Girl Scout Sky Search Badge at the UCI Observatory

The items below are the 10 requirements for the Girl Scout Sky Search Badge tailored for doing at the UCI Observatory. In a 1.5 hour long visit, the girls will do items #1, 2, 3, 4 and 6. If extra time remains we can do items 7 and 9, too. Girls can do the remaining items at another troop meeting or on their own using the internet with their parent’s permission/supervision.

1. I learned how to use a Night Sky Map, which is a picture of the night sky for a given date and time. You can find current night sky maps for free at http://www.skymaps.com.
   a. What month of the year _______________ and time of day _______ is our sky map designed for?
   b. Why are East and West on the night sky map flipped compared to a typical geography map? ______________________________________________________

   After examining the Celestial Sphere and doing the Constellations of the Zodiac demo, answer these questions:

   c. How much of the Celestial Sphere can you see at a specific time of night – 10%, 25%, 50%, or 100%? ____________________________________________________________
   d. How and why does the night sky change during the course of the night?
      __________________________________________________________________________
      __________________________________________________________________________
   e. If you go out tonight at 8 pm and look at the night sky, will you see the same constellations in the sky if you do it again at 8 pm six months from now? Explain why or why not. ____________________________________________________________
      __________________________________________________________________________

2. I found these 5 constellations in the night sky:
   a. ___________________________       d. ___________________________
   b. ___________________________       e. ___________________________
   c. ___________________________
3. I found the North Star, whose name is Polaris, by finding the two stars on the cup of the Big Dipper and extending the line between them northward until it runs into Polaris. Why is Polaris a special star in our night sky that makes it very useful to explorers when they navigate around the globe?

_______________________________________________________________________
_______________________________________________________________________

After finding the North Star and consulting my night sky map, I found two other named stars:

a. Star’s Name: ________________________________

b. Star’s Name: ________________________________

4. Circle the 5 planets in the Solar System other than Earth that you can see with your naked eye if they are above the horizon, and put a check mark under the names of the planets you can see tonight in the night sky (consult your night sky map and look along the dashed line known as the “Ecliptic Plane”, which is roughly the plane of the solar system):

Mercury   Venus   Mars   Jupiter   Saturn   Uranus   Neptune

Draw a picture and describe at least one of the planets that was visible tonight:

5. When you go home, with your parent’s permission use your computer to go to Wikipedia.com and look up the names of two constellations and learn about the story they are based on. You can choose the traditional Greek mythological story or the story from any other culture.

Constellation Name: ________________________________
Constellation Name: ________________________________
6. Learn about parts of the telescope:
Telescope Tube or Support Structure
Primary & Secondary Mirrors or Lens
Eyepiece
CCD Camera
Spectrograph

Tonight I looked through the telescope and saw these objects:
(1) _____________________________________________________________
(2) _____________________________________________________________
(3) _____________________________________________________________
(4) _____________________________________________________________

7. The Moon: What causes the Moon Phases? ___________________________

Draw a picture of what a small region on the moon looked like as seen through the telescope or draw a picture of the moon that illustrates the phase it is in tonight:

8. What is a ....
meteoroid ______________________________________________________
meteor _________________________________________________________
meteorite ______________________________________________________
comet _________________________________________________________

What causes a meteor shower?
______________________________________________________________
How big is the typical piece of solar system debris that causes a meteor?

_______________________________________________________________________

How big does the piece of solar system debris have to be in order to survive falling through the Earth’s atmosphere and hitting the ground?

________________________________________________________________________

9. Your address in the Universe is...
   Street: ______________________________________________
   City: ______________________________________________
   State: ______________________________________________
   Country: ____________________________________________
   Solar System: ________________________________________
   Galaxy: _____________________________________________
   Galaxy Group: _______________________________________
   Galaxy Supercluster: ________________________________

When you go home, address an envelope to yourself or a friend and include your address in the Universe. Draw a stamp on your envelope that celebrates and event in space exploration. Write a letter and include a map of your favorite planet (with your parent’s permission you can use Wikipedia.com to find an image of the planet).

10. When you go home, with your parent’s permission use your computer and go to http://www.nasa.gov/missions/index.html and learn about one of NASA’s current space missions.
    Mission Name: _______________________________________
    What is the primary purpose of the mission?
    How is the information recorded and sent back to Earth?
    If possible, follow the mission over a period of time and view some of the pictures sent back or read about a few of its discoveries.