



SCIENCE CAREER
ADVENTURES



Allie the Astronomer: Exploring Our Universe

Who is Allie?

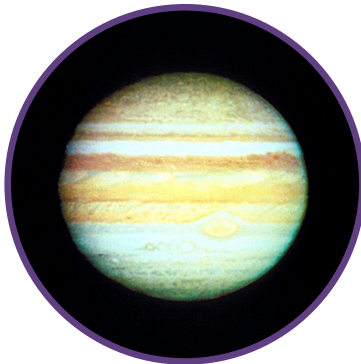
Hi, I'm Allie. I'm an astronomer! An astronomer is a type of scientist who studies the universe and the objects in it.



Here are a few examples of projects that astronomers work on:



Research where the universe came from or when it began.



Search for life on other planets.



Study stars.



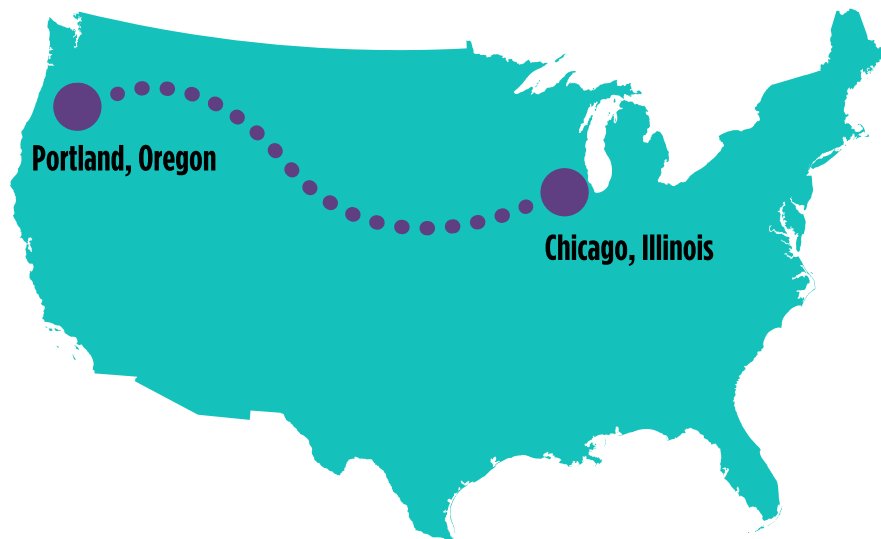
Learn about other galaxies.

DID YOU KNOW?

I specialize in the study of black holes. Black holes exist in outer space as an area that is packed with a lot of matter. We actually cannot even see a black hole. They are invisible. Black holes have a very strong force of gravity. They pull light into the center of the hole. To know they are there, we have to look at things around them that the black hole affects.

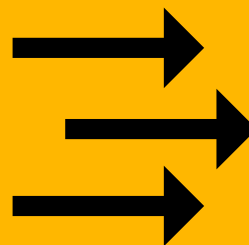
What I am Working On

Next week I will be traveling from my home in Chicago, Illinois to Portland, Oregon. I will be speaking at the American Astronomical Society (AAS) conference. I will talk about my research on a new black hole I discovered, and the possibility of it swallowing up Earth! I will also create a slideshow with pictures and some important points for my audience to look at while I am presenting.



Did you know?

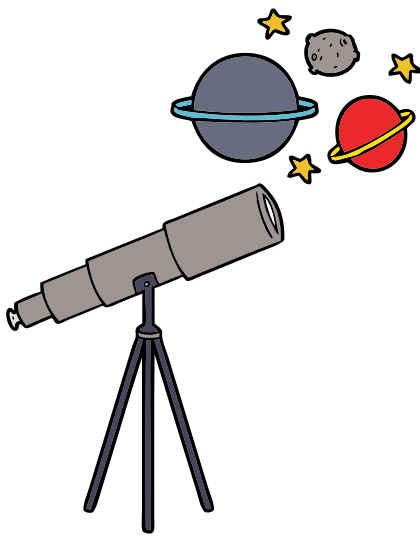
Black holes are so powerful that anything that gets too close gets devoured, even an entire planet.



