Sensation and Perception: Activities to Enhance Learning

Alexis Grosofsky[1]

Beloit College

[1] Author contact email: grosofsk@beloit.edu

Overview

This resource contains many activities (or projects, if you prefer that term) that can be assigned to students at various points of the semester. The activities are categorized by time of the semester when they would be most useful: beginning of the semester, end of the semester, an activity that spans the semester, and activities for various topics within the semester. Editorial comments for instructors are given in red at the beginning of the activity to make it easy to omit them if copying and pasting.

Instructors opting to use these activities should know that students tend to earn good grades on these. Keep this in mind when planning how much different components of your course will be worth.

Contents

Beginning of course activity

I use this as the first project in my Sensation and Perception course to introduce students to their sensory systems.

Paying Attention to Sensory Information (individual project)

Goal: To become more conscious of just how much information is provided by the senses

How much attention do you pay to sensory information? This project will require you to observe normal activities with a twist. You may choose to do activity A or B. In activity A you will pay close attention to an event you normally ignore, while in activity B you will observe an event from a unique perspective.

Activity A: "A watched pot never boils"

Despite this saying, we know that watched pots do boil and you will demonstrate that by watching a pot of water come to a full boil. Select a small pot and using either a stove or an equivalent (e.g., a hot plate or immersion heating unit), heat the water to boiling (be sure that whatever heating method you use, it takes approximately 5 minutes or longer for the water to come to a boil). Observe the pot the entire time and note all that you perceive. What do you see, hear, smell, feel, taste? Omit no details; record everything. If links to other perceptual experiences occur, record those as well.

or

Activity B: "A toddler's view of the world"

Changing your perspective can yield new perceptions of everyday events. You will experience this by choosing a new vantage point from which to observe the world. Find a spot to sit that meets the following criteria: you're low to the ground (e.g., sitting under a table) and there are plenty of people to observe. Describe your view of the world from this position. What do you see, hear, smell, feel, taste? How is what you perceive different from what your perception would be if you were at your normal perceptual vantage point?

Assignment details:

Length: 1-3 pages

Activity to incorporate throughout the course

Reading Popular Books Related to Class (small group project)

Goal: This project is designed to:

(a) provide reading that is accessible because it is from the popular press (vs. a journal article);
(b) add some variety to the semester's activities;
(c) provide additional honing of your oral presentation skills.

Each small group (2-3) will be responsible for one of the following books. Your task is to give a 20-minute presentation in which you teach the book's material to your peers who have not read it; do NOT merely summarize the book. You are encouraged to incorporate class activities into your presentation; try to be creative and engaging. Presentations will be linked to the relevant section of the course (see syllabus).

BALANCE: Presented on

McCredie, S. (2007). *Balance: In Search of the lost sense.* NY, NY: Little, Brown and Co.

TOUCH: Presented on

Field, T. (2003) *Touch*. MIT Press
or
Jablonski, N.G. (2006). *Skin: A natural history.* LA, CA: University of California Press.

OLFACTION: Presented on

Herz, R. (2007). *The Scent of desire: Discovering our enigmatic sense of smell*. NY, NY: HarperCollins Publishers.
or
Turin, L. (2007). *The secret of scent: Adventures in perfume and the science of smell*. Harper Perennial.

TASTE & SMELL: Presented on

Mouritsen, O.G., Styrbaek, K., Mouritsen, J.D., & Johansen, M. (2014). *Umami: Unlocking the secrets of the fifth taste*. NY: Columbia University Press.

SENSORY PROCESSING PROBLEMS: Presented on

Bogdashina, O. (2003). *Sensory perceptual issues in Autism and Asperger syndrome: Different sensory experiences, different perceptual worlds*. Jessica Kingsley Publisher.
or
Miller, L.J. (2007). *Sensational kids: Hope and help for children with sensory processing disorders*. Perigee Trade.

Activities for topics within the course

I use this activity after covering vision and audition. It could also be used at any point when covering those senses.

Practice Using Your Other Senses (individual project)

Goal: To become more conscious of how much information is provided when one of your "dominant" senses is not used or greatly diminished.

