

Grades K-4

FOCUS ON

ELEMENTARY

A R O N O M Y

Laboratory Workbook



Rebecca W. Keller, PhD



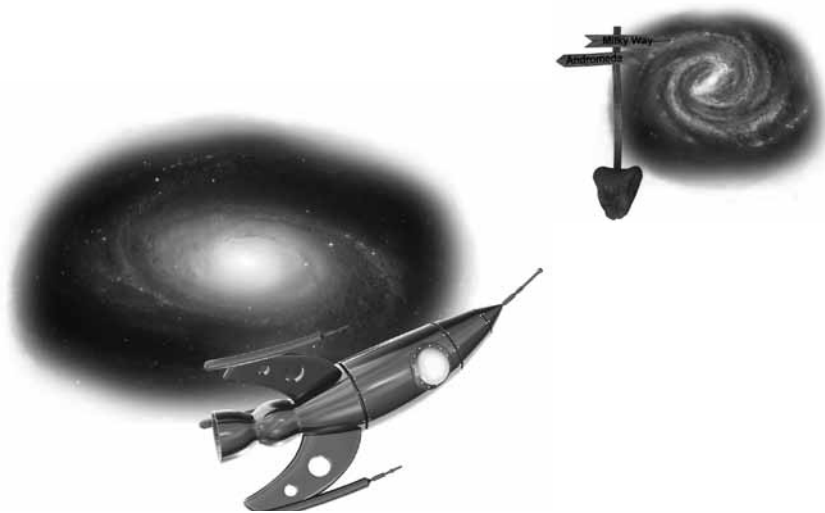
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A Note From the Author

Hi!

In this curriculum you are going to learn the first step of the scientific method:

Making good observations!

In astronomy making good observations is very important.

Each experiment in this workbook is divided into several different sections. There is a section called *Observe It* where you will make observations. In the *Think About It* section you will answer questions, and in the *What Did You Discover?* section you will write down or draw what you observed in the experiment. There is a section called *Why?* where you will learn about why you may have observed certain things. And finally, there is a section called *Just For Fun* that has an extra activity for you to experiment with.

These experiments will help you learn the first step of the scientific method and... they're lots of fun!

Enjoy!

