

1. Provide content that is correlated to the Oregon State Core and Content Standards at each grade level 6-8.

The Oregon Focus on Math[®] Series is written specifically to provide content that addresses the 2007 Oregon Core Standards at grades 6-8. There are three texts per grade. Each text addresses one Core Standard at that grade level. The texts are written to cover each Core Standard in depth. The series follows the recommendation of the National Math Advisory Panel: “to prepare students for Algebra, the curriculum must simultaneously develop conceptual understanding, computational fluency, and problem-solving skills.”¹ Throughout each text, multiple strategies are given for students to acquire the content listed in a specific grade-level core standard.

In addition to covering the content listed in the Core Standards, each text in the Oregon Focus on Math[®] Series includes Connections as specified by Draft 5 of the Oregon Core Standards as well as the National Council of Teachers of Mathematics (NCTM) Curriculum Focal Points². Most texts also provide a block covering the pre-requisite knowledge required for success in the Core Standard.

Listed below are the nine texts in the series and the Oregon Core Standards covered by each text. The number of lessons in each text includes the pre-requisite knowledge block as well as the Connection lessons.

Text Title	Core Standard	Lessons
Oregon Focus on Fractions and Decimals	6.1 <u>Number and Operations</u> : Develop an understanding of and fluency with multiplication and division of fractions and decimals.	30
Oregon Focus on Ratios, Rates and Percents	6.2 <u>Number and Operations</u> and <u>Probability</u> : Connect ratio, rate, and percent to multiplication and division.	24
Oregon Focus on Introductory Algebra	6.3 <u>Algebra</u> : Write, interpret, and use mathematical expressions and equations.	25
Oregon Focus on Rational Numbers and Equations	7.1 <u>Number and Operations</u> and <u>Algebra</u> : Develop an understanding of operations on all rational numbers and solving linear equations.	28
Oregon Focus on Proportionality	7.2 <u>Number and Operations</u> , <u>Algebra</u> and <u>Geometry</u> : Develop an understanding of and apply proportionality, including similarity.	25
Oregon Focus on Surface Area and Volume	7.3 <u>Measurement</u> and <u>Geometry</u> : Develop an understanding of and use formulas to determine surface area and volume.	23
Oregon Focus on Linear Equations	8.1 <u>Algebra</u> : Analyze and represent linear functions, and solve linear equations and systems of linear equations.	28
Oregon Focus on Data Analysis	8.2 <u>Data Analysis</u> and <u>Algebra</u> : Analyze and summarize data sets.	25
Oregon Focus on Lines and Angles	8.3 <u>Geometry</u> and <u>Measurement</u> : Analyze two- and three-dimensional spaces and figures by using distance and angle.	20



2. Connections integrate the standards. They introduce, extend, or reinforce standards at prior, current or later grades.

The table below shows the Oregon Core and Content Standards that are covered in each lesson of the Stage 1 Texts. The lessons which contain Pre-Requisite Core Standards are listed with that grade level’s Core Standard preceded by a P. The lessons which cover grade-level Oregon Core and Content Standards are specified with a C and the Content Standard number. The Connections lessons are also noted. Connections are integrated throughout the Oregon Focus on Math[®] Series. The authors of the series were guided by the NCTM Curriculum Focal Point Connections as well as Draft 5 of the Oregon Core Standards.

Lesson	Oregon Focus on Fractions and Decimals (6.1)	Oregon Focus on Ratios, Rates & Percents (6.2)	Oregon Focus on Introductory Algebra (6.3)	Oregon Focus on Rational Numbers & Equations (7.1)	Oregon Focus on Proportionality (7.2)	Oregon Focus on Surface Area & Volume (7.3)	Oregon Focus on Linear Equations (8.1)	Oregon Focus on Data Analysis (8.2)	Oregon Focus on Lines & Angles (8.3)
1	P5.1	C6.2.1	C6.3.1	P5.1	P2.1/5.1	P5.3	P6.3	P6.2	P3.3/5.3
2	P3.1/5.1	Connection	C6.3.1	P5.1	P6.2	Connection	P6.3	P7.2	P3.3/5.3
3	P5.1	C6.2.1	C6.3.1	P5.1	P6.2	C7.3.1	P6.3	P7.2	C8.3.1
4	P5.1	C6.2.1	C6.3.1	P6.1	P6.2	C7.3.1/7.3.3	P6.3	P5.1	C8.3.1
5	P4.1	Connection	C6.1.6	P5.1/6.1	C7.2.5	C7.3.1/7.3.3	P7.1	P5.1	C8.3.1
6	P5.1	C6.2.2	C6.3.2/6.3.3	P5.1	C7.2.2	C7.3.2	P7.1	C8.2.2	C8.3.1
7	P2.1	C6.2.2	C6.3.3	P6.1	C7.2.2	C7.3.7	P5.1/7.2	C8.2.2	P5.3
8	P5.1	C6.2.1	Connection	C7.1.1	C7.2.4	Connection	C8.1.1	C8.2.2	C8.3.2
9	P5.1	C6.2.1	Connection	C7.1.1	C7.2.4	Connection	C8.1.1	C8.2.4	C8.3.2
10	P5.1	Connection	C6.3.4	C7.1.1	C7.2.4/7.2.6	P5.3	C8.1.1	C8.2.4	Connection
11	P5.1	Connection	C6.1.6	C7.1.1	C7.2.6	P5.3	C8.1.2	C8.2.5	C8.3.1
12	P4.3/5.1	C6.2.1	C6.3.4	C7.1.1	P6.2	P5.3	C8.1.1	C8.2.1	C8.3.3
13	C6.1.2	C6.2.2	C6.3.6	C7.1.1	C7.2.2	C7.3.4/7.3.5/7.3.6	C8.1.1	Connection	C8.3.3
14	C6.1.2/6.1.4	C6.2.1	C6.3.7	C7.1.1	C7.2.2	C7.3.4/7.3.5/7.3.6	C8.1.2	C8.2.1	C8.3.6
15	C6.1.2/6.1.5	C6.2.1	C6.3.7	C7.1.1	C7.2.2	Connection	C8.1.2	C8.2.3/8.2.6/8.2.8	C8.3.6
16	C6.1.2/6.1.4/6.1.5	C6.2.3/6.2.4	C6.3.7	C7.1.3	C7.2.2	C7.3.7	C8.1.1/8.1.3/8.1.4	C8.2.1	C8.3.4
17	C6.1.1	C6.2.3/6.2.4	C6.3.7	C7.1.2	Connection	P5.3	C8.1.1/8.1.3/8.1.4	C8.2.3/8.2.6/8.2.8	C8.3.4
18	C6.1.2/6.1.4	C6.2.3/6.2.4	C6.3.7	C7.1.2	Connection	C7.3.4/7.3.6	C8.1.1/8.1.4	C8.2.1	C8.3.5
19	C6.1.2/6.1.4	Connection	C6.3.7	C7.1.3	C7.2.2	Connection	C8.1.1	C8.2.3/8.2.6/8.2.8	C8.3.5
20	C6.1.7	Connection	Connection	C7.1.2	C7.2.3	C7.3.4/7.3.6	C8.1.1	C8.2.1	Connection
21	P4.1	C6.2.5	P5.1	C7.1.2	Connection	C7.3.4/7.3.6	Connection	C8.2.6/8.2.8	
22	P4.1	C6.2.5	C6.3.5	P6.3	C7.2.1/7.2.3	C7.3.7	C8.1.5	Connection	
23	P4.1	Connection	C6.3.5	P6.3	C7.2.1/7.2.3	Connection	C8.1.6	C8.2.6/8.2.8	
24	C6.1.1	Connection	C6.3.5	C7.1.4	C7.2.3		C8.1.6	C8.2.1	
25	P5.1		Connection	P6.1	Connection		Connection	C8.2.7	
26	C6.1.3/6.1.4			P6.3			Connection		
27	C6.1.3/6.1.4			C7.1.4			Connection		
28	C6.1.3/6.1.4			C7.1.4			C8.1.6		
29	P2.1								
30	C6.1.7								

3. Provide formative, summative, and diagnostic assessment for various levels of learners that include conceptual understanding, basic and procedural skills, and problem solving for each topic/unit. Multiple assessment formats are included.

Assessments are a key component of the Oregon Focus on Math[®] Series. The assessments provided in the curriculum help inform both teacher and student of a student's progress mastering the Oregon Core Standards. Through a variety of questions, each assessment tests conceptual understanding, computational fluency and problem solving. The assessments come in multiple formats and include tiered assessments for struggling learners. Listed below are the assessment components that are available for each of the nine texts.