How much do you rely on vision or hearing? This project requires you to spend a minimum of one hour observing the world while one of your primary senses is greatly restricted or missing.

Note: Please be *very* careful when doing these projects. I strongly advise you to have a companion accompany you to help keep you from possible harm.

Choose one of the following activities:

Activity A

1. Read one of the following books about blindness:
   Hull, J.M. (1997). *On sight and insight*. Oxford: Oneworld Publications Ltd.
   or
   Hull, J.M. (1990). *Touching the rock*. NY: Vintage Books.
2. Spend an hour "observing" without using your eyes -- rely on hearing, smell, touch (if appropriate). During the hour, try to do several different things (e.g., in the past a student had a friend take her to a store where she selected and purchased something--all while not using her vision; another student put on a blindfold immediately upon awakening then went through his morning routine).
3. After the observation time has elapsed, write down what you were able to notice. Don't forget to talk about each of the other senses you were using. Were there any surprises? How was it trying to figure out what was going on without vision? What information did you pick up on that you may have ignored if you were using your eyes?
4. Continue writing about your experience. Here are some questions to get your started: How do your experiences correspond to those of the author? Have your views about blindness changed now that you have read about blindness book and gone for one hour without sight?

or

Activity B

1. Read one of the following books about deafness:
   Tucker, B.P. & Hafferty, F. *The feel of silence (Health, Society, & Policy)*. PA: Temple Univ. Press.
   or
   Kisor, H. (I990). *What's that pig outdoors?.* NY: Penguin Books.
2. Spend an hour "observing" without using your ears -- rely on sight, smell, touch (if appropriate). This can be accomplished by purchasing some earplugs (look for the highest dB reduction you can find -- I have some ear plugs rated at 29 dB reduction). During the hour, try to do several different things (e.g., some students have attempted watching television, you can also try some of the activities used with Activity A).

3. After the observation time has elapsed, write down what you were able to notice. Don't forget to talk about each of the other senses you were using. Were there any surprises? How was it trying to figure out what was going on with minimal hearing? What information did you pick up on that you may have ignored if you were using your ears?
4. Continue writing about your experience. Here are some questions to get your started: How do your experiences correspond to those of the author? Have your views about deafness changed now that you have read about deafness and gone for one hour with minimal sound?

Assignment details:

Length: 2-4 pages
Format: Your responses are to be typed, double-spaced, with a reasonable font
Due:

Alternate activity for **Practice Using Your Other Senses** (individual project)

You can have students visit various websites to learn about being blind or deaf instead of reading a book. I recommend having them view several such sites. Example websites are provided below.

Goal: To become more conscious of how much information is provided when one of your "dominant" senses is not used or greatly diminished.

Task: Choose to focus on being blind or deaf. Visit at least two different websites and read about your choice. I have provided some suggestions. You may find other sites if you wish. Please list the web addresses for any sites you visit.

A. Blindness

- http://listverse.com/2014/06/12/10-incredible-stories-about-blind-people/
- https://www.youtube.com/watch?v=H4bz4LbDc8A&feature=em-subs_digest and other Tommy Edison YouTube videos (Google Tommy Edison and select several)
- https://www.youtube.com/watch?v=qLziFMF4DHA (series of 5 videos about Ben Underwood) Watch at least one.

B. Deafness

- https://www.youtube.com/watch?v=wr7rHD7pOsA
- https://www.youtube.com/watch?v=sKIX1Ru4KQ8
- https://www.youtube.com/watch?v=e34gyLUElBA

Basic Visual Functions

I use this activity to answer common student questions and to have them investigate some of their own visual system functions.

For activity B: External structures: Instructors can use magnifying mirrors or magnifying glasses (your colleagues in Geology, Physics, or Biology may have some you can borrow). While all visible structures can be examined, it is most interesting to have students look at irises (preferably their own, though looking at the iris of another will also be revealing). Many mistakenly think they are a solid color (e.g., "I have blue eyes"). Closer inspection will reveal that the iris is multicolored and that it is composed of muscle fibers (rather than being solidly colored and smooth). Additionally, students can observe the iris working to change pupil shape by watching the iris while covering and uncovering their unobserved eye. If desired, instructors can provide penlights for students to use. Shining a penlight on the unobserved eye will cause both pupils to contract. Students could substitute cell phone flashlights for penlights.

