SCIENCE STARTERS:
ELEMENTARY CHEMISTRY & PHYSICS

Parent Lesson Planner
(PLP)

- Weekly Lesson Schedule
- Quizzes & Test
- Answer Key
- Master Supply List

3rd – 8th grade

1 Year
Science

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If the foundations are destroyed, what can the righteous do?
Psalm 11:3; NKJV

As the largest publisher of creation science materials in the world, Master Books is honored to partner with our authors and educators, including:

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But sanctify the Lord God in your hearts, and always be ready
to give a defense to everyone who asks you a reason for the hope
that is in you, with meekness and fear.
1 Peter 3:15; NKJV

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Contents

Lessons for a 36-week course!

Overview: This *Science Starters* contains materials for use with *Investigate the Possibilities: Elementary Chemistry—Matter: Its Properties & Its Changes* and *Investigate the Possibilities: Elementary Physics—Energy: Its Forms, Changes & Function.* Materials are organized by each book in the following sections:

Q	Quizzes
T	Semester Test & Final Exams
	Answer Keys

Multi-level Quiz & Test Options: The Science Starters curriculum allows multi-age students between grades 3 to 8 to be taught at the same time. For your convenience we have included two different levels of quizzes and final exams so you can choose the ones most appropriate for your student's age and educational abilities. Suggested levels include:

Level 1 – Grades 3 to 6
Level 2 – Grades 7 & 8

Workflow: Students will read two pages in their book and then complete one page of the Student Journal. Extra Projects are also assigned. Quizzes are given at regular intervals.

Lesson Scheduling: Space is given for assignment dates. There is flexibility in scheduling. While each quarter has 45 days of assignments, they do not have to be given M-F. Some students may prefer to do more assignments each day, allowing for breaks on other days. Each week listed has five days but due to vacations the school work week may not be M-F. Please adapt the days to your school schedule. As the student completes each assignment, he/she should put an "X" in the box.

	Approximately 30 to 45 minutes per lesson, two to three days a week
	Includes answer keys for quizzes and semester test
	Multi-level quizzes and tests are included to help reinforce learning and provide assessment opportunities.
	Designed for grades 3 to 8 in a one-year course. Master supply list included.

Course includes books from creationist authors with solid, biblical worldviews:

Tom DeRosa is an experienced science educator, a committed creationist, and founder/directory of a growing national creation organization whose chief focus is education. His experience in the public school, Christian school, and homeschool markets for over 35 years has given special insights into what really works in engaging young minds. He holds a master's degree in education, with the emphasis of science curriculum.

Carolyn Reeves is especially skilled at creating ways to help students develop a greater understanding of not just scientific concepts, but also how these are applied within the world around us. Carolyn retired after a 30-year career as a science teacher, finished a doctoral degree in science education, and now serves as a writer and an educational consultant.

Science Starters: Elementary Chemistry and Physics

Course Description

This is the suggested course sequence that allows one core area of science to be studied per semester. You can change the sequence of the semesters per the needs or interests of your student; materials for each semester are independent of one another to allow flexibility.

Semester 1: Chemistry

Investigate the Possibilities: Elementary Chemistry—Matter: Its Properties & Its Changes: Infused with fun through activities and applied learning, this dynamic full-color book provides over 20 great ways to learn about bubbles, water colors, salt, and the peridodic table, all through interactive lessons that ground students in their faith in God. Help tap into the natural curiosity of young learners with activites utilizing common household items, teaching them why and how things work, what things are made of, and where they came from. Students will learn about the physical properties of chemical substances, why adding heat causes most chemical changes to react faster, the scientist who organized a chart of the known elements, and the difference between chemical changes and physical changes.