1. Multiple Choice Block Assessments (2 forms) – Regular Version
Multiple Choice Block Assessments (2 forms) – Tiered Version for Struggling Students
2. Free Response Block Assessments (2 forms) – Regular Version
Free Response Block Assessments (2 forms) – Tiered Version for Struggling Students
3. Problem-Solving Work Sample Assessment based on Oregon Problem-Solving Standards (1 per block)
4. Exit Cards (1 card per lesson/228 in the series)
5. Core Standard Diagnostic, Formative and Summative Assessments and Data Analysis Package
6. Student Self-Assessment Templates (1 per block)

Each assessment component can be modified by the instructor. Teachers are provided with ideas relating to implementing the assessments in the classroom as well as part of a Professional Learning Community within a school or district. The multiple choice assessments allow students to attempt problems similar to those they will encounter on the OAKS assessments at each grade level beginning in the 2010-11 school year when the state assessment begins assessing the 2007 Oregon Core Standards.

Highlights in the Oregon Focus Assessments

- Exit Cards are a quick formative assessment tool as a measure **for** student learning. Teachers can use the Exit Cards to quickly see if students are reaching conceptual understanding of targets. This information can be used to guide future lesson planning. Students can use the Exit Cards to gauge their own understanding of the core and content standards and make goals for their learning.
- The Block Assessments include three parts (multiple choice, free response and problem solving). Teachers can mix and match the questions in each part to create an assessment package for their students that fits their own style and their students' needs.
- Multiple versions of the assessments are included. Teachers can use parts of block assessments or the Core Standard Diagnostic Test prior to a unit to gauge student strengths and weaknesses. Teachers can also use second versions of the assessments to gauge student competency at a later date if a student was not able to achieve proficiency in the content at the same time as the rest of his or her classmates.
- All assessments are provided as PDFs as well as Microsoft Word documents. The Word documents can be modified to create unlimited versions. Teachers can also cut problems or add problems as needed.

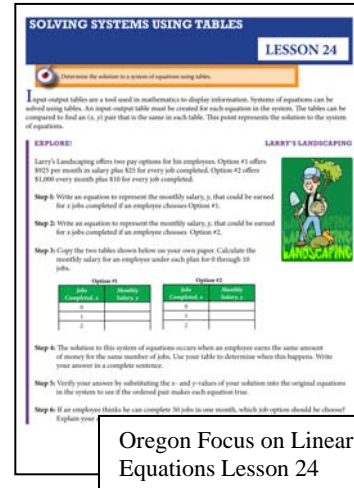
“The traditional approach of using classroom assessments solely as a grading tool fails to utilize the enormous potential of such assessments to identify students who need additional support and to inform the teacher regarding effective and ineffective elements of his/her practice.”³ – Rick Stiggins

4. Program provides engaging mathematically accurate student materials that address a wide range of learning styles and abilities: print materials, graphics, technological tools, manipulatives, etc.

The Oregon Focus on Math[®] Series was written by six practicing mathematics teachers in Oregon. The content in the series is mathematically accurate and has been reviewed by a panel of teachers from multiple districts. The texts are based on the NCTM Curriculum Focal Points and progress through the Oregon Core Standards in a logical, sequential order.

The nine texts in the series employ a variety of strategies to address different learning styles and abilities. This includes, but is not limited to, **Explores!**, manipulatives, Tic-Tac-Toe Boards, technology and tiered worksheets.

Explores! are used throughout the series to give students an opportunity to discover, apply or practice the Core Standards in a variety of methods. Approximately half of the lessons include an **Explore!** activity. Many of these activities involve the use of manipulatives, such as the use of equation mats for equation solving or fraction tiles for fraction operations. **Explores!** are designated by a purple line on the left of the activity.



Oregon Focus on Linear Equations Lesson 24

Each book includes three to four Tic-Tac-Toe Boards (1 per block). Each Tic-Tac-Toe Board includes nine activities that extend or look at the content of the block in different ways. The Tic-Tac-Toe Boards include activities that make use of a variety of multiple intelligences. The activities range from writing a story where the characters are fractions and decimals to calculating Body Mass Index to making a brochure illustrating how to use integer chips and number lines to perform integer operations. The activities described on the Tic-Tac-Toe Boards can be found throughout each block in yellow boxes.



Each lesson in the Oregon Focus on Math[®] Series comes with PowerPoint slide show that is also available to students online from home. The slides step students through examples as well as the **Explores!**. Teachers have the ability to modify the slide shows as they see fit. The PowerPoint lessons will also be available in a version modified for teachers with access to Smart Boards.

For each lesson, there is a regular and tiered worksheet. The tiered worksheets use multiple differentiation strategies to engage low achieving mathematics students. The worksheets include more explicit instruction, as recommended by the National Math Advisory Panel, as well as more space to work on the page.

5. Teacher materials are in multiple formats (printed materials, electronic, online, manipulatives, test generators, etc.).

The teacher materials in the Oregon Focus on Math[®] Series include the printed teacher editions, resource binders, lesson slide shows, tests and online access to multiple components. The table below lists each component and its attributes.

Teacher Materials	Format(s)	Attributes
Teacher's Editions	Printed Material	The teacher's edition includes pacing guides, teaching tips, materials needed, warm-up and exit questions, extra examples, answers to problem sets and communication prompts.
Resource Binders	Printed Material Electronic (PDF and Word documents)	The resource binder includes both regular and tiered worksheets for each lesson as well as a multiple choice block review worksheet. Every worksheet is modifiable using Microsoft Word if teachers desire to change numbers, add more space, cut problems, etc. The binder includes both hard copies and a compact disc with all materials.
Lesson Slide Shows	Electronic (Power Point)	Each text comes with a modifiable Power Point slide show for each lesson. This will be available to teachers on compact disc and is included in the resource binder.
Assessments	Printed Material Electronic (PDF and Word documents)	The assessments for each text include diagnostic, formative and summative assessments in multiple formats (multiple choice, free response and problem solving). Exit Cards are included for each lesson. Teachers can modify every assessment using Microsoft Word, if desired. All assessments are provided as printed materials in the resource binder as well as electronically on compact disc.
Online Components	Online	Teachers have access to the regular worksheets and slide shows through www.oregonfocus.com .
Manipulative Kit	Classroom Kit	The manipulative kit includes a variety of items which will be used throughout the series. This includes equation mats, integer chips, variable cubes, dice, rulers, fraction tiles, three-dimensional solids, base-ten blocks, protractors, compasses, individual student dry erase boards, markers and erasers.

6. Teacher materials support multiple delivery options and address different learning levels and styles, while providing guidance on implementation.

The teacher materials that are included in the Oregon Focus on Math[®] Series Teacher’s Edition provide guidance for teachers on the following:

- Pacing
- Type of Lesson (Pre-Requisite, Core Standard or Connection)
- Materials Needed
- Warm-Up Questions and Solutions
- Extra Examples and Solutions (one Extra Example for every example in the student text)
- Explore! Hints, Prompts and Answers
- Implementation Teaching Tips (e.g. common student errors, connections, helpful hints, conversation prompts)
- Focused Assignment
- Challenge Exercises Starred
- Solutions to Student Exercises
- Exit Questions and Solutions (also on Exit Cards)
- Communication Prompts
- Answers to the Tic-Tac-Toe Activities when appropriate

An example of one page of a Teacher’s Edition is shown at the right. The teacher materials support multiple delivery options. The National Math Advisory Panel concluded that research supports a combination of direct instruction and student centered learning in math classrooms.¹ The Oregon Focus on Math[®] Series allows for teachers to build both of these into their curriculum by using the Explores! for student centered learning as well as the slide shows, blue box notes and extra examples for direct instruction.

The materials support teachers providing for different learning levels and styles through the use of the Tic-Tac-Toe Boards and tiered worksheets. The Tic-Tac-Toe activities address the needs of a variety of learners through the extension of the curriculum, use of multiple intelligences and the ability to complete each one independently. For the struggling learners and readers, teachers are given the option of using the tiered worksheets which employ many differentiation strategies for students having difficulty with the content. Through the exercises, teachers can select problems which also address various learning styles and levels.

VOLUME OF CYLINDERS LESSON 18

Materials Needed:
Calculators with a π button.