Additional activities can be adapted from Carolina Biological's Human Vision and Visual Perception kits (available at http://www.carolina.com/physiology-kits/carolina-biokits-human-vision/694525.pr?question=human+vision and http://www.carolina.com/physiology-kits/carolina-visual-perception-kit/694527.pr?question=human+vision, respectively). See student instructions For Activity C.

- Peripheral Vision: This is a nice way to demonstrate that color is not perceived in the periphery (where only rods are). Students should be able to detect a card is present before identifying its color due to rod and cone placement in the retina. Be sure the small colored rectangles (approximately 1" x 2") are held so that the colored side is directly facing the viewer's head and about 12 inches away. A partner will start at the back edge of the eye and slowly move the card forward (eventually the image will fall on the fovea). Use red, blue, black, and white cards.

Basic Visual Functions

Goal: To investigate some aspects of your own visual system.

Activity A: Learn some basic facts about the visual system.

- Read the FAQs from The College of Medicine at Chicago (e.g., "Can my contact lens get lost behind my eyeball?"). http://chicago.medicine.uic.edu/departments/academic-departments/opthalmology-visual-sciences/our-department/media-center/eye-facts/fyi-about-your-eyes/

Activity B: Investigate your own sense.

- External structures: Examine the visible portions of your own eyes.
  - Study the iris by looking at it closely (e.g., use a magnifying glass).
  - Watch what happens to your iris when you cover and uncover your unobserved eye. If your instructor has given you a penlight (or you have a flashlight feature on your cell phone) flash the light quickly across the pupil you are not observing. Also try flashing the light across the pupil you are observing (again, quickly).

- Dominant eye:
  - Determine which (if either) eye is dominant by creating a small opening between your overlapped hands and, after focusing on a far object (e.g., a light switch or a mark on the board) slowly draw your hands to your face keeping the object in view the entire time. The eye the hands surround is your dominant eye.

