

# Career of the Fortnight

---

## Astronomer



# Astronomer

## Job description:

An astronomer is a scientist in the field of astronomy who focuses their studies on a specific question or field outside the scope of Earth.

They observe astronomical objects such as stars, planets, moons, comets and galaxies – in either observational (by analyzing the data) or theoretical astronomy.

Examples of topics or fields astronomers study include planetary science, solar astronomy, the origin or evolution of stars, or the formation of galaxies. Related but distinct subjects are like physical cosmology, which studies the Universe as a whole.

## Skills:

You'll need to have:

- strong physics, mathematics, statistics and computer programming skills
- research and analysis skills
- problem solving/trouble shooting skills
- excellent communication, both oral and written
- the ability to make progress without strict deadlines
- the ability to collaborate and work in a team
- project management skills
- the ability to train and mentor students
- motivation and drive to study your area of research

## Roles and Responsibilities

You will be employed by either a university or a dedicated research institute.

- collect and analyse data from cameras, satellites and other observations (if working in observational astronomy)
- plan and execute research projects to answer fundamental questions (such as how do galaxies form?)
- apply for time to observe at international observatories, if necessary to your work
- read existing academic literature
- put your work in the context of other researchers' work
- write scientific articles
- apply for grants to fund your research
- collaborate with other astronomers, often internationally
- present your work at conferences.

**Employers of astronomers:**

The majority of astronomers are employed by universities, but there are a few government and private institutions (such as observatories) that hire astronomers. Permanent positions in both astronomy research and outreach can be competitive, so you may have to consider moving internationally to pursue this career.

**Working conditions**

You could work in an observatory, in a laboratory, at a university or visit sites.

Your working environment may be outdoors some of the time and you may spend nights away from home.

**Qualifications:****University**

You'll need a degree and postgraduate qualification to work as an astronomer. You'll usually need to have achieved a first or a 2:1 in your degree.

Relevant subjects include:

- maths
- physics
- astrophysics
- geophysics
- astronomy
- space science

**Entry requirements**

You'll usually need:

5 GCSEs at grades 9 to 4 (A\* to C), or equivalent, including English, maths and science

2 or 3 A levels, or equivalent, including maths and physics

a degree in a relevant subject for postgraduate study

**Working Hours:**

**40 hours per week**

Hours can be irregular, particularly for observational astronomers and when travel is needed for conferences

**Annual Income:**

**Starting salary:  
£15,000**

**Experienced salary:  
£40,000 - £80,000**

# Labour Market Information

Labour Market Information (LMI) shows you what sorts of employment opportunities exist in your area and which sectors are growing. It can help you decide on a career path or where to get more information.

