

Sensation and Perception Syllabus-Day

	WHAT	HOW	MATERIALS
Day One – Introduction and the Scientific Method			
1 – 75min	<p>Introductions</p> <p>Students will be able to identify the five senses and describe a location using them.</p>	<p>Create nametags with the brain. Discuss Honor Code. Discuss the format of the course. Explain the types of expectations for the course. Pre-Assessment <u>Introductory Questions:</u> 1. List 5 things you see, taste, hear, smell, and touch every day. 2. Pick a location (i.e. movies, pond) and describe the location using the five senses. 3. Use details and complete sentences. Try to trick your neighbor.</p>	<p>Nametags</p> <p>Honor Code</p> <p>Pre-Assessment</p>
2 – 65min	<p>Students will be able to highlight the important aspects of lab safety.</p> <p>Students will be able to list and describe the steps in the scientific method</p>	<p>Review safety precautions. Students will fill in the blanks on a lab safety contract, and then sign it.</p>	
3 – 60min	<p>Students will be able to dissect a sheep's brain and identify key components.</p>	<p>Discuss and list the steps in the scientific method. Students list the steps in their journals.</p> <p>Describe examples of when it is used. Students will provide examples of when they may have used certain steps.</p>	<p>Lab Safety</p>
4 – 50min	<p>Students will be able to dissect a sheep's brain and identify key components.</p>	<p>Introduce dissection techniques.</p> <p>Remove the dura mater from the sheep's brain.</p>	<p>Mammalian brain bio kit. (22-1490) – Includes Student Sheets</p> <p>Dissection kits Dissecting pins</p> <p>Post-its</p>
5 – 15min	<p>Wrap-Up and homework explanation.</p>	<p><u>Homework</u> 1. Find an interesting fact to share about the nervous system. 2. Create a pamphlet with important lab safety rules and why they are important. Use pictures and text. 3. Choose your organism.</p>	<p>11x17 paper</p>

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Day Two – Introduction to the Nervous System			
1 – 75min	Students will be able to define and identify the main cranial nerves.	<u>Introductory Questions:</u> 1. Would it be right to operate on criminals' brains to change their behavior? If they had the operation, should they still stay in jail? 2. If you had a brain transplant, who would you be, you or the other person? 3. Design a question and hypothesis for an experiment of your choosing. Discuss responses as a class. Review homework. Define purpose of 12 cranial nerves.	
2 – 65min	Students will be able to complete dissection and identify main cranial nerves.	Label all major brain components in the ventral, lateral, and dorsal views. Complete sheep brain dissection and label cranial nerves.	Continued ...
3 – 60min	Students will be able to explain a few basic facts about the anatomy of the human brain.	Define the functions of each part of the brain. (Day Two – Brain Diagram.doc) Students will color code and define the parts of the human brain.	Brain Diagram Worksheets
4 – 50min	Students will be able to identify the sections of the human brain.	Students will create a clay model of the brain with labels and descriptions of the functions of each section.	Multi-Colored Modeling Clay Toothpicks Post-its
5 – 15min	Wrap-Up and homework explanation.	<u>Homework</u> 1. Parts of the brain questions 2. Choose an animal. Look up facts about its nervous system. 3. Group the 12 cranial nerves into the five senses.	Brain Questions
Day Three – Nervous System Continued			
1 – 75min	Students will be able to demonstrate and understanding of Cerebrospinal Fluid.	<u>Introductory Questions:</u> 1. Finish clay models. 2. Why is it important to protect the brain? How do we protect the brain? 3. Should it be illegal to ride a bike, skate board or roller blade on the streets without a helmet? Who should be punished, the parent or the child? Discuss responses as a class. Review homework.	
2 – 65min	Students will be able to demonstrate and understanding of Cerebrospinal Fluid.	Take notes about: Day Three – CSF Background.doc and neurons	

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3 – 60min	Students will be able to demonstrate an understanding of neuron communication and connection.	Students will model neurons and action potential outside. Day Four – Simple Neuron Model.doc	Lights, Camera, Action Potential Ball Stopwatch Neuron Diagram
4 – 50min	Students will be able to model a neuron.	Students will create and label a neuron model from pipe cleaners.	Pipe cleaners Tape
5 – 15min	Wrap-Up and homework explanation.	<u>Homework</u> 1. Brain and nervous system questions. 2. Write nervous system paragraph for your organism. 3. Read and summarize from book. 4. Neuron diagram.	Nervous System Questions and Diagram
Day Four – Nervous System Continued			
1 – 75min	Students will be able to understand the definition, components, and communication of neurons. (Day Four – The Neuron.doc) Students will be able to use the scientific method to design the Mr. Egghead Experiment	<u>Introductory Questions:</u> 1. How do our brains communicate with the rest of our bodies? Write a metaphor. 2. Connect the dots to demonstrate neuron connections. (Day Four – Connect the Dots.doc) Students will design an experiment to test comparative CSF. (Day Three – Mr. Egghead Experiment.doc)	
2 – 65min	Students will be able to proofread each others labs and turn in a final copy.	Students will experiment and write up the lab with a question, hypothesis, procedure, materials, data, and conclusion.	Eggs (at least 3 doz.) Markers Plastic container with top (10) Water (to fill the container)
3 – 60min	Library	Library	Library
4 – 50min	Library	Library	Library
5 – 15min	Wrap-Up and homework explanation.	<u>Homework</u> 1. Research sense of smell for your organism. 2. Read and summarize from book. 3. Find an interesting fact about the sense of smell. 4. Finish lab write-up.	

