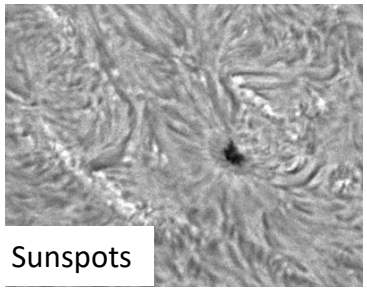
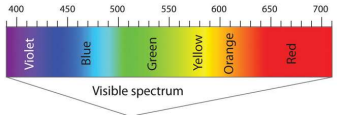
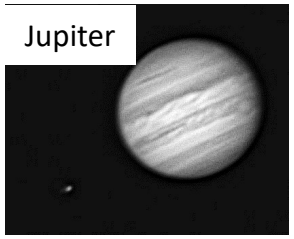
SPACE CAMP SENIOR

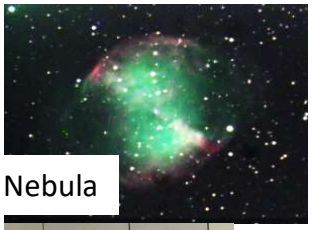
Space Camp Senior is fun, activity oriented camp designed to give an advanced look at physics and astronomy using interesting activities. The final activity is a visit to an actual observatory. Space Camp is taught by Kevin Cobble owner of Z-Field Observatory in Princeton.

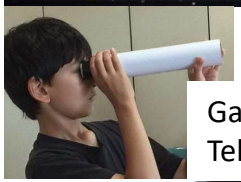
Grades 5th -8th


Sunspots




Jupiter


Nebula


Galileo Telescope


Observatory Telescope

Section 1: Light and the Sun. What makes the Sun shine and why it is important? Learn about sunspots and prominences and other things you can observe on the sun's surface. You'll find out if the sun will someday eat the earth. Learn what other stars are like and how they are similar and different from the sun. What is a spectrum and what does it tell us about the sun and stars? Where did the moon come from? Why do we only see one side? Who has been to the moon and how did they do it? What causes the phases of the moon? What did we learn from going to the moon and will we go back? **Activities: Build a Pin Hole Camera and observe the sun. Build a Spectroscope, an instrument scientists use to split light into different wavelengths to determine the chemical composition of objects such as stars and elements Observe the sun with a special solar telescope that is able to see steams of hot, luminous gas (prominences) shooting off the surface of the sun.**

Section 2: The Planets. What makes each planet special and different? Why is Mars red, why does Saturn have rings and why is Pluto not a planet? Can anything live on other planets? Learn about the different space probes sent to the planets and what they found and why it is important. The Kepler spacecraft has found planets around other stars. What are they and what does it mean? **Activities: Create an alien world then design a space mission to visit that world. What would your space probe detect and how would you interpret the data on earth?**

Section 3: The Universe. What is the Milky Way? Learn about the wondrous things to be found inside our galaxy including star clusters, interstellar clouds, Novae and Supernovae and how they relate to our sun and our lives. There are many strange and wonderful things in the Universe outside our solar system: Quasars, Pulsars, and Black Holes. What are they and how do they work? How did the universe start and how will it end? **Activities: Learn about infrared images by making one by measuring the temperature of an object and building an image.**

Section 4: Optics and telescopes. Learn how lenses work and how to build a working telescope. Why are there different kinds of telescopes? How do different telescopes work? What is the best telescope for looking at the stars and what is the best kind for daytime viewing? Learn about what a lens does, what is Focal Length and how does a lens make an image. **Activities: Build a working telescope just like Galileo used!**

Section 5: Field Trip. Visit an astronomical observatory. We will build a model of the solar system and learn how far planets are from each other and how long it takes to orbit the sun. We will observe the Sun through a special solar telescope as well as through the pin-hole cameras we built in class. After sunset we will look at the Moon, Jupiter, Mars and Saturn as well as star c lusters, interstellar clouds (Nebula) and galaxies Model solar system, Observe the Sun, Moon, planets, star clusters, interstellar clouds and galaxies.