

Chapter 41 Project

Sensational Science!

Project Goal + Timeline

In this project, we will be reviewing your knowledge of sensory systems by creating four educational comics that answer questions about the sensory systems. This project should be completed by yourself or within a group within two hours.

Directions

Draw four educational comics. Imagine you're an artist who creates comics for a newspaper. Kids write to you asking you biology questions, and you answer with a comic. *Sensational Science!* is this month's theme, and you are answering questions related to sensory organs and systems.

Your comic can be a single pane or a sequence of panes; choose whichever works best for each question. You also choose how to present your answer. For example, you may do something straightforward, such as drawing a cartoon of a teacher explaining the answer. You are encouraged to be creative, so feel free to experiment with different approaches for different questions.

Pick **four** of the student questions to answer with a comic. A list of terms required in the answer is given after each question.

Student Questions:

1. Sebastian asks, "How does my skin know when I touch something hot? How does it know when I touch something cold? Why are different parts of my body more sensitive to pain than others? For example, why is the skin on my fingertip so much more sensitive to touch than the skin on my arm?" (Required terms: glabrous skin, hairy skin, free nerve endings, Merkel's disks, Meissner's corpuscles, Ruffini endings, and Pacinian corpuscles)
2. Jacklyn asks, "How do my eyeballs work? Where does the light go when it hits my eyeball?" (Required terms: retina, cornea, lens, iris, pupil, fovea centralis, photoreceptors, and rhodopsin)
3. Augustine asks, "My teacher talks about sound 'waves' and also light 'waves.' That confuses me because if sound and light are both waves, then why can't I see sounds? Why can't I hear light?" (Required terms: audition, medium, stereocilia, electromagnetic, photoreceptors, rods, and cones)
4. Cassidy asks, "What does it mean when my teacher says that humans have five 'special' senses? What are the non-special senses and how are they different from 'special' senses? Does that mean that humans have different senses than some animals? And animals can have different 'special' senses than me? If so, what are some senses animals have that I don't? (Required terms: somatosensation, vestibular sense, proprioception, and kinesthesia)
5. Tyrone asks, "My teacher says dogs' noses are so good that some dogs can even smell when someone has cancer! Why does a dog's nose work so much better than mine? Can I make my nose smell as well as a dog? What's different between a dog-nose and a person-nose? Can a dog see better than me too? (Required terms: odorants, olfactory, olfactory receptor, olfactory epithelium, dichromatic, and trichromatic)

Technical requirements:

- Use and define all the required terms that are listed after each question.
- Your comic can be a single pane or a sequence of panes. Choose whichever works best for each question.
- Draw or print out all four comics on separate sheets of paper.
- All comic art should be hand drawn or computer generated by you. Stencils, rulers, or other tools can be used.

- Please create your own art. But don't worry! You need not be a skilled artist to earn full credit on this project. Just ensure that the comic is tidy and that the necessary details are represented. Labels can help to identify artwork details that may be unclear.
- Text/written explanations must accompany all art. Those explanations can take different forms. For example, the text could be dialogue, or it could be an explainer-type text along the bottom of your comic.

Project Materials

- 4 pieces of blank paper
- Drawing supplies (markers, colored pencils, pens, etc.)
- *Optional: Ruler*
- *Optional: Computer with printer*

Student Checklist

- ☐ Complete Comic #1
- ☐ Complete Comic #2
- ☐ Complete Comic #3
- ☐ Complete Comic #4