Standards By Design:

Kindergarten, First Grade, Second Grade and Third Grade for Mathematics

Acknowledgment

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Message to Students

Dear Student,

The world is changing quickly. For you to succeed in school, at work, and in the community, you will need more skills and knowledge than ever before. These days, “ready for college” and “ready for work” essentially mean the same thing: “ready for life.”

Getting in shape academically is one of the most important things you can do to prepare for a successful future. Your future starts with Oregon’s academic standards. This booklet explains what you should know and be able to do in each subject, at your grade level.

Please review this guide with your teachers and share it with your parents and family. To be ready for tomorrow, get in top academic shape today. You can use this guide year round to check your progress.

Message to Parents

Dear Parent,

Education is the building block of every student's future. To ensure all students have the opportunity to succeed, Oregon has adopted world-class academic standards in English/language arts, mathematics, science, social studies, the arts, health education, physical education and second languages. The academic content standards clearly outline what students should know and be able to do in each subject, at each grade level. Oregon's teachers are dedicated to helping all students meet these expectations.

Moreover, these standards are the cornerstone of the state's plan for improving student achievement. They provide a comprehensive blueprint for what we must do to support students every step of the way – from their earliest years through post-high school education. To be competitive in today's economy and to earn enough to support a family, all students need to continue their education beyond high school, whether at a two- or four-year college, in an apprenticeship program, or in the military.

How can you help your student meet these challenges? Learning occurs many places, not only in the classroom. Students spend far more time at home than they do in school. How they spend their time can make a real difference. Nothing will have a bigger impact on your student's success than your involvement in his or her education.

On the next page is a list of 12 things you can do to help ensure your child has the best education possible – from preschool to post-high school opportunities. We hope you will use this guide as a tool to help your child succeed today and in the future.

Sincerely,

Susan Castillo
Superintendent of Public Instruction

Twelve things parents can do to help students succeed

1. **Promote education beyond high school.** Make sure your child knows you expect him or her to continue learning after high school – it's never too early to start raising these expectations. To keep our families, communities, and economy strong, all students need to keep learning.

2. **Build relationships with your child's teachers.** Find out what each teacher expects of your child. Learn how you can help your child prepare to meet these expectations.

3. **Read to your child.** Reading is the foundation for all learning and is one of the most important contributions you can make to your child's education. Read to your young child, encourage your older child to read to you, or spend time together as a family reading. All this helps your child develop strong reading habits and skills from the beginning and reinforces these habits and skills as your child grows.

4. **Practice writing at home**. Letters, journal entries, e-mail messages, and grocery lists are all writing opportunities. Show that writing is an effective form of communication and that you write for a variety of purposes.

5. **Make math part of everyday life**. Paying bills, cooking, gardening, and even playing games are all good ways to help your child understand and use mathematics skills. Show that there may be many ways to get to the right answer and encourage your child to explain his or her method.

6. **Ask your child to explain his or her thinking.** Ask lots of "why" questions. Children should be able to explain their reasoning, how they came up with their answer, and why they chose one answer over another.

7. **Expect that homework will be done.** Keep track of your child's homework assignments and regularly look at his or her completed work. Some teachers give parents a number to call for a recorded message of that day's homework; others put the assignments on the Internet. If your school doesn't offer these features, talk to the teacher about how you can get this important information. Even if there aren't specific assignments, stay informed about what your child is working on so that you can help at home.

8. **Use the community as a classroom.** Feed your child's curiosity about the world 365 days a year. Use the library to learn more about the history of your town. A visit to a farmer's market can help your child picture our state's rich agricultural tradition. Take your young child to zoos and parks and your older child to museums and workplaces to show how learning connects to the real world.

9. **Encourage group study.** Open your home to your child's friends for informal study sessions. Promote outside formal study groups through church, school organizations, or other groups. Study groups will be especially important as your child becomes older and more independent. The study habits your child learns now will carry over into college and beyond.

10. **Spend time at school.** The best way to know what goes on in your child's school is to spend time there. If you're a working parent, this isn't easy, and you may not be able to do it very often. Even so, "once in awhile" is better than "never."

11. **Start a college savings plan as soon as possible.** Investigate Oregon's College Savings Plan and other investment vehicles and contribute as much as you can.