Semester 2: Physics

Investigate the Possibilities: Elementary Physics—Energy: Its Forms, Changes & Function: This remarkable full-color book is filled with experiments and hands-on activities, helping third to sixth graders learn how and why magnets work, different kinds of energy from wind to waves, and concepts from nuclear power to solar energy. Science comes alive as students are guided through simplified key concepts of elementary physics and through hands-on applications. Students will discover what happens to light waves when we see different colors, how you can see an invisible magnetic field, the essential parts of an electric circuit, and how solar energy can be changed into electric energy. Investigate the wonderful world God has made with science that is both exciting and educationally outstanding in this comprehensive series!

Calculating a Final Grade

Calculate the Average of the student's Activities & Observations grades.

Divide the average by 3 _____

Calculate the Average of the student's Questions & Quizzes grades.

Divide the average by 3 _____

Calculate the Average of the student's Projects, Contest & Dig Deeper grades.

Divide the average by 3 _____

Add up the numbers for the Final Grade: _____

First Semester Suggested Daily Schedule

Date	Day	Assignment	Due Date	✓	Grade
First Semester-First Quarter — ***Matter***					
Week 1	Day 1				
	Day 2	Investigation #1: The Physical Side of Chemicals Read Pages 4-7 • *Matter Book* (MB) Complete Page S4 • Student Journal (SJ)			
	Day 3				
	Day 4	Investigation #1: The Physical Side of Chemicals Read Pages 8-9 • (MB) • Complete Page S5 • (SJ)			
	Day 5				
Week 2	Day 6				
	Day 7	Investigation #2: Strange Substances Read Pages 10-11 • (MB) • Complete Page S6 • (SJ)			
	Day 8				
	Day 9	Investigation #2: Strange Substances Read Pages 12-13 • (MB) • Complete Page S7 • (SJ)			
	Day 10				
Week 3	Day 11				
	Day 12	Investigation #3: Light: Chemistry Fun with Bubbles Read Pages 14-15 • (MB) • Complete Page S8 • (SJ)			
	Day 13				
	Day 14	Investigation #3: Chemistry Fun with Bubbles Read Pages 16-17 • (MB) • Complete Page S9 • (SJ)			
	Day 15				
Week 4	Day 16				
	Day 17	Investigation #4: Colors Are Colors Read Pages 18-19 • (MB) • Complete Page S10 • (SJ)			
	Day 18				
	Day 19	Investigation #4: Colors Are Colors Read Pages 20-21 • (MB) • Complete Page S11 • (SJ)			
	Day 20				
Week 5	Day 21	**Matter Investigations 1-4 Quiz 1** **Level 1** Page 17 • **Level 2** Page 31 • Lesson Plan (LP)			
	Day 22				
	Day 23	Investigation #5: How in the World Can You Separate? Read Pages 22-23 • (MB) • Complete Page S12 • (SJ)			
	Day 24				
	Day 25	Investigation #5: How in the World Can You Separate? Read Pages 24-25 • (MB) • Complete Page S13 • (SJ)			

Date	Day	Assignment	Due Date	✓	Grade
	Day 26				
	Day 27	Investigation #6: Water Is the Standard Read Pages 26-27 • (MB) • Complete Page S14 • (SJ)			
Week 6	Day 28				
	Day 29	Investigation #6: Water Is the Standard Read Pages 28-29 • (MB) • Complete Page S15 • (SJ)			
	Day 30				
	Day 31	Investigation #7: Bending Streams of Water Read Pages 30-31 • (MB) • Complete Page S16 • (SJ)			
	Day 32				
Week 7	Day 33	Investigation #7: Bending Streams of Water Read Pages 32-33 • (MB) • Complete Page S17 • (SJ)			
	Day 34				
	Day 35	Investigation #8: Drops of Water Read Pages 34-35 • (MB) • Complete Page S18 • (SJ)			
	Day 36	Investigation #8: Drops of Water Read Pages 36-37 • (MB) • Complete Page S19 • (SJ)			
	Day 37				
Week 8	Day 38	**Matter Investigations 5-8 Quiz 2** **Level 1** Page 19 • **Level 2** Page 33 • (LP)			
	Day 39				
	Day 40	Investigation #9: Oil and Water Don't Mix Read Pages 38-39 • (MB) • Complete Page S20 • (SJ)			
	Day 41	Investigation #9: Oil and Water Don't Mix Read Pages 40-41 • (MB) • Complete Page S21 • (SJ)			
	Day 42				
Week 9	Day 43	Investigation #10: Acids and Bases Read Pages 42-43 • (MB) • Complete Page S22 • (SJ)			
	Day 44				
	Day 45	Investigation #10: Acids and Bases Read Pages 44-45 • (MB) • Complete Page S23 • (SJ)			
First Semester-Second Quarter — ***Matter***					
	Day 46				
	Day 47	Investigation #11: Basically—Is It Acid or Base? Read Pages 46-47 • (MB) • Complete Page S24 • (SJ)			
Week 1	Day 48				
	Day 49	Investigation #11: Basically—Is It Acid or Base? Read Pages 48-49 • (MB) • Complete Page S25 • (SJ)			
	Day 50				

