SCIENCE STARTERS: ELEMENTARY PHYSICAL & EARTH SCIENCE

Parent Lesson Planner (PLP)

Heekly Lesson Schedule

Tom DeRo Carolyn Reev

🖺 Quizzes & Test

Answer Key

£

Master Supply List

3rd - 8th grade

1 Year Science First printing: April 2013 Second printing: August 2013

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Whether a pre-school learner or a scholar seeking an advanced degree, we offer a wonderful selection of award-winning resources for all ages and educational levels.

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1 Peter 3:15; NKJV

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Lessons for a 36-week course!

Overview: This Science Starters PLP contains materials for use with Investigate the Possibilities: Elementary Physical Science – Forces in Motion: From High-speed Jets to Wind-up Toys and Investigate the Possibilities: Elementary Earth Science – The Earth: Its Structure & Its Changes. 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 that 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.
ţ	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: Physical and Earth Science

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: Physical Science

Investigate the Possibilities: Elementary Physical Science – Forces & Motion: From High-speed Jets to Wind-up Toys. Elementary physical science comes alive in this amazing full-color book filled with 20 hands-on activites that ignite a sense of curiosity about the wonderful world God has made. Concepts are introduced in an engaging way by highlighting the science behind kids at play, like rollerskating, skateboarding, and even running. By guiding students through these easy-to-understand investigations, they learn to explain, apply, expand, and assess what they have personally observed! Learn how to determine the speed and motion of favorite toys, create a catapult and experience the mechanics of pulleys, set up a floating pencil race, discover why friction creates heat.

Semester 2: Earth Science

Investigate the Possibilities: Elementary Earth Science – The Earth: Its Structure & Its Changes: Experience the science of fun! Explore the planet like never before with 20 fun and educational experiments. The learning progression helps students engage, investigate, explain, apply, expand, and assess the scientific principles, and is filled with helpful images, diagrams, and inexpensive activities. Students discover why caves and sinkholes form, what is in the soil we walk on every day, how warning signs are present prior to volcanic eruptions, what tests can be used to identify rocks, and more. This comprehensive series makes the study of God's creation both enjoyable and educational!

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	\checkmark	Grade
		First Semester-First Quarter — Forces & Motion			
	Day 1				
	Day 2	Investigation #1: Wind-up Walking Toys Read Pages 4-7 • <i>Forces & Motion</i> (FM) Complete Page S4 • Student Journal (SJ)			
Week 1	Day 3				
	Day 4	Investigation #1: Wind-up Walking Toys Read Pages 8-9 • (FM) • Complete Page S5 • (SJ)			
	Day 5				<u> </u>
	Day 6				
	Day 7	Investigation #2: Which Way Did It Go? Read Pages 10-11 • (FM) • Complete Page S6 • (SJ)			
Week 2	Day 8				
	Day 9	Investigation #2: Which Way Did It Go? Read Pages 12-13 • (FM) • Complete Page S7 • (SJ)			
	Day 10				<u> </u>
	Day 11				
	Day 12	Investigation #3: Investigating Friction Read Pages 14-15 • (FM) • Complete Page S8 • (SJ)			
Week 3	Day 13				
	Day 14	Investigation #3: Investigating Friction Read Pages 16-17 • (FM) • Complete Page S9 • (SJ)			
	Day 15				
	Day 16				
	Day 17	Investigation #4: Friction — Does It Rub You Read Pages 18-19 • (FM) • Complete Page S10 • (SJ)			
Week 4	Day 18				
	Day 19	Investigation #4: Friction — Does It Rub You Read Pages 20-21 • (FM) • Complete Page S11 • (SJ)			
	Day 20				
Week 5	Day 21	Forces & Motion Investigations 1-4 Quiz 1 Level 1 Page 17 • Level 2 Page 29 • Lesson Plan (LP)			
	Day 22				
	Day 23	Investigation #5: That's Heavy, Dude Read Pages 22-23 • (FM) • Complete Page S12 • (SJ)			
	Day 24				<u> </u>
	Day 25	Investigation #5: That's Heavy, Dude Read Pages 24-25 • (FM) • Complete Page S13 • (SJ)			

