

Kolbe Academy Home School

GRADE EIGHT MATHEMATICS *Sadlier-Oxford Foundations of Algebra*

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COURSE TITLE: Mathematics 8: Sadlier-Oxford

COURSE TEXTS:

Full Year:

Sadlier-Oxford Foundations of Algebra Sourcebook (Textbook)

Sadlier-Oxford Foundations of Algebra Practice Book (Workbook)

Optional Teacher's Edition (Available for Purchase to Enrolled Families Only).

TEXT DESCRIPTIONS

Components	
Sourcebook (Textbook)	The sourcebook contains the learning tasks for students to do with adult supervision and interaction. This text is a non-consumable book and to be used along with the consumable practice book at minimum. Answers to both the sourcebook and practice book are available in the Teacher's Edition and via the Kolbe answer website.
Practice Book (Workbook)	The practice book is consumable and should be used along with the sourcebook. They contain the exercises the student does independently after each learning task. Answers to workbook questions are in the Teacher's Edition and available via the Kolbe answer website.
Teacher's Edition	The Teacher's Edition is optional, but strongly recommended. More than a simple answer key for the sourcebook and practice book, the text provides teaching strategies and solutions for common errors. The teacher's edition is available for purchase through the Kolbe Bookstore to Kolbe-enrolled families.

COURSE DESCRIPTION:

The goal of *Foundations of Algebra* is to develop student's mathematical problem solving skills both in practical and abstract concepts to prepare the student for Algebra I study. The series presents mathematical concepts in a linear manner, in an alternative to the review method presented in other programs, to provide an alternative for a family that prefers to teach mathematics without constant review. In addition, the series provides opportunities for strong math students to approach concepts that may be skipped in other series. Upon completion of the course, students will be ready to move into Algebra I. The textbook is arranged into 14 chapters with lessons arranged to review concepts introduced in previous math programs while advancing students toward readiness for algebra. In addition to computational skills, the program focuses on problem-solving strategies, making unpacking problems explicit so that students can be ready for future mathematics programs and standardized tests they may have to take for state requirements and/or college or high school entrances. We hope that, through this series, students will develop important logic and reasoning skills that will be invaluable in future mathematics courses and throughout life.

HONORS DESIGNATION:

This course plan has been developed for students who have completed Saxon Math 8/7 and/or Algebra 1/2 or the Singapore Math program and therefore have a strong background in the fundamentals of mathematics. Students who used the majority of Sadlier-Oxford's 7th grade text (Kolbe Honors) or found the traditional 7th grade Sadlier-Oxford plan (regular curriculum) too slow for them should transition seamlessly into

this program. Students who have used other math series with ease may also be strong candidates for the honors program. These plans are designed to complete the entire text in a year, with several chapters being addressed at a time. Students who had Saxon or Singapore Math typically do not have much trouble with the *content* of the text, but getting acclimated to a new way of doing math may take a little bit of time. This series was chosen specifically to help graduates of these series to transition into a traditional mathematics approach. Therefore, be aware that the text format will take some adjusting to, but once you and your learner get used to the new format, tackling high school mathematics will be easier.

SKILLS TO BE DEVELOPED:

- Readiness for Algebra I with a more thorough study Pre-Algebra principles than the regular course for a solid math student who is not ready for Algebra I, but has a solid mathematical understanding.

OPTIONAL ENRICHMENT SUGGESTIONS:

Some material in the textbook involves connections to standardized test preparation and advanced mathematical concepts not essential to master. These sections will provide an advanced student additional opportunities to strengthen understanding of mathematical concepts. These sections will be identified as optional activities.

Consider having your student mentor younger students in math fundamentals. You may notice some content in the text such as work with fractions, decimals, and percentages, is a review of content that the students may have studied in earlier years that younger siblings may be working on at the same time. By teaching the material to another student or explaining the concept to the parent, the student will be able to deepen his her own understanding while giving younger siblings a preview of math in a fun atmosphere.

