

Biomedical Engineering and the Human Body (unit)

Curricular Unit Title

Biomedical Engineering and the Human Body

Header

Insert image 1 here, centered



Image 1

ADA Description: Five images: man blowing into a spirometer, assorted pills and tablets, man taking a step with his artificial leg, black and white sonogram shows shape of fetus, drawing of DNA double helix.

Caption: None

Image file: cub_biomed_unit_image1web.jpg

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https://www.myhealth.va.gov/mhvPortal/anonymous.portal?_nfpb=true&_nfto=false&_pageLabel=spotlightArchive&contentPage=spotlight/spotlight_prosthetics.html; Jim Gathany, US Department of Health and Human Services, http://phil.cdc.gov/PHIL/Images/04182000/00005/Ultrasound_lores.jpg; President's DNA Initiative, US Department of Justice, <http://www.dna.gov/training/evidence/>

Grade Level

7 (4-7)

Summary

Human beings are fascinating and complex living organisms — a symphony of different functional systems working in concert. Through a ten-lesson series with hands-on activities students are introduced to seven systems of the human body — skeletal, muscular, circulatory, respiratory, digestive, sensory, and reproductive — as well as genetics. At every stage, they are also introduced to engineers' creative, real-world involvement in caring for the human body.

Engineering Connection

Engineers are increasingly involved in design for the human body. Biomedical engineers create artificial limbs using materials and sensors to replicate natural function and movement. Understanding the muscular system enables engineers to design everyday tools, appliances and products. Other engineers design medical solutions to improve health and address disorders. This may take the form of devices, implants, medicines, machines and technologies (diagnostic equipment, pacemakers, surgical techniques, hearing aids, laser eye surgery, ultrasound, amniocentesis, in-vitro fertilization, pain medicine). Engineers also apply their understanding of DNA to numerous real-world applications. As part of their design work, engineers create flow charts, prototypes and models, and make technical presentations, to learn, test and communicate their work.

Engineering Category

None (leave blank)

Subject Area

life science

Keywords

bioengineering, biomedical, biomedical engineering, biotechnology, body, health, human, human body, medical

Educational Standards

None (leave blank)

Related Lessons & Activities (←automatically generated by links in TE system)

Related Lessons

1. Engineering Bones
2. Muscles in Motion
3. Body Circulation
4. Breathe In, Breathe Out
5. Digestion Simulation
6. My Mechanical Ear Can Hear!
7. Biomedical Devices for Your Ears
8. We've Come a Long Way, Baby!
9. DNA: The Human Body Recipe
10. Bone Fractures and Engineering

Related Activities

- Prosthetic Party
- Sticks and Stones Will Break That Bone!
- The Artificial Bicep
- Measuring Our Muscles
- Clearing a Path to the Heart
- Polluted Air = Polluted Lungs
- Protect That Pill
- Sounds All Around
- Protect Those Eyes
- You're the Expert!
- Who Robbed the Bank?
- DNA Build
- Repairing Broken Bones

Time Required

See individual lessons and activities.

Unit Overview

Overview of topics by lesson: (1) skeletal system, (2) muscular system, (3) circulatory system, (4) respiratory system, (5) digestive system, (6) auditory-hearing sensory system, (7) vision sensory system, (8) reproductive system, (9) genetics, and (10) skeletal system [broken bones].

Unit Schedule

None

Summary Assessment

None (leave blank)

Attachments

None (leave blank)

Other

None (leave blank)

Redirect URL

None (leave blank)

Contributors

See individual lessons and activities.

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Supporting Program

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