12. **Promote high standards for all.** To ensure the academic success of our children, everyone must work toward the same goal. Discuss academic expectations with parents and other people in your community. Use your school and employee newsletters, athletic associations, booster clubs, a PTA or PTO meeting, or just a casual conversation to explain why academic standards are important and what they mean to you and your family. Share your tips for helping your own son or daughter succeed in school and encourage others to share their suggestions as well.

Remember: You are the most important influence on your child. Oregon's academic standards give you important tools to ensure your child gets the best education possible and is well prepared for the future.

Measuring Student Learning

Children develop at different rates. Some take longer and need more help to learn certain skills.

Assessments at the state level provide a measure of school accountability – assisting schools in their efforts to align curriculum and instruction with the state's academic standards and reporting progress to parents and the public.

Assessments at the classroom level help teachers and parents understand how students are progressing and assist in identifying academic areas where students may need additional attention.

The Oregon Assessment of Knowledge and Skills (OAKS) consists of three broad areas:

1. Multiple Choice Tests present the student with a series of questions or problems. The student responds on an answer sheet and responses are scored by machine. These tests are required in grades 3-8 and high school/CIM for English Language Arts and mathematics and for grades 5, 8, and high school/CIM in science. An optional multiple choice test is also available for Social Sciences in grades 5, 8 and high school/CIM.

2. State Writing Assessments require students to give extended written responses to open-ended topics provided by the state in a supervised testing situation. Trained raters at state-run scoring sites judge student work using the state scoring guide. These performance assessments are required for grades 4, 7 and high school/CIM.

3. Classroom Work Samples are a series of formal classroom assessments available to Oregon teachers in grades 3 to high school/CIM that allow students to respond to locally provided topics or complex problems. Student work is rated by teachers in their own schools or districts using state scoring guides. Work samples are collected in Writing, Speaking, Mathematics Problem Solving, Scientific Inquiry and Social Science Analysis.

Who is required to take state assessments?

Third grade is the first time that many students will be taking a statewide assessment. Third grade students take tests in Reading/Literature and Mathematics that are delivered through TESA (Technology Enhanced State Assessment) a computerized adaptive testing system.

The table below lists the statewide assessment schedule, by grade.

Required Statewide Testing

	3	4	5	6	7	8	10/CIM
Reading/Literature	X	X	X	X	X	X	X
Writing		X			X		X
Mathematics	X	X	X	X	X	X	X
Science			X			X	X
Social Sciences (optional)			X			X	X

How is student performance measured on these assessments?

Content Standards describe what students in Oregon should learn. How well they learn the content is determined by Achievement Standards. These Achievement Standards, or "cut scores", identify the score needed to demonstrate solid understanding of the Content Standards. The following table shows the current Achievement Standards in Reading/Literature and Mathematics for grades 3-8 and 10/CIM.

	Reading/Literature		**Mathematics**		**Science**	
Grade	Meet	Exceed	Meet	Exceed	Meet	Exceed
3	204	218	205	217	----	----
4	211	223	212	225	----	----
5	218	230	218	229	225	238
6	222	234	221	232	----	----
7	227	239	226	238	----	----
8	231	241	230	241	234	246
10/CIM	236	248	236	246	239	249

The state writing assessment and classroom work samples are scored using state scoring guides. As an assessment tool, scoring guides provide specific criteria to describe a range of possible student responses and a consistent set of guidelines to rate student work. For the state writing assessment, student work is scored by two different raters and their scores combined to create a "composite score."

Since the scoring guide serves as the primary assessment tool to determine whether students have met the standards through a collection of work samples, teachers are asked to align their classroom assessments carefully to the criteria described on the scoring guide. **Composite scores are not required for classroom work samples**.

For more information on assessments, please visit
http://www.ode.state.or.us/search/results/?id=169

Mathematics

Kindergarten

Kindergarten mathematics students build their number sense by comparing and ordering numbers. Students also compare, classify and sort objects by visual attributes and begin to develop strategies for simple addition.

First Grade

First grade mathematics students strengthen their addition skills to be able to add and subtract two-digit numbers. They sort and classify objects, identify and model two-dimensional shapes and represent data using pictures and graphs.