SCOPE AND SEQUENCE

- | | |
|--|---|
| <p>❖ Quarter 1
 Weeks 1-3: Chapter 1: Rational Numbers
 Weeks 3-5: Chapter 2: Real Numbers
 Weeks 5-7: Chapter 3: Expressions and Equations
 Weeks 8-9: Chapter 4: Inequalities</p> | <p>Weeks 21-23: Chapter 9: Two-Dimensional Geometry
 Weeks 24-26: Chapter 10: Geometric Measures and Coordinate Geometry
 Week 26-27: Chapter 11: Patterns and Nonlinear Functions (Begin)</p> |
| <p>❖ Quarter 2
 Weeks 10-12: Chapter 5: Polynomials and Factoring
 Weeks 12-15: Chapter 6: Linear Functions and Inequalities
 Weeks 16-18: Chapter 7: Ratio and Proportion</p> | <p>❖ Quarter 4
 Week 28: Chapter 11: Patterns and Nonlinear Functions (Complete)
 Weeks 29-30: Chapter 12: Three-Dimensional Geometry
 Weeks 31-32: Chapter 13: Data Analysis and Statistics
 Weeks 33-36: Chapter 14: Probability and Logic</p> |
| <p>❖ Quarter 3
 Week 19-20: Chapter 8: Percent Applications</p> | |

COURSE PLAN METHODOLOGY:

Kolbe Academy has worked diligently to create the best possible course plans with the home schooling family in mind. Remember, however, that our program is intended to be flexible. Per the principle of subsidiarity, these course plans are a **suggested** course of study. As the teacher, you should adapt and modify these course plans to meet the individual learning needs of your child. **Do not feel obligated to follow these course plans exactly.**

There are several books used in this course. A list of abbreviations follow to help aid you in reading the Kolbe Academy course plan.

Legend	
SB	<i>Foundations of Algebra, Sourcebook (Textbook)</i>
PB	<i>Foundations of Algebra, Practice Book (Workbook)</i>
DAY	<input type="checkbox"/>
	Assignments and activities that are a recommended part of the course are included in each day's schedule.
OPT	<input type="radio"/>
	Optional assignments and/or activities that can be used as reinforcement for a skill not yet mastered or enrichment for a child that wants to go that extra step. Some lessons are designated as "OPT" because they are not essential to move on to 8 th grade in either Algebra or Mathematics; however, if you have the time, these lessons will make later mathematics courses smoother. These are located in each day's optional schedule indicated by "OPT."

Each weekly assignment is summarized in the first rows of the week's daily course plan along with the goals, notes, and suggested materials for that week. The specific daily assignments for the student are outlined in the following lines indicated by the **DAY 1**, **DAY 2**, **DAY 3**, and **DAY 4** abbreviations and include a checkbox. The assignments in the **OPT** box are meant to be **OPTIONAL** and coincide with that particular day's assignments. These optional assignment that are included for reinforcement or enrichment are indicated with the symbol . See the legend above to help you determine whether your child might benefit from the optional assignments. Parent daily guidelines are given to the right of the student assignments. These guidelines are meant to be flexible. Feel free to combine lessons when able, or slow down where desired. A family's schedule can and should vary as needed. This schedule is on a four-day week. This schedule frees the family up to allow one extra day per week to review or re-teach lessons, as needed. The fifth day could also be a day spent mentoring a younger student on mathematical concepts, which will reinforce the student's own mathematical skills.

This mathematics course contains 36 weeks broken into four 9-week quarters. The exams focus on the material covered in both units for in-depth examination of that specific material. Four exams are given in Quarter 1, four in Quarter 2, three exams for Quarter 3 and three exams for Quarter 4, for a total of fourteen exams for the year. In addition, at the year's end, a placement test is included to determine whether the student should move on to 8th Grade Mathematics or Algebra I next year.

