



NATIONAL MUSEUM OF HEALTH AND MEDICINE

GENERAL TOUR

MUSEUM DISCOVERY TEACHER'S GUIDE GRADES 4 - 8

This guide will help you prepare for your visit to the National Museum of Health and Medicine. It outlines the major ideas and exhibitions that will be presented during the visit and suggests activities to help extend the experience into your classroom.

ABOUT YOUR TOUR:

You and your class will explore the history and innovations of military medicine from the Civil War through today, learn about the history of microscopes and explore the wonders of the human body.

TIME

90 minutes

GROUP SIZE

minimum of 10 students
maximum of 40 students

AT THE CONCLUSION OF THIS TOUR, STUDENTS SHOULD BE ABLE TO:

- List one innovation in *Advances in Protection, Repairing, Rehabilitation, Research, Transportation and Facial Reconstruction* as it relates to military medicine.
- Explain the relationship between organ systems.
- Recognize the causes, diagnosis and treatment of traumatic brain injuries.
- Identify how the museum was founded.
- Identify one innovation that occurred during the Civil War.
- Describe the events surrounding President Abraham Lincoln's death.
- Describe biomedical engineering.
- Summarize the disease categories and list one example for each.
- Describe one cause of a congenital anomaly.

EXHIBITIONS FEATURED IN THIS GUIDED TOUR INCLUDE:

"Challenges and Triumphs: Advances in Military Medicine"
"Anatomy and Pathology: Traumatic Brain Injury"
"The Collection That Teaches: The Museum's Collections"

HANDS-ON OBJECTS USED FOR THIS GUIDED TOUR MAY INCLUDE:

- Plastinated Organs
- Body Armor
- Civil War Surgical Kit, Chisholm Inhaler and Minié Balls



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SUGGESTED PRE-VISIT CLASSROOM ACTIVITIES

- Discuss *Visiting Our Museum* and what students will see.
- Discuss the different diseases and disorders associated with the body systems. This should include cancers, genetic disorders and communicable diseases. Have the students develop an infographic describing rates of transmission, populations and incubation periods.
- Visit the museum's Facebook album page and choose a photograph(s) from the museum's archive collection for the students to analyze. Ask the students to make a list of observations about the photograph (for example, clothing, housing, food, etc.) and have them write a fictional story about the photograph, including their observations.



SUGGESTED POST-VISIT CLASSROOM ACTIVITIES

- Investigate a medical professional career or interview a medical professional. Discuss their job, career path and education. Have the students present their research to the class.
- Have students research current therapies or treatments used for service members returning from deployment. Have the students compare this to a previous conflict/war and describe how this has improved the health care of service members returning from war.
- Create brain hats (Appendix 1) and discuss the functions of the brain. Discuss what can happen when someone has a traumatic brain injury (TBI).





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VOCABULARY

AMPUTATION:

surgical removal of all or part of a limb

ANESTHESIA:

a method of preventing sensation, used to eliminate pain

ANTHROPOLOGY:

the study of humans

AUTOPSY:

an examination of the body after death

BLOOD PRESSURE:

pressure exerted by the blood upon the walls of the blood vessels, especially arteries, usually measured on the radial artery by means of a sphygmomanometer

BIOMEDICAL ENGINEERING:

the application of engineering and design principles or techniques to the medical or biology field

DISEASE:

an impairment of the normal state of the living animal or plant body that interrupts or modifies the performance of the vital functions and is a response to environmental factors, to specific infective agents, to inherent defects of the organism, or to a combination of these factors

HYPERTENSION:

abnormally high arterial blood pressure

MICROSCOPE:

an optical instrument used for observing small objects by magnification

OSTEOPOROSIS:

condition characterized by a decrease in bone mass and density which produces porosity and fragility. Results from disturbance of nutrition and mineral metabolism

PATHOLOGY:

the study of the nature of disease and its causes, processes, development, and consequences

PLASTINATION:

the process of preserving remains by injecting a solution containing a polymer (plastic) that maintains the original properties of the specimen

PROSTHESIS:

an artificial device to replace a missing part of the body

PUBLIC HEALTH:

the art and science dealing with the protection and improvement of community health by organized community effort, including preventive medicine and sanitary and social science



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RESOURCES

The appearance of hyperlinks does not constitute endorsement by NMHM or any other agency of the U.S. government of the destination website or the information, products or services contained therein.