Date	Day	Assignment	Due Date	✓	Grade
	Day 51	Investigation #12: Salt—An Ordinary Substance Read Pages 50-51 • (MB) • Complete Page S26 • (SJ)			
	Day 52				
Week 2	Day 53	Investigation #12: Salt—An Ordinary Substance Read Pages 52-53 • (MB) • Complete Page S27 • (SJ)			
	Day 54				
	Day 55	**Matter Investigations 9-12 Quiz 3** **Level 1** Page 21 • **Level 2** Page 35 • (LP)			
	Day 56	Investigation #13: More about the Amazing Periodic Table Read Pages 54-55 • (MB) • Complete Page S28 • (SJ)			
	Day 57				
Week 3	Day 58	Investigation #13: More about the Amazing Periodic Table Read Pages 56-57 • (MB) • Complete Page S29 • (SJ)			
	Day 59				
	Day 60	Investigation #14: Electricity and Salt Water Read Pages 58-59 • (MB) • Complete Page S30 • (SJ)			
	Day 61	Investigation #14: Electricity and Salt Water Read Pages 60-61 • (MB) • Complete Page S31 • (SJ)			
	Day 62				
Week 4	Day 63	Investigation #15: Changes—Are They Chemical or Physical? Read Pages 62-63 • (MB) • Complete Page S32 • (SJ)			
	Day 64				
	Day 65	Investigation #15: Changes—Are They Chemical or Physical? Read Pages 64-65 • (MB) • Complete Page S33 • (SJ)			
	Day 66	Investigation #16: Clues of a Chemical Reaction Read Pages 66-67 • (MB) • Complete Page S34 • (SJ)			
	Day 67				
Week 5	Day 68	Investigation #16: Clues of a Chemical Reaction Read Pages 68-69 • (MB) • Complete Page S35 • (SJ)			
	Day 69				
	Day 70	**Matter Investigations 13-16 Quiz 4** **Level 1** Page 23 • **Level 2** Page 37 • (LP)			
	Day 71				
	Day 72	Investigation #17: A Heavy Gas Read Pages 70-71 • (MB) • Complete Page S36 • (SJ)			
Week 6	Day 73				
	Day 74	Investigation #17: A Heavy Gas Read Pages 72-73 • (MB) • Complete Page S37 • (SJ)			
	Day 75				
	Day 76				
	Day 77	Investigation #18: Large or Small? Hot or Cold? Read Pages 74-75 • (MB) • Complete Page S38 • (SJ)			
Week 7	Day 78				
	Day 79	Investigation #18: Large or Small? Hot or Cold? Read Pages 76-77 • (MB) • Complete Page S39 • (SJ)			
	Day 80				

