



Astronomy Project



Astronomy is the study of celestial objects including the sun, moon, stars, planets, and galaxies, and how they move, interact, and influence Earth. In this project, youth build observation, critical thinking, and problem-solving skills by exploring the night sky using tools like star charts, models, and telescopes. Rooted in centuries of discovery, astronomy connects scientific inquiry to real-world advancements and helps explain natural phenomena. Participants develop a deeper understanding of the solar system and Earth's place within it while gaining skills that prepare them to be Beyond Ready as curious learners, informed decision-makers, and engaged contributors in a rapidly changing, science-driven world.

Beyond Ready

Ready to Lead

Youth involved in 4-H are **two times more likely to have the goal of becoming a leader**. Through real-world experiences and the guidance of caring mentors, they develop the confidence, communication, and decision-making skills needed to lead in today's changing world.

Ready to Serve

Youth who participate in 4-H are **three times more likely to engage in community service**. Service learning provides them with purpose and connection at a time when **more than 53% of Gen Z report feeling lonely**. Through 4-H, youth are empowered to serve with compassion and make a meaningful impact.

Ready to Build

With nearly **10 million unfilled jobs and 77% of employers seeking real-world skills**, 4-H helps youth build what matters. Through hands-on projects and career exploration, youth gain adaptability, problem-solving, and workforce readiness.

Ready to Conquer

While 52% of young people feel like they're failing at life goals, 4-H youth rise with resilience. Backed by research and supported by caring adults, they learn to overcome challenges, set goals, and take charge of their future with confidence.

Building a Ready Generation in a World of Change!

Starting Out Beginner:

- Identify visible objects in the night sky.
- Learn about our solar system and the planets in it.
- Learn how telescopes work and the differences and similarities between refracting and reflecting telescopes.
- Research a star chart for your area.
- Research the early astronomers.

Learning More Intermediate:

- Use a star chart or mobile app to locate stars and constellations.
- Identify constellations and learn the names and stories of stars.
- Understand the Earth's rotation and its effects.
- Track the position of the moon over multiple nights.
- Compare different types of telescopes and binoculars.

Expanding Horizons Advanced:

- Build a telescope from a kit or design a simple homemade version.
- Track the movement of planets over time and analyze patterns.
- Explore astrophotography techniques to capture images of the night sky.
- Learn how the stars and constellations are used for navigation.
- Complete an orienteering course using the sky to guide you.

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Expand Your Experiences!

Healthy Living:

- Practice safe observation habits, including proper techniques for viewing the sun and solar eclipses.
- Spend time outdoors to promote mental wellness and reduce stress.
- Learn about the diet and exercise of astronauts while they are in outer space.

Science and Agriculture:

- Learn how farmers historically used stars and seasonal changes for planting and harvesting.
- Explore how astronomy impacts tides, seasons, and weather patterns.
- Investigate how satellite technology supports agriculture and environmental monitoring.

Community Vitality:

- Organize or participate in a community star-gazing night.
- Partner with local schools, universities, or astronomy clubs for events.
- Help create accessible opportunities for others to experience astronomy.

Communication and the Arts:

- Create constellation artwork using a variety of materials or digital tools.
- Write stories or myths inspired by constellations to share in newspapers, radio, and social media.
- Capture and display photographs of the moon or night sky.

Career Exploration:

- Tour colleges offering astronomy education.
- Explore careers in astronomy, astrophysics, aerospace engineering, and planetary science.
- Learn about opportunities with NASA and NOAA.
- Connect with professionals or attend career exploration events.
- Investigate emerging careers in space technology and research.
- Create a real/conceptual astronomy product or service business; participate in a YEC (Youth Entrepreneurship Challenge).
- Explore cybersecurity jobs in the astronomy career field.

Contact Information

Kansas 4-H
201 Umberger Hall
1612 Claflin Road
Manhattan, KS 66506
Email: kansas4h@ksu.edu
Website: kansas4-h.org

Resources & Events:

- Club Day Presentation.
- Create a local star-gazing club.
- Visit science centers, observatories, and planetariums.
- Participate in astronomy camps, workshops, or competitions. (K-State Open House, Discovery Days, etc.)
- County and State Fair Astronomy exhibit.

Curriculum & Resources:

- [Kansas 4-H Website](#)
- [Astronomy Magazine and Website](#)
- [Astronomy Picture of the Day](#)
- [The Nine Planets \(Basic History\)](#)
- [Astronomy: It's Out of This World](#)
- [NASA Science Space Place](#)
- [Hubble Space Telescope](#)
- [International Space Station](#)
- [Moon Phase Memory Game Activity Kit](#)
- [High Point Science Astronomy Hub](#)
- [Pluto - Kansas History](#)

4-H Record Keeping:

Learning to keep accurate records is a life skill.

- Setting 4-H Project Goals (4H1100): https://bookstore.ksre.ksu.edu/download/setting-4-h-project-goals_4H1100
- Kansas 4-H Record Keeping: <https://www.kansas4-h.org/resources/awards-and-recognition/>
- Complete Astronomy Journal tracking:
 - Record weather conditions.
 - Record constellations in your local area.
 - Record celestial events in your area.

Project Exhibit Ideas:

- Draw or build a model of the solar system.
- Build a telescope from a kit.
- Design and build a telescope from scratch.
- Make a display about astronomy.
- Create a moon phase model.
- Create a sky observation journal.
- Exhibit a constellation chart with history and stories.

