

CHEMISTRY & PHYSICS

*Elements and Forces
of the World*

The Foundations of Science

CHEMISTRY & PHYSICS

*Elements and Forces
of the World*

WORKBOOK

TAN Books
Gastonia, North Carolina

Chemistry & Physics: Elements & Forces of the World Workbook © 2023 TAN Books

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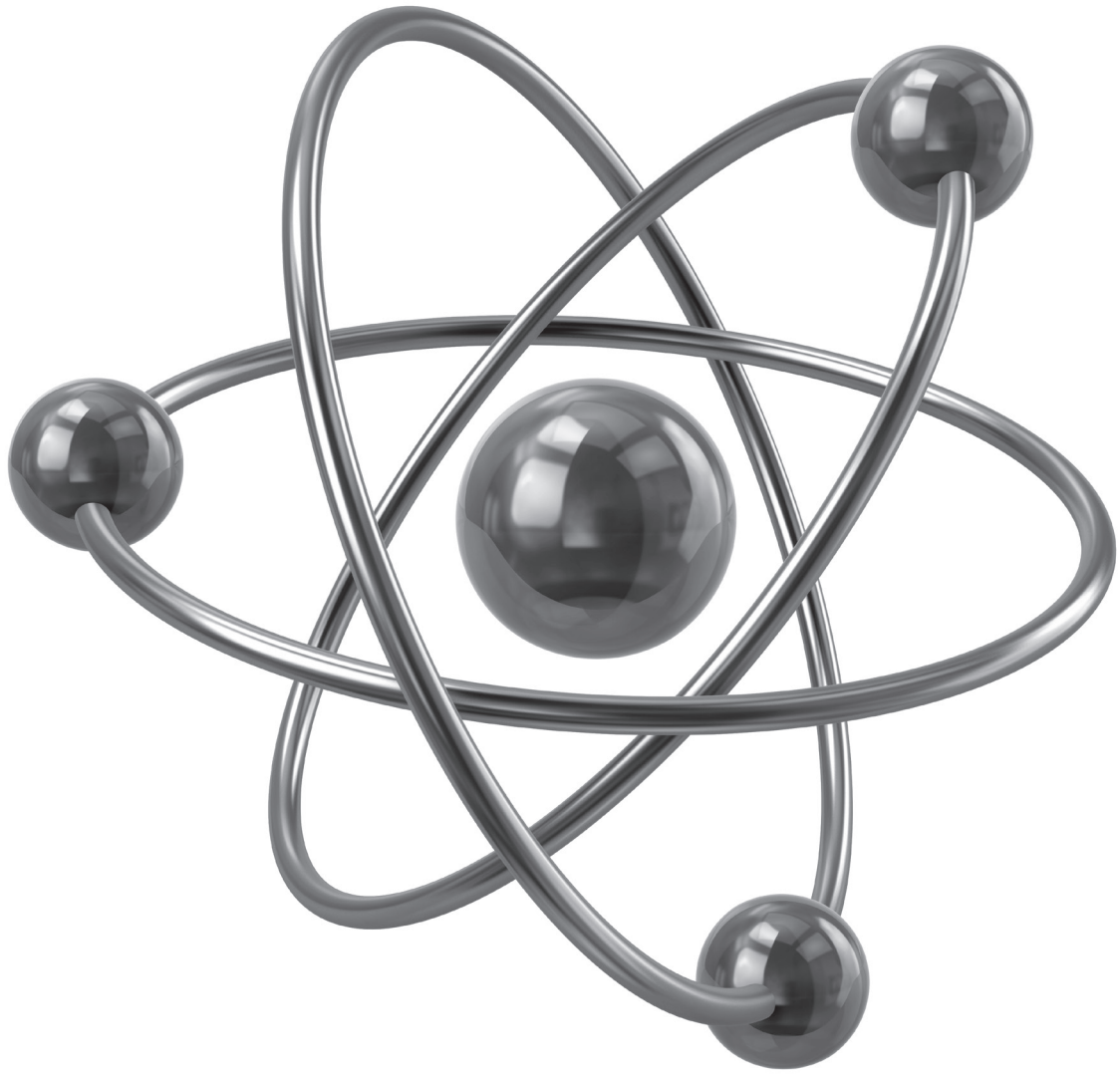
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***“Where were you when
I laid the foundation
of the earth?”***