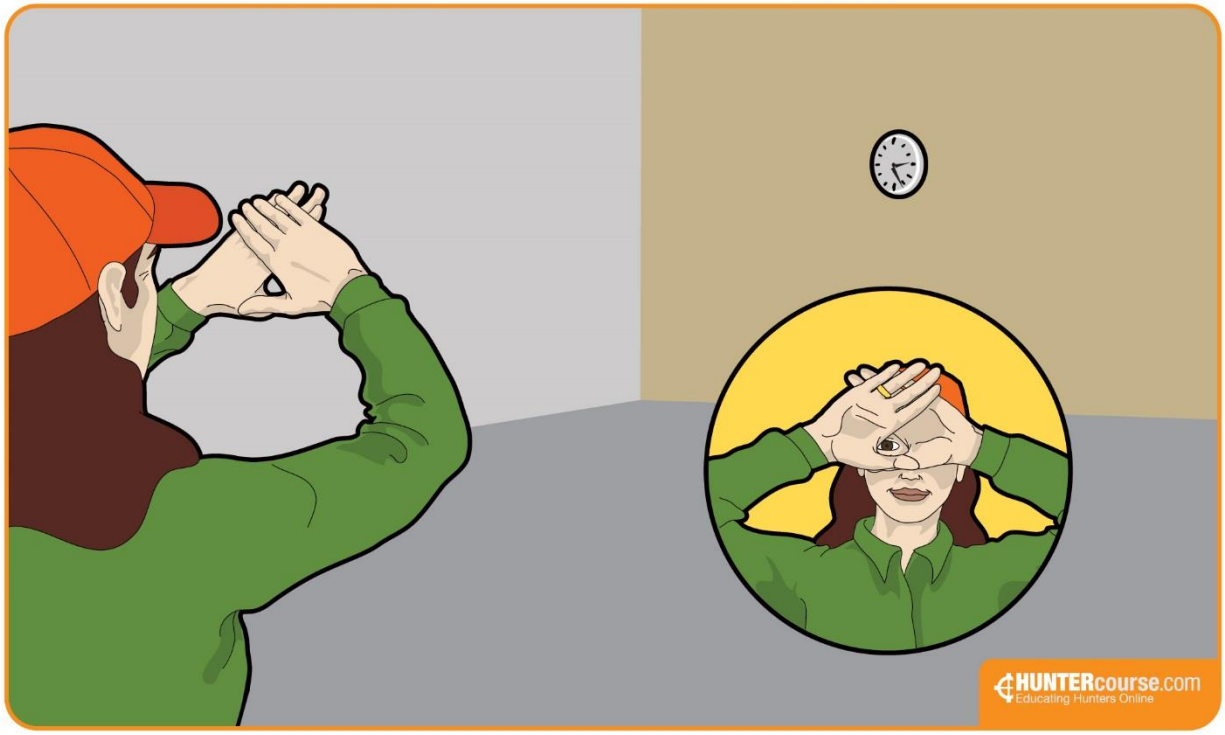

Figure used with permission: http://www2.huntercourse.com/minnesota/study?chapter=8&page=2

Activity C: Investigate more basic visual functions.

- Near Point: Put the low numbered end of a ruler just below your eye. Cover the eye without the ruler under it, then have a partner slowly slide a pin (or other slim object) along the ruler. Keep moving the object closer until the viewer tells you the object is as close as it can be and is still in sharp focus. Test this for both eyes. If desired, students with glasses may do this with and without glasses for comparison. Students with contacts do not need to remove their contacts.

- Visual Acuity: Stand 20 feet from a Snellen eye chart. Cover one eye then attempt to read as much as you can. Repeat with the other eye.

- Accommodation: Draw a capital "E" on the pad of one of your index fingers. Standing 20 feet from a Snellen eye chart, shift your focus from the E on your finger to the E on the chart. You should feel your muscles working as your eye accommodates to the different distances to bring each letter "E" into focus.

- Peripheral Vision: Stare directly ahead at some focus spot. Your partner will present a card by holding it about 12 inches from your head, with the colored side facing you. They will start at the back edge of your eye and slowly move the card forward (keeping the colored side – red, blue, black, or white – facing you). *Without moving your eyes* (very difficult to do), indicate when you can detect a card is present vs. when you can detect the color of the card. Say the color you think the card is so your partner can keep track of the number of correct and incorrect responses.

  Start anywhere on the chart. Use a dash "-" or a "0" for an incorrect response and an "X" or "Y" for a correct response.

Color	Black	Blue	Blue	Blue	White	Red	Black	Red	Red	Black
Response										
Color	White	Black	Red	Red	White	Blue	Red	Red	Red	Red
Response										
Color	Blue	Black	White	White	Blue	Blue	Black	Black	Black	Blue
Response										
Color	White	White	Red	Blue	Blue	Black	White	White	White	Black
Response										

  Number wrong: black/white: _____ colors (red/blue): _____

- Astigmatism: Stand approximately 6 feet from an astigmatism chart and look at the chart with alternating eyes. If any of the lines seem darker or more in focus, then you may have astigmatism.

Protecting Your Hearing

I use this activity when covering audition. It also serves as a sort of public service message about students' own auditory activities. Instructors can read https://www.nidcd.nih.gov/health/noise-induced-hearing-loss for an introduction to noise-induced hearing loss (NIHL). Also see https://www.cdc.gov/mmwr/volumes/66/wr/mm6605e3.htm. According to the Centers for Disease Control almost 25% of 20-69 year olds show an auditory pattern indicating some noise-induced hearing loss. These links could also be assigned to students as part of this project.

Goal: To become more aware of the threat to hearing that listening to music at high volume poses and to propose creative ways to inform others and deter them from damaging their hearing.