Warm-Up Problems
Find the area of each circle. Use 3.14 for π.
1) 330.66 cm²
2) 346.185 cm²
3) What will have more area, square with sides that are 10 units or a circle with a diameter of 10 units? **The square**

Extra Example 1
Find the Volume of the cylinder. Use 3.14 for π.
 2,769.48 in³

Teaching Tips
Have students stack cubes inside of a cylinder. Is the cylinder full? Why not? This will introduce the formula Area of the base • height again in order to get the true volume of a cylinder. If the cubes could be “mashed” to fill one layer at a time of the cylinder it is the same visual as stacking cubes in the prism, in Lesson 17. Or, have students imagine filling a block of a cubic unit of water and pouring it into the cylinder.
Stacking coins on top of one another is another great visual of a cylinder’s volume. You might also use petri dishes.
Think about doing additional examples finding the volume of cylinders using $\frac{22}{7}$ for π. Be sure to use measures that are multiples of 7.
If students use the π button on their calculator answers will not match the answers provided.
By now students should understand that “h” represents the height of many different geometric figure in two-dimensions and three-dimensions.
Ask the following: “When does a prism begin to look like a cylinder?” or “How many sides must a prism have in order for its volume to equal the volume of a cylinder?”
When finding missing dimensions as in Example 3, remind students to substitute known values first and then solve for the missing variable.

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Oregon Focus on Surface Area and Volume Teacher’s Edition Lesson 18

7. Promote student discourse and dialogue.

Student discourse plays a large role in the Oregon Focus on Math[®] Series. The **Explore!** activities are meant to allow students to discover properties and algorithms as individuals, small groups or in class discussions. Teachers are encouraged to have students work through the **Explores!** with partners or in small groups. The **Explores!** are broken into steps that provide prompts for discussion and questioning. Two examples of **Explores!** are shown below.

VOLUME OF PYRAMIDS
LESSON 20

Calculate the volume of pyramids.

A pyramid and prism with congruent bases and equal heights have a special relationship. In the **Explore!** you will investigate that relationship. A pyramid has two different types of height. When finding surface area, the slant height (l) is used. When finding the volume, you must know how tall the pyramid stands. This is the regular height (h).

Slant height (l)

height (h)

PYRAMID VS PRISM

EXPLORE!

Make or find a pyramid and prism that have congruent bases and the same height to use in this activity.

Step 1: Estimate how many times larger the volume of the prism is compared to the pyramid.

Step 2: Fill the pyramid with rice, beans or popcorn kernels. Pour the contents of the pyramid into the prism. Repeat until the prism is full.

Step 3: How many times did you need to empty the pyramid to fill the prism?

Step 4: What fraction is the volume of the pyramid compared to the prism?

Step 5: The volume of a prism is found using the formula $V = Bh$. How could you modify this formula to find the volume of a pyramid? Write the formula for the volume of a pyramid.

Step 6: Use the formula to find the volume of each pyramid.

a.

b.

c.

Oregon Focus on Surface Area & Volume – Lesson 20

EXAMPLE 2

Find the product by using the Distributive Property and mental math.

a. $3(102)$ b. $5(197)$ c. $6(5.1)$

SOLUTIONS

a. Rewrite 102 as $100 + 2$.
Distribute.
Add.

b. Rewrite 197 as $200 - 3$.
Distribute.
Subtract.

c. Rewrite 4.1 as $4 + 0.1$.
Distribute.
Add.

$$3(100 + 2) = 3(100) + 3(2)$$

$$= 300 + 6$$

$$= 306$$

$$5(200 - 3) = 5(200) - 5(3)$$

$$= 1000 - 15$$

$$= 985$$

$$6(4 + 0.1) = 6(4) + 6(0.1)$$

$$= 24 + 0.6$$

$$= 24.6$$

EXPLORE! **SHOPPING SPREE**

You just won a \$5,000 shopping spree at the mall. Determine if you have any money left after purchasing items for you and your friends during the first day of your shopping spree.

Step 1: You purchased four MP3 players for \$198 each. Use the Distributive Property to rewrite the expression. Choose whether to use + or - between the numbers in the parentheses. Evaluate your expression.

$$4(\$198) = 4(___ \pm ___)$$

Step 2: You also purchased eight shirts for \$9.25 each. Use the Distributive Property to rewrite the expression. Evaluate the expression.

$$8(\$9.25) = 8(___ \pm ___)$$

Step 3: Next, you purchased seven bottles of perfume for \$104 each. Use the Distributive Property to rewrite the expression. Evaluate the expression.

$$7(\$104) = 7(___ \pm ___)$$

Step 4: Finally, you splurged and bought three flat-screen televisions at a cost of \$997 each. Use the Distributive Property to rewrite the expression. Evaluate the expression.

$$3(\$997) = 3(___ \pm ___)$$

Step 5: Find the amount of money you have spent. How much money is left of your \$5,000 shopping spree?

Oregon Focus on Introductory Algebra – Lesson 11

Another important aspect of the Oregon Focus on Math[®] Series that encourages discourse and dialogue is the communication prompts. At least one communication prompt is written near the end of each lesson in the teacher's edition. It is also at the end of each lesson's slide show. The communication prompts help students reflect on their own learning, process algorithms and methods and express strengths and weaknesses.

There are 3 to 4 blocks (or chapters) per text. Each text includes multiple versions of a student self-assessment template. This template is to be used to engage students in reflecting on their own understanding and learning processes. It is to be used with formative assessments, such as Exit Cards, as well as with the block review before a summative assessment.

Block 1 Review – Ratios and Conversions **Self-Assess**

Name _____ Period _____ Date _____

Shade the box to show your current ability to complete problems related to each target below.

- I can simplify and write ratios three ways. Exercises 1-3
- I can recognize and complete geometric sequences. Exercises 11-13
- I can convert customary measurements. Exercises 14-16
- I can convert metric measurements. Exercises 17-19
- I can convert measurements to find perimeter and area. Exercises 20-22

Look at your ratings to answer the following questions.

What do I understand well?

What do I still need to work on?

What is my plan to improve?

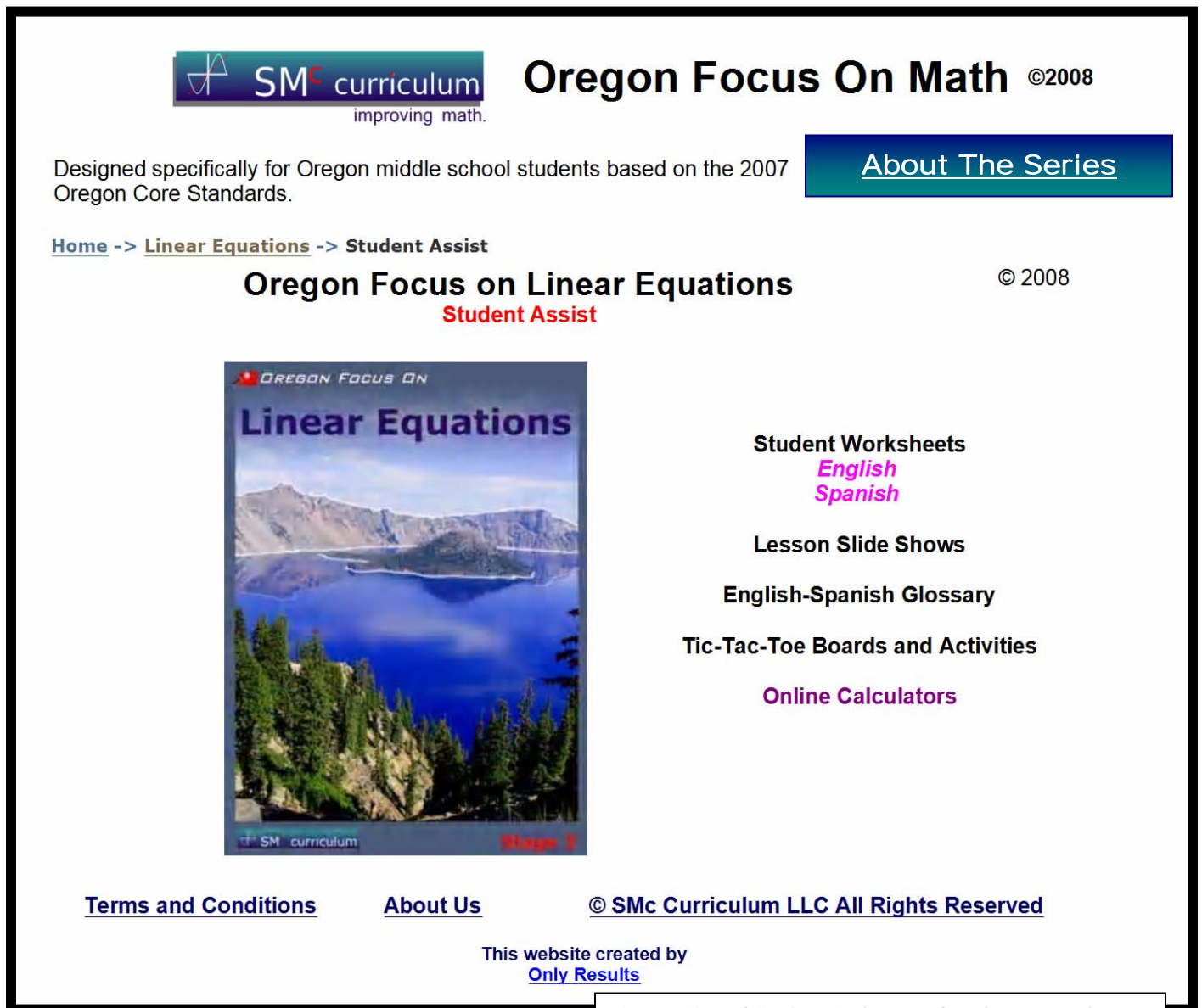
Oregon Focus on Ratios, Rates and Percents Block 1 Self-Assessment