Why Conferences are Important

The AAS is made of a group of professional astronomers in North America. The conference happens once a year. Thousands of scientists gather at the conference to learn about the latest research in astronomy. It also gives astronomers the chance to meet each other and discuss ways to collaborate in the future.

I will be able to hear many other astronomers present about their current research! I can't wait to see what I'll learn!



I hope I can meet some new astronomer friends whom I can partner up with in the future to do research!



My Presentation

During my presentation, I will be focusing on the gravitational force of black holes.

Before I jump into information on black holes, I am going to give a brief overview of gravitational forces. That way, my audience can have background information on the topic!



Gravitational Forces



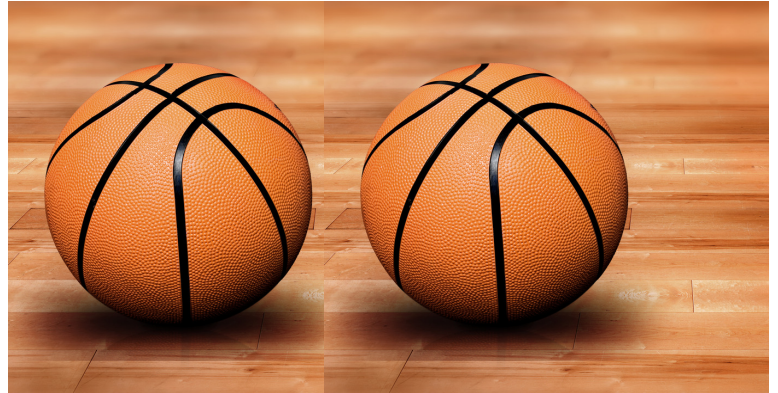
There is an attractive gravitational force between any two masses. An attractive force is a force that pulls objects together.

The amount of gravitational force is determined by the mass and distance of the two objects. Mass is measured by how much matter is in an object. There is more gravitational force between two objects when they are more massive and closer together. The large mass of Earth is why a soccer ball is pulled back down to the ground after it is kicked into the air.

Gravitational Forces (Cont.)

Here is an example of how mass affects gravitational force:

Two basketballs sitting on the ground near each other have an attractive gravitational force on each other. Because the objects have a relatively small mass, the force isn't strong enough to pull them together.



Another Example



Now, imagine the planets and our sun. The gravitational force between them is very strong because they have large masses. Because the sun is the most massive object in our solar system, it has a stronger gravitational pull on the lighter planets. This explains why all of the planets orbit the sun.

Gravitational Forces and Black Holes

The next part of my presentation will focus on the gravitational force of black holes. Black holes are small regions in the universe that are packed full of matter. Because of the incredible mass of black holes, they have a very strong gravitational force. If a black hole came close to our solar system, the sun and all of the planets would probably be pulled in and destroyed. But since the black hole I discovered is thousands of light years away from us, it is too far away to have any effect on our solar system. I don't think we have to worry about disappearing into a black hole any time soon!



Did You Know?



A light year is the distance light travels in one year, which is about 6 trillion miles!



Getting Ready to Present

To prepare for my presentation, I write out all of the important points I want people to be able to read on my slideshow. I also add some cool pictures to make sure it gets people excited. Then, I type out some notes of what I want to talk about to make sure I won't forget anything. I use my phone to record myself giving a practice presentation to my dogs at home.



When I finish, I watch the video to make sure I don't talk too fast. After I practice a few more times, I FaceTime another astronomer friend and present to her to see if she can give me any pointers. I am really nervous about a lot of other really smart astronomers listening to me talk. I want to make sure my talk sounds good and interesting for the big day.



Did You Know?

Sagittarius A* is the black hole at the center of the Milky Way. This black hole is about 40 times as big as the sun, but it has 4 million times as much mass!