Daily Assignments consist of a lesson or group of lessons from the sourcebook, some practice problems in the sourcebook (“Try These”) and some written assignments from the practice book. Because some assignments will be long, some items will be identified as “Try Together.” These are items from the Practice Book that can be changed into oral assignments for you to try a few more sample problems together, out loud. These “Try Togethers” will help reduce “seat time” so students can be more successful in mathematics because they don’t feel overwhelmed, but you as a home educator can still determine whether the student is mastering the skill. Consider actually working out the problems on your own in your notebook or having an older student try them if they cannot be done orally. When you’re done, compare your answers. This way, the student can see the proper strategy and it will be easier for you to spot mistakes (if any!). Some savvy teachers will make a mistake on purpose in their own work to provide an opportunity for the student to correct his or her teacher’s work. Correcting an error can help a student demonstrate true concept mastery.

If you choose to make your own assignments, strive for an average of 20-25 problems per assignment, but be flexible about where you assign them. If you cover 3 units in one lesson, spread those 25-30 problems out over the 3 units, and do not feel you need to assign, say, 5 problems in a skill that the student has demonstrated mastery in through the “Try These” problems. For enrolled families, the “Practice and Apply” section in the Teacher’s Edition will give you some idea about what problems to assign if you want to individualize assignments. If you are using the Teacher’s Edition, select problems from “Decelerated” if your student needs extra time to master the concept. Select “Average” if your student made a few mistakes in the “Try These,” and you know that he or she needs just a little more practice to really master the skill. If your student seemed to master the “Try These” material, select problems from the “Accelerated” category.

There are diagnostic pre-tests to be assigned at the beginning of each unit in the Teacher’s Edition, which can provide some assistance for individualized adjustments. For families not using the Teacher’s Edition, if you find that students are struggling with concepts that have been taught in previous years, particularly toward the beginning of the year, if you have younger children at home, consider having them co-teach lessons with you to younger siblings to reinforce previously taught concepts. Another option is to use videos available at Khan Academy (<https://www.khanacademy.org/>). Khan Academy videos provide straightforward demonstrations and some guided practice for most mathematical concepts at a student’s own pace. Typically, if students are struggling with one concept, you can keep moving forward in the lessons, however, so do not feel that you need to stop moving forward to remediate. Students typically find success in other chapters if one chapter is a little shaky, and that feeling of success will spur them to review concepts in a more receptive manner so they can more readily master past material. If you need more tips for remediation or re-teaching strategies, consider reaching out to Kolbe Academy’s home school advisors for help.

Finally, begin every class with a prayer. This is a good way to help the child memorize new prayers. Repeat the same ones every day until they are known. Be sure to explain the meanings of the prayers. Repetition in all areas of study is most beneficial.

ENHANCED CONTENT OPTION:

The Sadlier-Oxford series is much larger than the Saxon or Singapore series and therefore covers more ground than strictly necessary. For some students, however, you may find there is plenty of time to cover additional units before the test. Starting in Chapter 2, additional lessons will be available in the back of the course plan. The following units have additional content found at the back of the Course Plan, and some units have alternative test forms, should you decide to use them:

Chapter 2:

- Special Right Triangles

Chapter 3:

- Absolute Value Equations

Chapter 4:

- Compound Inequalities

Chapter 5:

- Factoring Special Products
- Factoring Trinomials

Chapter 6:

- Linear Inequalities in Two Variables
- Systems of Linear Inequalities

Chapter 7:

- Trigonometric Ratios

Chapter 9:

- Congruent Polygons
- Angle Constructions
- Line Constructions
- Triangle Constructions

Chapter 10

- Precision and Significant Digits
- Coordinate Plane: Reflections and Translations
- Coordinate Plane: Rotations
- Coordinate Plane: Dilations
- Combine Transformations

Chapter 11:

- Geometric Patterns and Tables

Chapter 12:

- Explore Properties of Three-Dimensional Figures

Chapter 13:

- Collect and Organize Data
- Multiple Bar Graphs
- Bar Graph Applications
- Multiple Line Graphs

- Choose Appropriate Graphs
- Misleading Statistics and Graphs
- Problem-Solving: Consider Extreme Cases

Chapter 14:

- Counting Principle and Tree Diagrams
- Experimental Probability
- Probability and Odds
- Mutually Exclusive and Overlapping Events
- Compound Events
- Pascal's Triangle and Probability
- Permutations
- Combinations
- Connectives
- Converse, Inverse, and Contrapositive
- Problem Solving: Review of Strategies

