Careers In Physics

Remote Plans

Warm Up

List all careers you can have with a physics degree.

Jamboard link in chat!

Explore Careers In Physics

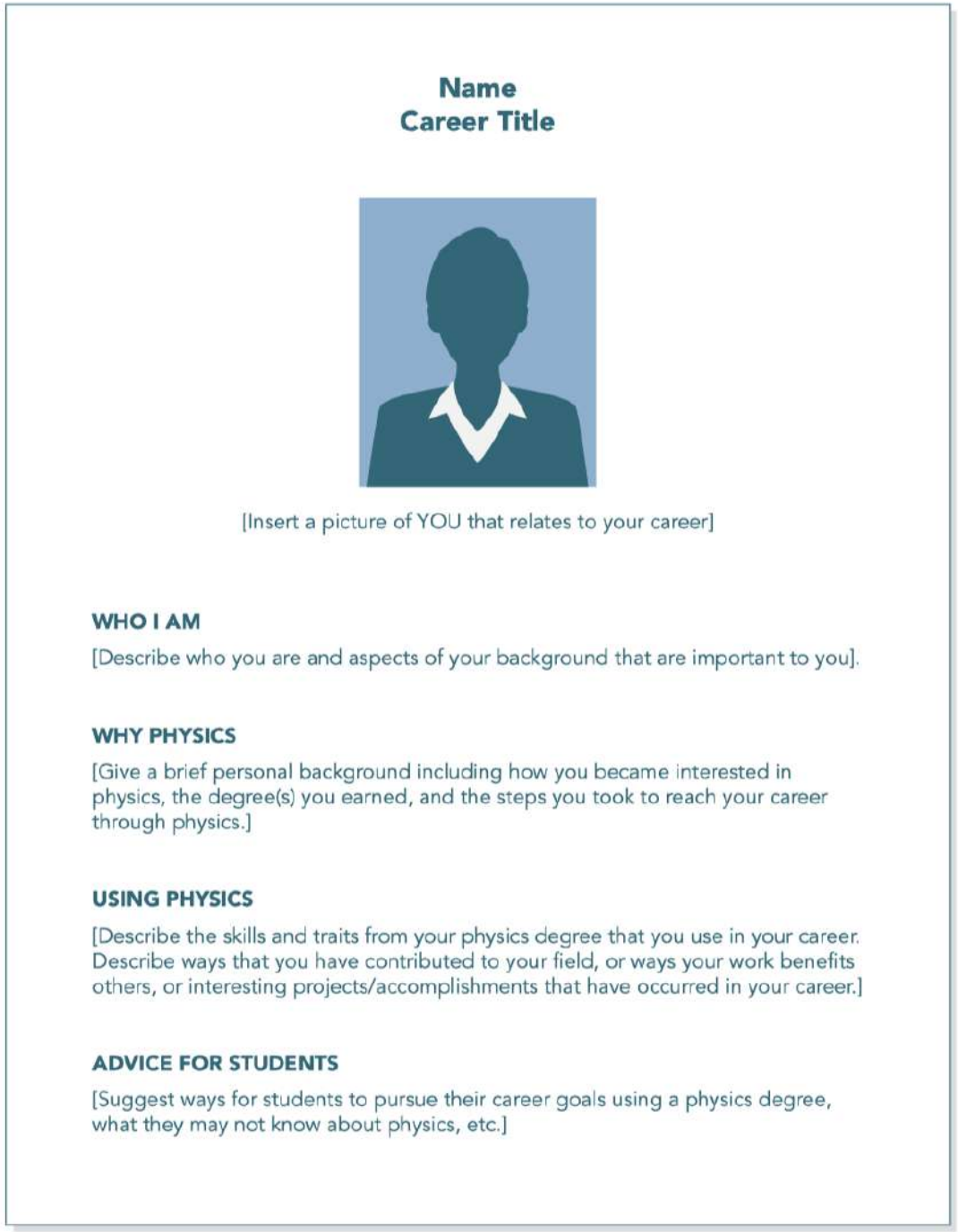
- https://bit.ly/3jjmoCq Take the quiz
- Read all matches
- Choose 1 you are most interested in (if there are none you are interested in, take the quiz again)
- Share in Jamboard which career you are most interested in and why (from the survey)

Discussion

- Break Out Rooms
  - Share your person and career in one sentence
  - What does your physicist **personally value** about their degree or career?
  - Who **benefits** from their work?
  - What did they **gain** from their physics degree?