Date	Day	Assignment	Due Date	\checkmark	Grade
	Day 26	Investigation #6: Floating Pencil Race Read Pages 26-27 • (FM) • Complete Page S14 • (SJ)			
	Day 27				
Week 6	Day 28	Investigation #6: Floating Pencil Race Read Pages 28-29 • (FM) • Complete Page S15 • (SJ)			
	Day 29				
	Day 30	Investigation #7: What Floats Your Boat? Read Pages 30-31 • (FM) • Complete Page S16 • (SJ)			
	Day 31	Investigation #7: What Floats Your Boat? Read Pages 32-33 • (FM) • Complete Page S17 • (SJ)			
	Day 32				
Week 7	Day 33	Investigation #8: Giving Airplanes a Lift Read Pages 34-35 • (FM) • Complete Page S18 • (SJ)			
	Day 34				
	Day 35	Investigation #8: Giving Airplanes a Lift Read Pages 36-37 • (FM) • Complete Page S19 • (SJ)			
	Day 36				
	Day 37	Forces & Motion Investigations 5-8 Quiz 2 Level 1 Page 19 • Level 2 Page 31 • (LP)			
Week 8	Day 38				
	Day 39	Investigation #9: Crash Test Dummes Read Pages 38-39 • (FM) • Complete Page S20 • (SJ)			
	Day 40				
	Day 41	Investigation #9: Crash Test Dummes Read Pages 40-41 • (FM) • Complete Page S21 • (SJ)			
	Day 42				
Week 9	Day 43	Investigation #10: Cars and Ramps Read Pages 42-43 • (FM) • Complete Page S22 • (SJ)			
	Day 44				
	Day 45	Investigation #10: Cars and Ramps Read Pages 44-45 • (FM) • Complete Page S23 • (SJ)			
		First Semester-Second Quarter — Forces & Motion			
Week 1	Day 46	Investigation #11: The Mighty Conquering Catapults Read Pages 46-47 • (FM) • Complete Page S24 • (SJ)			
	Day 47				
	Day 48	Investigation #11: The Mighty Conquering Catapults Read Pages 48-49 • (FM) • Complete Page S25 • (SJ)			
	Day 49				
	Day 50	Investigation #11: The Mighty Conquering Catapults — Isaac Newton • Read Pages 50-51 • (FM)			

Date	Day	Assignment	Due Date	\checkmark	Grade
	Day 51	Investigation #12: Round and Round without Stopping			
	Day 52	Read Pages 52-53 • (FM) • Complete Page S26 • (SJ)			
Week 2	Day 52	Investigation #12: Round and Round without Stopping			
		Read Pages 54-55 • (FM) • Complete Page S27 • (SJ)			
	Day 54	Investigation #13: Roller Derby with Flour			
	Day 55	Read Pages 56-57 • (FM) • Complete Page S28 • (SJ)			
	Day 56	Investigation #13: Roller Derby with Flour Read Pages 58-59 • (FM) • Complete Page S29 • (SJ)			
	Day 57				
Week 3	Day 58	Investigation #14: Balloon Jet Propulsion Read Pages 60-61 • (FM) • Complete Page S30 • (SJ)			
	Day 59				
	Day 60	Investigation #14: Balloon Jet Propulsion Read Pages 62-63 • (FM) • Complete Page S31 • (SJ)			
	Day 61	Forces & Motion Investigations 9-14 Quiz 3 Level 1 Page 21 • Level 2 Page 33 • (LP)			
	Day 62				
Week 4	Day 63	Investigation #15: Balancing Act with a Stick Read Pages 64-65 • (FM) • Complete Page S32 • (SJ)			
	Day 64				
	Day 65	Investigation #15: Balancing Act with a Stick Read Pages 66-67 • (FM) • Complete Page S33 • (SJ)			
	Day 66				
	Day 67	Investigation #16: Spinning Tops Read Pages 68-69 • (FM) • Complete Page S34 • (SJ)			
Week 5	Day 68				
	Day 69	Investigation #16: Spinning Tops Read Pages 70-71 • (FM) • Complete Page S35 • (SJ)			
	Day 70				
	Day 71				
	Day 72	Investigation #17: He Ain't Heavy, He's Just My Read Pages 72-73 • (FM) • Complete Page S36 • (SJ)			
Week 6	Day 73				
	Day 74	Investigation #17: He Ain't Heavy, He's Just My Read Pages 74-75 • (FM) • Complete Page S37 • (SJ)			
	Day 75				
	Day 76				
	Day 77	Investigation #18: How Do Like Your Pulleys? Read Pages 76-77 • (FM) • Complete Page S38 • (SJ)			
Week 7	Day 78				
	Day 79	Investigation #18: How Do Like Your Pulleys? Read Pages 78-79 • (FM) • Complete Page S39 • (SJ)			
	Day 80				

