

SCHEDULE
BEGINNING ASTRONOMY CAMP
June 13-19, 2022

"We cannot solve problems with the same level of thinking we used when we created them."
Albert Einstein

JUNE 13 (Monday)

Welcome to Camp!

Sidereal time at midnight: 17:06:42

"Imagination is more important than knowledge."
(Einstein)

3 pm	Opening ceremony (Aloft Hotel: Tactic Room) welcome and introductions water bottles "Question of the Day"
4	Drive to Mt. Lemmon
5:30	Move into dorms dorm orientation dress warmly for the night
	(Don, Kailey)
6:30	Dinner
7:30	Watch sunset prepare telescopes for observing
8	Dark adaption <i>"Music of the Night"</i> (Phantom of the Opera) -- Andrew Lloyd Webber
8:15	Observing Each research team and counselors observe constellations and sky motions. naked eye, binoculars, portable telescopes practice AZ/EL coordinates and satellite observing Observe with 8, 24, 32" telescopes
9:09	End of astronomical twilight
10:30	Sleep
3:35	Start of astronomical twilight
5:18	Sunrise

JUNE 14 (Tuesday)

"Seeing" the Universe Around Us

Full Moon – "Supermoon"

Sidereal time at midnight: 17:10:39

"Anyone who has never made a mistake has never tried anything new."
(Einstein)

5:18	Sunrise
8	Wakeup
8:30	Breakfast in the Learning Center and cleanup
9:30	Group meeting mountain safety; Camp learning style, ... journaling; today's schedule

	technologies: Internet, Chromebooks, cell phones, email	(Austin)
10:30	Walking tour of the mountain	
11:30	“Observe the Sun” start tracking the Sun	
12 pm	Lunch staff meeting	
1	Discuss Camp projects “Observing Challenge” project “First Contact Project” for teams “Question of the Day”	(Olivia) (Don)
1:30	Research teams: build a scale model Earth-Moon system make eclipses with your model	(Don)
2:30	Take a break! bring back your flashlight	
3	“Orienting to the Night Sky” “dark adapt” your flashlight construct your personal planisphere “Stellarium” planetarium program on Chromebooks	(Austin)
4	Rotate in pairs of teams the nighttime sky (planetarium experience) begin “First Contact Project” in teams continue tracking the Sun	(Don & Wayne) (team leaders)
5:30	Free time dress <u>warmly</u> for an evening of observing prepare telescopes for observing	
6	Dinner final measurement of Sun’s location	
7:30	Watch sunset	
8	Dark adaption at the 32” telescope	
8:18	Watch the “Supermoon” rise	
8:30	Observing in research teams (rotate in pairs of teams every hour) 8, 24, 32” telescopes naked eye, binoculars, planispheres, portable telescopes (Observing Challenge) team projects indoors	
9:10	End of astronomical twilight	
11:30	Snack and journaling carefully write down, and draw, what you noticed and learned about the sky	
12 am	Sleep	
3	OPTION TO WAKEUP and observe alignment of 4 planets and Andromeda	
3:38	Start of astronomical twilight	
5:18	Sunrise	

JUNE 15 (Wednesday)

The Sun is a Mass of Incandescent Gas

Sidereal time at midnight: 17:14:35

***"The important thing is not to stop questioning. Curiosity has its own reason for existing."
(Einstein)***

5:18	Sunrise	
8:30	Wakeup	
9	Breakfast	
	review the day's schedule	
	"Question of the Day"	
10	"Newton's Laws: Build a Newton's Car"	
	introduction & research team competitions	
11:30	"Observe the Sun"	
	pinhole imaging experiments	
	shadows in the environment	
12 pm	Lunch	
	staff meeting	
1	"Phases of the Moon and Planets" in the Minnesota gym	
	"Impact Craters on the Moon and Planets"	
2:30	Take a break!	
3	Continue "First Contact Project" in teams	(team leaders)
4	"Stars Have Lives, Too!"	(Don)
	reinforce "classification" techniques	
	the H-R Diagram	
5:30	Free time	
	dress <u>warmly</u> for an evening of observing	
	prepare telescopes for observing	
6	Dinner	
7:30	Watch sunset	
8	Dark adaption at the 32" telescope	
8:15	Observing in research teams	
	naked eye, binoculars, planispheres, 8" telescopes (Observing Challenge)	
	team projects indoors	
9:10	End of astronomical twilight	
9:24	Watch moonrise	
12 am	Sleep	
3	OPTION TO WAKEUP and observe alignment of 4 planets and Andromeda	
3:38	Start of astronomical twilight	
3:38	Great Red Spot transits Jupiter	
5:18	Sunrise	

JUNE 16 (Thursday)
Navigating the Solar System
 Mercury at “Greatest Western Elongation”
 Sidereal time at midnight: 17:18:32

“The most beautiful thing we can experience is the mysterious.”
(Einstein)