Second Grade

Second grade mathematics students extend their knowledge of numbers to the concept of place value. They use place value to develop strategies for multi-digit addition and subtraction. They are introduced to the concept of units to measure length, volume and weight. Students also begin to explore the notions of symmetry and transformations.

Third Grade

Third grade mathematics students build upon their K-2 Foundations. This year they continue to hone their arithmetic skills. Students refine their knowledge of place value, begin to develop their multiplication and division skills, and get an introduction to fractions. Students also work on recognizing and classifying 3-dimensional shapes and on recognizing and extending patterns.

Calculations and Estimations

CCG: Numbers :
Understand numbers, ways of representing numbers, relationships among numbers, and number systems.

Kindergarten

MA.00.CE.01

Read, write, order and identify whole numbers less than 10.

MA.00.CE.02

Use words such as before and after to describe relative position in a sequence of whole numbers on a number line up to 10 (e.g., 5 is before 6).

MA.00.CE.03

Recognize whole numbers less than 10 in random order.

MA.00.CE.04

Use objects or pictures to decompose whole numbers.

MA.00.CE.05

Explore and differentiate coins: penny, nickel, dime, and quarter.

MA.00.CE.06

Count forward by one beginning with any number less than 30.

First Grade

MA.01.CE.01

Read, write, order, and identify whole numbers less than 100.

MA.01.CE.02

Order 1st through 10th in numeric or word form.

MA.01.CE.03

Count and group objects in ones and tens.

MA.01.CE.04

Use objects or pictures to decompose whole numbers to 10 (e.g., 5 = 4 + 1, 5 = 2 + 3).

MA.01.CE.05

Identify, order and compare coins by making equivalent amounts up to 25 cents.

MA.01.CE.06

Demonstrate counting skills of skip counting by 5 and 10 to 100.

Second Grade

MA.02.CE.01

Read, write, order, model, and compare whole numbers less than 100.

MA.02.CE.02

Read number words less than one hundred and write the corresponding numeric value.

MA.02.CE.03

Identify and model the whole number of ones, tens, and hundreds in numbers less than 100.

MA.02.CE.04

Compose and decompose whole numbers less than one hundred by place value (e.g., 426 = 4-100's, 2-10's, 6-1's).

MA.02.CE.05

Order, model, and identify wholes, halves, and fourths using concrete models and visual representations.

MA.02.CE.06

Understand a fraction represents subdivisions of a whole into equal parts.

MA.02.CE.07

Locate whole numbers on a number line.

MA.02.CE.08

Order and compare coins by making equivalent amounts up to $1.00.

MA.02.CE.09

Demonstrate the counting skills of skip counting by 2 to 100 and by 100 to 1000.

MA.02.CE.10

Determine whether a set of objects has an odd or even number of elements.

Third Grade

MA.03.CE.01

Read, write, order, model, and compare whole numbers less than one thousand.

MA.03.CE.02

Identify the place value and actual value of digits in a whole number less than one thousand.

MA.03.CE.03

Compose and decompose whole numbers less than one thousand by place value.

MA.03.CE.04

Order, model, compare, and identify commonly used fractions (halves, thirds, fourths, eighths, tenths) using concrete models and visual representations. (Some of the skills and concepts in the preceeding standard are assessed at the classroom level and others at the state level. See the Oregon Standards Newspaper for specifics.)

MA.03.CE.05

Develop understanding of fractions as parts of unit wholes, as parts of a collection, as locations on number lines, and as divisions of whole numbers.

MA.03.CE.06

Locate whole numbers and common fractions on a number line.

MA.03.CE.07

Order and compare dollars and coins by making equivalent amounts up to $10.00.

MA.03.CE.08

Demonstrate the counting skills of skip counting as they relate to multiplication facts.

CCG: Computation and Estimation :
Compute fluently and make reasonable estimates.

Kindergarten

MA.00.CE.07

Add and subtract pairs of numbers using less than 10 concrete objects.

MA.00.CE.08

Mentally find one more or one less than a single digit number.

MA.00.CE.09

Judge whether sets of objects have less than, more than or the same number as a reference set.

First Grade

MA.01.CE.07

Add and subtract with concrete objects.

