

SPACE

A Tour of the Cosmos

The Foundations of Science

SPACE

A Tour of the Cosmos

WORKBOOK

TAN Books
Gastonia, North Carolina

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***“Where were you when
I laid the foundation
of the earth?”***

–Job 38:4



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A NOTE TO PARENTS

Thank you for using *The Foundations of Science* series to educate your child about God's wonder-filled world of science! Before diving in, make sure to read these brief notes.

WORKBOOKS' PURPOSE

The workbooks in *The Foundations of Science* series are meant to be companions to the texts, simple tools you can use to ensure your child has comprehended the material. But they're also supposed to be fun! The exercises should not feel like a test. Consider letting your students use the text as they answer questions since we just want them to understand the main concepts and remember some of the things they have learned. (We are not trying to stump them!) Younger students especially may need a little “hand-holding” to get some of the answers, but that's okay, and is even encouraged.

TARGET AGE

The workbook is perfect for middle elementary-aged students, but children as young as first grade or as old as fifth can engage with it. There are enough activities that each one does not need to be done and the age of the child can be used to determine which are completed. For example, coloring pages can be used for younger students, while older children may skip those; conversely, younger students may skip some of the personal reflection short answers, while the older ones may be expected to not only answer them but write good and complete sentences. Please cater the workbook to your family's needs.

TYPES OF ACTIVITIES

Most chapters will utilize both a substantive activity (Matching, True/False, Short Answer, etc.), along with something fun, such as a puzzle, word search, coloring page, or arts and crafts. There are also some personal reflection exercises, and most chapters include a question or activity that ties what they studied in that chapter back to the Catholic Faith.

MY SCIENCE JOURNAL

Every chapter begins with a “My Science Journal” spread. Here the students are encouraged to take notes as they read the text, write down questions they have, list the most interesting thing they learned in that chapter, or what they enjoyed the most. They can also log things they saw in nature that week (and it does *not* have to be things that relate to that week’s content). This is highly recommended to complete, as it not only helps them comprehend the content better but allows parents to assign a writing exercise as well.

ANSWER KEY

While many of the exercises are subjective and answers will vary, there are also plenty of objective answer exercises that will require grading. An answer key is provided in the back of the book for your use and convenience. If you like, have a conversation about honesty and integrity with your child as you teach them to not peek in the back.

KEY TERMS AND AMAZING FACTS ABOUT SPACE

The “Key Terms and Amazing Facts About Space” included in the text are included here as well. Consider making flash cards for the terms to test your student’s knowledge and retention, and let your child sit and relax as they read the facts; seeing them all at once, rather than buried in the text, may help them remember all the fun things they have learned.

WE ARE HERE TO HELP!

We hope we have provided you with everything you need, but if not, don’t hesitate to reach out to your friends at TAN Books with any questions you might have.



CHAPTER

1

SPACE

The Galactic Frontier

MY SCIENCE JOURNAL

NOTES:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

MY FAVORITE PART OF THIS CHAPTER WAS:

ONE NEW THING I LEARNED WAS:

SOME QUESTIONS I WANT TO ASK ABOUT THIS CHAPTER ARE:

ONE INTERESTING THING I SAW IN NATURE THIS WEEK WAS:

UNDERSTANDING ASTRONOMICAL TERMS

It is important to know the difference between the terms we use to describe different astronomical regions. Write out brief definitions below for the terms based on what you read in the text. Make sure you know the differences between these terms.

Outer Space:

Universe:

Solar System:

Galaxy:

MATCHING

Match the terms with their definitions below.

