

# Small Town, Big STEM Video Series

## Rural Appalachians in STEM

The Small Town, Big STEM video series presents interviews with scientists from rural communities in Appalachia who now work in a variety of STEM fields. They are designed to promote science identity and increase STEM self-efficacy among high school students. Each of the 10 videos includes a set of suggested discussion questions that may be used to facilitate classroom use. This document provides a summary of each of the 10 videos in the series, with links to each video and associated lesson plan.

1. Andrew Prim, Chemical Engineer
  - a. YouTube Link: <https://youtu.be/YrvybVFdgF4> (3:46)
  - b. Lesson Plan Link: [Video Mini Lesson 1- Andrew](#)
  - c. Summary: In this video, Andrew tells us his story about being a process engineer with Reily Foods, a food manufacturing company specializing in high quality coffee and tea. He discusses his degree in chemical engineering, the basic responsibilities of his job, and how he found his passion for both chemistry and engineering in high school through a summer camp opportunity on a college campus.
  
2. Anu Kumar, Lab Operations Manager
  - a. YouTube Link: <https://youtu.be/SoMhMOMyIDU> (6:34)
  - b. Lesson Plan Link: [Video Mini Lesson 2- Anu](#)
  - c. Summary: In this video, Anu shares about her work as a lab operations manager at a biotechnology corporation in Paris, France. Originally from Athens, TN, Anu graduated from the University of Tennessee with a bachelor's degree in neuroscience. In her current work, she is able to engage in many different aspects of the company ranging from marketing to business development to molecular biology research. She explains how her understanding of "scientist" has developed over the years and how there are multiple paths to pursuing STEMM careers.
  
3. April Bryant, Nurse Practitioner, Nurse Instructor
  - a. YouTube Link: <https://youtu.be/dNiNFZGjkyY> (4:25)
  - b. Lesson Plan Link: [Video Mini Lesson 3- April](#)
  - c. Summary: In this video, April shares her story of working as a nurse practitioner in Tennessee. She shares how her early personal health experiences and her love of science drew her to the field of nursing. In addition to providing holistic care to her women and children patients, she works as a nursing instructor at the University of Tennessee preparing the next generation of nursing professionals.

4. Brandon Barker, Astrophysics PhD Student
  - a. YouTube Link: <https://youtu.be/VJMLIwcT1Rs> (6:20)
  - b. Lesson Plan Link: [☰ Video Mini Lesson 4- Brandon](#)
  - c. Summary: In this video, Michigan State University PhD student, Brandon, shares about his career journey of becoming an astrophysicist. He tells a story about how his love of stars in the dark skies of his rural Tennessee hometown sparked his love for astronomy. His early childhood passion led to conducting research on core collapse supernovae and examining the lives of stars at a fundamental level.
  
5. TJ Rogers, Geomicrobiologist
  - a. YouTube Link: <https://youtu.be/1gfhLfi013c> (6:35)
  - b. Lesson Plan Link: [☰ Video Mini Lesson 5- TJ](#)
  - c. Summary: In this video, TJ shares his journey to becoming a geomicrobiologist. As a high schooler in Athens, TN, TJ never liked science and did not have much of an interest in pursuing college. During his eight years in the Air Force, he began to have an interest in understanding evolution and life outside of Earth. Now, his passion for evolutionary biology has allowed him to travel the world to places like Argentina, Chile, Iceland, and Antarctica.
  
6. Amanda Garner, Middle Grade Science Teacher, Education PhD Student
  - a. YouTube Link: <https://youtu.be/nsvwzJ1GdPO> (4:54)
  - b. Lesson Plan Link: [☰ Video Mini Lesson 6- Amanda](#)
  - c. Summary: In this video, Amanda, who is from Maryville, Tennessee, discusses how she tried to go to college, but did not know what she wanted to do. This led her to join the workforce, which helped her realize she was good at training people and made her want to go into education. She also discusses her views on what makes a scientist. Amanda talks about a positive internship experience that further helped her realize she wanted to further her education.
  
7. Gavin Belfry, Project Coordinator and Supervisory Ecologist
  - a. YouTube Link: <https://youtu.be/6PSioNy0wTI> (5:34)
  - b. Lesson Plan Link: [☰ Video Mini Lesson 7- Gavin](#)
  - c. In this video, Gavin Belfry from Morristown, Tennessee, shares his path in becoming a project coordinator and supervisory ecologist at Rim Rim Restoration. He pursued a Bachelor of Science in ecology and evolutionary biology with a minor in environmental studies. His career choice was guided by his upbringing. He grew up on a small farm and was fascinated by plants.

8. Mia Grace Cantrell, Physics PhD Student
  - a. YouTube Link: <https://youtu.be/Uflb39LfCmg> (6:47)
  - b. Lesson Plan Link: [Video Mini Lesson 8- Mia](#)
  - c. Summary: Mia Cantrell, originally from McMinnville, Tennessee, is a third year physics PhD student at Vanderbilt University. She researches the process of wound healing and collaborates with first year students and professors. Mia earned a Bachelor's of Science in Physics at the University of Tennessee. Physics was not her first pick of major; she started as a chemistry major and found her passion in her Sophomore year in college. Her internship experience with the experimental astrophysics group in Oak Ridge became very important in shaping her career.
  
9. Anthony Palazzo, Cardiothoracic Surgeon
  - a. YouTube Link: <https://youtu.be/Fxmhr6DYSYM> (5:20)
  - b. Lesson Plan Link: [Video Mini Lesson 9- Anthony](#)
  - c. Summary: In this video, Anthony starts by describing what a cardiothoracic surgeon is and how he moved to middle Tennessee at an early age. He talks about choosing the medical field as a potential career as a junior in high school and how that led him to enter college on the pre-medical track.
  
10. Becky Trout Fryxell, Entomologist and Plant Pathologist
  - a. YouTube Link: <https://youtu.be/0nQeXm7wCKI> (6:30)
  - b. Lesson Plan Link: [Video Mini Lesson 10- Becky](#)
  - c. Summary: Becky Trout Fryxell is an associate professor at the University of Tennessee in Entomology and Plant Pathology. She grew up in downtown San Diego and has lived in many different places. She currently resides in Tennessee. Becky studies insects and arthropods. She works in the discipline of medical veterinary entomology which means she works with mosquitos, ticks, flies, and other insects. Becky has an undergraduate degree in Biology with a minor in Communication. She was inspired to pursue Entomology because she saw science in action. During her time as an undergrad there were a large number of horses dying from a small caterpillar that carried bacteria. She was interested in studying the immune response of the horses and how the bacteria were fatal to the animals. She also desired to study other viruses that emerged around that time that were impacting humans and animals. She believes that scientists are the people who ask why and how. Becky believes that anyone can be a scientist!

*This project was funded by Science Education Partnership Award R25 GM137365 from the National Institutes of Health.*