

Night-Sky Observations

Lesson Title: Sky Watching

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To help you understand how telescopes have enhanced our knowledge of objects in the sky, you will observe the night sky first with your naked eye and, if possible, with binoculars.

Some things to consider when you are looking at the night sky:

- You will see more on a clear night. Clouds get in the way of the stars.
- Try to get away from any light pollution. If there's an outside light on your porch, you should turn it off, so you can see the sky better. If you have the opportunity to get out of town (or the city) you will see many more stars.
- Be sure to dress warmly enough.

Bring the following with you for your night-sky observation:

- A blanket or chair to lie on.
- A flashlight so that you can better see your paper.
- Three sheets of 8.5 x 11 white paper.
- A pencil and a colored pencil or pen.
- A clipboard or something firm to write on.

The Stars

1. Before you go out, mark each paper with north on the top, south on the bottom, west on the left, and east on the right.
2. Once outside, line up the directions on the sheets of paper with the real directions. Remember that the sun sets in the west. Once you know west, point your arm that way and face it. Behind you is east, to your left is south, and to your right is north. Line up the paper properly and place it on the ground.
3. Put the time of your observation somewhere on the page.
4. Lie on the ground and look up at the sky for about five minutes.
5. Now, draw what you see on the first sheet of paper. You may want to use a colored pen/pencil for larger stars, and use another color or the plain pencil for smaller stars. Remember to draw the "main" stars that you see. There will be many, many small dots, but focus on the main stars.

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6. Once you are done drawing, pick three bright stars to describe. On the back of the paper, describe where they are in reference to an object. One might be directly above when you face south, another might be right above a telephone pole, or right on the edge of a roof.
7. Now, lie still on the ground (or chair) and watch the three bright stars you picked for at least five minutes. Watch them in comparison to the other objects you used to describe their location. For instance, if one was right above a telephone pole or wire, see if it stays in the same place. If it is moving, note in which direction it moves.

The Moon

1. Now, on the second sheet of paper, do a naked-eye observation of the moon if it is out. Put the time of your observation somewhere on the page.
2. Draw the moon. Shade in the dark spots (these are craters).
3. Once you have a basic sketch of the moon, use binoculars (if you have them) to take a closer look. Add in detail.

The Stars continued

1. Now focus on the stars again. Using the third sheet of paper, record the time on the page.
2. Do the same exercise you did before, diagram the “main” stars in the night sky.
3. Find the three brightest stars that you observed before and describe where they are now.
4. Have they moved? In which direction?