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Day Five – Sense of Smell			
1 – 75min	Students will be able to define the sense of scent vocabulary words in their journals in order to complete a diagram.	<p><u>Introductory Questions:</u></p> <ol style="list-style-type: none"> 1. How is the sense of smell important to humans? How many smells do you think we can distinguish between? 2. What is your favorite smell? Why? Do you have particular memories associated with it? 3. Write a story using only smell adjectives. Discuss responses as a class. <p>Vocabulary notes.</p> <p>Students will label and diagram the olfactory system. (Day Four – Olfactory System Diagram.doc, Sense of Smell.pdf)</p>	Olfactory Diagram “The Nose Knows” Article and Student Sheets
2 – 65min	Students will be able to complete the class experiment and rate their sense of smell.	What’s that smell? (What’s that smell.pdf)	Sense of Smell Kit (69–5145) – Includes Student Sheets
3 – 60min	<p>Students will be able to explain new technology in the field of sewage odor filtration.</p> <p>Students will be able to design their own filters for odors.</p>	<p>Students will read “Secret Weapon Against the Smell of Sludge?” and answer comprehension questions.</p> <p>Determine what filters work best to block the smells of everyday odorants. (See NYT lesson.)</p>	<p>Article Handouts</p> <p>Blindfolds Garlic Coffee Grounds Onion Small Canisters Potential Filters: Gauze/Cheesecloth Paper Towel Plastic Wrap Aluminum Foil Orange Slice Cheesecloth Filled with Cloves Cloth Soaked in an Extract</p>
4 – 50min	Students will be able to finish the lab write up consisting of all the component parts.	Students will finish lab write–up with a question, hypothesis, materials, procedure, results, and conclusion.	
5 – 15min	Wrap–Up and homework explanation.	<p>Finalize information about the olfactory system.</p> <p>Explain research project in more detail.</p> <p><u>Homework</u></p> <ol style="list-style-type: none"> 1. Finish anything from this week. 	

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Day Six – Sense of Smell			
1 – 75min	Students will be able to trace the path of smells, diagram a common household item, and describe how smells are used in advertising.	<u>Introductory Questions:</u> 1. What path does odor go through to reach the brain? 2. Think of an item in your home that is used to filter or mask odors. Create a “how it works” diagram that explains what odor it attempts to filter or mask, how it does this, and whether or not you think it is effective. 3. Time yourself. In 5 minutes, list as many odors as you can think of that you like or dislike. Discuss how scents are used in advertising.	Sample Scented Ads
2 – 65min	Students will be able to demonstrate an understanding of the sense of taste.	Vocabulary notes on taste.	
3 – 60min	Students will be able to finish the lab write up consisting of all the component parts.	Students will finish lab write-up with a question, hypothesis, materials, procedure, results, and conclusion. (Sludge Lab)	
4 – 50min	Students will be able to complete NASA activity to map taste buds.	Complete Taste – NASA.pdf to determine the location of taste buds.	Worksheets Salt Sugar Lemon juice Unsweetened cocoa powder Beakers Graduated Cylinders Stirring rods Colored Pencils
5 – 15min	Wrap-Up and homework explanation.	1. Read and summarize from book.	
Day Seven – Sense of Taste			
1 – 75min	Students will be able to explain how smell and taste are related and how other senses are related as well.	<u>Introductory Questions:</u> 1. How do you think your sense of smell and taste may be related? Give examples of how you know this is true. 2. Imagine you have synesthesia (a condition in which some senses are commingled). How does it make you feel? 3. Describe the taste of your favorite meal. Discuss responses as a class.	
2 – 65min	Students will be able to explain how smell and taste are related and how other senses are related as well.	Read “A Reason Why We Call Our Cheddar ‘Sharp’ and Shirts ‘Loud’” and answer comprehension questions.	