8. Provide materials in text as well as online resources for students and parents.

Student materials in the Oregon Focus on Math[®] Series come in multiple formats. There are three textbooks per grade, one for each Core Standard. Each book is available as a hard-bound text. The size of the text alleviates excess weight that the student must transport. The size of the text also helps the student see closure on topics that he or she would not see using a normal middle school math text which often range from 600-900 pages.

The nine texts in the series are also available on compact disc. Students can use the disc on any computer with Adobe Reader (which is available for free download).

The text, as well as all slide shows and regular worksheets in English and Spanish, are available online. The website for the series (www.oregonfocus.com) includes a Student Assist site that is password protected. All schools adopting the texts will be assigned user names and passwords. On the Student Assist page, students will have access to the regular worksheets in Spanish and English, lesson slide shows, the English-Spanish Math Glossary, as well as the entire text. The site includes a link to many useful online calculators.



The screenshot shows the 'Oregon Focus on Math ©2008' website. At the top left is the 'SMc curriculum improving math.' logo. The main heading is 'Oregon Focus On Math ©2008'. Below this is a blue button labeled 'About The Series'. A text block states: 'Designed specifically for Oregon middle school students based on the 2007 Oregon Core Standards.' Navigation links include 'Home -> Linear Equations -> Student Assist'. The main title is 'Oregon Focus on Linear Equations Student Assist © 2008'. On the left is a book cover for 'Linear Equations Stage 1' featuring a lake and mountains. On the right is a list of resources: 'Student Worksheets' (with 'English' and 'Spanish' in pink), 'Lesson Slide Shows', 'English-Spanish Glossary', 'Tic-Tac-Toe Boards and Activities', and 'Online Calculators' (in purple). At the bottom are links for 'Terms and Conditions', 'About Us', and '© SMc Curriculum LLC All Rights Reserved'. A footer note says 'This website created by Only Results'.

Screen Shot of Student Assist page for Linear Equations at www.oregonfocus.com

10. Provide materials in multiple language formats.

The Oregon Focus on Math[®] Series provides Spanish-speaking students with multiple resources in their first language. Each text includes a English-Spanish Glossary with over 250 math vocabulary words used throughout the series. Both the words and definitions are included in both languages.

Also included in each text’s Resource Binder are worksheets translated into Spanish for every lesson. Students will have the ability to work from the exact same worksheets as their peers, but in Spanish.

For every block, one version of the summative assessments is translated into Spanish. This allows Spanish ELL students to use the same assessment as their peers but in their native language.




OREGON FOCUS ON MATH GLOSSARY ~ GLOSARIO			
Absolute Value	The distance a number is from 0 on a number line.	Valor Absoluto	La distancia de un número desde el 0 en una recta numérica.
Acute Angle	An angle that measures more than 0° but less than 90°.	Ángulos Agudos	Un ángulo que mide más 0° pero menos de 90°.
Adjacent Angles	Two angles that share a ray.	Ángulos Adyacentes	Dos ángulos que comparten un rayo.
Algebraic Expression	An expression that contains numbers, operations and variables.	Expresiones Algebraicas	Una expresión que contiene números, operaciones y variables.
Alternate Exterior Angles	Two angles that are on the outside of two lines and are on opposite sides of a transversal.	Ángulos Exteriores Alternos	Dos ángulos que están fuera de dos rectas y están a lados opuestos de una transversal.
Alternate Interior Angles	Two angles that are on the inside of two lines and are on opposite sides of a transversal.	Ángulos Interiores Alternos	Dos ángulos que están dentro de dos rectas y están a lados opuestos de una transversal.
Angle	A figure formed by two rays with a common endpoint.	Ángulo	Una figura formada por dos rayos con un punto final en común.
Area	The number of square units needed to cover a surface.	Área	El número de unidades cuadradas necesitadas para cubrir una superficie.

Example Page from Text
Glossary ~ Glosario

Lección 21 – Valor Posicional con Decimales

Nombre _____ Período _____ Fecha _____

Escribe el decimal que cada grupo de bloques de diez-en-base representa.

1.  2.  3. 

¿En cuál posición está el dígito 7 en cada decimal?

4. 42.709 5. 4.437 6. 28.271

Escribe el valor del dígito subrayado en cada decimal.

7. 3.217 8. 52.102 9. 90.423

10. 65.18 11. 31.602 12. 47.236

Escribe un decimal para igualar cada oración numérica.

13. Veintidós y setenta y cuatro centésimo

14. Cincuenta y seis y un centésimo

15. Cuatro y quinientos treinta y seis milésimo

16. Ochenta y uno y ocho milésimo

Escribe cada decimal en forma de palabra.

17. 6.902

18. 52.7

19. 0.089

20. 2.005

Spanish Worksheet for Lesson 21 of
Oregon Focus on Fractions and Decimals

12. Provide the research and references for any claims made about the instructional materials.

The Oregon Focus on Math[®] Series has yet to be used in a classroom as a series since the Oregon Core Standards were only released in December 2007 and these books were written to meet those standards. The layout, content and approach of the books are based on two major sets of research. The first is the NCTM Curriculum Focal Points and the second is the recently released National Math Advisory Panel Report (NMAP). This report compiled over 16,000 research studies focused on Math Education and made recommendations based on the trends shown in that research. Below are five recommendations made by NMAP and/or NCTM and how the Oregon Focus on Math[®] Series meets these requirements.

“A focused, coherent progression of mathematics learning, with an emphasis on proficiency with key topics, should become the norm in elementary and middle school mathematics curricula. Any approach that continually revisits topics year after year without closure is to be avoided.” (NMAP pg xvi)

The Oregon Focus on Math[®] Series spends extended time on each of the three Focal Points (or Core Standards) in grades 6-8 to allow students to reach mastery of each Core Standard. Topics are not continually revisited year after year, thus not detracting from time and space in proceeding texts in the series.

“To prepare students for Algebra, the curriculum must simultaneously develop conceptual understanding, computational fluency, and problem solving skills.” (NMAP pg xix)

The Oregon Focus on Math[®] Series focuses first on the students’ conceptual understanding of the material. Then the texts simultaneously incorporate an emphasis on problem solving skills and practice for students to reach computational fluency.

“All-encompassing recommendations that instruction should be entirely “student centered” or “teacher directed” are not supported by research. If such recommendations exist, they should be rescinded.” (NMAP pg xxii)

The Oregon Focus on Math[®] Series aims for a mixture of student centered activities (e.g. Explores!, exercises, communication prompts) and teacher directed instruction (e.g. examples, blue boxes, guided practice). By using a combination of both methods, research shows more students reach mathematical success.

“Mathematics textbooks are much smaller in many nations with higher mathematics achievement than the U.S., thus demonstrating that the great length of our textbooks is not necessary for high achievement. Publishers should make every effort to produce much shorter and more focused mathematics textbooks.” (NMAP pg xxiv)

Most major publishers offer middle school textbooks that contain 600-900 pages of math content each year. Research does not show that more is better. By reducing the number of distracters from the curriculum and focusing on the Core material, the Oregon Focus on Math[®] Series provides more in-depth teaching and practice in the Core material at each grade level using smaller texts (on average 400 pages of curriculum in a 3-book Stage).