Physical scientists	Natural and social science professionals n.e.c.	Laboratory technicians												
<table><tr><td>Weekly Pay <b>£960</b></td><td>Annual Pay <b>£49,920</b></td></tr><tr><td>Hours/Week <b>42h</b></td><td>Hourly Pay <b>£23</b></td></tr></table>	Weekly Pay <b>£960</b>	Annual Pay <b>£49,920</b>	Hours/Week <b>42h</b>	Hourly Pay <b>£23</b>	<table><tr><td>Weekly Pay <b>£840</b></td><td>Annual Pay <b>£43,680</b></td></tr><tr><td>Hours/Week <b>41h</b></td><td>Hourly Pay <b>£20</b></td></tr></table>	Weekly Pay <b>£840</b>	Annual Pay <b>£43,680</b>	Hours/Week <b>41h</b>	Hourly Pay <b>£20</b>	<table><tr><td>Weekly Pay <b>£440</b></td><td>Annual Pay <b>£22,880</b></td></tr><tr><td>Hours/Week <b>34h</b></td><td>Hourly Pay <b>£13</b></td></tr></table>	Weekly Pay <b>£440</b>	Annual Pay <b>£22,880</b>	Hours/Week <b>34h</b>	Hourly Pay <b>£13</b>
Weekly Pay <b>£960</b>	Annual Pay <b>£49,920</b>													
Hours/Week <b>42h</b>	Hourly Pay <b>£23</b>													
Weekly Pay <b>£840</b>	Annual Pay <b>£43,680</b>													
Hours/Week <b>41h</b>	Hourly Pay <b>£20</b>													
Weekly Pay <b>£440</b>	Annual Pay <b>£22,880</b>													
Hours/Week <b>34h</b>	Hourly Pay <b>£13</b>													
<b>Workforce Change</b> (projected) Growth <b>5.1%</b> Replacement <b>39.9%</b> <small>The workforce is projected to grow by 5.1% over the period to 2027, creating 1,500 jobs. In the same period, 39.9% of the workforce is projected to retire, creating 12,000 job openings.</small>	<b>Workforce Change</b> (projected) Growth <b>5.1%</b> Replacement <b>39.9%</b> <small>The workforce is projected to grow by 5.1% over the period to 2027, creating 2,300 jobs. In the same period, 39.9% of the workforce is projected to retire, creating 18,000 job openings.</small>	<b>Workforce Change</b> (projected) Growth <b>1%</b> Replacement <b>43.2%</b> <small>The workforce is projected to grow by 1% over the period to 2027, creating 1,000 jobs. In the same period, 43.2% of the workforce is projected to retire, creating 42,600 job openings.</small>												
You might find this job in Architectural & related Scientific research Education Head offices, etc Health	You might find this job in Education Scientific research Public admin. & defence Office admin.	You might find this job in Education Health Architectural & related Scientific research Public admin. & defence												
<a href="#">More info</a> <a href="#">Clear card</a>	<a href="#">More info</a> <a href="#">Clear card</a>	<a href="#">More info</a> <a href="#">Clear card</a>												

# Where can you find out more information?



unifrog HOME FAVOURITES LOCKER APPLY HELP TEACHER >

Hello Donna, here's a summary of your progress so far...



18th  
in your group

Want to move things forward? We recommend you...

Complete the Interests quiz 39%

See all your tasks >

ACCESS ALL THE TOOLS BELOW  
Exploring pathways

Interests profile

✕ Quiz not taken

Start >

Personality profile

✓ Quiz last taken 5 Dec 19: ESF

Start >

Careers library

✕ Careers favoured

Go to tool >

Subjects library

✕ Subjects favoured

Go to tool >

Know-how library

✓ Guides favoured

Go to tool >

MOOC

Make your first shortlist

Start >

Webinars

Read, Watch, Listen

Click on the Know How Library

## Know-how library

Use our guides to find out what you need to know



### How to write your Personal Statement like a boss

Ace the UK Personal Statements

Read the guide >



### College, apprenticeship or university?

Find out which is the best option for you

Read the guide >

Search by keyword

science

Go >

Type a keyword in the search bar

Keywords: science

Watch, favourite or read more...

< Back

Filter science >



### Sustainable degrees: Sciences

SOS explores sustainable degrees in the science subjects

Read the guide >



### Sustainable degrees: Earth and animal sciences

SOS shows you around sustainable degrees in earth and animal sciences

Read the guide >



### Get on the ladder: science

How to get a foot in the door

Read the guide >



### What you can do with a degree in... Environmental science

QMUL shows you where this degree can take you

Read the guide >



### Sustainable degrees: Social sciences

SOS shows you around sustainable degrees in social sciences

Read the guide >



### Example Personal Statement: Medicine

We analyse a student's Personal Statement

Read the guide >



### Example Personal Statement: Physics

A student analyses their Personal Statement



### How to ace the BMAT (BioMedical Admissions Test)

What it is and how to be successful



### Safety online: how to protect your data

Keep your personal information safe with our useful...

# Get on the ladder: science

How to get a foot in the door

[Share](#) [Heart](#) [Back](#)



Science is a hugely varied and exciting field. You can do world-changing work, discover more about the planet we live on, and make a real difference in people's lives. This guide will tell you how to kickstart your scientific career.

## Who works in the science sector?

The science sector is extremely varied, but it's essentially made up of two job groups:

- **Researchers** try to find out new things. This might be simply to further our knowledge of the world, or to figure out how to solve a particular problem.
- **Technicians and technologists** are paid to carry out scientific experiments or tests, or to operate equipment.