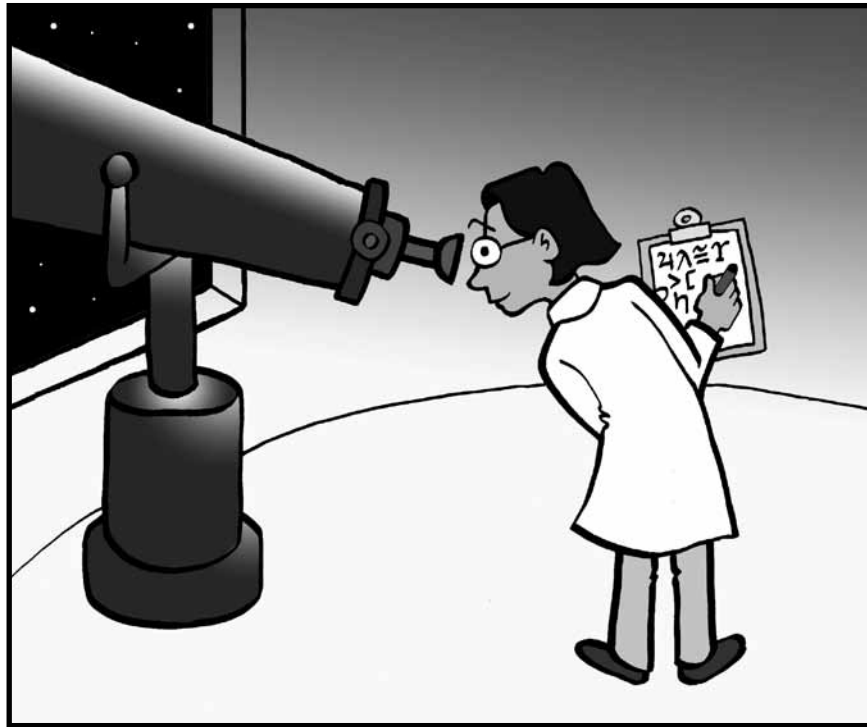
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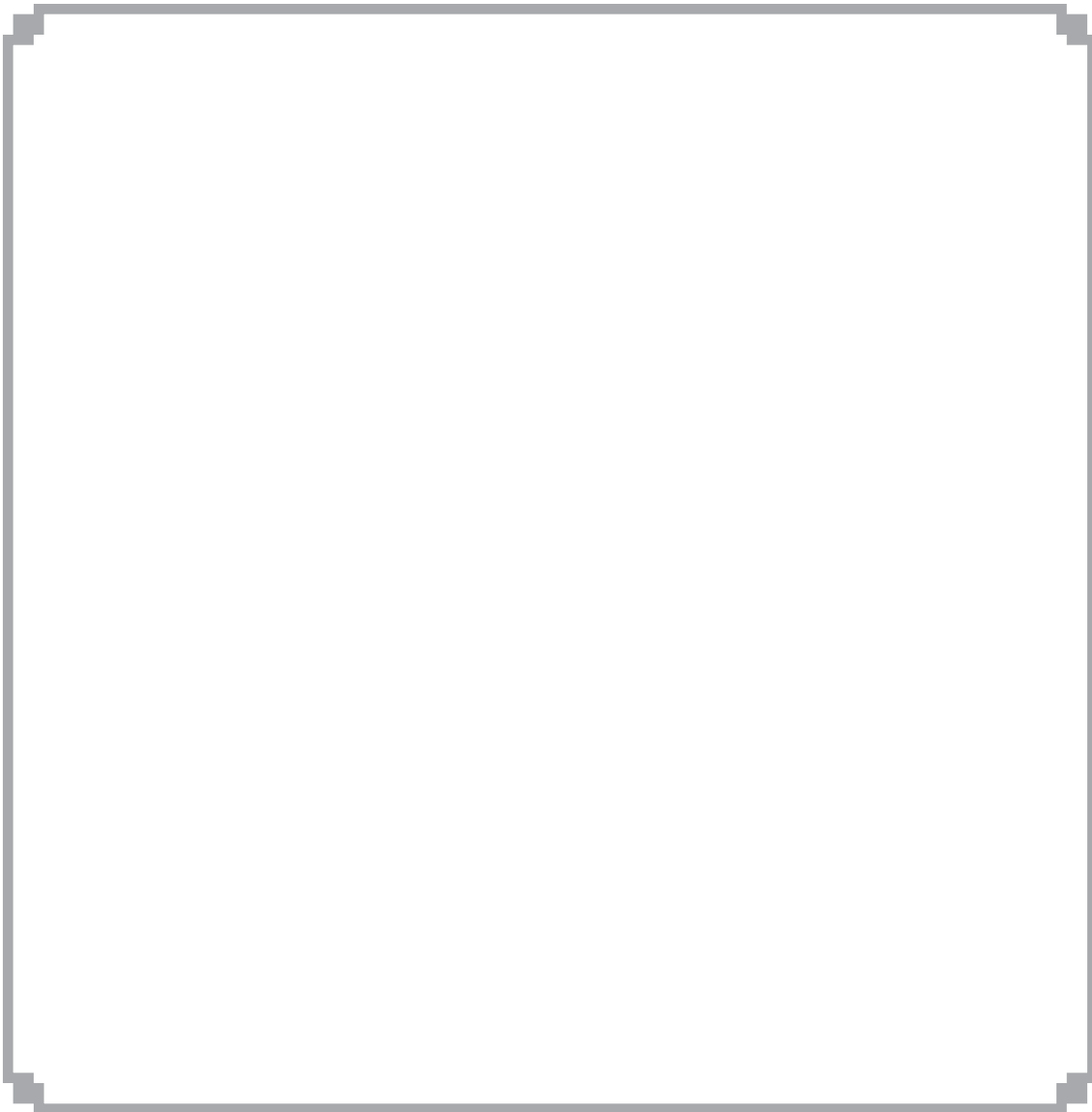
Experiment 1

