SCHEDULE

Girl Scout Leaders' Astronomy Camp
sponsored by NASA’s NIRCam project
The James Webb Space Telescope

APRIL 24 (Friday)
Welcome to Camp!

Local Sidereal Time at midnight = 13:48:23

10:30 am  meet at Best Western Plus hotel
  meet airline flights
  lunch
2  tour the University’s Mirror Lab
3  meet at the Hacienda (3101 N. Sabino Canyon Road)
   safety orientation, notebooks (Don)

Update about JWST, NIRCam, and the GSUSA
  “Go Girl Scouts”
  NIRCam science themes: Origins and activities

3:30  Icebreaker: “Recipe of the Universe” (Larry)

4:15  move into bunkhouse
   dress for the evening outdoors
5:15  leaders help set up telescopes for the evening at bunkhouse
   binoculars, reflectors (11”)
   set up orrery in Ramada Grande

6  dinner in Ramada Grande
6:59  watch sunset
   shadow of the earth, “belt of Venus,” twilight, Venus, Jupiter

7  “Conducting a Star Party” (Larry)
   learn to use your planisphere

7:20  Orbital pass of International Space Station (V=-3.3; NW->SE; max = 71 deg to NE)
7:30  dark adapt to music: “Phantom of the Opera”

8:15  Observing
   “Light-years and lookback time”
   Work thematically in sub-groups with staff:
   in order: Naked eye, binoculars, telescopes
   Challenge:
   Use your planisphere and star map to locate five constellations.
   You point the telescopes to locate:
   binary stars, Jupiter, stars (red, blue)
   In each case make an accurate drawing of what you see.
   Understand how telescopes work
   kinesthetic models: nighttime sky: phases, rising/setting, sidereal time, etc.

8:26  end of astronomical twilight
10 sleep
00:46 am moonset
4:17 start of astronomical twilight
5:04 Iridium satellite flash (V=-6.5; altitude = 25 deg; azimuth = 23 deg)
5:43 sunrise

APRIL 25 (Saturday)
Traveling Through Time & Space

Local Sidereal Time at midnight = 13:52:20

5 Up early? Watch Saturn and morning satellites.
5:43 sunrise
7:30 breakfast
8 “Thinking in 3-D: Phases” (Don)
Activity: Explore illumination of handheld styro-balls
Find Moon in the sky
Do in small groups.
Journaling: What did you learn and how could you adapt it for use at home?
What would you tell someone else about this activity?
What are you confused about?

8:30 “Scale Modeling the Earth-Moon System” (Larry)
Activity: Pick the correct size ball and relative distance.
Do in small groups.
Journaling: 5 minutes

9 “Viewing our Origins: The Nature of Light” (Don)
Demos: Spectrum, IR video clips, brightness vs. distance
Activity: Build CD-spectrometers; examine two light sources
Do in small groups.
Journaling:

10 “Classification: Our Solar System” (Larry)
Activity: A sorting exercise with 12 objects
Do in small groups.
Journaling:

10:30 “Lookback Time” (Larry)
Activity: Light-units and planets in tonight’s sky
Arithmetic scaling based on 1 AU = 8 light-minutes

11 solar observing

12 lunch (eegees)
individual tables to discuss specific topics from the morning’s sessions

1 Group Discussion (Don)
How would you use, and adapt, these activities in your Council?
Address the morning’s post-it questions.
1:30  "Scale Modeling: Our Solar System"  (Larry)

  Activity:  Macramé model of the Solar System
            Use “scaled” objects for sizes and lookback time.
            How far to the nearest stars?

  Journaling:

2:30  "Classification: Stars"  (Larry)

  Activity:  Constellation cards
            Discuss how stars are like people.

  Journaling:

3:30  Free time to explore these options:

  Questions & Answers: Seek out a staff member!
  Motivational video clips
  Practice with the Orrery

4  "Scale Modeling: Exo-planet Systems"  (Don)

  Activity:  Give each group a Exo-planet system to scale model
            Do in small groups.
            Share the models with entire group.

  Journaling:

5  Begin preparing your presentation of a Lesson Plan
   include:
   How to include STEM activities in GSUSA’s “Journeys”
   What are the steps I need to finish to be successful?
   What are some likely obstacles?
   How would you motivate students toward STEM subjects?
   Can you include friendly ways to incorporate arithmetic thinking?
   Why have I chosen specific activities for my group(s)?
   Counselors work with each group of people
   individual tables to discuss specific topics from the morning’s sessions

6  dinner

6:59  watch sunset

   shadow of the earth, “belt of Venus,” twilight, Jupiter, Venus
   leaders set up telescopes for observing
   dress for a cool evening

7:15  observing:

   dark adapt to music: “The Galaxy Song”
   electronic cameras & time exposures

Observing

   Work thematically in sub-groups with staff:
      in order: Naked eye, binoculars, telescopes
   Find specific constellations, stars, planets, nebulae using your own
   planispheres, star chart, and telescopes

8:27  end of astronomical twilight

11:30  ending wrap-up discussion over “night-lunch” snack

midnight  sleep

1:26 am  moonset

4:16  start of astronomical twilight

4:58  Iridium satellite flash (V=-6.4; altitude = 23 deg; azimuth = 23 deg)

5:42  sunrise
APRIL 26 (Sunday)

Leaving a Legacy

Local Sidereal Time at midnight = 13:56:17

5:42 sunrise
7-7:45 brunch
8:30 “Classification: Galaxies” (Don)
   Activity: Classification with galaxy flash cards; HDF & HUDF discussion
            Do in small groups with individual counselors
   Journaling:

9:30 “Origin of Our Universe: Cosmology” (Don)
   Activity: Hubble’s Law and a copy machine
            Do in small groups with individual counselors
   Journaling:

10:30 Group Discussion about “Origins”
   How would you use, and adapt, these activities for your troops?
   Address post-it questions.

11 clear out of the bunkhouse
   pack and load luggage and gear

12 lunch
   solar observing

1 “My, What Big Eyes You Have!” (Larry)
   Activity: Area and chips
            Do in small groups with individual counselors.
   Journaling:

1:30 “NIRCam and JWST: Go Girl Scouts!” (Don)
   Activity: Dissect a disposable camera
   Journaling:

2:30 Presentations by individual leaders of Lesson Plans

3:30 group picture
   “swap” & patch exchange
3:45 leave for Mt. Bigelow and the 61” telescope
        pick up Subway sandwiches
7:00 sunset
8:28 end of astronomical twilight
8:42 Iridium satellite flash (V=−1.5; altitude = 46 deg; azimuth = 95 deg)
11 leave for Hacienda and Best Western Plus hotel