

THE AWESOME AMATEUR ASTRONOMER!

10 STEPS TO GET YOU STARTED IN ASTRONOMY!

★ OBSERVE

★ SHARE

★ BUILD

★ PUBLISH

★ RESEARCH

★ MEASURE

★ RECORD

★ ANALYSE

★ WWW.UNAWE.ORG/AWESOME/

Curious about the Universe, but don't know where to start? This guide will introduce you to every aspect of astronomy—the study of our wonderful cosmos—in 10 steps! Each step has a list of things you can do to conquer that topic and a badge you can earn to show you've reached that level of awesomeness! To collect the badge, simply prove your knowledge on the topic at hand by completing the assignment, which you can find below the badge. When you have collected all 10 badges, you get the superbadge, declaring you the awesome amateur astronomer that you'll be!

1. OBSERVE

The night sky awaits you! You can get to know the night sky by:

- visiting your **local planetarium**. There you can view a show about the night sky, which will give you a nice overview of what's up there.
- going outside and looking up! Use only your **eyes** for now, though.
- getting a **star map** (or a planisphere) to find out where stuff is.
- witnessing an **astronomical event**. Maybe there's a planet wandering by, a lunar eclipse, a meteor shower or something else happening. You can also look for the International Space Station!

For resources on this topic, go to www.unawe.org/awesome/



GET THIS BADGE!
Find five constellations in the night sky!

2. RESEARCH

What is astronomy? And what are all the things you see in the night sky? Find out by:

- going to **the library**. There you can find **books** and **magazines** about astronomy. Learn about alien planets, asteroids, stars, galaxies, spaceships, black holes and loads more ...
- watching **videos** and looking at **images** online (they will take your breath away!).
- listening to **podcasts** or watching **science TV shows**. In between your research you can watch an astronomy-related **movie** or find some **science fiction books** that take place in space!
- visiting a **science museum** that has an astronomy section.
- asking an **astronomer** anything you want to know! They know all about this stuff!

For resources on this topic, go to www.unawe.org/awesome/



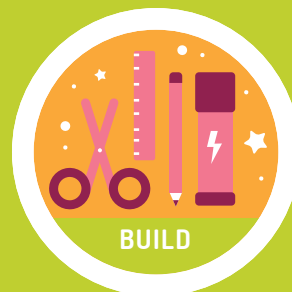
GET THIS BADGE!
Read a book, magazine or web page about astronomy!

3. BUILD

Amateur astronomers love building their own equipment, ranging from the simple to the complicated. There are lots of things you can build. You could make:

- a **sundial** to tell time using the Sun.
- an **astrolabe** to measure the position of objects in the sky.
- a **solar viewer** so you can safely observe the Sun.
- a **spectroscope** to look at the colour spectrum of the light around you. Astronomers use this to determine what different stars are made of!
- a **telescope**! Then you can get up-close with your favourite celestial objects!

For resources on this topic, go to www.unawe.org/awesome/



GET THIS BADGE!
Build a piece of astronomy equipment!

4. MEASURE

The heavens are filled with all sorts of objects and to learn about them astronomers have to take measurements, such as their size, how distant they are, how old they are and how many of them are around. You can (don't be intimidated, these aren't as hard as they sound!):

- use **the parallax method** to measure a distance of something, like the distance between you and a tree, to understand how astronomers measure the distance of stars.
- **count the numbers of stars** you can see in your night sky by counting the stars in a small area and assuming they are distributed evenly.
- make an **angular measurement** of some of the objects you see in the sky: their size or the distance between them.
- measure the **period of a variable star**.

For resources on this topic, go to www.unawe.org/awesome/



GET THIS BADGE!
Make an astronomical measurement!

5. SHARE

Want to share your newfound interest in astronomy? You can:

- join an **astronomy club or association**.
- find an **online discussion forum** about astronomy. There you can discuss what you see when you are out observing the night sky or ask for guidance.
- find out if there's a **star party** coming up! That's when amateur astronomers meet and look at the sky together. You can even go to a Messier Marathon!
- try **inspiring** a friend or two to take part in your astronomical endeavour!
- **share** the link to this website so that others also can get excited about astronomy!

For resources on this topic, go to www.unawe.org/awesome/



GET THIS BADGE!
Share your love for astronomy with someone!

6. OBSERVE II

Now that you know the night sky a lot better, it's time to get some **equipment** and have a closer look! You can:

- start off with a pair of **binoculars**. You will see plenty of stars that you couldn't see before! Even without a telescope, you'll already be able to see some pretty interesting things, such as the planets of our Solar System, the Orion Nebula and the Andromeda Galaxy. Plus, binoculars are much easier to handle and bring with you than a telescope.
- visit the **local observatory**, if there is one. They might be open to the general public on some nights, allowing you to see some amazing stuff!
- check if your local astronomy association is having a **star party**, hopefully they'll let you look through their telescopes.

For resources on this topic, go to www.unawe.org/awesome/



GET THIS BADGE!
Find these objects with your binoculars: a **nebula**, a **star cluster** and a **galaxy**!

7. OBSERVE III

After scanning your way across the sky with your binoculars, it might be time to bring out a **telescope**! Be sure to do your research on what type of telescope to buy. You can ask your friends from the amateur astronomers association or on online forums, they will have plenty of advice! Or you can build your own!

Even though you're now looking through at the sky through telescope, which takes you much closer to what's out there, don't expect objects to look like they do in famous images. Most of these were taken using high-tech telescopes that cost billions, and often show colours that you can't even see with the human eye, like X-rays and infrared.

For resources on this topic, go to www.unawe.org/awesome/



GET THIS BADGE!
Become the owner of a telescope!

8. RECORD

When you are observing the night sky it's nice to record what you are seeing, especially if you see something unusual! You can:

- take your very own **astrophoto**! Use your regular camera to take photos of the night sky in general or something prominent like the Moon or a comet. If you want to get really serious, you can get some extra equipment (such as a CCD camera) so that you can use your telescope to take some up-close pictures of your favourite planet or galaxy!
- make a detailed **drawing** of what you see through your binoculars or your telescope. That's what Galileo did!
- make field notes in an **journal**. Gather photos and drawings (and badges!) along with your notes.

For resources on this topic, go to www.unawe.org/awesome/



GET THIS BADGE!
Start keeping an astronomy journal!

9. ANALYSE

Do you want to get your hands on some real science? Then you can:

- go online to participate in a **citizen science project**! In these projects you will be processing data or images collected by various professional telescopes. There are many subjects to choose from! You can, for example, look for planets around other stars, spot explosion on the Sun, look for bubbles and clouds in the Milky Way galaxy, classify galaxies, map craters on the Moon, Mercury and on asteroids, search for extraterrestrial life and measure light pollution!

For resources on this topic, go to www.unawe.org/awesome/



GET THIS BADGE!
Participate in a citizen science project!

10. PUBLISH

Astronomers love sharing their findings. Why don't you:

- create a **blog** to keep track of your awesome astronomy activities! Gather your recordings of what you have observed and experienced. You can include drawings, photos, screenshots, links, badges, etc.
- write an **article** for your school newspaper or astronomy club.
- give a talk at your school.
- **post** your photos and thoughts on online forums.
- **tweet** about your own observations or research, or share cool facts about the Universe.

For resources on this topic, go to www.unawe.org/awesome/



GET THIS BADGE!
Publish your observations, experiences or love for astronomy somewhere!

CONGRATULATIONS!

You have finished all the steps! Now you really are an Awesome Amateur Astronomer!

You can show off your awesomeness with this **superbadge**!

For a full version of this project with resources, go to:

WWW.UNAWE.ORG/AWESOME/