–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 comprehends the material. But they're also supposed to be fun! The exercises should not feel like a test. Consider letting them 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 not every one should 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 utilize 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, and 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

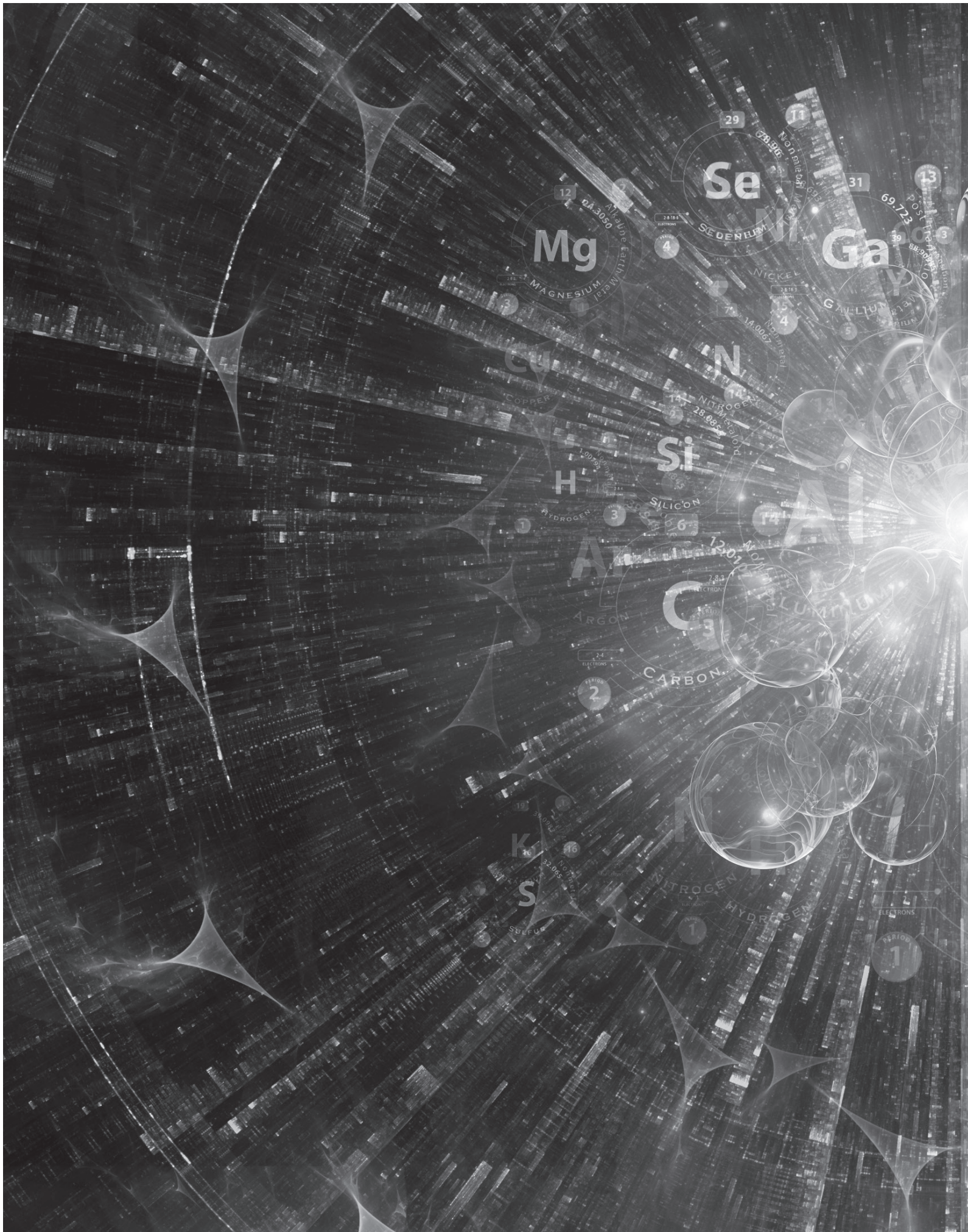
While many of the exercises are subjective and answers will vary, there are also plenty of objective answer exercises that will require grading. An answer key is provided in the back of the book for your use and convenience. If you like, have a conversation about honesty and integrity with your child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

KEY TERMS AND AMAZING FACTS ABOUT CHEMISTRY & PHYSICS

The Key Terms and Amazing Facts about Chemistry & Physics 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!

