

# Careers in Physics



The image features a Newton's cradle with five spheres. The spheres are labeled with the letters P, H, Y, S, I, C, S. The background is a vibrant, abstract visualization of physics, showing colorful, swirling energy patterns and a bright yellow core. The text 'careers using physics' is centered below the spheres, and three columns of career examples are listed below that.

**P H Y S I C S**

## careers using physics

medicine  
surveying  
engineering  
radiography  
physiotherapy  
nanotechnology  
renewable energy science  
aerospace manufacturing  
medical physics

architecture  
meteorology  
teaching  
electronics  
medical technology  
engineering technology  
oceanography  
telecommunications  
sound technology

astronomy  
dentistry  
audiology  
geophysics  
astrophysics  
auto electrical repair  
ophthalmics/orthoptics  
research and development  
software engineering



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# Careers in Physics



**ENGINEERING SCIENCE**

**careers using engineering science**

industrial design building technology computing science telecommunications marine engineering auto electrical repair electrical engineering landscape architecture prosthetics and orthotics manufacturing systems	surveying architecture control systems civil engineering energy engineering materials science naval architecture railway maintenance gas service mechanics engineering technology	product design electrical trades security systems aircraft engineering electronic engineering energy engineering building management offshore engineering mechanical engineering environmental engineering
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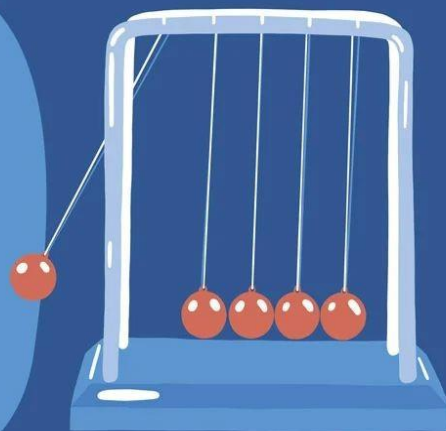
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# 5 WORK-SKILLS PHYSICS WILL GIVE YOU



## PROBLEM SOLVING



**In school:** Like all branches of science, physics is experimental. You'll be encouraged to look at problems from new angles and find innovative solutions using your physics knowledge. You'll need to gather all the relevant information to help you as you work towards a solution.

## DATA ANALYSIS



**In school:** Whenever you perform an experiment in physics, you'll generate data. It's this information that can help you spot trends and patterns, or reveal something completely new. You need to be able to analyse the data you create, otherwise it's just numbers with no clear meaning.

## RESEARCH



**In school:** Research means collecting your own data by carrying out experiments. It also means reading around a subject to find information and data that could help you or support your theories. You might need to look through scientific papers or read books about scientific discoveries.

## CRITICAL THINKING



**In school:** You can't take everything at face value. That means you need to think critically about the information you're presented with to find new solutions. Being able to do this allows you to take a rational approach to problem solving. This is essential in physics, where you're following scientific...

## COMMUNICATION



**In school:** It's not just enough to carry out experiments and research. You need to be able to explain your findings to others. You'll do this through written and spoken reports. That means you need to present information in a clear and logical way. Sometimes you'll also work on experiments with...



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to learn more.

## Careers in Physics

Physics is a natural science that studies matter, its motion and behaviour through space and time. It studies the related entities of energy and force. It is also one of the most fundamental science disciplines and its main goal is to understand how the universe works.

Physics explains why the world goes round. During your studies, you will also discover why global warming will have the Alaskans trading their snow boots for flip-flops. Perhaps, you will also be able to find an answer to the question of “What’s the meaning of life?”

Problem-solving skills are needed for every physics student: you will be able to solve almost any problem. You will find your physics degree also helps you develop critical thinking and problem-solving skills.

Recruiters and future employers are always on the search for physics graduates, because they count as smart. Also, friends will keep asking if you follow in Stephen Hawking’s footsteps.