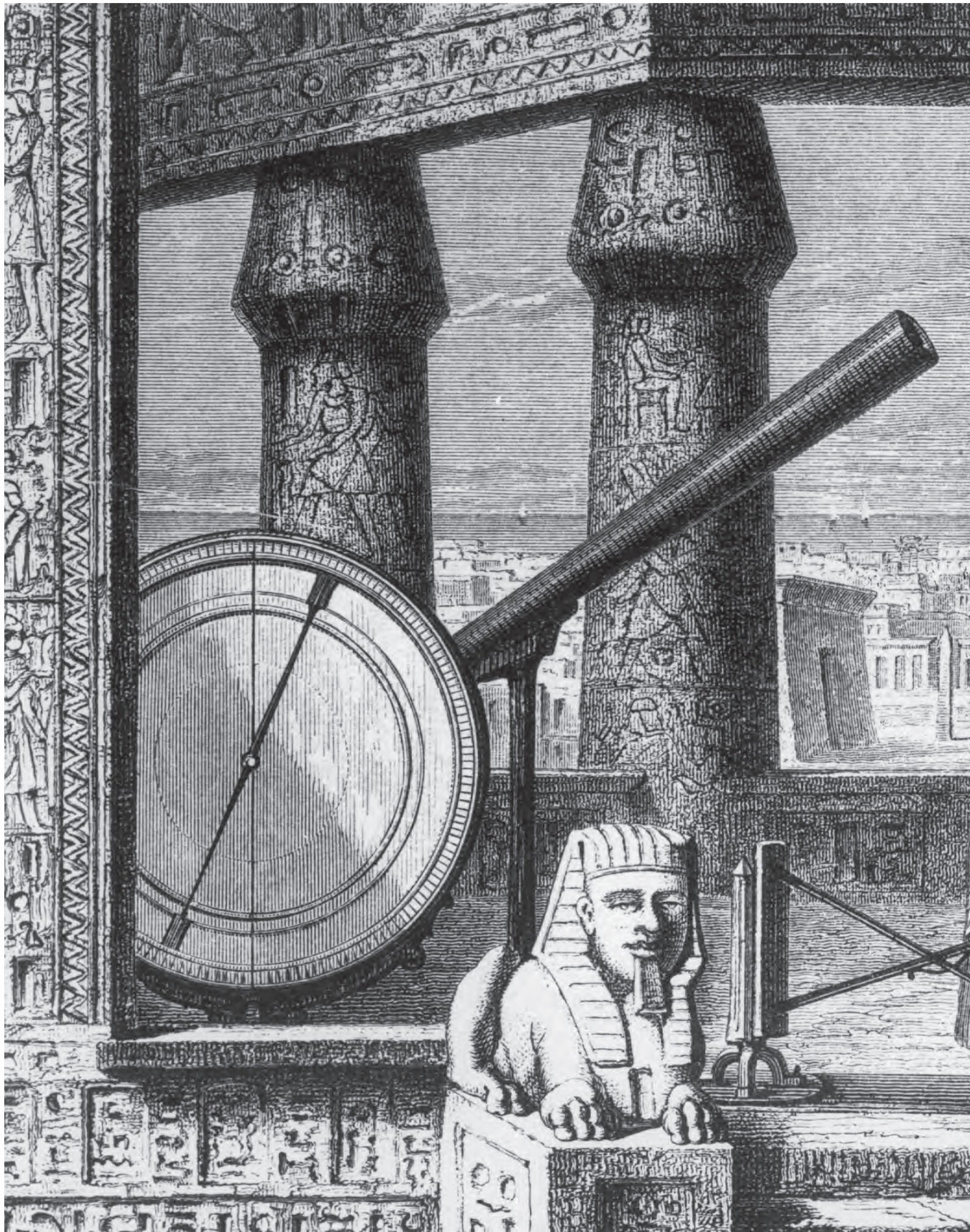
- | | |
|-------------------------------------|---------------------------------------|
| A. <i>Density</i> | F. <i>Cosmology</i> |
| B. <i>Vacuum</i> | G. <i>Interplanetary space</i> |
| C. <i>Milky Way</i> | H. <i>Cislunar space</i> |
| D. <i>Interstellar space</i> | I. <i>Intergalactic space</i> |
| E. <i>Geospace</i> | J. <i>Observable universe</i> |



- 1.**_____ An area without matter; space is considered this.
- 2.**_____ The scientific study of the creation of the universe.
- 3.**_____ The area of outer space just beyond Earth where satellites orbit.
- 4.**_____ The name for our galaxy.
- 5.**_____ The space between Earth and the Moon.
- 6.**_____ The area of outer space between stars or solar systems.
- 7.**_____ The region of space between galaxies.
- 8.**_____ A measurement of how many particles are packed in a given space.
- 9.**_____ The area of the universe we can detect from our position on Earth.
- 10.**_____ The distance between our star (the Sun) and the planets that orbit it.

In the space provided, or on a scrap sheet of paper, write a short reflection essay on what the immensity of space teaches us about God. How does meditating on the mysteries and vastness of outer space draw you closer to God? How does it make you love Him more?