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3 – 60min	Students will be able to assess the interrelatedness of taste and smell in order to design an experiment and write up lab reports.	Findings from “sludge” lab presented to the class.	
4 – 50min		Complete the “Test Your Taste” activity in groups. (Taste – Washington.pdf) Students design a lab that will test other factors that may relate to taste and create a poster.	
5 – 15min	Wrap-Up and homework explanation.	<u>Homework</u> 1. Write rough draft for introduction, nervous system, smell, and taste. 2. Read <u>Nature</u> article. 3. Read and summarize book chapters.	
Day Eight – Sense of Sight			
1 – 75min	Students will be able to complete their own taste experiments and present their findings to the class.	<u>Introductory Questions:</u> 1. What do you wonder about when you think of your sense of sight? 2. Do you think humans see things the same way other animals do? Explain. 3. What do people who lose some or all of their sight use to help them through life? Discuss responses as a class.	
2 – 65min	Students will be able to define the parts of the eye and color a diagram.	Eye Diagram.pdf Students will take notes on the sense of vision.	“It’s In Your Eyes” Handouts
3 – 60min	Students will be able to dissect and label a cow’s eye.	Cow Eye Dissection	Cow Eye (22–8903) Dissection Kit
4 – 50min	Students will be able to test each others’ vision.	Students will begin vision tests.	Student Vision Kit (69–4530)
5 – 15min	Wrap-Up and homework explanation.	<u>Homework</u> 1. Color and diagram a human eye. 2. Research sense of sight for your organism. 3. Read and summarize from book.	
Day Nine – Sense of Sight			
1 – 75min	Introduction Students will be able to review what we have covered so far.	<u>Introductory Questions:</u> 1. Draw a flowchart that diagrams the path of vision in a cow’s eye. 2. Design 2 quiz questions on material we have covered so far. Finish taking eye exams and reading the chart.	Overhead Eye and Worksheets
2 – 65min	Students will be able to finish the eye exams started yesterday.	Review exam results. Discuss and practice optical illusions and afterimages.	

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3 – 60min	Students will be able to diagram the difference between a nearsighted eye and a farsighted eye. The types of lenses used for corrected will be addressed.	Take notes on eye deficiencies.	
4 – 50min	Students will be able to identify the colors in the spectrum that we can see.	Students will complete the “All Eyes See” activity by NASA. (All Eyes See – NASA.pdf)	“What’s the Frequency” Handouts
5 – 15min	Wrap–Up and homework explanation.	<u>Homework</u> 1. Color an optical illusion 2. Vision/Hearing NYT Articles and questions	
Day Ten – Sense of Sight			
1 – 75min	Introduction Students will be able to recognize what technological advances are being made to help with vision loss. Students will investigate books written in Braille.	<u>Introductory Questions:</u> 1. Read “Blind People with Eye Damage May Someday Use Chips to See” from the NYT. Write a question for the class. Discuss responses as a class. Answer comprehension questions. Study the Braille alphabet and compare a typed story to a Braille story.	Article Handout Braille Storybooks Typed Storybooks
2 – 65min	Students will complete a depth perception lab and write it up.	Class lab on Depth Perception. (Depth Perception.pdf)	Meter Sticks Beakers Small Objects such as Clothespins Small Legos Paper Clips
3 – 60min	Students will compare the human eye to a cow’s eye.	Dissect a cow eye.	
4 – 50min	Students will be able to verbalize their opinions about the dissection.	Discuss the cow eye dissection.	
5 – 15min	Wrap–Up and homework explanation.	<u>Homework</u> 1. Enjoy your weekend.	
Day Eleven – Sense of Hearing			
1 – 75min	Students will be able to use sound adjectives to write a poem.	<u>Introductory Questions:</u> 1. Read “The Parable of the Blind Men and the Elephant.” 2. Write a comparable poem using men who lost their sense of hearing. Discuss responses as a class.	Worksheets Article Handout