Date	Day	Assignment	Due Date	✓	Grade
Week 8	Day 81	Investigation #19: Understanding Phase Changes Read Pages 78-79 • (MB) • Complete Page S40 • (SJ)			
	Day 82				
	Day 83	Investigation #19: Understanding Phase Changes Read Pages 80-81 • (MB) • Complete Page S41 • (SJ)			
	Day 84				
	Day 85	Investigation #20: The Race to Evaporate Read Pages 82-83 • (MB) • Complete Page S42 • (SJ)			
Week 9	Day 86	Investigation #20: The Race to Evaporate Read Pages 84-85 • (MB) • Complete Page S43 • (SJ)			
	Day 87				
	Day 88	**Matter Investigations 17-20 Quiz 5** **Level 1** Page 25 • **Level 2** Page 39 • (LP)			
	Day 89				
	Day 90	**Matter Investigations 1-20 Test** **Level 1** Page 27 • **Level 2** Page 41 • (LP)			
		Mid-Term Grade			

Second Semester Suggested Daily Schedule

Date	Day	Assignment	Due Date	✓	Grade
Second Semester-Third Quarter — ***Energy***					
Week 1	Day 91				
	Day 92	Investigation #1: Where Exactly Does Energy Go? Read Pages 4-7 • Energy Book (EB) Complete Page S4 • Student Journal (SJ)			
	Day 93				
	Day 94	Investigation #1: Where Exactly Does Energy Go? Read Pages 8-9 • (EB) • Complete Page S5 • (SJ)			
	Day 95				
Week 2	Day 96				
	Day 97	Investigation #2: Stored or Active? Read Pages 10-11 • (EB) • Complete Page S6 • (SJ)			
	Day 98				
	Day 99	Investigation #2: Stored or Active? Read Pages 12-13 • (EB) • Complete Page S7 • (SJ)			
	Day 100				
Week 3	Day 101				
	Day 102	Investigation #3: Light: Reflected and Absorbed Read Pages 14-15 • (EB) • Complete Page S8 • (SJ)			
	Day 103				
	Day 104	Investigation #3: Light: Reflected and Absorbed Read Pages 16-17 • (EB) • Complete Page S9 • (SJ)			
	Day 105				
Week 4	Day 106				
	Day 107	Investigation #4: Light and Lenses Read Pages 18-19 • (EB) • Complete Page S10 • (SJ)			
	Day 108				
	Day 109	Investigation #4: Light and Lenses Read Pages 20-21 • (EB) • Complete Page S11 • (SJ)			
	Day 110				
Week 5	Day 111	**Energy Investigations 1-4 Quiz 1** **Level 1** Page 47 • **Level 2** Page 61 • Lesson Plan (LP)			
	Day 112				
	Day 113	Investigation #5: Waving the Red, Green, and Blue Read Pages 22-23 • (EB) • Complete Page S12 • (SJ)			
	Day 114				
	Day 115	Investigation #5: Waving the Red, Green, and Blue Read Pages 24-25 • (EB) • Complete Page S13 • (SJ)			