MA.01.CE.08

Apply with fluency sums to nine and related subtraction facts.

MA.01.CE.09

Find sums and differences less than 100.

MA.01.CE.10

Make change for amounts to 25 cents.

MA.01.CE.11

Mentally add 10 to a single digit number.

MA.01.CE.12

Estimate number of objects and check reasonableness of answers by counting up to 20 objects.

Second Grade

MA.02.CE.11

Develop and evaluate strategies for adding and subtracting whole numbers.

MA.02.CE.12

Apply with fluency sums to 18 and related subtraction facts.

MA.02.CE.13

Add and subtract pairs of any two-digit numbers.

MA.02.CE.14

Find the sum of three or more two-digit numbers.

MA.02.CE.15

Make change for amounts to $1.00.

MA.02.CE.16

Mentally add or subtract multiples of 10 to and from a number.

MA.02.CE.17

Identify the most efficient operation (add, subtract, multiply, or divide) for solving a problem.

MA.02.CE.18

Estimate number of objects and check reasonableness of answers by counting up to 100 objects.

MA.02.CE.19

Round one-or two-digit whole numbers to the nearest 10 to estimate sums and differences.

Third Grade

MA.03.CE.09

Develop and evaluate strategies for multiplying whole numbers.

MA.03.CE.10

Add and subtract pairs of up to four digit numbers.

MA.03.CE.11

Develop and acquire efficient strategies for determining multiplication and division facts 0-9.

MA.03.CE.12

Multiply a two-digit number by a one-digit number.

MA.03.CE.13

Make change for amounts up to $10.00.

MA.03.CE.14

Mentally add or subtract multiples of 10, 100, or 1000 to or from a number.

MA.03.CE.15

Identify the operation (add, subtract, multiply, or divide) for solving a problem.

MA.03.CE.16

Develop and use strategies (overestimate, underestimate, range of estimates) to make reasonable estimates.

MA.03.CE.17

Recognize which place value will be the most helpful in estimating an answer.

CCG: Operations and Properties :
Understand meanings of operations and how they relate to one another.

First Grade

MA.01.CE.13

Represent situations using models of addition and subtraction (e.g., putting together or adding on, taking away, finding the difference, comparing).

Second Grade

MA.02.CE.20

Understand various meanings of addition and subtraction of whole numbers and the relationship between the operations.

MA.02.CE.21

Use the commutative (4+2)=(2+4) and associative (4+3)+7=4+(3+7) properties of addition to simplify calculations.

MA.02.CE.22

Describe the effects of adding or subtracting by a whole number.

MA.02.CE.23

Demonstrate the zero property for addition and subtraction.

Third Grade

MA.03.CE.18

Represent situations using models of multiplication and division (e.g., repeated addition, equal groups of objects, arrays, repeated subtraction, equal grouping, sharing equally).

MA.03.CE.19

Use the commutative and associative properties of multiplication to simplify calculations.

MA.03.CE.20

Describe the effects of multiplying or dividing by a whole number.

MA.03.CE.21

Demonstrate the zero property for multiplication and identity property for multiplication and division.

Statistics and Probability

CCG: Statistics :
Select and use appropriate statistical methods to analyze data.

Kindergarten

MA.00.SP.01

Identify "how many more or less" and "how many all together" from pictographs and bar graphs.

First Grade

MA.01.SP.01

Identify "how many more or less" and "how many all together" from pictographs and bar graphs.

Second Grade

MA.02.SP.01

Identify "most and least" from data sets that contain more than 10 items (e.g., from a bar graph that shows "how many pockets in our clothing" identify by number "the most pockets" and "the least pockets").

Third Grade

MA.03.SP.01

Determine the mode and range of a set of data.

CCG: Collect and Display Data :
Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.

First Grade

MA.01.SP.02

Pose questions and gather data about themselves and their surroundings.

MA.01.SP.03

Sort and classify objects according to their attributes and organize data about the objects into categories.

MA.01.SP.04

Represent data using concrete objects and pictographs.

Second Grade

MA.02.SP.02

Ask and answer simple questions related to tallies, charts, and bar graphs.

MA.02.SP.03

Record results of probability experiments using tallies or by completing charts.