WEBSITES

- **Science and Nature, Human Body and Mind** - <http://www.bbc.co.uk/science/humanbody/body/>
- **Cells Alive!** - <http://www.cellsalive.com>
- **Centers for Disease Control** - <http://www.cdc.gov>
- **Human Anatomy Online** - <https://www.innerbody.com/htm/body.html>
- **Body Worlds Plastination** - http://www.bodyworlds.com/en/plastination/idea_plastination.html
- **The Embryo App (available on iTunes)** - https://medicalmuseum.health.mil/index.cfm?p=media.news.article.embryo_app_debuts



PUBLICATIONS

- *The Human Body Book*, DK Publishing, 2007
- *The Anatomy Coloring Book*, Kapit and Elson, 2002
- *The Way We Work*, David Macaulay, 2008
- *The Forensic Casebook: The Science of Crime Scene Investigation*, Genge, 2002
- *From conception to birth: A life unfolds*, Alexander Tsiaras, 2002

BIBLIOGRAPHY AND LINKS

National Governors Association Center for Best Practices, & Council of Chief State School Officers. (2010). *Common Core State Standards*. Retrieved from www.corestandards.org

National Research Council. (1996). *National Science Education Standards*. Washington, DC: The National Academies Press.

National Research Council. (2012). *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*. Washington, DC: The National Academies Press.

NGSS Lead States. (2013). *Next Generation Science Standards: For States, By States*. Retrieved from www.nextgenscience.org

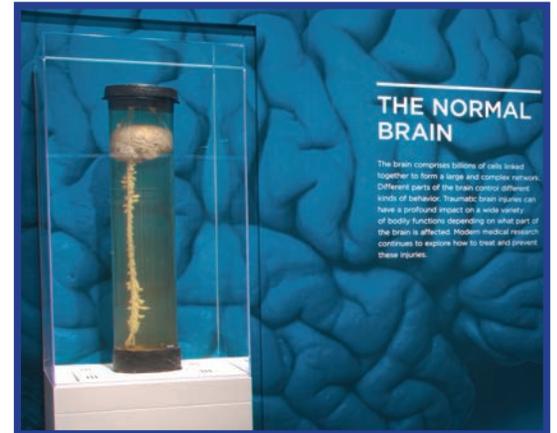
Maryland State Department of Education. (2013). *Maryland State Curriculum*. Retrieved from <http://mdk12.org/instruction/curriculum/>



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NATIONAL SCIENCE STANDARDS

- Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells (MS-LS1-3).
- Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories (MS-LS1-8).
- Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms (MS-LS1-5).