Body of Lesson

Step 5: Students ***imagine*** a future career supported by a physics degree and create a **personal career profile** (for display).
Students **share out their profile** next block.



Name
Career Title

[Insert a picture of YOU that relates to your career]

WHO I AM

[Describe who you are and aspects of your background that are important to you].

WHY PHYSICS

[Give a brief personal background including how you became interested in physics, the degree(s) you earned, and the steps you took to reach your career through physics.]

USING PHYSICS

[Describe the skills and traits from your physics degree that you use in your career. Describe ways that you have contributed to your field, or ways your work benefits others, or interesting projects/accomplishments that have occurred in your career.]

ADVICE FOR STUDENTS

[Suggest ways for students to pursue their career goals using a physics degree, what they may not know about physics, etc.]

Example Student Profiles

[redacted]

Pediatric Oncology Physician Assistant

Who I Am I am an African-American/White woman. I am very passionate about helping people when I am able to, which is what has shaped my career. My strong passion has influenced my career choice. I am a Pediatric Oncology Physician Assistant.

***Why Physics*:** Throughout elementary, middle, and high school I hated math. Being in the medical field does require a lot of math as you can imagine, especially when it comes to having to know measurements. In my high school physics class my teacher saw my frustration and explained to me that I was going to have to improve my knowledge in math if I wanted to succeed in the medical field. She suggested that I major in physics, because it is a combination of math and science. She also showed me evidence on how Physics majors are more likely to score higher on important tests than biology/chemistry majors are. I now have earned a master's degree in physics as a Physician Assistant.

***Using Physics*:** The skills that I have gained through my career in physics are measurement skills, data analysis, problem-solving, very complex math skills, and team building/communication skills. All of those skills I use in my career every day. Communication skills are very important to have for working with different patients. An interesting accomplishment I've completed during my career was getting a bachelor's degree as a registered nurse, then earned my master's degree in physics.

Advice for Students pursue their career goal using physics is to do a lot of research. Having a degree in physics can be helpful in many different fields. Completing research on their future career and how it relates to physics is a good idea. Another suggestion would be speaking with a physics teacher, or an adult they know that majored in physics. Being knowledgeable about a degree in physics would be very helpful.

[redacted] M[redacted]

Actuary

Who am I? With a background in Physics, I measure and calculate risk for business and insurance purposes. I work a steady job, with lots of time left for my family. My job is something that is fresh and changing everyday.

Why Physics? In high school I took many physics classes and became fascinated with the real life situations we were able to study. I went to college in hopes of studying physics, and with a solid background I easily found a job as an actuary. Physics applies to my job every day and has enhanced my abilities in my job.

Using Physics: Using physics I am able to understand my job at a much more in depth level. I am able to understand how things move and work, making my job much easier. I am able to teach my coworkers things they never knew about physics and encourage my colleagues to understand physics at a higher level.

Advice for Students: Physics is everywhere, you will find it in almost any job possible. Physics will help you understand parts of your job that others may not. With a degree in physics you are extremely versitile, with endless possibilities for jobs your entire life.