MA.02.SP.04

Represent and interpret data using tally charts and pictographs.

Third Grade

MA.03.SP.02

Ask and answer simple questions that can be answered by collecting, organizing and displaying data.

MA.03.SP.03

Represent and interpret data using tally charts, pictographs, and bar graphs, including identifying the mode and range. (Some of the skills and concepts in the preceeding standard are assessed at the classroom level and others at the state level. See the Oregon Standards Newspaper for specifics.)

CCG: Data Analysis and Predictions :
Develop and evaluate inferences and predictions that are based on data.

First Grade

MA.01.SP.05

Answer simple questions related to data displayed in pictographs, including which result occurred the most or least often.

Second Grade

MA.02.SP.05

Develop inferences about the likelihood of the occurrence of an event based on data collected from activities which have outcomes that depend on chance (e.g., tossing a two-colored counter, using a spinner).

Third Grade

MA.03.SP.04

Draw conclusions and make predictions and inferences from tally charts, pictographs, or bar graphs.

Algebraic Relationships

CCG: Patterns and Functions :
Understand patterns, relations, and functions.

Kindergarten

MA.00.AR.01

Sort, classify, and order objects by size, color, shape, or other properties.

MA.00.AR.02

Identify objects that do not belong to a particular group.

MA.00.AR.03

Copy and extend patterns using concrete models.

First Grade

MA.01.AR.01

Sort and classify objects using one or more attributes by observing relationships.

MA.01.AR.02

Identify an element that does not belong in a simple pattern.

MA.01.AR.03

Supply a missing element in or extend number patterns involving addition or subtraction by a single digit number.

MA.01.AR.04

Extend and generate patterns involving three elements sharing a common attribute (e.g., color, number, shape, letter) using concrete models or objects.

Second Grade

MA.02.AR.01

Sort and classify objects using one or more attributes by observing relationships and making generalizations.

MA.02.AR.02

Identify, describe, extend and reproduce a pattern and use it to make predictions and analyze how repeating and growing patterns are generated.

MA.02.AR.03

Supply a missing element in or extend number patterns involving addition or subtraction.

MA.02.AR.04

Use a hundreds chart to generate the patterns in rows, skip counting, decades, columns, and generate arrangements of two-dimensional figures.

Third Grade

MA.03.AR.01

Describe, extend, and make generalizations about numeric and geometric patterns (e.g., increasing the number of sides of two-dimensional geometric figures in a sequence; consecutive odd numbers). (Some of the skills and concepts in the preceeding standard are assessed at the classroom level and others at the state level. See the Oregon Standards Newspaper for specifics.)

MA.03.AR.02

Supply a missing element in or determine a rule that extends number patterns involving addition and multiplication by a single digit number.

MA.03.AR.03

Generate a pattern or sequence from a verbal, written, and pictorial description. (Some of the skills and concepts in the preceeding standard are assessed at the classroom level and others at the state level. See the Oregon Standards Newspaper for specifics.)

CCG: Algebraic Relationships :
Represent and analyze mathematical situations and structures using algebraic symbols.

Kindergarten

MA.00.AR.04

Compare two or more sets of 10 or fewer objects and identify which set is equal to, more than, or less than the other.

First Grade

MA.01.AR.05

Understand the meaning of equals and use the = symbol.

MA.01.AR.06

Construct and solve simple number sentences involving sums to 9 and related subtraction facts using concrete objects, pictures or symbols.

Second Grade

MA.02.AR.05

Describe quantitative relationships using the terms "greater than," "less than," and "equal to" and the associated symbols >, <, =.

MA.02.AR.06

Construct and solve simple number sentences involving sums to 18 and related subtraction facts using concrete objects, pictures or symbols.

Third Grade

MA.03.AR.04

Use letters, boxes, or other symbols to stand for a missing number in simple expressions or equations.

MA.03.AR.05

Identify and apply a relationship between two quantities (e.g., If four people can be seated at one table how many tables are needed to seat 24 people?).

Measurement

CCG: Units and Tools :
Understand measurable attributes of objects and the units, systems and processes of measurement.

Kindergarten

MA.00.ME.01

Sort and classify object to show different attributes that can be measured in different ways (e.g., length, weight, size).

