

## Special Senses Project Rubric

DUE DATE = \_\_\_\_\_

*Project:* Create an informational packet on the special senses. You may complete your project in a variety of formats including: scrapbook, pamphlet/booklet, typed in Word, or Power Point. This project is an independent study of the special senses that will be completed outside of class. Computerized pictures are allowed as long as you **hand label** the picture. You may also type your facts on the computer and add them to the pamphlet/booklet.

### *Introduction*

Topics	Points Possible	Points Earned
<b>List the 5 types of receptors and their sensitivities:</b> chemoreceptors, pain receptors, thermoreceptors, mechanoreceptors, photoreceptors	5	
<b>What is the difference between sensation and perception?</b>	2	
<b>What is sensory adaptation and does it result from?</b> - Explain what happens when warm and cold receptors adapt rapidly.	2 1	
<b>Explain the difference between touch and pressure, temperature, and pain senses by answering the following:</b> - List one fact about each of the touch and pressure receptors: free nerve endings, tactile corpuscles, and lamellated corpuscles - List one fact each about warm and cold receptors - Where do you find pain receptors in the body? - Define viscera and briefly describe the types of stimuli that elicit pain - What is referred pain and why does it happen? - What are the structural and functional differences between acute and chronic pain fibers? - Some pain impulse origin in the head and reach the brain through cranial nerves. Explain how the other pain signals travel and define reticular formation - What are the 3 groups of neuropeptides that inhibit pain impulses? - List 5 reasons why headaches can occur.	3 2 1 2 2 2 2 1 1	

### *Mouth and Nose: Taste and Smell*

Topics	Points Possible	Points Earned
<b>Type of receptor used</b>	1	
<b>Smell:</b> - List the definition of the following parts: olfactory receptors, olfactory receptor cells, olfactory bulb, and olfactory tracts - What happens to gaseous odorant molecules after they enter the nasal cavity? - Summarize the steps of olfactory stimulation (p.267) - How can a few hundred olfactory receptor cells code for many thousands of different odors? - Why does sniffing increase the ability to smell?	4 1 2 1 1	
<b>Diagram of olfactory receptors (p.266) – accurate and hand labeled</b>	10	

<b>Taste :</b> - List the definition of the following parts: taste buds, taste (gustatory) cells, taste pore and taste hairs - What must happen before a particular chemical can be tasted? - List the 5 taste sensations - What does tasting a flavor result from? - What must happen in order to not lose taste due to rapid adaptation? - Describe the nerve pathway for the sense of taste.	4 1 1 1 1 2	
<b>Diagram of taste receptors (p.268) – accurate and hand labeled</b>	10	
<b>Research and briefly explain 1 smell and 1 taste disorder?</b>	2	

### *Ear: Hearing and Equilibrium*

Topics	Points Possible	Points Earned
<b>Type of receptor</b>	1	
<b>Anatomy of 3 parts of ear: define each of the following parts</b> - Outer Ear – auricle (pinna), external acoustic meatus (external auditory canal), ceruminous glands, eardrum (tympanic membrane) - Middle Ear – auditory ossicles (include the names of each of the 3 bones), oval window, auditory tube - Inner Ear – labyrinth, osseous labyrinth, membranous labyrinth, perilymph, endolymph, semicircular canals, cochlea, round window	4 4 8	
<b>What happens to the auditory tube during rapid changes in altitude?</b>	1	
<b>Explain how sound is transmitted through the middle ear.</b>	1	
<b>Diagram of anatomy of ear (p.269) – accurate and hand labeled</b>	10	
<b>Mechanism of Hearing:</b> - List the definition of each of the following parts: Organ of Corti, basilar membrane, vestibular membrane, hair cells, tectorial membrane, cochlear nerve - List the steps in the generation of sensory impulses from the ear	6 2	
<b>Mechanisms of equilibrium:</b> <b>1) Static Equilibrium</b> - Define static equilibrium - List the definition of each of the following parts: vestibule, macula, gelatinous material (otolithic membrane), otoliths, vestibular nerve - How are the hair cells stimulated when the head bends forward, backward, or to one side? <b>2) Dynamic Equilibrium – parts and <u>STEPS OF STIMULATION</u></b> - Define dynamic equilibrium - List the definition of each of the following parts: ampulla, crista ampullaris, cupula - How are the hair cells of crista ampullaris stimulated when the head turns rapidly?	1 5 2 1 3 2	
<b>Diagrams of static and dynamic equilibrium centers in ear (p.274 and 275) – accurate and hand labeled</b>	6	
<b>Explain 2 disorders associated with the ear?</b>	2	

*Eye: Vision*

Topics	Points Possible	Points Earned
<b>Type of receptor</b>	1	
<b>External eye and Accessory parts:</b> - List the definition of each of the following parts: eyelid, eyelashes, conjunctiva, lacrimal gland, extrinsic muscles	5	
<b>What is the purpose of lacrimal secretions?</b>	1	
<b>Internal eye parts:</b> - List the definition of each of the following parts: eye, cornea, sclera, optic nerve, choroid coat, ciliary body, lens, iris, aqueous humor, pupil, retina, fovea centralis, optic disc, vitreous humor	14	
<b>Rods and Cones:</b> - What is the structure and function of each receptor? - What is the difference in the sharpness of the perceived images for each receptor? - What is rhodopsin?	2 1 1	
<b>Diagram of eye (p.278) – accurate and hand labeled</b>	10	
<b>Explain the Pathway of Light from the Cornea to the Brain –</b> - List all 10 parts light travels through from the Cornea to the Occipital lobe - Where does refraction take place in the eye? - What is the purpose of a convex lens? - Explain what the “real image” that is focused on the retina? - Without listing the parts again, explain the general pathway of the visual neurons to create the sight from each eye	5 1 1 1 2	
<b>Explain the following eye reflexes:</b> photopupillary reflex and accommodation reflex	2	
<b>Explain 2 disorders associated with the eye</b>	2	

*Total points possible= 176*

Intro= \_\_\_\_ / 26 Taste/Smell = \_\_\_\_ / 42 Ear = \_\_\_\_ / 59 Eye = \_\_\_\_ / 49

Your Total = \_\_\_\_\_ pts/176 = \_\_\_\_\_