The medical profession has a hard time convincing the public that protecting their hearing is important. Young people never think anything bad will happen to them. These failures have resulted in physicians finding young individuals who have the reduced hearing abilities traditionally found only in much older people.

- Create an ad campaign that will convince individuals to protect their hearing. Target your campaign to one of the following age groups: grade school, high school, college.

- Evaluate your campaign. Do you think your campaign would be equally successful with males and females? If not, what changes would you suggest to successfully target the other group?

Assignment details:

Length: 2-4 pages + any materials you generate
Format: Your responses are to be typed, double-spaced, with a reasonable size font
Due:

This is a nice activity to use when covering depth perception.

Depth Perception Activities

Goal: To appreciate depth perception by testing your own abilities.

Activity A: from http://faculty.washington.edu/chudler/chvision.html "Depth Perception – I")

- Hold 2 pencils (one in each hand) with the points facing each other about an arm's length from your body.
- Close one eye and try to touch the pointed ends of the pencils together.
- Repeat with both eyes open.

Activity B: from http://faculty.washington.edu/chudler/chvision.html "Depth Perception – II")

- Sit at a table with a cup about 2 feet in front of the subject.
- Have your partner close one eye.
- Hold a penny or paperclip in the air about 1.5 ft. above the table.
- Move the penny around slowly and have your partner say "Drop it!" when he or she thinks the object will drop into the cup when released.
- Repeat 10 times keeping track of how many objects make it into the cup.
- Repeat 10 times with both eyes open.
- Compare the results of "10 drops" at each distance.

Activity C

- Set up a Carolina depth perception tester™ (available at http://www.carolina.com/other-diagnostic-instruments/carolina-depth-perception-tester/694647.pr?catId=&mCat=&sCat=&ssCat=&question=depth+perception; $41.95 as of July 2017).
- Close one eye and look away briefly while your partner sets the arrows at different distances.
- Use the strings to gently relocate one arrow until you think the two arrows are pointing directly at each other.
- Do 3 trials with one eye open and 3 trials with both eyes open.
- Compare your accuracy in the two conditions.

I use this activity to help students understand their proprioceptive sense. If time is an issue, you could use only one direction for the head tilt rather than both.

Proprioception (Kinesthetic Sense)

Goal: To reinforce learning about proprioceptive/kinesthetic senses by putting your own system to a test

Note: Be very careful when doing activities with one or both eyes closed.

Dynamic Equilibrium: Fill in the table with a description of any deviation you had while walking under the following conditions:

Action	Status of Eyes	Description of Deviation (if any)
Walk straight line	Eyes open	
	Eyes closed	
Walk straight line with head tilted to the right	Eyes open	
	Eyes closed	
Walk straight line with head tilted to the left	Eyes open	
	Eyes closed	

Static Equilibrium: Fill in the time (in seconds) you stayed on your foot without putting your other foot down or needing assistance to stay upright under the following conditions:

Action	Stand on LEFT foot		Stand on RIGHT foot	
Eyes	Eyes Open	Eyes Closed	Eyes Open	Eyes Closed
Body erect				
Head tilted to right				
Head tilted to left				

1. Did you walk less straight or stand on one leg longer when your eyes were closed? Why or why not?

2. Did tilting your head influence your ability to walk straight or stand on one leg? What does this tell you about the importance of proprioceptors?

This activity can be used when covering the effects of aging on sensory systems. Texas A&M AgriLife Extension Service has quite a few activities and handouts about aging that instructors can use/adapt. Available at: http://fcs.tamu.edu/files/2015/06/aging-simulation.pdf (note: the "changes in vision related to medical conditions" link is broken; an alternate link is available at http://fcs.tamu.edu/families/aging/changes-in-vision-related-to-medical-conditions/). Instructors should indicate what they wish students to do in the "task" section.

Aging Activity

Goal: To become more aware of changes that come with aging. The sensory changes that occur with aging occur gradually. You will not experience dramatic changes as you will in this activity.

Task:

Write up

What will you take away from this lab with respect to the effects of sensory aging on behavior?

What suggestions do you have for future labs about aging and sensory changes?