First Grade

MA.01.ME.01

Compare and order objects according to measurable attributes (e.g. long or short; light or heavy).

Second Grade

MA.02.ME.01

Select an appropriate tool and standard unit to measure length, weight and capacity (volume) of objects larger than the unit tools (e.g., rulers, measuring cups, balances).

MA.02.ME.02

Understand that using different measurement units will result in different numerical measurements for the same object.

MA.02.ME.03

Understand the measurement process (choosing a measurement unit, comparing that unit to the object, and reporting the number of units).

Third Grade

MA.03.ME.01

Select the most appropriate tool and metric unit to measure length, time, weight, and volume.

MA.03.ME.02

Compare units of measure between customary and metric systems (e.g., inches > centimeters, liters < gallons).

MA.03.ME.03

Understand and explain the need for using standard units.

CCG: Direct & Indirect Measurement :
Apply appropriate techniques, tools, and formulas to determine measurements.

Kindergarten

MA.00.ME.02

Understand concepts related to time of day: morning, afternoon, evening, day, night.

MA.00.ME.03

Compare the time of occurrence of two events using the terms before or after.

First Grade

MA.01.ME.02

Identify and name days of the week and months of the year and interpret calendar information (e.g., tomorrow, yesterday, how many Tuesdays are in November).

MA.01.ME.03

Tell time to the nearest hour using analog and digital clocks.

Second Grade

MA.02.ME.04

Demonstrate an understanding of time and use of time relationships (e.g., how many minutes in an hour, days in a week, months in a year).

MA.02.ME.05

Tell time to the nearest half hour using analog and digital clocks.

MA.02.ME.06

Measure length using multiple copies of units of the same size (such as paper clips) laid end to end.

MA.02.ME.07

Estimate length in standard and nonstandard units (e.g., finger lengths, pencil lengths).

MA.02.ME.08

Determine the capacity (volume) of an object by counting and filling (e.g., how many small containers fit in a larger container, how many scoops of beans in a can).

MA.02.ME.09

Estimate capacity (volume) of objects in standard units (e.g., cups in a bowl, cubes in a box).

MA.02.ME.10

Determine the weight of an object using a balance scale.

MA.02.ME.11

Estimate weight of objects.

MA.02.ME.12

Find the area of a two-dimensional figure by covering the figure with unit figures (e.g., how many small squares cover a larger shape).

Third Grade

MA.03.ME.04

Determine elapsed time for given activities using representations of analog and digital clocks.

MA.03.ME.05

Tell time to the nearest minute using an analog clock.

MA.03.ME.06

Describe temperature changes and concepts as they occur in daily situations.

MA.03.ME.07

Determine measurements of length to the nearest centimeter and nearest meter.

MA.03.ME.08

Estimate the length of objects in meters and centimeters.

MA.03.ME.09

Determine measurements of volume to the nearest milliliter or liter of measuring cups, beakers, or graduated cylinders.

MA.03.ME.10

Estimate volume of objects in milliliters and liters.

MA.03.ME.11

Determine measurements of weight to the nearest gram and kilograms.

MA.03.ME.12

Estimate weight of objects in grams and kilograms.

MA.03.ME.13

Find areas of rectangular arrays.

Geometry

CCG: Properties and Relationships :
Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships

Kindergarten

MA.00.GM.01

Identify basic shapes (e.g., square, circle, triangle, rectangle, and oval).

MA.00.GM.02

Match objects to outlines of their shapes.

MA.00.GM.03

Classify and sort geometric shapes by attributes (e.g., number of sides, shape, size).

First Grade

MA.01.GM.01

Identify, describe and classify triangles, rectangles, squares, circles and ovals.

MA.01.GM.02

Recognize and identify attributes of two-dimensional geometric shapes in the environment (e.g., make a triangle and a square from pieces of straw and compare how many pieces of straw is used to make each shape).

Second Grade

MA.02.GM.01

Identify, describe, compare, and classify two-dimensional shapes using appropriate vocabulary (e.g., rhombus, trapezoid, parallelogram) including the faces of three-dimensional objects (e.g., face, base).

MA.02.GM.02

Identify attributes of two-dimensional shapes: sides and angles.