◆◆◆ FIRST QUARTER ◆◆◆

WEEK 1				
Book	Weekly Breakdown	Goals and Notes for the Week		
SB/ PB	Chapter 1	<ul style="list-style-type: none"> Rational Numbers Greatest Common Factor Least Common Multiple and Least Common Denominator 		
Notes				
Student Daily Assignments		<input checked="" type="checkbox"/>	Parent Daily Guidelines	
DAY 1	SB and PB, Unit 1-1	<input type="checkbox"/>	<ul style="list-style-type: none"> Rational Numbers Explore Try these for 1-1 Try Together: Practice Book: 1-1: 2-12, even 	
	PB 1-1	<input type="checkbox"/>	Assign 1-1: 14-56, even; 57-64	
DAY 2	SB and PB, Unit 1-2	<input type="checkbox"/>	<ul style="list-style-type: none"> The Rational Numbers on a Number Line Explore Try these for 1-2 Try Together: Practice Book: 1-2: 2-12, even 	
	PB 1-2	<input type="checkbox"/>	Assign 1-2: 14-56, even; 57-64, all	
DAY 3	SB and PB, Unit 1-3	<input type="checkbox"/>	<ul style="list-style-type: none"> Greatest Common Factor Explore Try these for 1-3 Try Together: Practice Book: 1-3: 2-12, even 	
	PB 1-3	<input type="checkbox"/>	Assign 1-3: 14-58, even; 59-60	
DAY 4	SB and PB, Unit 1-4	<input type="checkbox"/>	<ul style="list-style-type: none"> Least Common Multiples and Least Common Denominator Explore Try these for 1-4 Try Together: Practice Book: 1-4: 2-12, even 	
	PB 1-4	<input type="checkbox"/>	Assign 1-4: 14-34, even	
DAY 5	SB and PB, Unit 1-5	<input type="checkbox"/>	<ul style="list-style-type: none"> Comparing and Ordering Rational Numbers Explore Try these for 1-5 Try Together: Practice Book: 1-5: 2-12, even 	
	PB 1-5	<input type="checkbox"/>	Assign 1-5: 14-40, even; 42-43	
Week 1 Grade Book				
Assignments	Include <input checked="" type="checkbox"/>	(A) Points Earned	(B) Possible Points	A/B x100 =% (C)
PB: Unit 1-1	<input type="checkbox"/>			
PB: Unit 1-2	<input type="checkbox"/>			
PB: Unit 1-3	<input type="checkbox"/>			
PB: Unit 1-4	<input type="checkbox"/>			
PB: Unit 1-5	<input type="checkbox"/>			
Week 1 Average	Add up column C & divide by number of included <input checked="" type="checkbox"/> assignments =			%