“Those who are involved in curriculum planning for grades 6–8 should note that this set of curriculum focal points has been designed with the intention of providing a three-year middle school program that includes a full year of general mathematics in each of grades 6, 7, and 8. Those whose programs offer an algebra course in grade 8 (or earlier) should consider including the curriculum focal points that this (NCTM) framework calls for in grade 8 in grade 6 or grade 7.” (NCTM Website)

The Oregon Focus on Math[®] texts are split into three separate books per grade level to allow capable students to progress through the Core Standards at a pace faster than three per year so as to reach Algebra as 8th graders. A pacing guide for the advanced track is provided in each Teacher’s Edition.

13. Integrate mathematics across the curriculum.

It is important for students to see mathematics used outside of the traditional math curriculum. The Oregon Focus on Math[®] Series includes a variety of cross-curricular examples, activities and exercises to integrate other subjects throughout the curriculum. Five examples of this have been pulled from five different texts throughout the series.

Text	Math Topic	Cross-Curricular Emphasis
Oregon Focus on Ratios, Rates and Percents	Geometric Sequences	Science – Bacteria Growth
Oregon Focus on Fractions and Decimals	Decimal Operations	Health – Walking in Different Careers
Oregon Focus on Introductory Algebra	Using Equations	Social Science – Population Density
Oregon Focus on Rational Numbers and Equations	Rational Number Operations	Science – Melting and Boiling Points
Oregon Focus on Proportionality	Percent of Change	Economics – Minimum Wage Changes

GEOMETRIC SEQUENCES
LESSON 2

Recognize and complete geometric sequences.

Zane put a bacteria cell in a petri dish. The number of bacteria cells in the petri dish doubled every day.

Number of Days	Number of Bacteria Cells
1	1
2	2
3	4
4	8
5	16
6	32
7	64

After one week, there were 64 bacteria cells in Zane's petri dish. The number of bacteria cells can be written as a list of numbers: 1, 2, 4, 8, 16, 32, 64, ... If the bacteria cells are left in the petri dish, they will continue to double every day.

An ordered list of numbers is called a **sequence of numbers**. Each number in the list is called a **term**. The petri dish example is a **geometric sequence** because each term is found by multiplying the previous term by the same number. The number you multiply by each time to get the next term is the **ratio** between the terms.

The ratio in Zane's petri dish between the terms was 2 or $\frac{1}{2}$. This is because each term was doubled or multiplied by 2. The ratio can also be determined by writing the ratio of each term to its previous term.

Since each ratio of one term to its previous term simplifies to $\frac{1}{2}$ or 2, the ratio of the geometric sequence is 2.

Oregon Focus on Ratios, Rates and Percents – Lesson 2

EXPLORE! Many Americans are not exercising enough according to a study published in 2007 by the American Council on Exercise. The table below shows the results from a study documenting how many steps (and the conversion of steps to miles) were taken by people in different occupations.

The average total distance in miles is shown in the last column. For example, the secretaries in this study walked, on average, 1.7 x .68 miles each day. This means:

Shortest Distance	Longest Distance
1.7 x .68	1.7 x .68
1.70	1.70
1.16	1.16
1.04	1.04

Use the table to answer the following questions.

Step 1: What was the longest average total distance walked each day by:
a. nurses?
b. restaurant servers?
c. mail carriers?

Step 2: What was the shortest average total distance walked each day by:
a. construction workers?
b. lawyers?
c. mail carriers?

Step 3: Use the first number of each expression in the total distance column to determine how much farther on average _____ walked each day than:
a. mail carriers, secretaries?
b. construction workers, teachers?
c. restaurant servers, police officers?

EXERCISES

Find each sum.

- 2.1 + 3.4
- 4.32 + 5.29
- 5.786 + 9.42
- 4.607 + 3.4
- 1.325 + 5.78
- 53.999 + 32.187
- Monica spent \$15.17 on a pair of pants and \$4.96 on a pair of socks. How much did she spend altogether?

Oregon Focus on Fractions and Decimals – Lesson 25

YIP-YAO-YOP ~ POPULATION DENSITY

The human population of different areas of the world can be studied by examining population density. Population density most often describes the number of people per square mile. You can calculate population density by using a formula.

$$\text{Population Density} = \frac{\text{population}}{\text{area in square miles}}$$

Example: Oregon's population in 2000 was about 3.5 million. The State of Oregon is approximately 97,000 square miles. The population density of Oregon in 2000 was:

$$\text{Population Density} = \frac{3,500,000}{97,000} = 36 \text{ people per square mile.}$$

- Approximately 39 million people lived in the State of California in 2000. California is approximately 156,000 square miles. Find the population density.
- About 128 million people live in Japan. The entire country of Japan is only 146,000 square miles. Find the population density of Japan.
- One of the most populated areas in the United States is Washington DC. The size of Washington DC is approximately 61 square miles. The population of Washington DC was 572,000 in the year 2000. What was the population density of Washington DC in 2000? Would you like to live in a place this densely populated?
- Which state do you think has the lowest population density? Research that state to find the most recent population count and the size of the state in square miles. Calculate the population density.
- There are approximately 6.6 billion humans on earth. There are 58 million square miles on Earth where humans can live. What is the population density of the Earth?
- Find the population and size (in square miles) of your county on the internet. What is the population density of your county?
- Do you think the population density of your county will increase or decrease in the next ten years? Explain your answer.

52 Lesson 19 - Oregon Focus on Introductory Algebra – Page 52

SUBTRACTING RATIONAL NUMBERS
LESSON 18

Subtract positive and negative fractions and decimals.

Oxygen is part of the air you breathe. When you breathe in oxygen, it is in the form of a gas. Oxygen can also be in two other forms. It can be a liquid or a solid. Oxygen is a solid until it reaches its melting point of -368.77°F and turns into a liquid. The boiling point is where oxygen turns from a liquid to a gas. This occurs at -297.4°F . For how many degrees will oxygen remain a liquid before it turns into a gas?

SOLID \rightarrow LIQUID \rightarrow GAS
 Melting Point: -368.77°F Boiling Point: -297.4°F

To find how far apart two numbers are, you must find the difference between the two numbers.
 $-297.4 - (-368.77)$

When subtracting integers, turn the subtraction symbol into an addition symbol by adding the opposite.
 $-297.4 + 368.77$

Follow the rules for adding rational numbers. Determine the sign of the answer. In this case the absolute value of the positive number is the largest, so the answer will be positive.

Since the decimals have different signs, subtract the lesser absolute value from the greater absolute value and use the sign determined above (positive).

$$\begin{array}{r} 368.77 \\ -297.40 \\ \hline 71.37 \end{array}$$

Oxygen remains a liquid from -368.77°F to -297.4°F . The number of degrees between the solid and gaseous form of oxygen is 71.37°F .

SUBTRACTING POSITIVE AND NEGATIVE RATIONAL NUMBERS

- Turn the subtraction symbol into an addition symbol by adding the opposite.
- Follow the rules for adding fractions and decimals to determine the sum.

Oxygen Focus on Rational Numbers and Equations – Lesson 18

PERCENT OF CHANGE
LESSON 18

Find the percent of increase or the percent of decrease between two numbers.
 The percent of change to find new values.

EXPLORE! Oregon has one of the highest minimum wage rates in the United States. The chart below gives the minimum wage in Oregon from 2004 to 2008.

Year	2004	2005	2006	2007	2008
Minimum Wage	\$7.05	\$7.25	\$7.50	\$7.65	\$7.95

Step 1: Find the change (difference) in the minimum wage from 2004 to 2005.
 Step 2: Find the ratio $\frac{\text{change in amount}}{\text{original amount}}$. Rewrite the ratio as a percent. Round to the nearest tenth.
 Step 3: Find the change (difference) in the minimum wage from 2005 to 2006.
 Step 4: Find the ratio $\frac{\text{change in amount}}{\text{original amount}}$. Rewrite the ratio as a percent. Round to the nearest tenth.
 Step 5: Repeat this process to find the percent of change from 2006 to 2007 and from 2007 to 2008.
 Step 6: Compare the four percents. Between which years was there the greatest change in the minimum wage in terms of percent?

Each ratio in the Explore! shows the amount of increase in the minimum wage compared to the original minimum wage. The answer is an example of a percent of change. The percent of change is the percent a quantity increases or decreases compared to the original amount. If the new amount is greater than the original amount, it is a **percent of increase**. If the new amount is less than the original amount, it is a **percent of decrease**. The change in the minimum wage above is an example of a percent of increase.