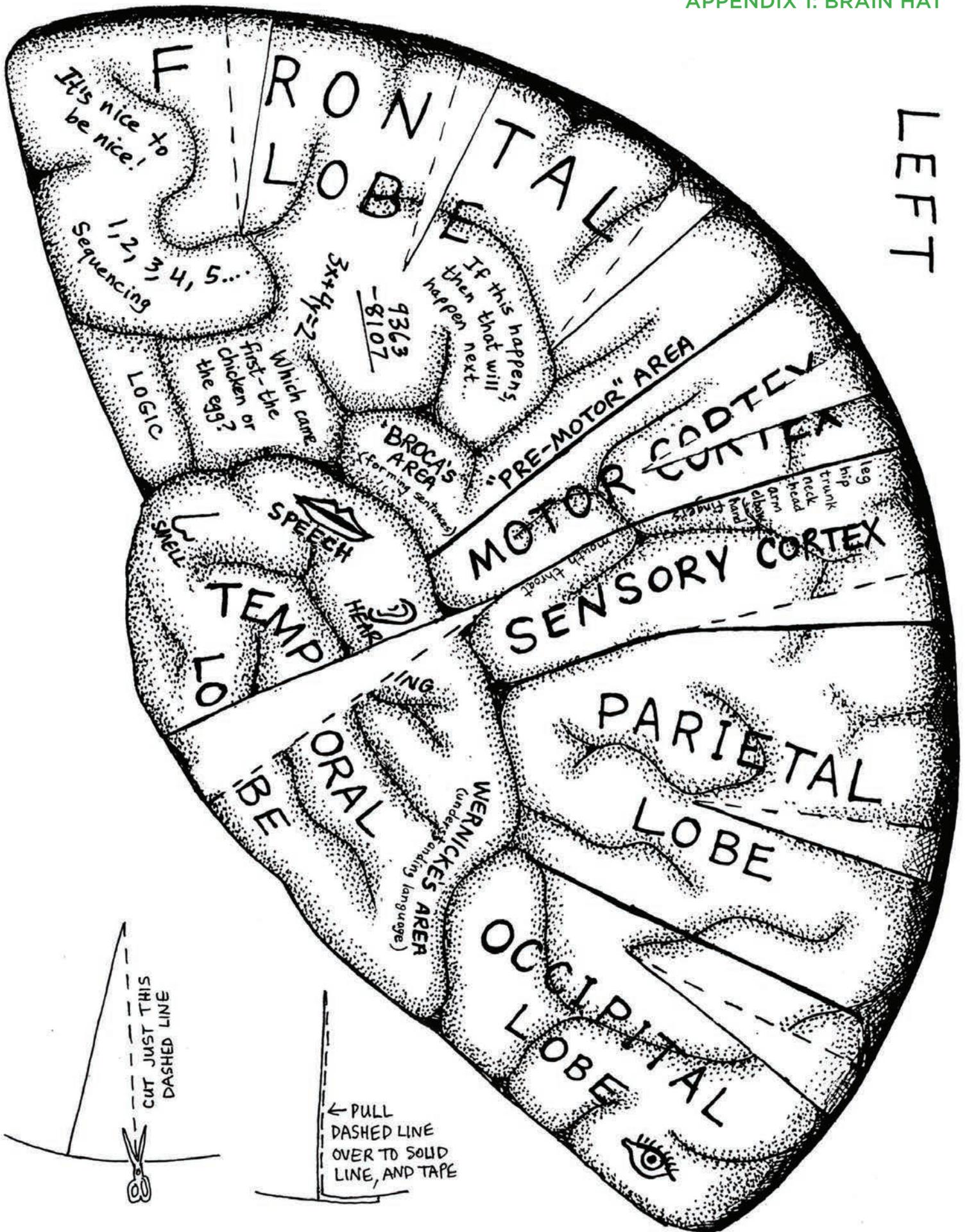


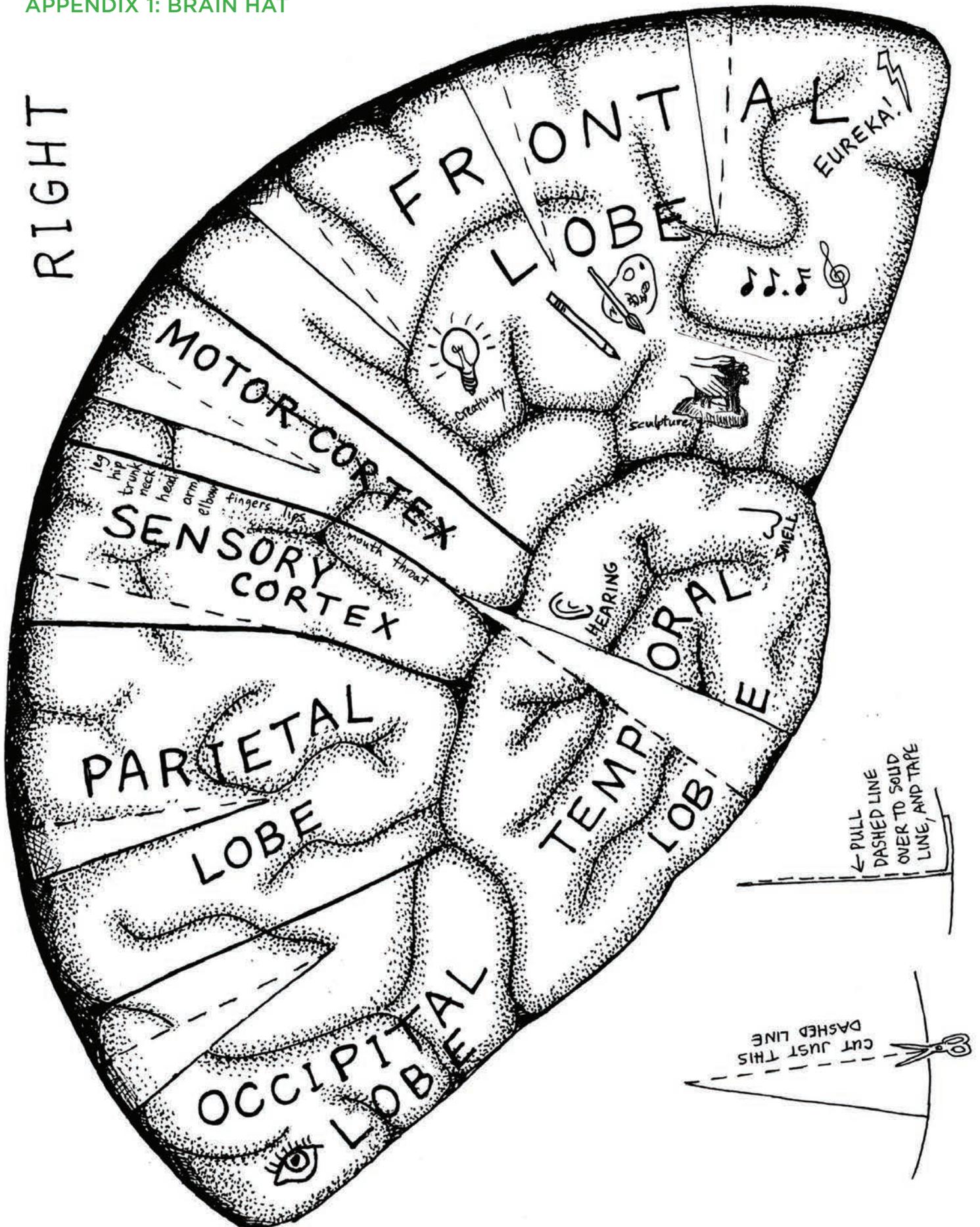
COMMON CORE

- Use precise language and domain-specific vocabulary to inform about or explain the topic. (WHST.6-8.2).
- Interpret information presented in diverse media and formats and explain how it contributes to a topic, text, or issue under study (SL6.2).
- Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation (SL6.4).



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