To introduce yourself to some of the many different roles available in this sector, explore some Careers library profiles on Unifrog:

- [Chemist](#)
- [Forensic scientist](#)
- [Laboratory technician](#)
- [Botanist](#)
- [Physicist](#)

## Where next?

[UK universities](#)  
155 guides and videos

[European universities](#)  
100 guides and videos

[US universities](#)  
97 guides and videos

[World of work](#)  
51 guides and videos

[Asian universities](#)  
40 guides and videos

[UK apprenticeships](#)  
30 guides and videos

[Oxbridge](#)  
19 guides and videos

[Australasian](#)

# Get on the ladder: science

[Share](#) [Heart](#) [Back](#)

## What skills will you need to demonstrate?

- **Curiosity**- all science roles will require you to have a desire to find out how and why the things around you work.
- **Attention to detail**- as a scientist, it's especially important that you keep good records of your research and don't miss anything that could be important. Precision is key!
- **Numeracy**- you don't need to be an A\* student, but basic mathematics skills are essential for a career in science.

## How can you get experience?

*Through school, college or university*

- **Join a science club at school.** These will give you the opportunity to try out lots of experiments and projects that you wouldn't get to do in a normal science class, plus you can develop a broader range of experience and skills. If your school/college doesn't have a science club, why not start one?
- **Get involved with inter-school science competitions.** Speak to one of your science tutors about getting a team together and entering a regional or national competition. It's not just about the winning - even entering on a team will look great on your CV. You might also meet some interesting people and learn some new skills to boot.
- **Join a science society at university.** If you're at university, there should be plenty of student-led science societies to get involved in - whether your interests lie in astronomy, clinical neurology, energy, biotech, obstetrics, or environmental sciences, you're bound to find one to suit your needs.

*Elsewhere*

- **Citizen science projects** are a great way to get involved with real-life scientific research. You can even do this from the comfort of your own home, through websites such as Zooniverse (link below). There are in-person projects, too - take a look at what's going on in your local area, or perhaps organise your own!
- Visit or volunteer at a **science festival** in your area.
- Volunteer at a **local museum or planetarium.** They often look for extra helpers to run activities at weekends and during school holidays.
- **Complete a MOOC.** These courses tend to be free and you can find many of them through Unifrog's [MOOC tool](#). Simply select the topic that interests you (such as Biology, Animal Science, or Physics) and get studying!
- **Read!** See if your local library has a copy of New Scientist and use it to find out what's happening in the world of science. Though not technically 'experience', knowing what's happening in the industry will help you during job interviews and throughout your career.

## Workplace experience

- Workplace experience can include anything from a day spent shadowing a researcher in a lab through to a 12-month industrial placement. It could be paid or voluntary - it all counts! Many opportunities are not advertised, so consider making direct contact with organisations that interest you. Use our guide on [speculative applications](#) to get started. Formal work placements in this field can be tricky to source (as they are often highly skilled); however, work shadowing is a good alternative. This gives you the opportunity to see what a working day in the life of a scientist is like and ask lots of questions. Begin by asking friends, family, and teachers if they can put you in touch with someone. Your teachers in particular may have connections to alumni or local companies.
- Science is a big subject area, so try to identify some key areas of interest and look for work experience related to that topic. For example, if you really enjoy plant biology, you could look for work experience at a garden, field centre, or park.
- Many universities offer work experience to school/college students over the summer holidays. Contact any local to you to see if this is something that you can participate in.
- If you live in the UK, an apprenticeship in science is a fantastic way to gain some workplace experience and earn a recognised qualification. There aren't as many available as other career sectors, and most science-related apprenticeships tend to be Advanced level (equivalent to A-levels) and above, but they do exist. Check out Unifrog's [Apprenticeships](#)

[UK universities](#)  
14 guides and videos

[UK College and Sixth Form](#)  
13 guides and videos

[Canadian universities](#)  
12 guides and videos

[Middle Eastern and African universities](#)  
11 guides and videos

[Irish universities](#)  
8 guides and videos

Or return to the [Know How Library Start](#).