Students can either read the novel *Perfume* or watch the movie. The movie is quite good and does justice to the book (unlike many books that are made into movies).

Class discussion: *Perfume*

Goal: To experience a work of fiction in which olfaction is the dominant sense.

Task: Write a response paper to the story *Perfume* by Patrick Suskind.

Writing a response paper will help you organize and solidify your thoughts leading, I hope, to a more interesting class discussion.

A response is just that – a reaction to the reading. Specifically, I am looking for a response that addresses this work's relevance to our class. See "other information" below about what your response may include. Make sure you do not give me a summary or anything "book-report-ish" in nature.

Other information:

While your response paper can take many forms, be sure it relates to Sensation and Perception. I am interested in your reactions to the story, and thoughts and ideas triggered by reading it. Possible points of departure for your response include the following questions:

- How do the ideas in the book tie into theories and facts learned in class?
- What new ideas or questions were spurred by the book?
- How do the ideas in the book tie into other areas of psychology (or other disciplines)?
- Are there aspects of the material with which you agree or disagree? (be sure to explain *why* you agree or disagree)
- How might you look at something differently based on the material in the book?

I have used both of the following activities when covering gustation. I had my food service create a meal featuring umami from salad through dessert. They used recipes from Kasabian, A. & Kasabian, D. (2005). *The Fifth taste: Cooking with umami*. Universe. The meal was delicious and something that would be very expensive to buy at a restaurant. Unfortunately, I no longer do the umami-themed dinner because our budget can no longer support it. I have substituted the second activity (dining-in-the-dark) and think that in many ways it works better (and it is affordable!).

Umami-themed dinner

Goal: To introduce students to umami.

You will eat a dinner highlighting the taste of umami.

Dining-in-the-dark

This activity helps students think about how their senses contribute to eating – an everyday activity. I accomplish this by having students don blindfolds then I guide them to a seat. The students remain blindfolded throughout the meal (from soup or salad through dessert). Typical questionnaire responses are shown below.

- Rank the senses: audition, taste, smell, touch, proprioception/kinesthesis

- What, if anything, did you do differently?
  Typical answers include using their hands more/touching their food, eating more slowly, and talking/eating less.

- What sensory aspects did you like most? Least?
  Typical answers revolve around remarks about using touch so extensively and their surprise that food did not taste as good without sight.

- What did you learn?
  Typical answers include the realization about how dependent we are on sight to do even well-rehearsed activities (like feeding ourselves).

- Was it enjoyable? Where in the semester should this occur?
  Students rated dining in the dark as more enjoyable than dining in the light. Part of this, of course, could be that dining in the dark is a novel experience while dining in the light has become mundane after having done it thousands of times.

  Most of the student comments related to the idea that this activity allowed them to think about how the senses interacted since we had talked about all of them. They also noted that this was a fun activity and a nice way to end class.

Several restaurants offer the experience of dining without vision (e.g., Dining in the Dark – Boston, approximate cost per diner = $65.00*). It's also an international phenomenon (see http://travel.spotcoolstuff.com/unusual-restaurants-eating-in-the-dark).

Dining in the Dark is also a fundraiser sponsored by the Foundation Fighting Blindness (http://www.blindness.org/dining-in-the-dark). When used as a fundraiser meals occur in different cities throughout the U.S. and each diner pays $250.00 for a dinner ticket*.

*All prices as of April 2017.

Dining-in-the-dark

Goal: To have students focus on how their senses (excluding vision) are important to eating

Task: Eat a meal completely without vision.

After the dinner is over, fill out the questionnaire below:

Dining in the Dark Questionnaire

Instructions: Please rank the senses in terms of how much you relied on each then tell how you used each sense.		
Sense	*rank (1-5)* *1=relied on most;* *5=relied on least*	*How you used the sense*
hearing		
kinesthetic/ vestibular		
smell		
taste		
touch		

How enjoyable was dining in the dark compared to dining in the light?						
much less enjoyable	1	2	3	4	5	much more enjoyable

What, if anything, did you do differently when dining in the dark than you would normally do when dining in the light?