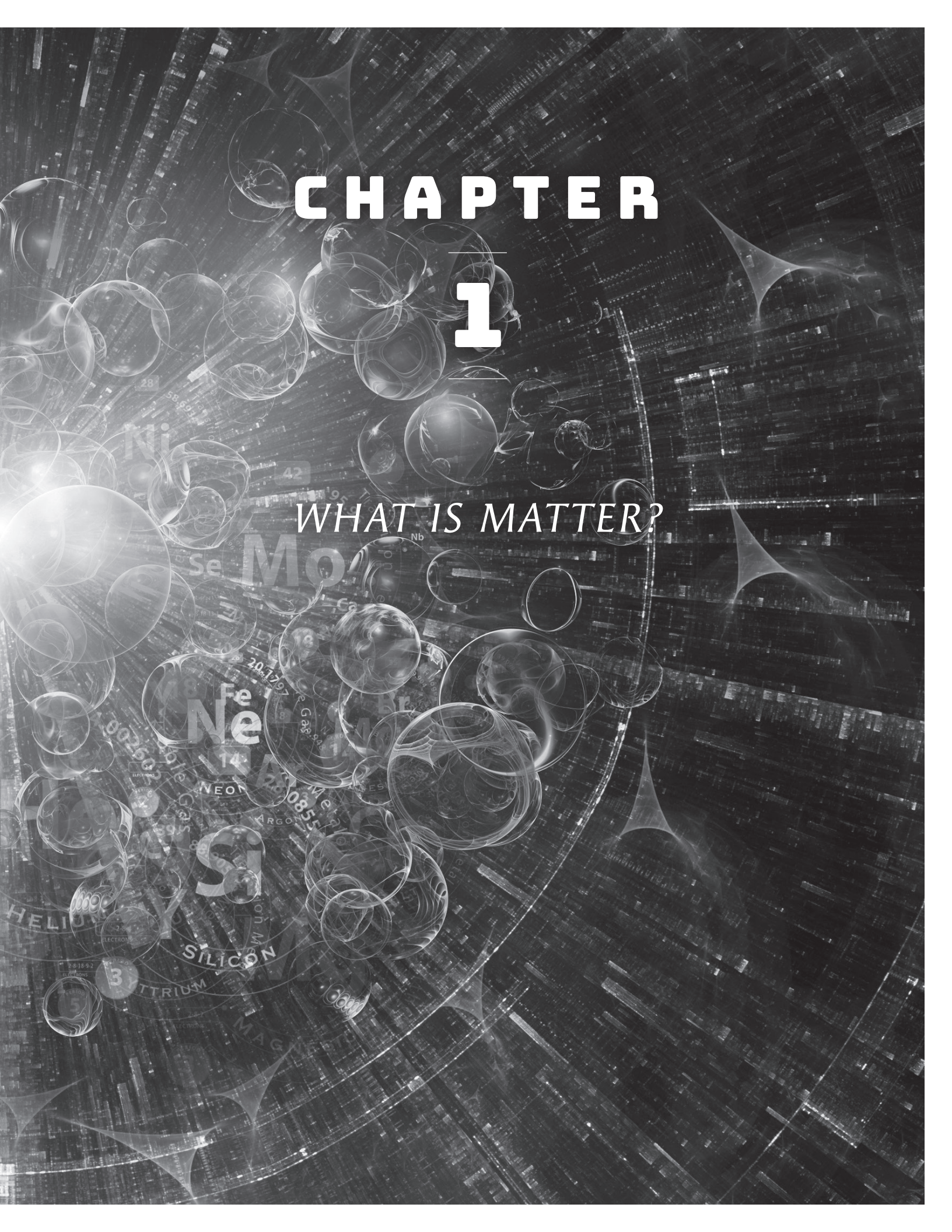
We hope we have provided you with everything you need, but if not, don’t hesitate to reach out to your friends at TAN Books with any questions you might have.