Date	Day	Assignment	Due Date	\checkmark	Grade
	Day 81	Investigation #19: And the Wheel Goes Round Read Pages 80-81 • (FM) • Complete Page S40 • (SJ)			
	Day 82				
Week 8	Day 83	Investigation #19: And the Wheel Goes Round Read Pages 82-83 • (FM) • Complete Page S41 • (SJ)			
	Day 84				
	Day 85	Investigation #20: If It Doesn't Move, How Can It Be Read Pages 84-85 • (FM) • Complete Page S42 • (SJ)			
	Day 86	Investigation #20: If It Doesn't Move, How Can It Be Read Pages 86-87 • (FM) • Complete Page S43 • (SJ)			
	Day 87				
Week 9	Day 88	Forces & Motion Investigations 15-20 Quiz 4 Level 1 Page 23 • Level 2 Page 37 • (LP)			
	Day 89				
	Day 90	Forces & Motion Investigations 1-20 Test 1 Level 1 Page 25 • Level 2 Page 39 • (LP)			
		Mid-Term Grade			

Second Semester Suggested Daily Schedule

Date	Day	Assignment	Due Date	\checkmark	Grade
		Second Semester-Third Quarter — The Earth			
	Day 91				
	Day 92	Investigation #1: Orange You Going to Map the Earth? Read Pages 4-7 • <i>The Earth</i> (TE) Complete Page S1 • Student Journal (SJ)			
Week 1	Day 93				
	Day 94	Investigation #1: Orange You Going to Map the Earth? Read Pages 8-9 • (TE) • Complete Page S2 • (SJ)			
	Day 95				
	Day 96				
	Day 97	Investigation #2: Composition of the Earth Read Pages 10-11 • (TE) • Complete Page S3 • (SJ)			
Week 2	Day 98				
	Day 99	Investigation #2: Composition of the Earth Read Pages 12-13 • (TE) • Complete Page S4 • (SJ)			
	Day 100				
	Day 101				
	Day 102	Investigation #3: Why Is Everything Moving? Read Pages 14-15 • (TE) • Complete Page S5 • (SJ)			
Week 3	Day 103				
	Day 104	Investigation #3: Why Is Everything Moving? Read Pages 16-17 • (TE) • Complete Page S6 • (SJ)			
	Day 105				
	Day 106	Investigation #4: Earthquake Read Pages 18-19 • (TE) • Complete Page S7 • (SJ)			
	Day 107				
Week 4	Day 108	Investigation #4: Earthquake Read Pages 20-21 • (TE) • Complete Page S8 • (SJ)			
	Day 109				
	Day 110	The Earth Investigations 1-4 Quiz 1 Level 1 Page 45 • Level 2 Page 59 • (LP)			
	Day 111				
	Day 112	Investigation #5: Living with Earthquakes Read Pages 22-23 • (TE) • Complete Page S9 • (SJ)			
Week 5	Day 113				
	Day 114	Investigation #5: Living with Earthquakes Read Pages 24-25 • (TE) • Complete Page S10 • (SJ)			
	Day 115				