PERCENT OF CHANGE EQUATION
 Percent of Change = $\frac{\text{amount of change}}{\text{original amount}}$
 The amount of change is the absolute value of the difference between the new amount and the original amount.

104 Lesson 18 - Oregon Focus on Proportionality – Lesson 18

14. Provide for practice, remediation, and enrichment to support all learning styles and learning levels including all subgroups (including ELL, SPED, and TAG).

The Oregon Focus on Math[®] Series is written to address the needs of all students whether or not they are in a heterogeneous or homogenous classroom. The texts were written so that the content listed in the 2007 Oregon Core Standards forms the foundation of the program. In addition to the Core Standards, the texts provide lessons to address Pre-Requisite content that is necessary to know prior to entering the Core Standards. Teachers may use provided diagnostic assessments to determine if classes/students need to cover the Pre-Requisite block or lessons. These lessons are clearly marked in the Teacher’s Edition.

Remediation and practice are provided through problem sets in the text as well as supplemental worksheets (regular and tiered). The regular version of each worksheet is available to students in English and Spanish. The tiered worksheets are written specifically for learning disabled, low achieving or ELL students who are moving towards English acquisition. The tiered worksheets use shorter sentences and less complex terminology. The tiered worksheets include: (1) shorter problem sets, (2) more space to work, (3) exercises that use less complex numbers, (4) more guidance on the steps needed to arrive at the solution, (5) organizational strategies, and (6) less complex application situations.




When students have mastered the Core Standards, there is enrichment provided in two ways in the texts. The first is through the Connections lessons. These are clearly marked in the Teacher’s Edition. The Connections lessons were chosen using NCTM Curriculum Focal Point Connections as well as Draft 5 of the 2007 Oregon Content Standards that included Connections. The second form of extension is found throughout the texts in the form of Tic-Tac-Toe activities. These activities allow students to work independently to gain more depth in the content or extend the content to future mathematical topics while or after they have reached proficiency in the Core Standards.

Lesson 20 – Volume of Pyramids
Name _____ Period _____ Date _____

1. The volume of a pyramid is 50 mm^3 . What is the volume of a prism that has a congruent base and is the same height as the pyramid?

2. A prism can hold 45 gallons of water. How many gallons of water can a pyramid with the same base and height hold?

Find the volume of each pyramid.

3.  4. Base area = 60 ft^2  5. Pyramid height 

6. A pyramid has a base that is 14 yd^2 . It is 6 yards tall. What is the volume of the pyramid?

7. A safety marker is an octagonal pyramid. It is $4\frac{1}{2}$ feet tall. The base of the marker is 16 in^2 . Find the volume of the marker.

8. A square pyramid has a perimeter of 40 cm and it is 15 cm tall. Find the volume of the pyramid.

9. The volume of a pyramid is 47 m^3 . The height of the pyramid is 6 meters. What is the area of the base?

10. Kipp constructed a pentagonal pyramid for his social studies report. The base area is 12 cm^2 . It took 48 cubic centimeters of clay to make his model. Find the height of the pyramid.

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Oregon Focus on Surface Area and Volume – Regular Worksheet Lesson 20

Lesson 20T – Volume of Pyramids
Name _____ Period _____ Date _____


Circle the correct answer.


1. The formula used to find the volume of a pyramid is _____.
A. $3V$ B. $\frac{1}{3}V$ C. $\frac{1}{6}V$

2. A prism can hold 6 gallons of water. How many gallons of water can a pyramid with the same base and height hold?
A. 2 gallons B. 3 gallons C. 18 gallons

3. The volume of a pyramid is 20 mm^3 . What is the volume of a prism with a congruent base and is the same height as the pyramid?
A. $6\frac{2}{3} \text{ mm}^3$

Find the volume of each pyramid.

4. Base area = 30 ft^2 

5. 

6. A square pyramid has a perimeter of 20 cm and it is 6 cm tall. Find the volume of the pyramid.
a. What is the length of each side of the square base? _____
b. Sketch and label a diagram of the pyramid.
c. What is the area of the base? _____
d. Find the volume of the pyramid. _____










7. The volume of a pyramid is 60 m^3 . The height of the pyramid is 5 meters. What is the area of the base?
a. Substitute the given measures into the equation. _____ = $\frac{1}{3} \cdot B \cdot 5$
b. Simplify the right side of the equation. _____ = $5 \cdot B$
c. Solve for B.
d. What is the area of the base? _____

8. Ping is making a pyramid out of sand. The area of the base is 38 cm^2 . It will take 342 cubic centimeters of sand to make the pyramid. Find the height of the pyramid.

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Oregon Focus on Surface Area and Volume – Tiered Worksheet Lesson 20

BLOCK 3 – VOLUME TIC-TAC-TOE

<p>THE HUMAN MIND</p> <p>Conduct an experiment to find the age a human understands the concept of volume.</p>  <p>See page 113 for details.</p>	<p>VOLUME OF A SPHERE</p> <p>Find the volume of various spherical objects.</p>  <p>See page 122 for details.</p>	<p>MORE CEREAL PLEASE</p> <p>Find if a cereal manufacturer uses the same size box for different names of cereals.</p>  <p>See page 95 for details.</p>
<p>MEASURE OF MONEY</p> <p>Find the circumference, surface area and volume of various coins.</p>  <p>See page 100 for details.</p>	<p>REFERENCE BOOK</p> <p>Create a reference book for the formulas in this book.</p>  <p>See page 127 for details.</p>	<p>FIELD TEST</p> <p>Make three cylinders with the same volume. Find out which cylinder is most popular.</p>  <p>See page 100 for details.</p>
<p>DISPLACEMENT</p> <p>Find the volume of objects using displacement.</p>  <p>See page 105 for details.</p>	<p>DESIGN A BUILDING</p> <p>Become an architect. Design a building for your client.</p>  <p>See page 122 for details.</p>	<p>TEACHING VOLUME</p> <p>Design an activity kit that teaches the concept of volume to an elementary class.</p>  <p>See page 109 for details.</p>

90 Block 3 - Volume - Tic Tac Toe

Oregon Focus on Surface Area and Volume – Block 3 Tic-Tac-Toe Board

15. Provide effective on-going professional development for implementation and continued use of the curriculum.

SMc Curriculum has offered middle school mathematics workshops for Oregon teachers since 2006. SMc Curriculum will offer a series of implementation and ongoing professional development workshops for teachers using the Oregon Focus on Math[®] Series. The types of professional development that will be available to teachers through SMc Curriculum are listed in the table below.

Type of Professional Development	Description
Curriculum Implementation Workshop	Every district that adopts the Oregon Focus on Math [®] Series will have implementation workshops made available to them in the Spring, Summer or Fall of 2009. The Curriculum Implementation Workshops will train teachers how to navigate the texts and supplemental materials. Teachers will be taught how to modify the worksheets, tests and slide shows. Guidance will be provided for creating curriculum maps for the series for a 6-8 or 7-8 program.
Stage 1 Workshop	Grade-specific workshops will be made available to teachers using the 6 th grade (or Stage 1) texts. Teachers will be trained specifically in their three Oregon Core Standards. Teachers will be given information on how to use diagnostic, formative and summative assessments to guide their teaching practices. The workshops will model many of the Explores! throughout the Stage 1 curriculum to allow teachers to experience the activities first-hand. Teachers will be given strategies for differentiation, remediation and extension.
Stage 2 Workshop	This workshop is similar to the Stage 1 Workshop but focuses on the seventh grade Oregon Core Standards (Stage 2).
Stage 3 Workshop	This workshop is similar to the Stage 1 Workshop but focuses on the eighth grade Oregon Core Standards (Stage 3).
Vertical Alignment Workshop	The Vertical Alignment Workshop will help schools or districts to vertically align their mathematics curriculum K-8 or 6-12. No matter what series teachers are using in the elementary and/or high schools, SMc Curriculum will provide guidance on aligning curriculum to the Oregon Core Standards.