Date	Day	Assignment	Due Date	✓	Grade
Week 6	Day 116	Investigation #6: Did You Hear That? Read Pages 26-27 • (EB) • Complete Page S14 • (SJ)			
	Day 117				
	Day 118	Investigation #6: Did You Hear That? Read Pages 28-29 • (EB) • Complete Page S15 • (SJ)			
	Day 119				
	Day 120	Investigation #7: When Things Get Hot Read Pages 30-31 • (EB) • Complete Page S16 • (SJ)			
Week 7	Day 121	Investigation #7: When Things Get Hot Read Pages 32-33 • (EB) • Complete Page S17 • (SJ)			
	Day 122				
	Day 123	Investigation #7: When Things Get Hot—Conducting... Read Pages 34-35 • (EB)			
	Day 124				
	Day 125	Investigation #8: Feeling the Heat Read Pages 36-37 • (EB) • Complete Page S18 • (SJ)			
Week 8	Day 126	Investigation #8: Feeling the Heat Read Pages 38-39 • (EB) • Complete Page S19 • (SJ)			
	Day 127				
	Day 128	**Energy Investigations 5-8 Quiz 2** **Level 1** Page 49 • **Level 2** Page 63 • (LP)			
	Day 129				
	Day 130	Investigation #9: Magnets Are Very Attractive Read Pages 40-41 • (EB) • Complete Page S20 • (SJ)			
Week 9	Day 131	Investigation #9: Magnets Are Very Attractive Read Pages 42-43 • (EB) • Complete Page S21 • (SJ)			
	Day 132				
	Day 133	Investigation #10: Magnetism Is Pretty Special Read Pages 44-45 • (EB) • Complete Page S22 • (SJ)			
	Day 134				
	Day 135	Investigation #10: Magnetism Is Pretty Special Read Pages 46-47 • (EB) • Complete Page S23 • (SJ)			
Second Semester-Fourth Quarter — ***Energy***					
Week 1	Day 136				
	Day 137	Investigation #11: How Do Magnets Become Magnets? Read Pages 48-49 • (EB) • Complete Page S24 • (SJ)			
	Day 138				
	Day 139	Investigation #11: How Do Magnets Become Magnets? Read Pages 50-51 • (EB) • Complete Page S25 • (SJ)			
	Day 140				

Date	Day	Assignment	Due Date	✓	Grade
Week 2	Day 141	Investigation #12: If It's Invisible, How Can You See It? Read Pages 52-53 • (EB) • Complete Page S26 • (SJ)			
	Day 142				
	Day 143	Investigation #12: If It's Invisible, How Can You See It? Read Pages 54-55 • (EB) • Complete Page S27 • (SJ)			
	Day 144				
	Day 145	**Energy Investigations 9-12 Quiz 3** **Level 1** Page 51 • **Level 2** Page 65 • (LP)			
Week 3	Day 146	Investigation #13: Static Electricity Read Pages 56-57 • (EB) • Complete Page S28 • (SJ)			
	Day 147				
	Day 148	Investigation #13: Static Electricity Read Pages 58-59 • (EB) • Complete Page S29 • (SJ)			
	Day 149				
	Day 150	Investigation #14: A Place Where Electrons Get... Read Pages 60-61 • (EB) • Complete Page S30 • (SJ)			
Week 4	Day 151	Investigation #14: A Place Where Electrons Get... Read Pages 62-63 • (EB) • Complete Page S31 • (SJ)			
	Day 152				
	Day 153	Investigation #15: Switching on a Series Circuit Read Pages 64-65 • (EB) • Complete Page S32 • (SJ)			
	Day 154				
	Day 155	Investigation #15: How Rocks and Dirt Catch a Ride Read Pages 66-67 • (EB) • Complete Page S33 • (SJ)			
Week 5	Day 156	Investigation #16: Is a Parallel Circuit Better Than... Read Pages 68-69 • (EB) • Complete Page S34 • (SJ)			
	Day 157				
	Day 158	Investigation #16: Is a Parallel Circuit Better Than... Read Pages 70-71 • (EB) • Complete Page S35 • (SJ)			
	Day 159				
	Day 160	**Energy Investigations 13-16 Quiz 4** **Level 1** Page 53 • **Level 2** Page 67 • (LP)			
Week 6	Day 161	Investigation #17: The Dishwashing Liquid and Electric... Read Pages 72-73 • (EB) • Complete Page S36 • (SJ)			
	Day 162				
	Day 163	Investigation #17: The Dishwashing Liquid and Electric... Read Pages 74-75 • (EB) • Complete Page S37 • (SJ)			
	Day 164				
	Day 165	Investigation #17: The Dishwashing Liquid and Electric... Read Pages 76-77 • (EB)			