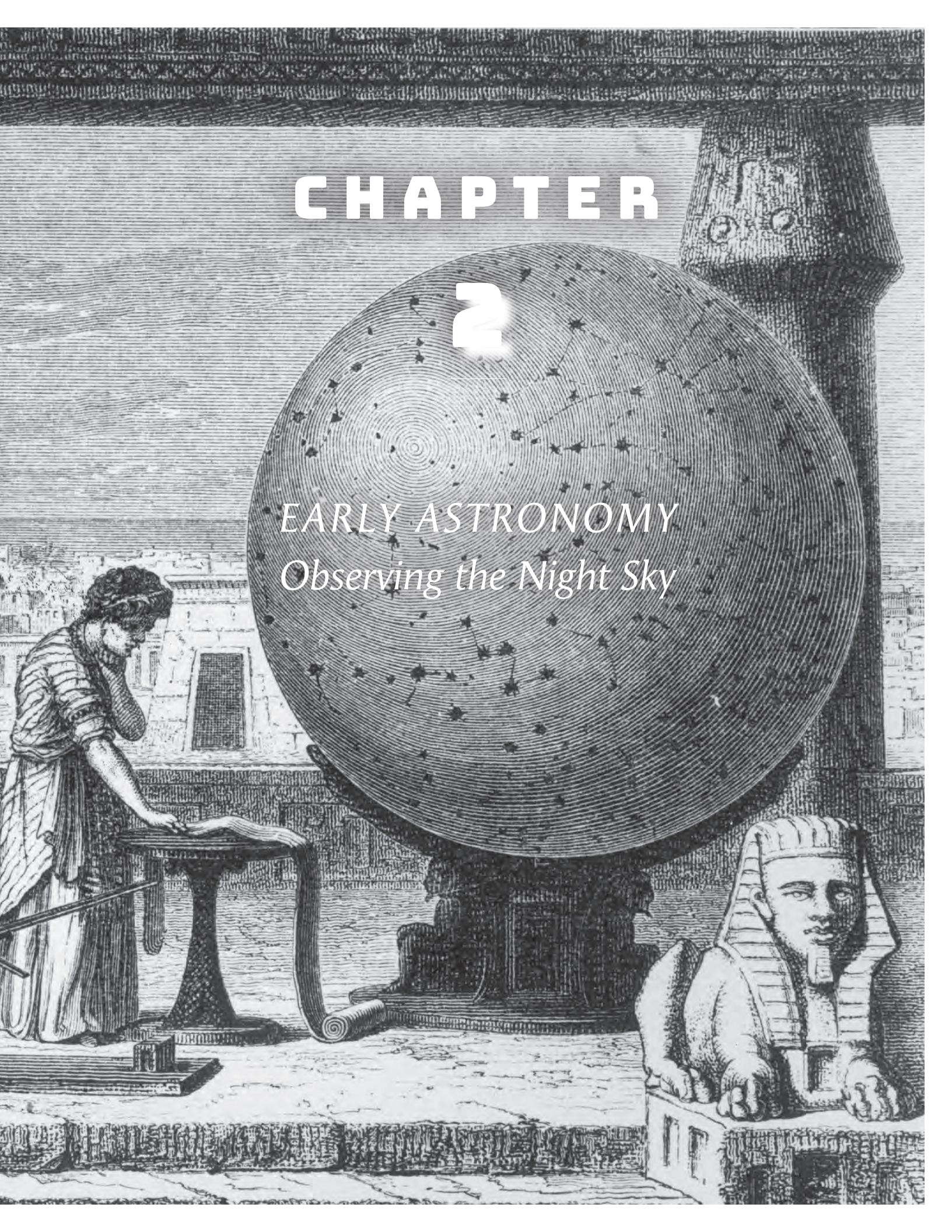
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CHAPTER

2

EARLY ASTRONOMY *Observing the Night Sky*



MY SCIENCE JOURNAL

NOTES:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

MY FAVORITE PART OF THIS CHAPTER WAS:

ONE NEW THING I LEARNED WAS:

SOME QUESTIONS I WANT TO ASK ABOUT THIS CHAPTER ARE:

ONE INTERESTING THING I SAW IN NATURE THIS WEEK WAS:

IDENTIFYING CONSTELLATIONS

With the help of your mom or dad, go online and search for the constellations in the bank below. Then, based on the images below, which depict either the entire constellation or an asterism from it, write the name of each constellation on the line below it.