Date	Day	Assignment	Due Date	\checkmark	Grade
	Day 116				
	Day 117	Investigation #6: Volcanoes Read Pages 26-27 • (TE) • Complete Page S11 • (SJ)			
Week 6	Day 118				
	Day 119	Investigation #6: Volcanoes Read Pages 28-31 • (TE) • Complete Page S12 • (SJ)			
	Day 120				
	Day 121	Investigation #7: Mountains (Folding and Faulting) Read Pages 32-33 • (TE) • Complete Page S13 • (SJ)			
	Day 122				
Week 7	Day 123	Investigation #7: Mountains (Folding and Faulting) Read Pages 34-35 • (TE) • Complete Page S14 • (SJ)			
	Day 124				
	Day 125	Investigation #8: Pardon the Intrusion Read Pages 36-37 • (TE) • Complete Page S15 • (SJ)			
	Day 126	Investigation #8: Pardon the Intrusion Read Pages 38-39 • (TE) • Complete Page S16 • (SJ)			
	Day 127				
Week 8	Day 128	The Earth Investigations 5-8 Quiz 2Level 1 Page 47 • Level 2 Page 61 • (LP)			
	Day 129				
	Day 130	Investigation #9: Mapping a Mountain Read Pages 40-41 • (TE) • Complete Page S17 • (SJ)			
	Day 131	Investigation #9: Mapping a Mountain Read Pages 42-43 • (TE) • Complete Page S18 • (SJ)			
	Day 132				
Week 9	Day 133	Investigation #10: Growing Crystals Read Pages 44-45 • (TE) • Complete Page S19 • (SJ)			
	Day 134				
	Day 135	Investigation #10: Growing Crystals Read Pages 46-47 • (TE) • Complete Page S20 • (SJ)			
		Second Semester-Fourth Quarter — The Earth			
	Day 136				
	Day 137	Investigation #11: Minerals Read Pages 48-49 • (TE) • Complete Page S21 • (SJ)			
Week 1	Day 138				ļ
	Day 139	Investigation #11: Minerals Read Pages 50-51 • (TE) • Complete Page S22 • (SJ)			
	Day 140				

Date	Day	Assignment	Due Date	✓ Grade
	Day 141	Investigation #12: Rocks That Fizz Read Pages 52-53 • (TE) • Complete Page S23 • (SJ)		
	Day 142			
Week 2	Day 143	Investigation #12: Rocks That Fizz Read Pages 54-55 • (TE) • Complete Page S24 • (SJ)		
	Day 144			
	Day 145	The Earth Investigations 9-12 Quiz 3 Level 1 Page 49 • Level 2 Page 63 • (LP)		
	Day 146			
	Day 147	Investigation #13: Rocks Have an ID Read Pages 56-57 • (TE) • Complete Page S25 • (SJ)		
Week 3	Day 148			
	Day 149	Investigation #13: Rocks Have an ID Read Pages 58-59 • (TE) • Complete Page S26 • (SJ)		
	Day 150			
	Day 151			
	Day 152	Investigation #14: How Little, Tiny Things Settle Read Pages 60-61 • (TE) • Complete Page S27 • (SJ)		
Week 4	Day 153			
	Day 154	Investigation #14: How Little, Tiny Things Settle Read Pages 62-63 • (TE) • Complete Page S28 • (SJ)		
	Day 155			
	Day 156	Investigation #15: How Rocks and Dirt Catch a Ride Read Pages 64-65 • (TE) • Complete Page S29 • (SJ)		
	Day 157			
Week 5	Day 158	Investigation #15: How Rocks and Dirt Catch a Ride Read Pages 66-67 • (TE) • Complete Page S30 • (SJ)		
	Day 159			
	Day 160	Investigation #16: Physical and Chemical Weathering Read Pages 68-69 • (TE) • Complete Page S31 • (SJ)		
	Day 161	Investigation #16: Physical and Chemical Weathering Read Pages 70-71 • (TE) • Complete Page S32 • (SJ)		
	Day 162			
Week 6	Day 163	The Earth Investigations 13-16 Quiz 4 Level 1 Page 51 • Level 2 Page 65 • (LP)		
	Day 164			
	Day 165	Investigation #17: Holes in Rocks Read Pages 72-73 • (TE) • Complete Page S33 • (SJ)		
	Day 166	Investigation #17: Holes in Rocks Read Pages 74-75 • (TE) • Complete Page S34 • (SJ)		
	Day 167			
Week 7	Day 168	Investigation #18: Holes in Rocks Read Pages 76-77 • (TE) • Complete Page S35 • (SJ)		
	Day 169			
	Day 170	Investigation #18: Holes in Rocks Read Pages 78-79 • (TE) • Complete Page S36 • (SJ)		

