



Healthcare Sparks

Excite, Motivate, Empower

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Introduction

Healthcare Sparks was designed to encourage professionals-in-training to interact and engage with middle and high-school students with the goal of sparking their interest in healthcare and STEM-related fields.

Why Healthcare Sparks?

- There has to be more diversity in healthcare
- Lack of resources and lack of exposure to black and brown healthcare professionals are two barriers that inhibit minority students from pursuing health careers

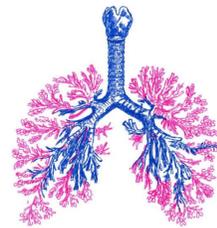
Method



1. Introduce topics via short lesson or video script
2. Pair students into groups with mentor (Generally 1:3 ratio, mentor to students)
3. Help students complete interactive booklet designed specifically for lecture topic.
4. Do activity session to solidify topics learned, and give students a chance to engage in activity
5. Career exploration pages: Allows students to see real example of a healthcare professional of a similar background. It also provides the necessary academic requirements, along with the average salary of that profession.

Workbook module sample

Pulmonary System



Youtube video - The Attack

Learning Objectives

- What are lungs, and why are they important?
- Know the difference between inhalation, exhalation, and gases involved
- Describe the pathway of airflow
- What is asthma?
- What are some of the treatments available?
- How is a pulse oximeter used?

LUNGS

Lungs are critical organs for respiration. We need them for gas exchange. They transfer oxygen into our bodies and release carbon dioxide that has been released by our tissues and blood byproducts.

Breathes in (inspire)
Breathes out (expire)

Number of Lobes (Left) _____
Number of Lobes (Right) _____

Pathway of Airflow

Air enters the nose/mouth → pharynx → bronchi → bronchioles → _____ where gas exchange will occur at the alveolar-capillary membrane.

Asthma is a respiratory illness characterized by narrowing and inflammation of airways making it difficult to breathe.
Common symptoms: Shortness of Breath and wheezing
Some trigger: Exercise, dust, and pollen

What treatments were discussed in "The Attack" video?

Name: _____

PULMONARY WORD SEARCH

Circle words in the puzzle below

Alveoli Lobe Breathe Trachea
Lung Gas Oxygen Albuterol

Activities

Supplies needed: Stethoscope, pulse oximeter

Breathe in, Breathe out

Total lung capacity: the maximum volume of air our lungs can hold. The amount varies between individuals but the average is around 4-6 Liters

1. Grab a partner, and get your stethoscopes out. Place stethoscope on partners back and tell them to take a deep breath in and out. You will place your stethoscope in six areas on your patient's back.

2. Did they have normal breath sounds? Note: Instructor can produce breath sounds students can hear normal breathing, wheezing, crackles, etc.

Normal O2 levels = 95-100%. Patients may have levels in the low 90s and require oxygen but it depends on their illness and other factors.

3. What is your oxygen saturation level? Try on someone else and see how your levels compare.

1. Turn on pulse oximeter and place on index finger. Make sure you are relaxed and your hand is resting on table or on your lap.

2. Wait until you see two numbers pop up on the screen. The top number is your Oxygen and the bottom number is your heart rate! Remember how we measured heart rate in the cardiovascular lesson? We were able to do it without this machine. However, this can be convenient at times.

Career Exploration

PHARMACIST CAREER EXPLORATION

Pharmacist: a health-care professional licensed to dispense prescription drugs, monitor drug interactions, administer vaccines, and counsel patients regarding the effects and proper usage of drugs and dietary supplements (Merriam - Webster)

Terry Williams, PharmD
Pharmacy
Graduated from Loma Linda University School of Pharmacy

Is a college degree required for this position?
Yes.

- Undergraduate school
- Pharmacy school

After pharmacy school, a pharmacist can start retail pharmacy or go on to pursue residency to become a hospital pharmacist.

Average Salary: \$142,598

DENTIST CAREER EXPLORATION

A dentist is a person who is skilled in and licensed to practice the prevention, diagnosis, and treatment of diseases, injuries and conditions that affect the teeth and gums, especially the repair and extraction of teeth and the insertion of artificial ones.

Lizbeth Alcantara, DMD and Matthew Downes, DMD
Dentistry
Graduated from Tufts University School of Dental Medicine

Is a college degree required for this position?
Yes.

- Undergraduate school
- Dental school

Average salary: \$245,000 per year

PHYSICAL THERAPY CAREER EXPLORATION

A physical therapist is a healthcare professional who helps train and educate patients on maneuvers such as exercise, heat treatments, massages and more to improve and restore movement and physical function that is impaired or threatened by disease and injury.

Danette St Martin, DPT
Physical Therapy
Graduated from Loma Linda University School of Allied Health Professions

Is a college degree required for this position?
Yes.

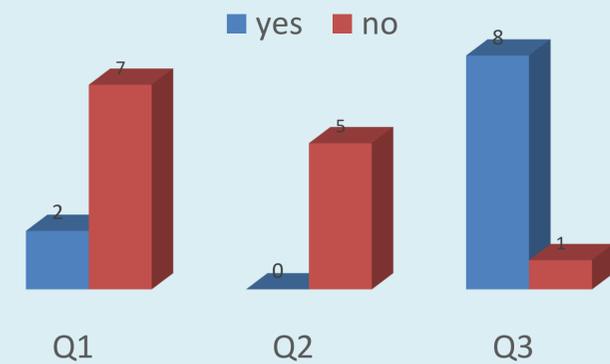
- Undergraduate school
- Master's degree (if you would like to but not required)
- Physical therapy school (Doctor of Physical Therapy)

Average salary: \$81,010 per year

Survey questions

- Q1. Our recent session was about neurology. Did you know what a neurologist was before this session?
- Q2. Before our pulmonary session about asthma did you know about pharmacists?
- Q3. Have you become more excited to learn about different careers in medicine and science since meeting the Healthcare Sparks team?

Responses



Future Goals /Staying Connected

- Publish interactive booklet, expand to more medical schools
- Provide Scholarship opportunities
- Increase diversity in healthcare; address health and healthcare disparities
- Website : Healthcaresparks.org Instagram: [Healthcare_sparks](https://www.instagram.com/Healthcare_sparks)
- YouTube: [Healthcare Sparks](https://www.youtube.com/HealthcareSparks)

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