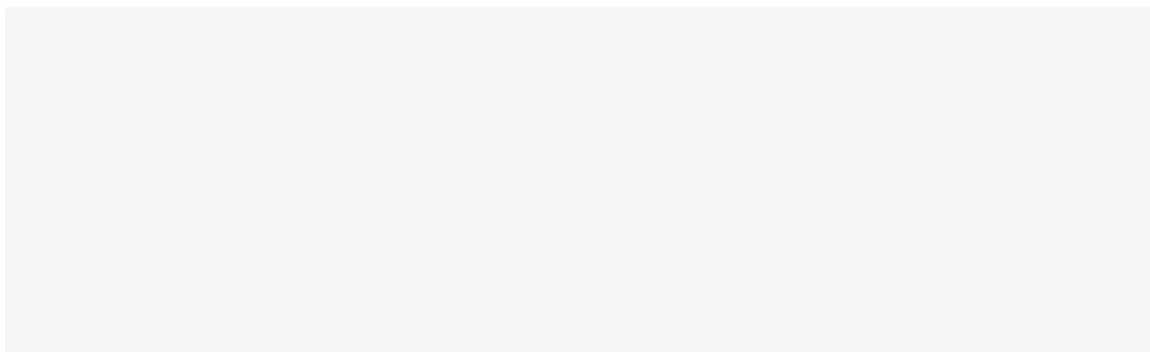
CHAPTER

1

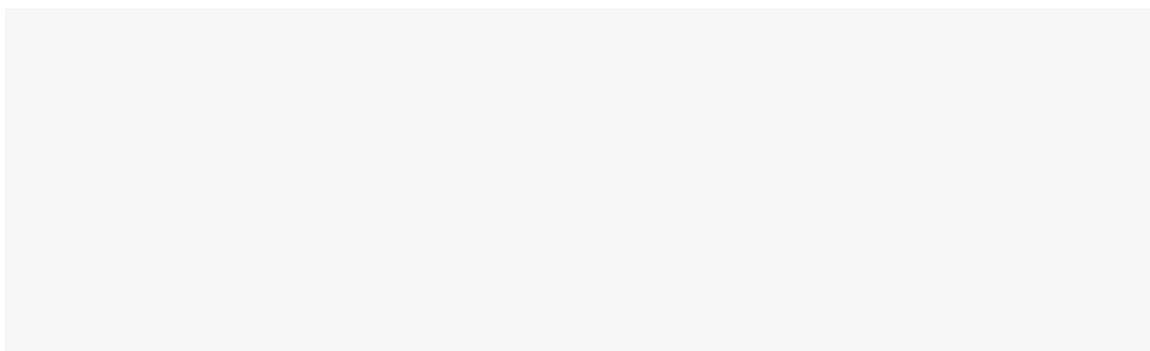
WHAT IS MATTER?



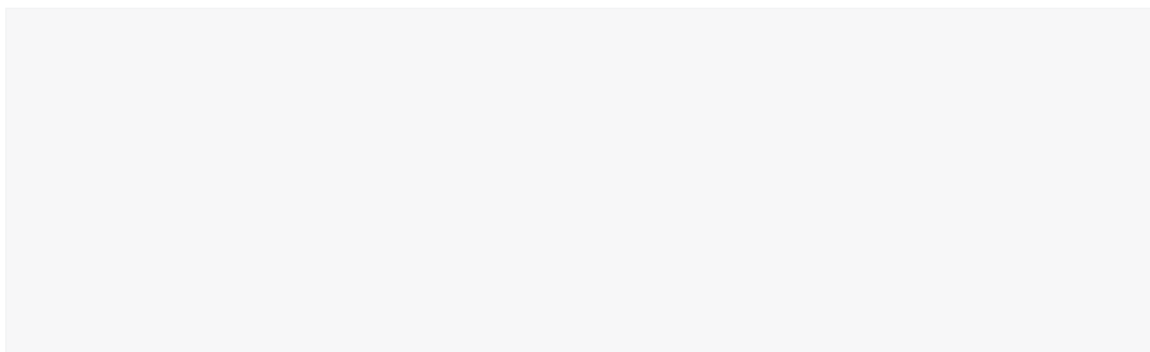
MY FAVORITE PART OF THIS CHAPTER WAS:



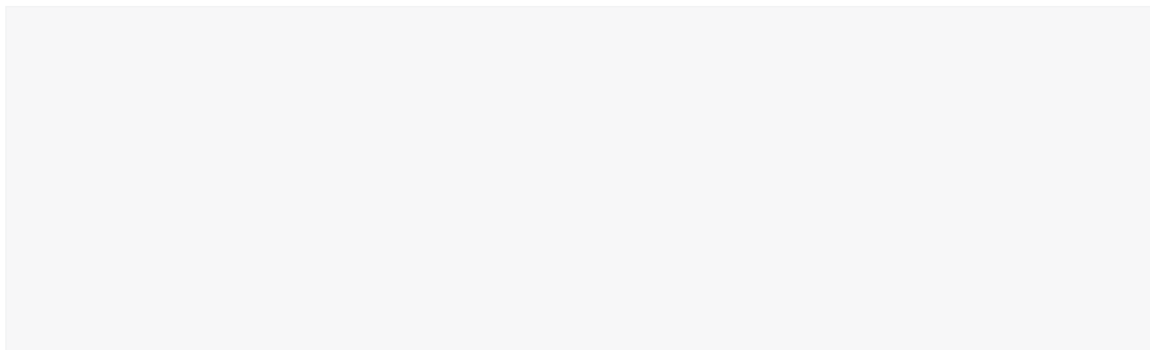
ONE NEW THING I LEARNED WAS:



SOME QUESTIONS I WANT TO ASK ABOUT THIS CHAPTER ARE:



ONE INTERESTING THING I SAW IN NATURE THIS WEEK WAS:



KNOW YOUR TERMS

Draw a line between the term and its definition.

Mass	The relationship between volume and mass; the amount of mass packed into a given unit of volume; a descriptor of how “heavy” an object is.
Volume	The quantity (amount) of matter in an object.
Matter	The space an object occupies or takes up.
Density	Anything that takes up space (volume) and can be weighed (density/mass).

UNDERSTANDING YOUR TERMS

Now show how well you understand these terms by circling the correct answer. If the answer is both, circle both; if it is neither, write neither.

1. Which has more volume?

Tree *Flower*

2. Which is made of matter?

Desk *Chair*

3. Assuming they are the exact same size, which has more mass?

Bowling ball *Balloon*

4. Assuming they are the exact same size, which has more volume?

Bowling ball *Balloon*

5. Assuming they are the exact same size, which is denser?

Bowling ball *Balloon*

PROPERTIES OF MATTER

Write down various properties of the examples of matter given below. If you don't remember what properties of matter are, go back to the textbook to review.

Water

Grass

A Quarter

Oxygen

A Football

TRUE OR FALSE

Write T beside the statement if it is True, and F if it is False.

1. _____ We can always discern the properties of matter with all five of our senses.
2. _____ Chemistry and physics look at the material world from the perspective of non-living matter.
3. _____ A mixture is something that is made from at least two or more pure substances.
4. _____ Chocolate-chip cookie dough is an example of a homogeneous mixture because you cannot see the different substances that make it up (the dough, the chips).
5. _____ A tossed salad is an example of a heterogeneous mixture because you can see the separation of the various substances that make it up (lettuce, tomato, dressing, etc.).
6. _____ Pure substances are those that cannot be separated from other substances using physical changes.
7. _____ Both compounds and elements can be broken down through chemical reactions.
8. _____ When water is heated up and turns to steam, this is an example of a physical change.