What sensory aspects of the experience did you like most?

What sensory aspects of the experience did you like least?

Would you dine in the dark again?		
yes	no	undecided (please indicate why)

What changes would you recommend I make for future classes?

What point of the semester do you think would be best for dining in the dark?	
	Comments
beginning	
middle	
end	
elsewhere (please specify)	

What did you learn from this experience and/or If you had to explain to someone why we did this, what would you say?
Other comments you wish to make.

Response Paper: *Looking through lace*

Goal: To consider how culture and other factors influence perception

Task: Write a response paper to the story *Looking through lace* by Ruth Nestvold
Excerpt available at http://www.ruthnestvold.com/Lookingthroughlace.htm
Full text available at Amazon for $6.99 (paperback) or $2.99 (Kindle)
https://www.amazon.com/Looking-Through-Lace-Ruth-Nestvold/dp/1522730699/ref=tmm_pap_swatch_0?_encoding=UTF8&qid=&sr=
Judges for the James Tiptree, Jr. award (in 2003) put it on their list of books they "…found interesting, relevant to the award, and worthy of note."

Writing a response paper will help you organize and solidify your thoughts leading, I hope, to a more interesting class discussion.

A response is just that – a reaction to the reading. Specifically, I am looking for a response that addresses this work's relevance to our class. See "other information" below about what your response may include. Make sure you do not give me a summary or anything "book-report-ish" in nature.

Other information:

While your response paper can take many forms, be sure it relates to Sensation and Perception. I am interested in your reactions to the story, and thoughts and ideas triggered by reading it. Possible points of departure for your response include the following questions:

- How do the ideas in the book tie into theories and facts learned in class?
- What new ideas or questions were spurred by the book?
- How do the ideas in the book tie into other areas of psychology (or other disciplines)?
- Are there aspects of the material with which you agree or disagree? (be sure to explain *why* you agree or disagree)
- How might you look at something differently based on the material in the book?

Alternate activity:

Response Paper: *Flatland*

Goal: To consider how culture and other factors influence perception

Task: Write a response paper to the story *Flatland: A Romance of many dimensions* by Edwin A. Abbott
Available at Amazon for under $10 (paperback) or sometimes free (Kindle)

Flatland is a wonderful (and timeless) book. It was written in 1889 and, therefore, is sexist by today's standards. Please ignore the sexism and focus on how the perception of the inhabitants of Flatland is influenced by their surroundings.

Writing a response paper will help you organize and solidify your thoughts leading, I hope, to a more interesting class discussion.

A response is just that – a reaction to the reading. Specifically, I am looking for a response that addresses this work's relevance to our class. See "other information" below about what your response may include. Make sure you do not give me a summary or anything "book-report-ish" in nature.

Other information:

While your response paper can take many forms, be sure it relates to Sensation and Perception. I am interested in your reactions to the story, and thoughts and ideas triggered by reading it. Possible points of departure for your response include the following questions:

- How do the ideas in the book tie into theories and facts learned in class?
- What new ideas or questions were spurred by the book?
- How do the ideas in the book tie into other areas of psychology (or other disciplines)?
- Are there aspects of the material with which you agree or disagree? (be sure to explain *why* you agree or disagree)
- How might you look at something differently based on the material in the book?

End of course activities

I use this activity to end the semester. Students not only review previously covered material, but have fun in the process.

Sensory Superheroes (team project)

Activity adapted with permission from Halonen, J. & Gray, C. (2001). *The Critical Thinking Companion for Introductory Psychology,* 2nd ed. NY: Worth.

Science fiction writers are always searching for good ideas for plots that will capture the interest of their readers. A common premise during one particular era of science fiction movies was that radiation somehow altered biological processes, transforming normal human beings into super humans – some good and some evil. One such example is the Incredible Hulk who, through a laboratory accident, developed superhuman strength that manifested itself when he was angry.

Your task in this exercise is to create your own team of superheroes by pretending it is possible to magnify the abilities governed by the senses. After you've considered the components and functions for the sense you choose to alter, give your imagination free rein as you explore the kinds of alterations that might fit the demands of a superhero's life. What challenges would allow your superheroes to demonstrate their exceptional abilities? Think creatively!