Date	Day	Assignment	Due Date	\checkmark	Grade
	Day 171	Investigation #19: Glaciers Read Pages 80-81 • (TE) • Complete Page S37 • (SJ)			
	Day 172				
Week 8	Day 173	Investigation #19: Glaciers Read Pages 82-83 • (TE) • Complete Page S38 • (SJ)			
	Day 174				
	Day 175	Investigation #20: Toiling in the Soil Read Pages 84-85 • (TE) • Complete Page S39 • (SJ)			
	Day 176	Investigation #20: Toiling in the Soil Read Pages 86-87 • (TE) • Complete Page S40 • (SJ)			
	Day 177				
Week 9	Day 178	The Earth Investigations 17-20 Quiz 5Level 1 Page 53 • Level 2 Page 67 • (LP)			
	Day 179				
	Day 180	The Earth Investigations 1-20 Test 1 Level 1 Page 55 • Level 2 Page 69 • (LP)			
		Final Grade			

Quizzes and Test

for Use with

Forces & Motion

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

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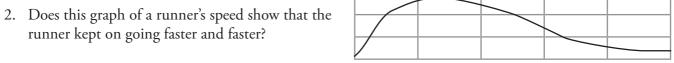
Q	Forces & Motion	Quiz 1	Scope:	Total score:	Name
	Concepts & Comprehension	Level 1	Chapters 1–4	of 100	

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

centimeters	engineer	frame of reference	friction	heat
increase	inertia	no	north	reduce
rolling friction	scientist	second	sliding friction	south
streamlined	time	yes		

Fill in the Blank: Each question is worth 5 points.

1. In order to find something's speed, you need to divide the distance by the _____



per

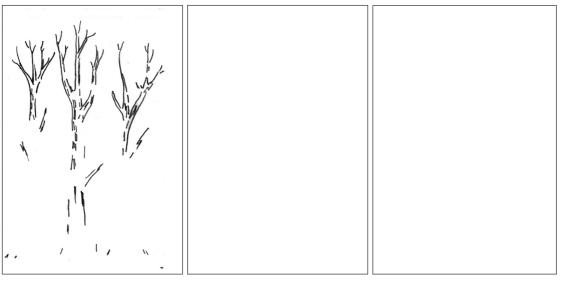
3. Suppose a bug's speed is 2 cm/s. This means it can travel 2 _____

4. In order to tell how something is moving, you need a _____

- 5. A flat boat is moving north at 10 miles per hour. A walking toy on the boat is moving south at 5 miles per hour. Would someone watching the walking toy from the bank of the river see it moving north or south?
- 6. Is Darwin's idea that all living things evolved from a one-celled organism represented by a forest of trees?
- 7. What force causes your tennis shoes to wear out?
- 8. What force helps you to walk without falling down?
- 9. Friction always produces what form of energy?
- 10. Ball bearing and roller bearings are used to ______ friction.
- 11. Is it possible for the same set of facts to be interpreted in more than one way?
- 12. Many birds have a special shape that lets them fly smoothly through the air with little friction. What is this shape called?
- 13. Does a force have to be applied to an object to cause it to start moving?
- 14. Does a force have to be applied to a moving object to cause it to stop moving?
- 15. Which force is greater if other conditions are the same—rolling friction or sliding friction?
- 16. Someone who builds rockets and tries to make them faster, cheaper, and safer is called a rocket

Creative Interpretation: Each image is worth 10 points each.

17. Sometimes we have one set of limited facts and can come to different conclusions. Examine the following image and what "remains" of a painting. Then draw two possible reconstructions.



Remains of the original painting

Possible reconstruction #1

Possible reconstruction #2