5:18 am	Sunrise	
8:30	Wakeup	
9	Breakfast	
	review the day’s schedule	
	“Question of the Day”	
10	<i>“The Great Solar System Explorer”</i>	(everyone)
	hike the Solar System, and nearby stars, to scale around Lookout loop	
12 pm	Lunch	
	staff meeting	
1	<i>“Light and Sound”</i>	(Don)
	experiments with light	
	refraction, reflection, inverse-square law, spectroscopy	
	UV beads, IR camera, ...	
2:30	Take a break!	
3	<i>Solar Observing</i>	
	imaging the Sun safely	
	hydrogen-alpha and calcium filters	
	“white light”	
	naked-eye and telescopes	
4	Continue <i>“First Contact Project”</i> in teams	(team leaders)
4:45	<i>“Detecting Exoplanets”</i>	
5:30	Free time	
	dress <u>warmly</u> for an evening of observing	
	prepare telescopes for observing	
6	Dinner	
7:30	Watch sunset	
	prepare telescopes for observing	
8	Dark adaption at the 32” telescope	
8:15	Observing in research teams	
	naked eye, binoculars, planispheres, 8” telescopes (Observing Challenge)	
	team projects indoors	
10:20	Watch moonrise	
11:30	Snack	
12	Sleep	
3	OPTION TO WAKEUP and observe alignment of 4 planets and Andromeda	
3:38	Start of astronomical twilight	
5:18	Sunrise	

JUNE 17 (Friday)

Galaxies, Sky Islands

Sidereal time at midnight: 17:22:28

***"The whole of science is nothing more than a refinement of everyday thinking."
(Einstein)***

5:18 am	Sunrise	
9	Wakeup	
9:30	Breakfast	
		review the day's schedule
		"Question of the Day"
10:30		"Galaxies: Billions and Billions"
12:30 pm	Lunch	
1:30		"Observe the Sun"
		measure Sun's luminosity
		solar cooking
2:30	Take a break!	
3		"Telescopes from the Ground Up"
		Build your own!
4:30	Continue	"First Contact Project" in teams (team leaders)
5:30	Free time	
		dress warmly for an evening of observing
		prepare for evening at 61" telescope
6	Dinner	
7:31	Watch sunset	
7:45	Travel to 61" (Kuiper) telescope at Mt. Bigelow	
8:30	Dark adaption	
8:45	Observing in research teams	
		8 and 61" telescopes
		naked eye, binoculars, planispheres, portable telescopes (Observing Challenge)
		finish the team projects in your research groups
9:11	End of astronomical twilight	
11:06	Watch moonrise	
12 am	Sleep	
3	OPTION TO WAKEUP and observe alignment of 4 planets and Andromeda	
3:39	End of astronomical twilight	
5:18	Sunrise	

JUNE 18 (Saturday)

"Starlight Nights"

Moon passes 4 degrees south of Saturn

Sidereal time at midnight: 17:13:54

***"Everything should be made as simple as possible, but not simpler."
(Einstein)***

5:18	Sunrise	
9	Wakeup	
9:30	Breakfast	
		begin cleaning rooms before eating

review the day's schedule
"Question of the Day"
 10:30 Possible talks and activities
 "Cosmology: The Expanding Universe"
 "Black Holes: Past, Present, Future(?)"
 11:30 Finish preparing **"First Contact Project"**
 12:30 pm Lunch
 staff meeting
 1:30 Presentations of **"First Contact Project"**
 2:30 Celebrate with liquid nitrogen experiments and ice cream
 3:30 Free time
 pack and clean your room!
 prepare for evening at 61" telescope
 free time if room is clean
 5 Submit observing journals
 6 Dinner
 7:31 Watch sunset with David Levy
 7:45 Travel to 61" (Kuiper) telescope at Mt. Bigelow
 8:30 **Talk by David Levy**
 8:45 Observing in research teams
 9:11 End of astronomical twilight
 11:45 Watch moonrise
 11 Snack & sleep

 3:39 End of astronomical twilight
 5:18 Sunrise
 7 **Wakeup**

JUNE 19 (Sunday)

Way Up There and Way Back Then

Moon passes 0.7 degrees from asteroid "4 Vesta"

Sidereal time at midnight: 17:30:2

"I have no special talents. I am only passionately curious."
(Einstein)

5:18 am Sunrise
 7 Wakeup
 FINISH CLEANING & PACKING UP EVERYTHING!!!
 You must have a counselor check you out of your room.
 8 Breakfast
 9 **MUST** leave for Tucson
 ** 11 Graduation ceremony (Aloft Hotel: Tactic room)
 graduation is open to all families.
 12 pm Leave for homes and Tucson airport

OPTIONAL ACTIVITIES

"Academic":

Reading, videos, star catalogs & charts
 Astronomy computer software
 Mathematical, scientific, & logic puzzles
 Talks on any astronomical or astrophysical subjects

3-D printing

Recreation:

Hike the Solar System to scale across scenic Mt. Lemmon
Basketball, volleyball, ...

Informal Discussions:

Feel free to ask the Astronomy Camp staff questions about their hobbies, research interests, and experiences. Below is a sample of their interests.

Kailey Hart

Technical theater
Fiction writing
Reading
Watching Doctor Who and Sherlock
Playing video games

Austin Holt

Carpentry, welding
Video games
Dr. Who
Debating
Orbital and rotational dynamics
Drawing and painting
Skiing

Olivia Jones

Roller Derby
UV instrumentation

Don McCarthy

Infrared astronomy
Throwing things!
Brown dwarfs & extra-solar planets
Long distance bicycling

Wayne Schlingman

Infrared/optical/radio astronomy
Stars and star formation

Astronomy education
Amateur photography
Fish keeping
Singing, music
Horticulture, geology
Digital planetarium technology

Samantha Scibelli

Eating, shopping
Crafting
Playing with my cat

Andrew Sevrinsky

Hiking, Running
Film
Comics
Board Games
Anything Involving Dogs

Joseph Wright

Observational astronomy
Education and public outreach

Rita Wright

Gardening
Reading
Astronomy outreach