Ursa Major

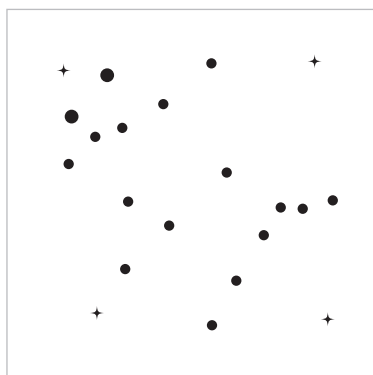
Ursa Minor

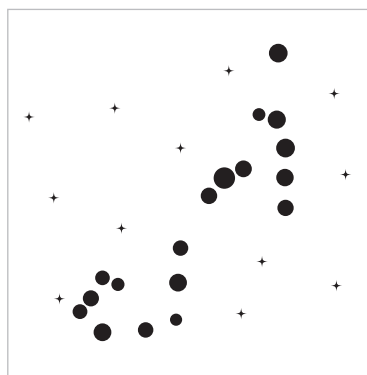
Cassiopeia

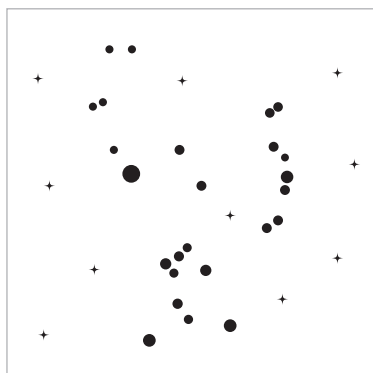
Orion

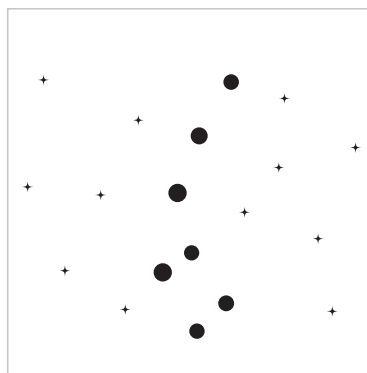
Gemini

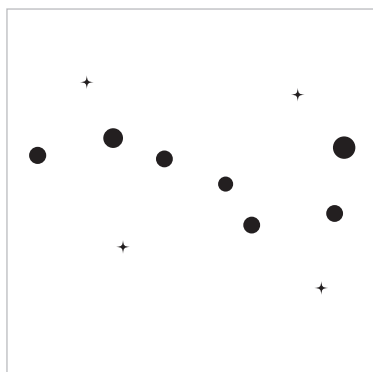
Scorpius

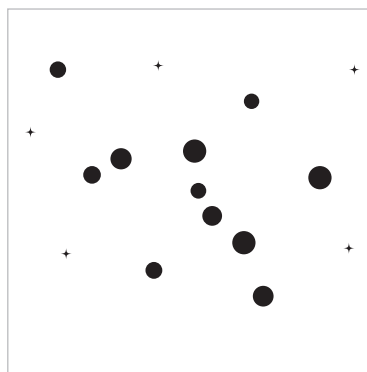












ACTIVITY

Big Dipper Viewer

Materials

- 1.** Paper towel roll tube
- 2.** Foil
- 3.** Rubber band
- 4.** Push pin
- 5.** Scissors

Instructions

- 1.** Cut a 3 x 3 inch square of foil.
- 2.** Place the foil over one end of the tube, centering it.
- 3.** Press or fold the sides of the foil around the tube and secure it with a rubber band or tape.
- 4.** Use the push pin to poke holes into the center of the foil to resemble the Big Dipper.
- 5.** Turn off the lights, go toward a window in the daytime, and, placing the viewer up to your eye, view the Big Dipper!
- 6.** Turn the tube different directions to show that the Big Dipper is not always the same direction in the night sky, due to the rotation of Earth.

Extra Fun! In a completely dark room, you can also shine a flashlight into the tube and project the Big Dipper onto the ceiling.

FAITH AND SCIENCE

Draw Your Own Constellation

Imagine how God must have enjoyed arranging the stars at the creation of the universe. While we don't have the powers He has, it is still fun to create things. Pretend for a moment that God has allowed you to design your own constellation of stars. What would your constellation look like? What would it be called? Consider a constellation that has a connection to the Catholic Faith or some kind of religious symbol. Draw your constellation on the opposite page, and name it at the top.

For fun, see if your mom or dad can figure it out before you draw in the lines and reveal the shape!