Goals:

- To provide a capstone review of the functioning of the sensory systems that allows creativity and fun during the process;
- To reinforce your understanding of the normal range over which your senses operate by considering how they could be altered beyond their normal limits

You will need to include the following components for this project:

- a superhero (give your superhero a name – be creative);
- describe the super ability;
- indicate how this could be possible biologically* (cite relevant facts about how the sense operates normally and what changes have occurred);
- describe your superhero's vulnerability; what diminishes his/her special powers?

  * All super abilities must be biologically possible/plausible. For example, you may propose changes in the range of stimuli to which the system responds, but you may not propose things such as having a lateral line system or an extra eye.

once you have created your superhero:

- create an archenemy for your superhero (all good superheroes need an enemy);
- give your archenemy a name (be creative);
- describe how your archenemy defeats your superhero's super ability.

Your presentation can take whatever form you like: powerpoint, poster, paper, etc. Dressing as your superhero/archenemy is encouraged!

Alternate end of course activities

I try to change assignments now and then to keep the class fresher for me and to avoid the possibility of students sharing work from class to class.

Book Discussion (whole class project)

Goal: To read a popular press book about the senses and discuss it in light of what you have learned in this course.

Task: Read Dunn, W. (2007). *Living sensationally: Understanding your senses*. Jessica Kingsley Pub.

Be prepared to critique the book in a class discussion considering the issues listed below and others that you think of.

- How accurately does it portray the senses?
- Does it mislead readers at all?
- Does it generalize too far from what we know?
- What recommendations would you give about how to read it to someone considering it?

Investigate another organism's senses (small group project)

This is the only project/assignment that has a traditional research component. Note that only one part (b) is traditional.

Your group will work to find information about the senses of some non-human organism.

Goals:

- To allow you to help shape the course by incorporating material about which you have a special interest
- To add some variety to the semester's activities
- To provide additional honing of your oral presentation skills
- To provide additional honing of your research skills (note: this doesn't mean surfing the web…please use web resources *sparingly* and be prepared to provide information about the quality of any material gathered from the web – e.g., what credentials does the web author possess?). Use the databases available from our library (more information about using these will be provided in class).

Your group paper should include each of the following sections:

a) Specify which organism you have chosen (and perhaps why).
b) Based on what you have been able to find out, describe the senses possessed by that organism and their capabilities.
c) Explain which sense/s is/are considered to be dominant according to research (by humans, of course). Does this seem reasonable? What questions would you like to see investigated? (e.g., propose an experiment that could help us learn more about that organism).
d) Assume one of the following:

1) You, as a human, suddenly acquire one of the organism's senses that is new to you (either because humans lack that sense, or because the range over which that sense works is different for the organism you have chosen than for humans)

or

2) The organism, whatever it may be, suddenly acquires one of your human senses that is new to it (either because those organisms lack that sense, or because the range over which that sense works is different for humans than for the organism).

Then

Based on the assumption you've selected, describe three changes you think would happen if you (or the organism) suddenly experienced this enhancement or detraction to your sensory abilities.

Books to read for fun

I typically include these titles on my syllabus so students who are so inclined can do some reading involving Sensation and Perception that goes beyond what we cover in class.

Nonfiction:

Burr, C. (2003). *The emperor of scent: A story of perfume, obsession, and the last mystery of the senses*. NY: Random House.

If you're interested in an alternative theory of olfaction and a behind-the-scenes look at some of the political wranglings of science, you should read this book (4.2/5.0 stars on Amazon with 108 ratings as of Jul. 2017).

Fiction*:*

Farmer, N. (1994). *The Ear, the Eye, and the Arm*. NY: Puffin Books.

This book, a 1995 Newbery Honor Book, is technically a children's story (grades 7-10), but don't let that deter you. It is a fabulous story featuring three characters with unique sensory capabilities (4.3/5.0 stars on Amazon with 373 ratings as of Jul. 2017).