Job Stability & Satisfaction

Based on national surveys of students with bachelor's degrees in physics

- High employment rates (95%)
- High job satisfaction in terms of
  - Feelings of job security
    - 75% to 93% (depending on sector) felt secure
  - Overall satisfaction
    - 71% to 90% (depending on sector) felt a sense of satisfaction

Job Opportunities

Flexible options and sectors including:

- National Labs
- Professional Schools (e.g. Medicine, Health)
- Environmental/Climate Science, Energy
- Space Science
- Government/Policy
- Public Administration, Business
- Communication (e.g. Science Writing, Media)
- Education (e.g. High School, College/University)
- Engineering, Computing
- Arts (e.g. Music, Television)
- Not-for-Profit Organizations
- Graduate Studies (e.g. multiple STEM disciplines)

Job Opportunities

- On the MCAT (Medical College Admission Test), which major from amongst the following gets the highest scores? Lowest scores?

A. Biology B. Psychology C. Chemistry D. Physics E. Engineering

- On the LSAT (Law School Admission Test), which major from amongst the following gets the highest scores? Lowest scores?

A. Biology B. Psychology C. Chemistry D. Physics E. Engineering

Surprising Facts: Medicine

- Physics Majors and Medical School
  - Physics majors get very high scores on the MCATs

Scores on MCAT by major

DEGREE FIELD	PHYSICAL SCIENCE	BIOLOGICAL SCIENCE	VERBAL REASONING	SUM OF 3 SCORES
Economics	10.8	10.8	9.9	31.5
Physics	11.1	10.4	9.8	31.3
Biomedical Engineering	11.1	10.6	9.6	31.3
Mathematics	10.9	10.1	9.4	30.4
Electrical Engineering	10.6	10.4	9.3	30.3
Neuroscience	10.1	10.6	9.5	30.2
English	9.6	10.1	10.2	29.9
Biochemistry	10.1	10.4	9	29.5
Chemistry	9.5	10	9	28.5
Premedical	9.2	10.1	8.8	28.1
Microbiology	9.1	9.6	9.1	27.8
Psychology	9	9.7	8.7	27.4
Biology	8.3	8.9	8.1	25.3
All Majors	**9.5**	**9.9**	**9**	**28.4**

NOTE: Sorted by total score and based on test takers who applied to Medical School. The MCAT test at the time had the 3 sections noted, but also a writing sample (not included here). Each section had a potential score range of 1-15.

Source: AIP, Focus on MCAT, LSAT and Physics Bachelor's, 2013

Surprising Facts: Law

- Physics Majors and Law School
  - Physics majors get very high scores on the LSATs

Scores on LSAT by major

DEGREE FIELD	AVERAGE SCORE
Mathematics	162.2
Physics	162.1
Economics	159.1
Engineering	157.3
Chemistry	156.7
History	156.7
English	155.8
Biology	155.2
Political Science	154.3
Psychology	153.3
Computer Science	152.3
Pre-Law	149.0
Criminal Justice	145.6
All Majors	**153.6**

NOTE: Based on test takers who applied to Law School. The LSAT is a standardized test and raw scores are converted to a scale that ranges from 120 to 180.