To receive a broad understanding of the general principles of physics, universities offer a common core body of courses in theoretical and experimental physics. Different tracks allow you to specialise, apply problem-solving techniques in a particular area of interest; this also enhances your employability.

### **Jobs directly related to Physics include:**

- Academic researcher
- Acoustic consultant
- Astronomer
- Clinical scientist, medical physics
- Geophysicist
- Higher education lecturer
- Metallurgist
- Meteorologist
- Nanotechnologist
- Radiation protection practitioner
- Secondary school teacher
- Sound engineer

### **Jobs where Physics would be really useful include:**

- Actuary
- Applications developer
- Clinical technologist
- Data analyst

- Nuclear engineer
- Operational researcher
- Patent attorney
- Prosthetist/orthotist
- Software engineer
- Telecommunications researcher

### **Typical employers**

- aerospace and defence
- education
- energy and renewable energy
- engineering
- health and medicine
- instrumentation
- manufacturing
- meteorology and climate change

### **Skills for your CV**

**Studying physics develops your understanding of core physics and gives** you a range of subject-specific skills in areas such as astronomy, computational and experimental physics, condensed matter, dynamics, electromagnetism and quantum mechanics.

You also develop transferable skills valued by a wide range of both technical and non-technical employers. These skills include:

- problem solving - with a pragmatic and analytical approach
- reasoning - constructing logical arguments and grasping complex problems
- research and data analysis - undertaking research and applying analytical skills
- numeracy - skills in using mathematics to find solutions to scientific problems, mathematical modelling and interpreting and presenting information graphically
- practical skills - planning, executing and reporting experiments, using technical equipment and paying attention to detail
- communication - conveying complex ideas and using technical language correctly, discussing ideas and taking on other viewpoints
- information technology (IT) - including specialist software packages and some programming.

### **Studying physics at university – topics you may cover**

- Laboratory physics
- Contemporary physics
- Mathematical techniques

- Quantum physics
- Newtonian and relativistic mechanics
- Fabric of physics
- Plasma and fluids
- Special and general relativity
- Analysing the nanoscale and magnetism
- Stellar physics

## **Energy apprenticeships**

Become part of this ground-breaking sector and help preserve energy for future generations with an energy apprenticeship

Energy is integral to everything we do: from driving our cars to powering our kettles. The energy and utilities sector is essential to the economy, supplying water, power and gas to millions of people's homes and businesses. The journey that energy takes, from plant to plug socket, requires a complicated and costly infrastructure that must be constantly maintained. It's also a consumer resource that requires meters to monitor use.

Careers are on offer across the whole range of utilities, including gas, electricity, water and nuclear power. Energy apprenticeships cover its generation, transmission, distribution and supply, as well as utility-specific roles in processing, management and maintenance, meaning anyone with an interest in utilities and energy can find a job that's suitable for them.

If you are looking to make a positive difference at a time when the environment and climate change are dominating discussion, employers across the country are on the lookout for the next generation of professionals who can be trained in conservation and efficiency. You'll need a strong work ethic, as well as excellent communication skills, enjoying practical, hands-on work and a dynamic approach.

The commercial thermal insulation operative, community energy specialist, dual fuel smart meter installer and junior energy manager apprenticeships will all train you to work on reducing carbon emissions and improving management. This area can also be very scientific, with various nuclear-focused apprenticeships available that underline the importance of the nuclear industry and its need for highly trained engineers and scientists. Nuclear operatives, scientists and engineers are required to ensure that systems and equipment operate safely, efficiently and in an environmentally friendly way.

If you are ready to join a sector that needs ground-breaking ideas to help preserve energy for future generations, then an energy apprenticeship is the path for you.



# TOP 10 REASONS YOU SHOULD TAKE PHYSICS

www.compadre.org/careers


## #10

**SOMEONE CALL A PHYSICIST!**

If you get stuck inside of a black hole, you'll know how to **get out**.

## #9

Physics teaches you how to **THINK!**



## #8

**Physics explains:**

- Why the sky is blue
- Why the world goes round
- Why global warming will have the Alaskans trading in their **snow boots for flip-flops**.