Twinkle, Twinkle Little Star

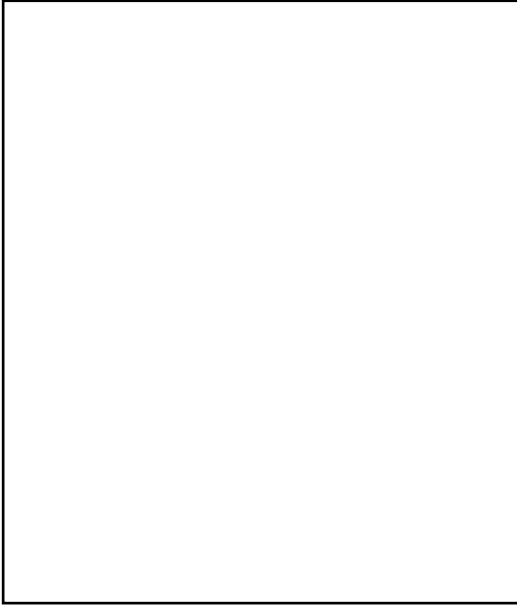


I. Observe It

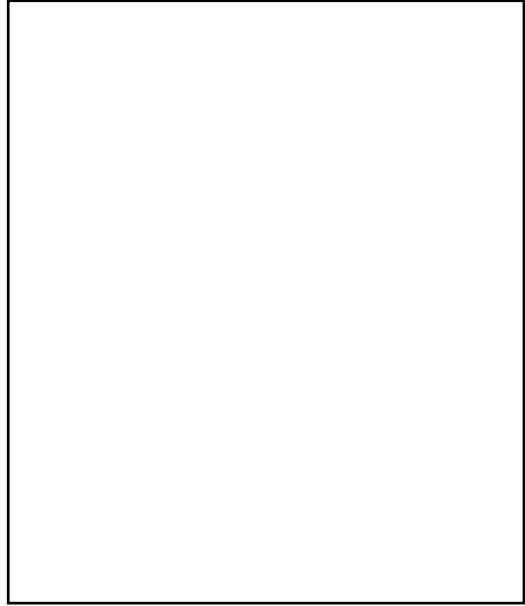
- ① On a clear night, go outside and look up at the sky to see the stars. Take a moment to adjust your eyes so you can see the stars well, and just observe.
- ② In the space below draw what you see.



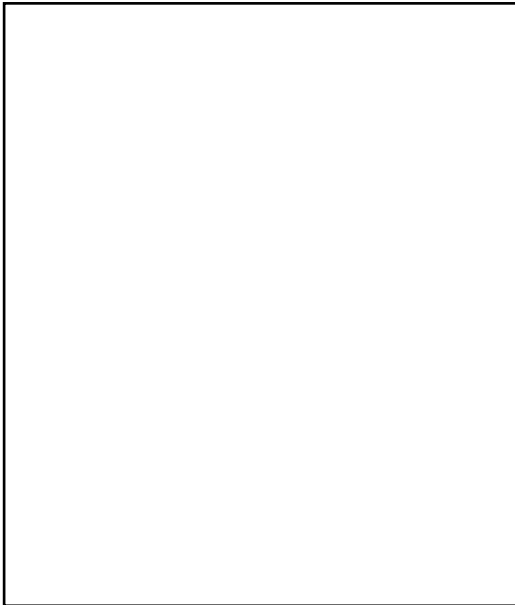
③ Try to find the largest star. Draw below.



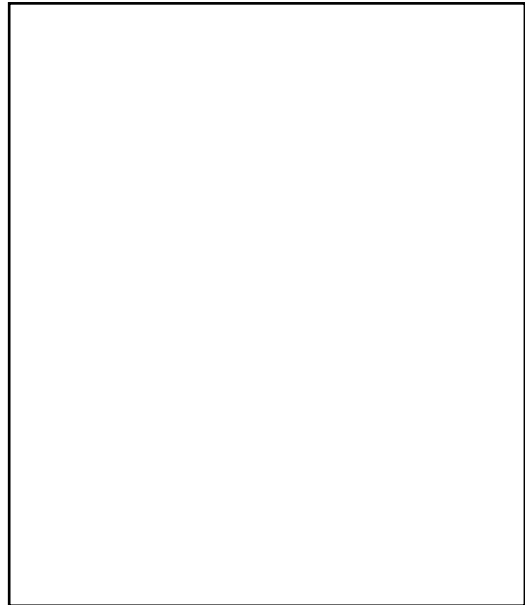
④ Try to find the brightest star. Draw below.



⑤ Try to find a twinkling star. Draw below.



⑥ Try to find stars of different colors. Draw below.



II. Think About It

- ❶ Do you think the largest star is also the brightest star? Why or why not?

- ❷ Do you think all of the “stars” are stars? Could some of them be planets? Why or why not?

- ❸ Do you think the brightest star is the closest star? Why or why not?

III. What Did You Discover?

❶ How many stars could you find? Could you draw them all?

❷ Which star was the brightest star?

❸ Was the brightest star the largest star?

❹ Were any of the stars twinkling?

❺ Why do you think stars twinkle?

IV. Why?

The night sky is full of stars. No matter where you live, on a clear night you can see stars. As you go farther away from city lights, you can see even more stars.

Not all stars look the same. Some stars are brighter than other stars, some stars are larger than other stars, and some stars twinkle. Stars are not all the same color. Some stars look red, some white, and some blue. The colors of stars can be very hard to see without a telescope.

Not all of the “stars” that we see in the sky are actually stars. Some of them are planets. Planets don’t make their own light like stars do, but planets look like stars because, like a mirror, they reflect the Sun’s light. This makes them look like stars to our eyes. Sometimes the brightest “star” is a planet!

V. Just For Fun

See if you can find some stars that are twinkling. To really see the stars it is important to be patient, sit still, and just observe. You can learn a great deal about stars just by looking at them.

If you are patient enough, you might see some stars twinkle. The air you are looking through to see the stars contains small particles that are moving around, and this can make the stars look like they are twinkling. However, sometimes a star really is changing its brightness. This might be a nova or supernova!

The earliest astronomers used just their eyes to observe the stars. Observing stars is the first step towards knowing about them!