Source: AIP, Focus on MCAT, LSAT and Physics Bachelor's, 2013

Surprising Facts: Salaries

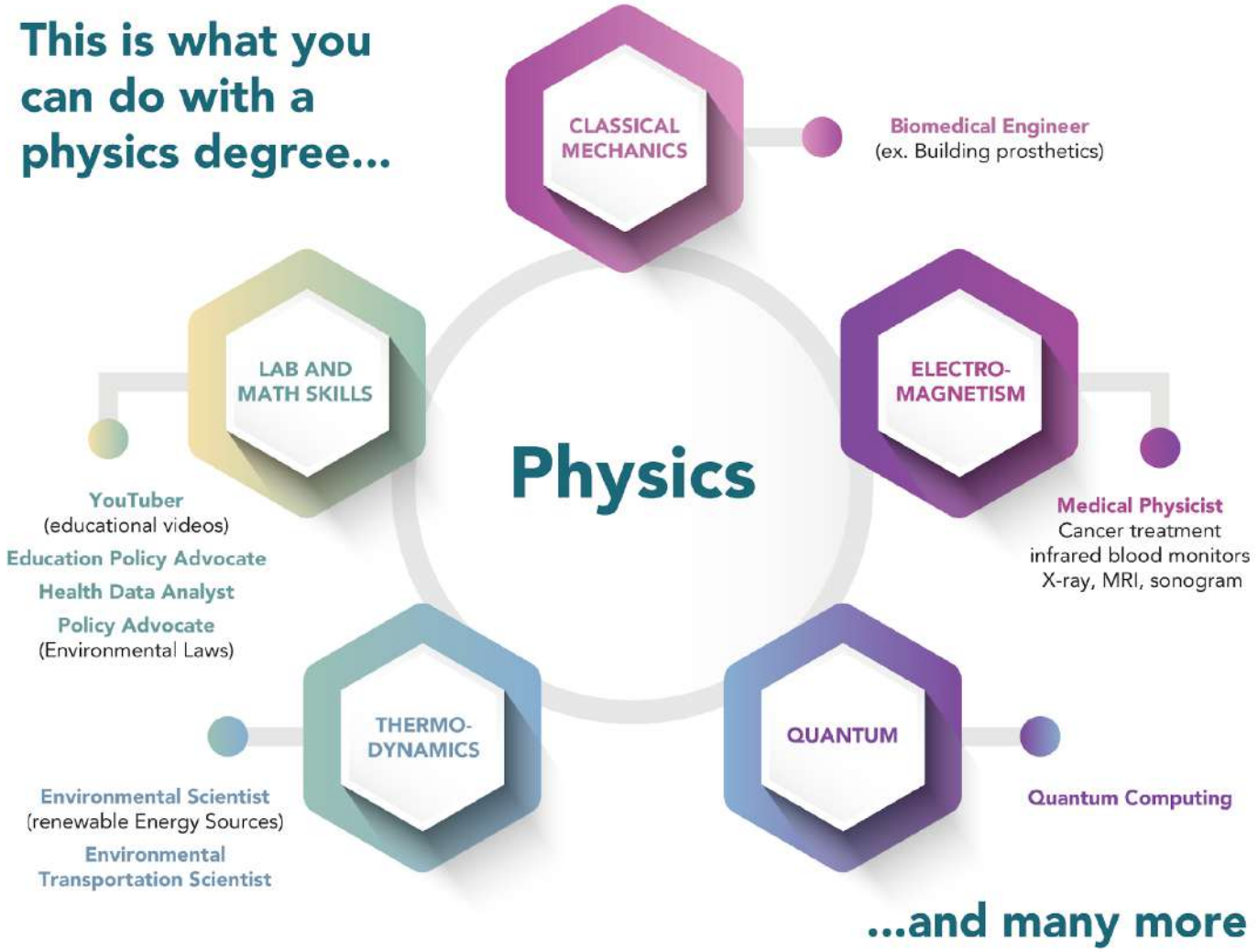
- Physics Majors and Earnings
  - Physics bachelors earn comparatively more

Surprising Facts: Helping Society

Physics Majors Help Others

- Improving people's health
  - Diagnosis and treatment of illness, for example:
    - Cancer treatment using radiation, new nanobot technology to target individual cancer cells
    - Body imaging using X-rays, ultrasound, NMR and PET scans
    - New methods using infrared light to monitor our blood
- Addressing environmental issues
  - Energy needs and climate change effects, for example:
    - New renewable energy technology
    - Climate change effects on humans, animals (e.g. penguin populations), and land (size of the Sahara Desert)
    - Environmentally friendly transportation methods
- And many more…

Surprising Facts: Helping Society



Summary

Students who earn a degree in physics:

- Have high employment and job satisfaction
- Work in many different sectors (STEM/non-STEM)
- Gain skills that give them a competitive edge for Medical and Law School
- Earn comparatively higher salaries than most other bachelor's degrees
- Have the opportunity to help society in substantial ways

Discussion Questions

What surprised you about the:

- Areas in which physicists work?
- Skills physicists apply working in such diverse areas?
- Benefit physicists can have on the lives of others?

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