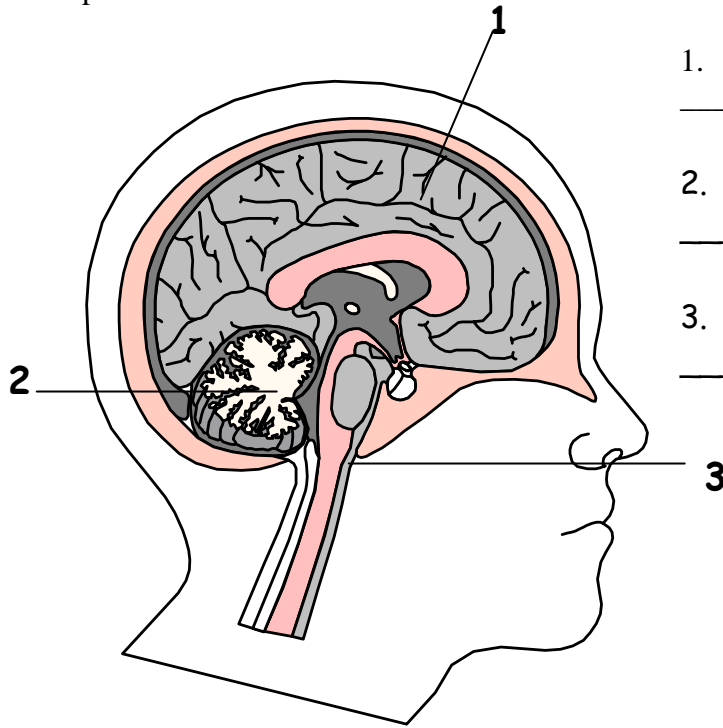
8. The \_\_\_\_\_ is the long piece of nerve tissue that runs from the brain down through the backbone.

9. \_\_\_\_\_ are tiny fibers found in the spinal cord and throughout the body.

Appendix N, page 1  
Nervous System Test Answer Key

The Nervous System

Label the parts of the brain.



1. Cerebrum

2. Cerebellum

3. Medulla

4. What is the main job of the cerebrum?

The main job of the cerebrum is to control language and movement.

5. What is the main job of the cerebellum?

The cerebellum controls balance and posture.

6. What is the main job of the medulla?

The medulla connects the brain to the spinal cord.

## Appendix N, page 2

7. Name the three parts of the nervous system.

a. The brain

b. The spinal cord

c. The nerves

8. The spinal cord is the long piece of nerve tissue that runs from the brain down through the backbone.

9. Nerves are tiny fibers found in the spinal cord and throughout the body.