



# NATIONAL MUSEUM OF HEALTH AND MEDICINE

## INTRODUCTION TOUR

### MUSEUM DISCOVERY TEACHER'S GUIDE GRADES 6 - 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:

Explore innovations in military medicine, anatomy and pathology - including traumatic brain injury (TBI) - and the richness and importance of the museum's collections through the Civil War, Biomedical Engineering and Human Identification exhibits.

#### TIME

15-20 minutes

#### GROUP SIZE

minimum of 10 students  
maximum of 50 students

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

- Describe the importance of innovations in military medicine. Students should be able to list two examples that can be found in civilian medicine.
- Explain the basic anatomy for five organ systems.
- Describe one example of a congenital anomaly.
- Identify characteristics and prevention of a traumatic brain injury (TBI).
- Describe professionals who explore the body and describe their tools of the trade, including: forensic anthropologists, medical professionals and engineers.
- Identify how and why the museum was founded.
- Describe the significant medical events and innovations of the Civil War, including President Abraham Lincoln's death.

#### EXHIBITIONS FEATURED IN THIS GUIDED TOUR INCLUDE:

"Military Medicine: Challenges and Innovations"  
"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



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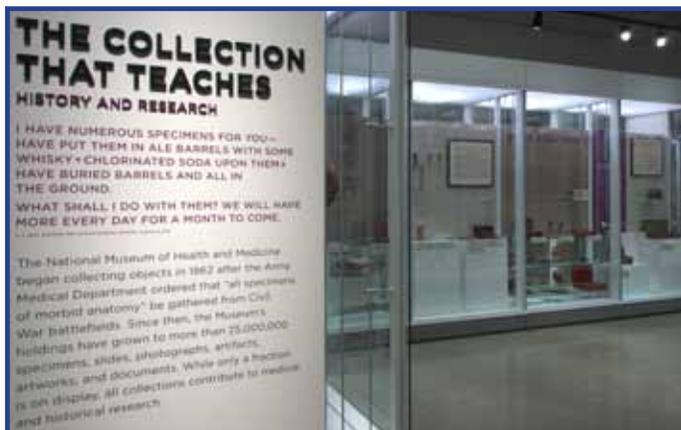
## SUGGESTED PRE-VISIT CLASSROOM ACTIVITIES

- Discuss *Visiting Our Museum* and what the students will see.
- Discuss different diseases and disorders associated with the body systems. This should include cancers, genetic disorders and infectious diseases and metabolic disorders. Have students determine the causes and ways that taking care of your body can prevent some of these diseases.
- Create brain hats and discuss the functions of the brain. Discuss what can happen when someone has a TBI (traumatic brain injury).
- Visit the NMHM's Facebook album page and choose a photograph(s) from the Museum's archives 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 and describe how this has improved the health care of service members returning from war. Consider visiting the [Defense Centers of Excellence: For Psychological Health and Traumatic Brain Injury](#) or [BrainLine](#) websites for additional resources and information.
- Have the students pick one disease discussed on the tour. Have them create an infographic about the disease, including statistics and rates of the disease.





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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

### **ARTIFICIAL ORGAN:**

a man-made device used to replace a natural organ

### **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

### **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

### **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

### **TRAUMATIC BRAIN INJURY:**

an injury to the brain caused by an external force





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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 web site 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** - <http://www.innerbody.com>
- **Forensic Anthropology** - <http://library.med.utah.edu/kw/osteo/forensics/>
- **Body Worlds Plastination** - [http://www.bodyworlds.com/en/plastination/idea\\_plastination.html](http://www.bodyworlds.com/en/plastination/idea_plastination.html)
- **Brain Line** - <http://www.brainline.org>
- **Defense Centers of Excellence: For Psychological Health and Traumatic Brain Injury** - <http://www.dcoe.mil>
- **Anatomy Study Guide App (available on iTunes)** - [http://www.navy.mil/submit/display.asp?story\\_id=81642](http://www.navy.mil/submit/display.asp?story_id=81642)



## 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

## 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](http://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](http://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).
- Draw evidence from informational texts to support analysis, reflection, and research (WHST.6-8.9).
- 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).



## APPENDIX 1: STUDENT TOUR EVALUATION FORM

Help NMHM improve field trips by telling us about your visit! Write clearly and answer each of the questions below. Return this form to your teacher. *Thank you!*

**SCHOOL/GROUP NAME:**  
**GRADE OR AGE:**

**TYPE OF TOUR:**  
**DATE OF TOUR:**

1. WRITE DOWN 3 THINGS YOU LEARNED ON YOUR TOUR.

2. WHAT WAS THE BEST PART OF YOUR VISIT TO NMHM?

3. WAS THERE ANYTHING YOU DIDN'T LIKE ABOUT YOUR VISIT TO NMHM?

4. THE VOCABULARY USED BY YOUR DOCENT WAS:

- Too easy---I would have liked more difficult vocabulary words  
 Too difficult---I didn't understand the vocabulary words that were used  
 Just right

5. THE AMOUNT OF INFORMATION PROVIDED BY YOUR DOCENT WAS:

- Too little---I would have liked to hear more information  
 Too much---I would have liked to hear less information  
 Just the right amount of information

6. WHICH TOPIC WOULD YOU LIKE TO LEARN MORE ABOUT?

- Diseases     Military Medicine     Forensics     Civil War     Biomed

7. WHICH ACTIVITY DID YOU LIKE THE BEST AND WHY?

- Holding artifacts or specimens, like the organs  
 Working on the Discovery Sheets  
 Talking with the Docent  
 Exploring NMHM

8. WOULD YOU RETURN TO THE MUSEUM FOR ANOTHER TOUR OR PROGRAM?

- YES     NO    IF NO, WHY?

9. WHAT COULD WE ADD OR CHANGE TO MAKE THE FIELD TRIP MORE INTERESTING FOR OTHER STUDENTS?

10. WHAT EXHIBITS/TOURS WOULD YOU BE INTERESTED IN SEEING ON FUTURE VISITS TO NMHM?

11. HOW WOULD YOU GRADE YOUR FIELD TRIP?

- Great!     Good     Okay     I don't know

12. ADDITIONAL COMMENTS OR SUGGESTIONS:



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