◆ COURSE PLAN ◆

WEEK 2				
Book	Weekly Breakdown	Goals and Notes for the Week		
SB/PB	Continue Chapter 1	<ul style="list-style-type: none"> Estimating with Rational Numbers Adding, Subtracting, Multiplying, and Dividing with Rational Numbers 		
Notes				
Student Daily Assignments		<input checked="" type="checkbox"/>	Parent Daily Guidelines	
DAY 1	SB and PB, Unit 1-6	<input type="checkbox"/>	<ul style="list-style-type: none"> Division with Integers Explore Try these for 1-6 Try Together: Practice Book: 1-6: 2-12, even 	
	PB 1-6	<input type="checkbox"/>	Assign 1-6: 14-48, even	
DAY 2	SB and PB, Unit 1-7	<input type="checkbox"/>	<ul style="list-style-type: none"> Adding Rational Numbers Explore Try these for 1-7 Try Together: Practice Book: 1-7: 2-12, even 	
	PB 1-7	<input type="checkbox"/>	Assign 1-7: 14-42, even	
DAY 3	SB and PB, Unit 1-8	<input type="checkbox"/>	<ul style="list-style-type: none"> Subtracting Rational Numbers Explore Try these for 1-8 Try Together: Practice Book: 1-8: 2-12, even 	
	PB 1-8	<input type="checkbox"/>	Assign 1-8: 14-48, even; 49-53	
DAY 4	SB and PB, Unit 1-9	<input type="checkbox"/>	<ul style="list-style-type: none"> Multiplying Rational Numbers Explore Try these for 1-9 Try Together: Practice Book: 1-9: 2-12, even 	
	PB 1-9	<input type="checkbox"/>	Assign 1-6: 14-46, even; 47-50, all	
DAY 5	SB and PB, Unit 1-10	<input type="checkbox"/>	<ul style="list-style-type: none"> Dividing Rational Numbers Explore Try these for 1-10 Try Together: Practice Book: 1-10: 2-12, even 	
	PB 1-10	<input type="checkbox"/>	Assign 1-10: 14-58, even	
Week 2 Grade Book				
Assignments	Include <input checked="" type="checkbox"/>	(A) Points Earned	(B) Possible Points	A/B x100 =% (C)
PB: Unit 1-6	<input type="checkbox"/>			
PB: Unit 1-7	<input type="checkbox"/>			
PB: Unit 1-8	<input type="checkbox"/>			
PB: Unit 1-9	<input type="checkbox"/>			
PB: Unit 1-10	<input type="checkbox"/>			
Other:	<input type="checkbox"/>			
Week 2 Average	Add up column C & divide by number of included <input checked="" type="checkbox"/> assignments =			%

◆ COURSE PLAN ◆

WEEK 3				
Book	Weekly Breakdown	Goals and Notes for the Week		
SB/PB	Continue Chapter 1	<ul style="list-style-type: none"> • Properties of Rational Numbers • Integral Exponents • Powers and Exponents • Order of Operations • Problem-Solving Strategy: Make a Drawing 		
Notes				
Student Daily Assignments		<input checked="" type="checkbox"/>	Parent Daily Guidelines	
DAY 1	SB and PB, Unit 1-11	<input type="checkbox"/>	<ul style="list-style-type: none"> • Properties of Rational Numbers • Explore Try these for 1-11 • Try Together: Practice Book: 1-11: 2-10, even 	
	PB 1-11	<input type="checkbox"/>	Assign 1-11: 12-50, even	
DAY 2	SB and PB, Unit 1-12	<input type="checkbox"/>	<ul style="list-style-type: none"> • Integral Exponents • Explore Try these for 1-12 • Try Together: Practice Book: 1-12: 2-10, even 	
	PB 1-12	<input type="checkbox"/>	Assign 1-12: 12-56, even	
DAY 3	SB and PB, Unit 1-13	<input type="checkbox"/>	<ul style="list-style-type: none"> • Powers and Exponents • Explore Try these for 1-13 • Try Together: Practice Book: 1-13: 2-12, even 	
	PB 1-13	<input type="checkbox"/>	Assign 1-13: 14-60, even; 63-64	
DAY 4	SB and PB, Unit 1-14	<input type="checkbox"/>	<ul style="list-style-type: none"> • Order of Operations with Rational Numbers • Explore Try these for 1-14 • Try Together: Practice Book: 1-14: 2-16, even 	
	PB 1-14	<input type="checkbox"/>	Assign 1-14: 18-44, even	
DAY 5	SB and PB, Unit 1-15	<input type="checkbox"/>	<ul style="list-style-type: none"> • Problem-Solving Strategy: Making a Drawing • Explore the Extended Example together • Try Together: Practice Book: 1-3 	
	PB 1-15	<input type="checkbox"/>	Assign 1-15: 4-9	
Week 3 Grade Book				
Assignments	Include <input checked="" type="checkbox"/>	(A) Points Earned	(B) Possible Points	A/B x100 =% (C)
PB: Unit 1-11	<input type="checkbox"/>			
PB: Unit 1-12	<input type="checkbox"/>			
PB: Unit 1-13	<input type="checkbox"/>			
PB: Unit 1-14	<input type="checkbox"/>			
PB: Unit 1-15	<input type="checkbox"/>			
Week 3 Average	Add up column C & divide by number of included <input checked="" type="checkbox"/> assignments =			%