## #6

Give Physics a Chance  
**PHYSICS PAYS YOU DIVIDENDS COLLECT \$200.**  
Community Class of Physics  
**GET OUT OF RECESSION FREE CARD**

The laws of physics are **100%** recession-proof, and the jobs you can get with physics are pretty darn secure too.

## #7 SAT LSAT

Physics will get you a **better score** on any test whose name has three or four capital letters—**SAT, ACT, MCAT, LSAT or GRE**

## ACT GRE MCAT

## #5

$F=ma$   
 $\pi$   
 $\infty$   
 $E=mc^2$

Ever wonder why you're learning all that math?  
**TRY PHYSICS!**

## #4

If you study engineering, you can do engineering. If you study physics, you can **still do engineering...**

## #3

or Explore the **mysteries of the universe**

Use **lasers** to develop new medical techniques

Become an **international rap sensation**

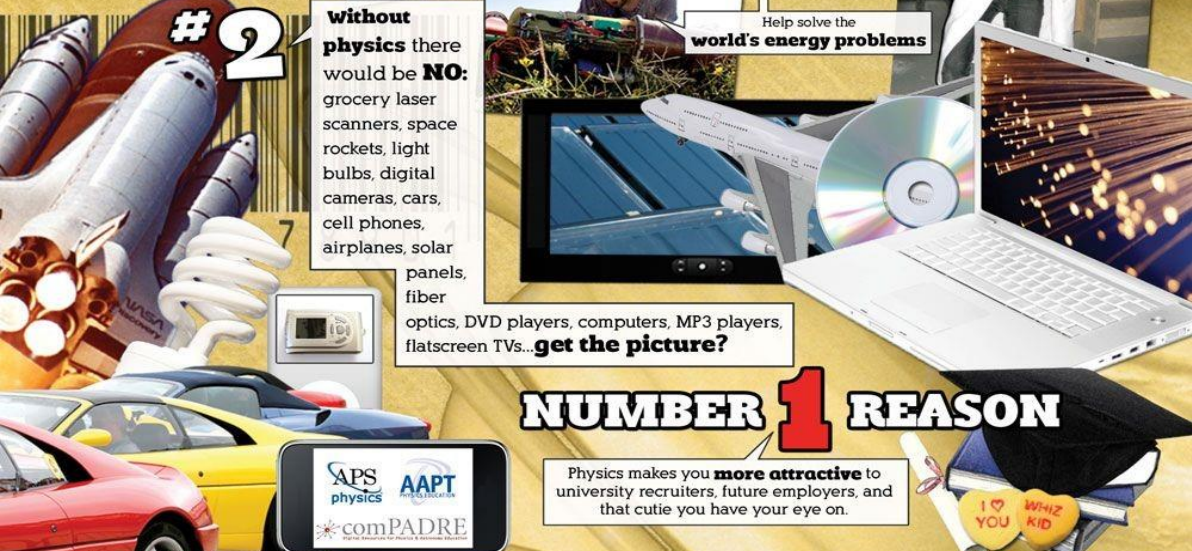
Help solve the **world's energy problems**

## #2

**Without physics** there would be **NO:** grocery laser scanners, space rockets, light bulbs, digital cameras, cars, cell phones, airplanes, solar panels, fiber optics, DVD players, computers, MP3 players, flatscreen TVs...**get the picture?**

## NUMBER 1 REASON

Physics makes you **more attractive** to university recruiters, future employers, and that cutie you have your eye on.





# APPRENTICESHIPS LINKED TO SCIENCE

- BIOMEDICAL SCIENTIST
  - DOCTOR
  - HEALTHCARE SCIENCE ASSISTANT
  - LABORATORY SCIENTIST
  - METROLOGY TECHNICIAN
  - NUCLEAR SCIENTIST
  - PHARMACY SERVICES ASSISTANT
  - PHYSIOTHERAPIST
  - REGISTERED NURSE
  - SONOGRAPHER
- AND MANY MORE!**



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