“To achieve the best results with students when teaching for the depth, understanding, and proficiency sought by the curriculum focal points, teachers themselves will need a deep understanding of the mathematics and facility with the relationships among mathematical ideas. Thus, effective instruction built on the curriculum focal points requires in-depth preparation of preservice teachers and ongoing professional development for in-service teachers.”²
 (NCTM Curriculum Focal Points)

16. Provide analysis of readability using the Lexile Framework for reading.



Lexile Measures

DATE June 18, 2008
 JOB NO. 280602
 COMPANY SMC Curriculum
 CONTACT Shannon McCaw

Title	Author	Copyright	Publisher	ISBN	ISBN13	Lexile	Pages	WordCount
Oregon Focus on Surface Area and Volume	McCaw, et al	2008	SMC Curriculum	1935033069	9781935033066	720	128	19463
Oregon Focus on Proportionality	McCaw, et al	2008	SMC Curriculum	1935033050	9781935033059	800	167	26104
Oregon Focus on Rational Numbers and Equations	McCaw, et al	2008	SMC Curriculum	1935033042	9781935033042	820	144	22097
Oregon Focus on Introductory Algebra	McCaw, et al	2008	SMC Curriculum	1935033026	9781935033028	830	139	21129
Oregon Focus on Ratios, Rates, and Percents	McCaw, et al	2008	SMC Curriculum	1935033018	9781935033011	780	142	23373
Oregon Focus on Fractions and Decimals	McCaw, et al	2008	SMC Curriculum	193503300X	9781935033004	760	156	23493

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17. Are written at an appropriate Lexile.

The goal of the authors of the Oregon Focus on Math[®] Series was to write mathematics texts that allow students to focus on attaining mathematics skills without being hindered by a high reading level. The texts were written at a Lexile level that allows the majority of students to read and comprehend the texts independently.

The Lexile grade-level equivalents are shown in Figure 1 at the right. According to MetaMetrics (the founders of Lexile scoring), “If the Lexile text measure is higher than the Lexile reader measure, forecasted comprehension goes down. If the Lexile text measure is lower than the Lexile reader measure, forecasted comprehension goes up. For example, if a reader wants to read a book independently at a 90-percent comprehension rate, she can simply choose a book with a Lexile measure approximately 250L below her Lexile reader measure. A reader with a measure of 1000L would choose a book with a measure around 750L. Figure 2 shows how changing the Lexile text measure changes the forecasted comprehension rate.”⁴

As seen in Criteria 16 on the previous page, the Oregon Focus on Math[®] text measures range from 720L to 830L. These text measures are equivalent to high-end 4th grade readers to low-end 8th grade readers. The mathematics will provide the challenge for the students rather than the reading level. This will make the Mathematics Core Standards the focus of the curriculum.

Grade	Reader Measures (Interquartile Range, Mid-Year)	Text Measures (from the Lexile Map)
1	Up to 300L	200L to 400L
2	140L to 500L	300L to 500L
3	330L to 700L	500L to 700L
4	445L to 810L	650L to 850L
5	565L to 910L	750L to 950L
6	665L to 1000L	850L to 1050L
7	735L to 1065L	950L to 1075L
8	805L to 1100L	1000L to 1100L
9	855L to 1165L	1050L to 1150L
10	905L to 1195L	1100L to 1200L
11 and 12	940L to 1210L	1100L to 1300L

Figure 1. Typical Reader and Text Measures by Grade

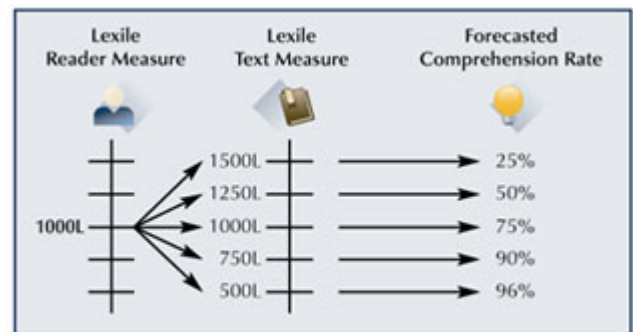


FIGURE 2: Forecasted comprehension of books with various Lexile measures

18. Provide for struggling readers at several lower Lexiles.

The texts in the Oregon Focus on Math[®] Series are written with Lexiles scores one to two grade levels below the math level of the text. This will allow the focus of the curriculum to be on the mathematics rather than reading comprehension.

Along with texts that are at several lower Lexiles, the series also includes tiered worksheets for every lesson. The tiered worksheets are written using shorter sentences and less complex terminology. All students should learn accurate mathematics terminology so those words are not modified. The other benefits of the tiered worksheets include: (1) shorter problem sets, (2) more space to work, (3) exercises that use less complex numbers, (4) more guidance on the steps needed to arrive at the solution, (5) organizational strategies, and (6) less complex application situations. Below is an example of a doubled-sided tiered worksheet on Rate Problem Solving (Oregon Focus on Ratios, Rates and Percents – Lesson 9).

Along with tiered worksheets for every lesson, the series includes tiered assessments (two versions) for each block.

<p>Lesson 9T ~ Rate Problem Solving</p> <p>Name _____ Period _____ Date _____</p> <p>1. Which rate is <i>NOT</i> equivalent to $\frac{100 \text{ miles}}{10 \text{ hours}}$?</p> <ul style="list-style-type: none"> • Write the rate in the problem and each rate below as a unit rate. • Find the different rate. <p>A. $\frac{10 \text{ miles}}{1 \text{ hour}}$ B. $\frac{200 \text{ miles}}{20 \text{ hour}}$ C. $\frac{50 \text{ miles}}{2 \text{ hour}}$</p> <p>Complete the equivalent rate. Figure out what number to multiply the numerator and denominator of the first rate by to get the answer.</p> <p>2. $\frac{4 \text{ miles}}{1 \text{ hour}} = \frac{\text{miles}}{6 \text{ hours}}$</p> <p>3. $\frac{6 \text{ kilometers}}{1 \text{ hour}} = \frac{\text{kilometers}}{3 \text{ hours}}$</p> <p>4. $\frac{20 \text{ miles}}{1 \text{ gallon}} = \frac{80 \text{ miles}}{\text{gallons}}$</p> <p>5. $\frac{90 \text{ words}}{3 \text{ minutes}} = \frac{\text{words}}{6 \text{ minutes}}$</p> <p>6. $\frac{\\$3.00}{1 \text{ gallon}} = \frac{\\$}{10 \text{ gallons}}$</p> <p>7. $\frac{10 \text{ jobs}}{2 \text{ days}} = \frac{30 \text{ jobs}}{\text{days}}$</p> <p style="font-size: small;">©2008 SM^c Curriculum Oregon Focus on Ratios, Rates and Percents</p>	<p>Use equivalent fractions and solve the problem by completing the steps given.</p> <p>8. Sue drove 120 miles in 3 hours. At this rate, how far will she drive in 6 hours?</p> <p>a. Write the rate 120 miles in 3 hours as a fraction.</p> <p>b. Put the fraction from part a equal to the fraction below.</p> <p style="text-align: center;">_____ = $\frac{\text{miles}}{6 \text{ hours}}$</p> <p>c. Solve for the missing number of miles. Answer the question.</p> <p>Use unit rates and solve the problem using the steps given.</p> <p>9. Latrell's new car went 300 miles and used 10 gallons of gas. At this rate, how many miles can he travel using 4 gallons of gas?</p> <p>a. Write 300 miles using 10 gallons of gas as a fraction and find its unit rate.</p> <p style="text-align: center;">Rate (fraction): Unit rate:</p> <p>b. Use the unit rate to find how many miles Latrell can travel using 4 gallons of gas.</p> <p style="text-align: center;"><u>unit rate</u> × 4 = _____ × 4</p> <p style="text-align: center;">= _____</p> <p style="font-size: small;">©2008 SM^c Curriculum Oregon Focus on Ratios, Rates and Percents</p>
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Oregon Focus on Ratios, Rates and Percents – Tiered Worksheet Lesson 9

19. Provide relevant applications for students to relate mathematics to the world around them and to build mathematics awareness in life, home, school, and various careers.

The goal of the Oregon Focus on Math[®] Series is to provide as many relevant and real-world mathematical situations as possible to help students see the connection between school and life outside of school. In order to do this, the texts include activities, exercises and examples that connect to a variety of careers and real-world situations. Three specific examples are shown below. The first example is an **Explore!** that has students investigate the uses of rational number operations in a variety of careers. The second example asks students to examine different ways of arranging a bedroom based on the percentage of the room that is taken up by different pieces of furniture. The third example is an exercise that examines the top 10 fuel-efficient vehicles and the possibility of an outlier.

EXPLORE!

FRACTION CAREERS

In each step you will perform a calculation that might be done in a certain career. Determine the solution to each step and then guess in what career you might do that specific calculation.