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2 – 65min	<p>Students will be able to color and diagram an ear.</p> <p>Students will be able to define the parts of an ear and how they are involved in the sense of hearing.</p>	<p>Color and diagram an outline of the parts of an ear.</p> <p>Model the cochlea and read the adjacent article. (The Way We Hear – NASA.pdf)</p> <p>Take notes on the parts of an ear.</p>	
3 – 60min	<p>Students will be able to demonstrate how hearing works.</p>	<p>Complete the class portion of the hearing lab. (hearing.pdf)</p>	<p>Tuning Forks Post-it Notes Blindfolds Earplugs</p>
4 – 50min	<p>Students will be able to design their own hearing lab, carry it out, and write it up.</p>	<p>Using any available materials, design a lab and write it up.</p>	
5 – 15min	<p>Wrap-Up and homework explanation.</p>	<p><u>Homework</u> 1. Create a flowchart of the path of sound. 2. Finalize Rough Drafts</p>	
Day Twelve – The Sense of Touch			
1 – 75min	<p>Students will be able to describe common items with touch adjectives.</p> <p>Students will be able to identify objects in a bag using only touch</p> <p>Students will be able to create a sense of touch maze.</p>	<p><u>Introductory Questions:</u> 1. Use descriptive adjectives to describe the way each of the following items feels: apple, sandpaper, ice, crackers, carpet, and a tree trunk. 2. In order to test the class, describe three items feel with only adjectives. Discuss responses as a class.</p> <p>Pass around bags and students try to identify common items.</p> <p>Students will create mazes. (Touch Maze – NASA.pdf)</p>	<p>Touch Maze – Student Sheets Cardboard Rice Glue Blindfolds Stopwatch</p>
2 – 65min	<p>Students will be able to define the parts of the sense of touch.</p>	<p>Take notes on the sense of touch. Complete the sense of touch activity. (Day Eleven – Sense of Touch Introduction.doc)</p> <p>Diagram the skin cells and define the components. (Day Eleven – Skin Model.doc)</p>	<p>Overhead Skin and Worksheet Colored Pencils Cotton Balls Soaked in Rubbing Alcohol Weak Dishwashing Liquid Eyedroppers</p>

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3 – 60min	<p>Students will be able to compile all of the diagrams they have completed so far.</p> <p>Students will be able to create a Von Frey detection test to test their sense of touch.</p>	<p>Create diagram books.</p> <p>Create a set of Von Frey hairs to test detection thresholds. (Von Frey Lesson.pdf)</p>	<p>Von Frey Student Sheets</p> <p>Five Sizes of Fishing Line</p> <p>Popsicle sticks or tongue depressors</p> <p>Tape</p> <p>Metric Rulers</p>
4 – 50min	Von Frey continued...	Von Frey continued...	Von Frey continued...
5 – 15min	Wrap-Up and homework explanation.	<p><u>Homework</u></p> <p>1. Final Project Paper</p> <p>2. Read and summarize from book</p>	
Day Thirteen – The Sense of Touch and Squid Dissection			
1 – 75min	Students will be able to identify where the most touch receptors are located in humans and explain why they are there.	<p><u>Introductory Questions:</u></p> <p>1. What are the three layers of skin and the main parts of each?</p> <p>2. What are the four functions of skin?</p> <p>3. Finish yearbook picture</p> <p>Complete a two-point threshold lab and answer questions.</p>	<p>Two-Point Threshold</p> <p>Compasses</p> <p>Rulers</p>
2 – 65min	Students will be able to begin the dissection of a squid.	<p>Take notes about the history, anatomy, and environment of squid.</p> <p>Identify the external features and anatomy of squid.</p>	<p>Squid (22-4950)</p> <p>Dissecting Kits</p> <p>Hand Lens (5x Recommended)</p> <p>Dissecting Pan (Or Lunch Trays)</p> <p>Paper Towels</p> <p>Squid Diagram.pdf</p>
3 – 60min	Students will be able to finish the dissection of the squid and label the major internal features of the anatomy.	Continue dissection and labeled diagrams.	
4 – 50min	Students will create a giant squid model and investigate giant squid.	Create a model squid.	<p>Information Handouts</p> <p>9 In. X 12 In. Maroon, Red, Or Pink Felt</p> <p>Straight Pins</p> <p>Fabric Glue</p> <p>Two 15mm Plastic Eyes</p> <p>Scissors</p> <p>Permanent Fine Line</p> <p>Black Magic Marker</p> <p>Small Beans</p> <p>Pattern of Squid.pdf</p>

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5 – 15min	Wrap–Up and homework explanation.	<u>Homework</u> 1. Final Project Poster 2. Brainstorm Comic Books	Comic planning sheet.pdf Worksheet
Day Fourteen – All Working Together			
1 – 75min	Students will be able to review what they have learned over the past three weeks.	<u>Introductory Questions:</u> 1. What are the main components of each of the human senses? 2. How do the senses work together? 3. Finish model squid. Discuss responses as a class.	
2 – 65min	Students will be able to present their final projects and answer questions from the class.	Presentations	
3 – 60min	Students will be able to present their final projects and answer questions from the class.	Presentations	
4 – 50min	Students will be able to begin their comic books.	Comic books	Blank Books
5 – 15min	Wrap–Up and homework explanation.	<u>Homework</u> 1. Work on comic books.	
Day Fifteen – All Working Together			
1 – 75min	Students will be able to wrap up the two weeks of activities.	<u>Introductory Questions:</u> 1. Work on comic books.	
2 – 65min	Students will be able to finish their comic books and receive their verbal evaluations. Students will design a presentation to the parents.	Comic books. Design presentations. Hold individual conferences to review projects and presentations.	
3 – 60min	Students will practice presentation	Practice	