Date	Day	Assignment	Due Date	✓	Grade
	Day 166				
	Day 167	Investigation #18: Solar Energy Makes a Change Read Pages 78-79 • (EB) • Complete Page S38 • (SJ)			
Week 7	Day 168				
	Day 169	Investigation #18: Solar Energy Makes a Change Read Pages 80-81 • (EB) • Complete Page S39 • (SJ)			
	Day 170				
	Day 171				
	Day 172	Investigation #19: Wind or Water Energy Read Pages 82-83 • (EB) • Complete Page S40 • (SJ)			
Week 8	Day 173				
	Day 174	Investigation #19: Wind or Water Energy Read Pages 84-85 • (EB) • Complete Page S41 • (SJ)			
	Day 175				
	Day 176	Investigation #20: Nuclear Energy Read Pages 86-87 • (EB) • Complete Pages S42-43 • (SJ)			
	Day 177				
Week 9	Day 178	**Energy Investigations 17-20 Quiz 5** **Level 1** Page 55 • **Level 2** Page 69 • (LP)			
	Day 179				
	Day 180	**Energy Investigations 1-20 Test** **Level 1** Page 57 • **Level 2** Page 71 • (LP)			
		Final Grade			

Quizzes and Test

for Use with

Matter

Testing:

This series is appropriate for both upper elementary and junior high students. Because of this, we have included quizzes and tests in two different levels, which you can choose from based on your child's abilities and understanding of the concepts in the course.

Level 1: suggested for younger ages or those who struggle with application of the concepts beyond just definitions and basic concepts

Level 2: suggested for older ages or those who can both grasp the scientific concepts and apply them consistently

Q	*Matter* Concepts & Comprehension	Quiz 1 Level 1	Scope: Chapters 1–4	Total score: ____of 100	Name

Choose answers from these terms.
All the terms may not be used and some may be used more than once:

absorb	analytical	chemicals	chromatography
cohesion	elasticity	environmental	faster
curved	fragment	higher	inertia
Infrared	kinetic	liquids	medical
minerals	mixtures	physical	polymers
pressure	smaller	solids	surface
temperature	viscosity		

Fill in the Blank: Each question is worth 4 points.

1. _____ chemistry includes what chemicals are present, their characteristics, and how much is present.
2. _____ labs might test blood and urine for the presence of many kinds of substances.
3. An _____ agency may use a lab that analyzes chemical substances to help identify pollutants in the air and water and environment.
4. A_____ would have the same properties as the whole substance.
5. The_____ properties of a piece of pure iron the same anywhere pure iron is found.
6. _____ can be explained by how slowly a liquid pours from a container or how hard it is to push something through the liquid.
7. Viscosity of oils and molasses is often affected by _____.
8. _____ (and temperature) affects the viscosity of MX.
9. A baby diaper has the unusual property of being able to _____ enormous amounts of liquids.
10. _____ are made of many similar small chemicals (called monomers) that were joined together to form long chains of molecules.
11. Generally, the attraction between like molecules is greater in _____.
12. Generally, the attraction between like molecules greater in _____.
13. The attraction between molecules that are found at the surface of a liquid is called _____tension.
14. The property of matter that causes like molecules to attract each other is called _____.
15. The property of matter that allows bubbles to stretch without breaking (up to their limits) is called_____.
16. Paper chromatography used to separate _____.
17. Some of the dyes carried up the paper moved _____ than others.
18. _____ in a mixture keep their own properties.

19. If two samples of ink produce the same _____ pattern and colors, it's a good chance that the ink samples are the same kind of ink.

20. Hard water contains more dissolved _____ than soft water.

Short Answer: Each question is worth 5 points:

21. What are physical properties of chemical substances?

22. Give several physical properties of MX.

23. When scientists want to know what chemical substances are in an item, they seldom consider the size, shape, and amount of the item. Why is that?

24. Suppose a chromatograph was made from a colored marker, and the pattern showed a blue spot above a pink spot. Does this give you a good clue that there are at least two chemicals in the colored marker?

Bonus questions: (worth 5 points):

25. Give examples of physical properties used by scientists to describe a chemical substance.