Step 1: Kara mixed $\frac{1}{4}$ of a gallon of red paint with $\frac{1}{2}$ gallon of blue paint to create a deep indigo paint. How much total indigo paint did Kara create? Name a possible career that Kara may have.

Step 2: Jillian needed to make 36 pantries for a Mother's Day Branch. She needed $\frac{1}{2}$ cup of butter for the batter and $\frac{1}{4}$ cup of butter for the topping. How much total butter did she need? What do you think Jillian does for a living?

Step 3: Rick nailed two boards together. One board was $\frac{1}{2}$ inch thick. The other board was $\frac{1}{4}$ inch thick. What is the total thickness of the two boards nailed together? What is a possible career Rick might have?

Step 4: Hans helped a family get a home loan for their first home. He told the family there was a $\frac{1}{2}$ % fee for the title company and another $\frac{1}{4}$ % for the listing agent. What was the total percentage of fees the family will have to pay? What do you think Hans does for a living?

Step 5: Jocelyn mixes two chemicals together to make a solution. She mixes $\frac{1}{2}$ liter of ammonia with $\frac{1}{4}$ liter of ethanol. What is the total number of liters of solution she has created? What do you think Jocelyn's career is?

Step 6: Name another career that uses fractions. Make up a story problem that would involve adding or subtracting fractions in that career. Find the answer to your problem.

EXERCISES

Find the least common multiple (LCM) of the numbers given.

1. 3 and 6 2. 3 and 5 3. 4 and 9
4. 10 and 15 5. 12 and 20 6. 7 and 15

7. Janie is convinced that his answer for the problem below is correct. Look at his work below. Determine if Janie's answer is correct. If it is not correct, explain why the answer is incorrect and find the correct answer.

$$\frac{1}{4} + \frac{2}{8} = \frac{1}{4} + \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$$

Find each sum or difference. Write your answer in simplest form.

8. $\frac{2}{7} + \frac{3}{7}$ 9. $\frac{9}{10} - \frac{3}{10}$ 10. $\frac{1}{3} - \frac{1}{6}$

Oregon Focus on Rational Numbers and Equations—Lesson 3

PERCENTS, DECIMALS AND FRACTIONS

LESSON 13

Write fractions and decimals as percents.

EXPLORE!

KIERAN'S ROOM

Kieran used a piece of 8 by 5 grid paper to sketch the floor plan of his room. He colored the location of his bed with purple and the location of his dresser with blue. The space his desk occupies is colored green.

Step 1: Write the ratio of the parts shaded for each object to the total space as a fraction in simplest form. a. Bed b. Dresser c. Desk

Step 2: Convert each fraction in Step 1 to a decimal.

Step 3: A decimal can be converted to a percent by multiplying by 100. Multiply each decimal in Step 2 by 100 to determine what percentage of the room is taken up by each object.

Step 4: Kieran's sister, Tamika, gave Kieran an incomplete chart describing her room. Copy and complete the chart for Tamika's room.

Furniture	Bed	Dresser	Desk
Fraction		$\frac{1}{5}$	$\frac{1}{4}$
Percent	40%		

Step 5: Draw a new 4 by 5 grid for Tamika's room. Shade in the correct number of squares for each piece of furniture. Will your grid look exactly the same as other classmates' grids? Why or why not?

There are two ways to write a decimal as a percent. One method rewrites the decimal as a ratio comparing a number to 100. The second method multiplies the decimal by 100. Both are shown in the following example.

74 Lesson 13—Percents

Oregon Focus on Ratios, Rates and Percents – Lesson 13

EXERCISES

Use the given Q1 and Q3 values to determine the upper and lower boundaries for outliers.

1. Q1 = 22 and Q3 = 28 2. Q1 = 5 and Q3 = 10
3. Q1 = 69 and Q3 = 78 4. Q1 = 3.5 and Q3 = 8

5. How are the outliers of a number set determined when the five-number summary for the number set is provided?

6. The following table shows miles per gallon (city driving) of the top 10 fuel-efficient vehicles of 2007, according to the U.S. Environmental Protection Agency. Follow the steps to determine if any of the cars is an outlier.

Vehicle Type	MPG	MPG	MPG
Lincoln MKZ	42	Hyundai Ix35	33
Honda Civic Hybrid	49	Ford Escape Hybrid XLT	32
Toyota Camry Hybrid	49	Ron Riv	32
Ford Escape Hybrid FWD	30	Honda Accord	32
Toyota Yaris	34	Toyota Corolla	32

a. Find the five-number summary of the table.
b. What is the IQR of the data set?
c. Find 1.5 • IQR.
d. Find the upper boundary for outliers by adding the answer from part c to the 3rd quartile (Q3).
e. Find the lower boundary for outliers by subtracting the answer from part c from the 1st quartile (Q1).
f. Are any of the cars in the top 10 list considered outliers? If so, which car?

Use the IQR Method to determine if each set of data has any outliers. If so, state the outliers. If there are none, state "no outliers."

7. 3, 7, 7, 10, 10, 11, 16 8. 16, 21, 21, 22, 22, 24, 28

9. Wisely mowed lawns for a summer job. The list shows the number of lawns he mowed each week for nine weeks during the summer. During his busiest week he mowed 16 lawns. Is that number an outlier? Use the IQR Method to support the answer.

Number of Lawns mowed: 3, 7, 16, 6, 6, 6, 8, 9, 8

74 Lesson 13—Finding Outliers

Oregon Focus on Data Analysis – Lesson 13

CAREER FOCUS

MANDIE
SAFETY AND HEALTH PROFESSIONAL
TILLAMOOK, OREGON



I am an occupational safety and health professional. I ensure that my company is meeting Oregon OSHA codes, conducting safety trainings and completing inspections. If an accident happens, I investigate it and handle any workers' compensation claims. Most importantly, I make sure the workplace is a safe and healthy place for everybody who works there.

I use math to help communicate injury prevention to managers and employees of all levels. For example, I calculate incident rates (the number of injuries or illnesses per 100 employees). I also determine injury causes and calculate percentages by type of injury and body part. Sometimes I have to analyze chemical and noise exposure levels to make sure that people are not exposed to harmful contaminants. Math helps me know that the workplace is as safe as possible.

Many safety professionals are required to get a specialized degree or certification. I have a Bachelor of Science in Occupational Safety and Health degree from Oregon State University. Some companies require special certifications that can be obtained by attending extra training classes or passing certain exams.

The median salary of an occupational health and safety specialist was \$54,920 per year in May 2006. The middle 50 percent earned between \$41,800 and \$70,230 per year. The lowest 10 percent earned less than \$32,230 per year and the highest 10 percent earned more than \$93,230 per year. Health and safety specialists can work for private industries, hospitals or governments. Salaries vary depending on which type of employer one works for.

I like being a safety and health professional because I can use math, psychology and business. I am constantly balancing the three subjects and really enjoy the diversity. I'm also proud to know that I am doing my part in keeping Oregonians safe and healthy at work.

81 | Career 49

Oregon Focus on Surface Area and Volume, pg 49

Each text also includes a Career Focus page at the end of each block. Each Career Focus highlights an Oregonian's career. The "autobiography" includes a description of what the person does in his or her career, how much schooling was required, how math is used in his or her career and what he or she enjoys about the job. The individuals showcased come from all over the state of Oregon and have different types of careers - from a veterinarian in John Day to a chef in Hillsboro to a Safety and Health Professional in Tillamook.

Since the texts were written specifically for Oregon students, they also include many facts about the state of Oregon. From the cover photos (which represent nine locations in Oregon) to data about Olympic athletes from Oregon, it is quite likely that throughout the series, students will do an exercise or activity that is about their community or someone from their community.

EXPLORE!

Zach lives in Madras, Oregon. Gina lives 45 miles north in Bend, Oregon. Gina and Zach both leave their houses at the same time, heading south on Highway 97. Zach drives 45 miles per hour and Gina drives 55 miles per hour. Zach wants to determine how long it will take before he catches up with Gina.


Step 1: Copy the equations listed below and identify which equation corresponds to Zach and which equation corresponds to Gina. The y -variable represents the distance from Zach's house. Describe what the variable represents in this situation.

$$y = 55x + 45$$

$$y = 65x$$

Step 2: Solve this system of equations using the substitution method.

Step 3: How many hours will it take before Zach catches Gina? How far will...



Oregon Focus on Linear Equations – Lesson 25

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