Third Grade

MA.03.GM.01

Identify, describe, compare, and classify common three-dimensional geometric objects: cubes, prisms, spheres, pyramids, cones and cylinders. (Some of the skills and concepts in the preceeding standard are assessed at the classroom level and others at the state level. See the Oregon Standards Newspaper for specifics.)

MA.03.GM.02

Compare and classify solid geometric shapes (e.g., triangular pyramid, cube, rectangular prism) according to the number and shapes of faces, edges, and vertices.

MA.03.GM.03

Recognize and identify attributes of three-dimensional geometric shapes (faces, edges, vertices), including attributes of shapes in the environment.

CCG: Modeling :
Use visualization, spatial reasoning, and geometric modeling to solve problems.

Kindergarten

MA.00.GM.04

Create shapes with manipulatives (e.g., pattern blocks or tiles).

First Grade

MA.01.GM.03

Model triangles, rectangles, squares, circles and ovals.

MA.01.GM.04

Create repeating geometric shapes using manipulatives (e.g., two triangles can make a square).

Second Grade

MA.02.GM.03

Model and sketch triangles, rectangles, squares, circles, ovals, parallelograms, rhombi and trapezoids.

MA.02.GM.04

Create new shapes using combinations of known shapes (e.g., two congruent right triangles to form a rectangle).

MA.02.GM.05

Recognize two-dimensional geometric shapes in the environment, including the faces of three-dimensional objects (e.g., rectangles on a cereal box), and from different perspectives (e.g., use your mind's eye to imagine what shapes would be formed if you cut a square diagonally).

Third Grade

MA.03.GM.04

Model three-dimensional shapes including cubes, rectangular prisms, spheres, pyramids, cones, and cylinders.

MA.03.GM.05

Put shapes together and take them apart to form other shapes.

MA.03.GM.06

Recognize three-dimensional geometric shapes (e.g., cube, cone, cylinder, pyramid, and sphere) in the environment and from different perspectives.

CCG: Coordinate Geometry :
Specify locations and describe spatial relationships using coordinate geometry and other representational systems.

First Grade

MA.01.GM.05

Arrange and describe objects in space by relative position and direction (e.g., near, far, below, above, up, down, behind, in front of, next to, left or right of).

Second Grade

MA.02.GM.06

Describe, name, and interpret relative positions in space and apply ideas about relative position to maps.

MA.02.GM.07

Describe, name, and interpret direction and distance in navigating space and apply ideas about direction and distance to maps and routes.

Third Grade

MA.03.GM.07

Describe paths for moving from one location to another on a grid.

CCG: Transformations and Symmetry :
Apply transformations and use symmetry to analyze mathematical situations.

Second Grade

MA.02.GM.08

Identify symmetry, patterns and shapes in everyday surroundings.

MA.02.GM.09

Create designs with line and rotational symmetry.

MA.02.GM.10

Illustrate reflections (flips), rotations (turns) and translations (slides) using concrete or pictorial models (e.g., paper folding, cut outs, and pattern blocks).

Third Grade

MA.03.GM.08

Identify line and rotational symmetry.

MA.03.GM.09

Predict and describe the results of performing reflections, rotations and translations of triangles. (Some of the skills and concepts in the preceeding standard are assessed at the classroom level and others at the state level. See the Oregon Standards Newspaper for specifics.)

Mathematical Problem Solving

CCG: Conceptual Understanding :
Select, apply, and translate among mathematical representations to solve problems.

Second Grade

MA.02.PS.01

Interpret the concepts of a problem-solving task and translate them into mathematics.

Third Grade

MA.03.PS.01

Interpret the concepts of a problem-solving task and translate them into mathematics.

CCG: Processes and Strategies :
Apply and adapt a variety of appropriate strategies to solve problems.

Second Grade

MA.02.PS.02

Choose strategies that can work and then carry out the strategies chosen.

Third Grade

MA.03.PS.02

Choose strategies that can work and then carry out the strategies chosen.

CCG: Verification :
Monitor and reflect on the process of mathematical problem solving.

Second Grade

MA.02.PS.03

Produce identifiable evidence of a second look at the concepts/strategies/calculations to defend a solution.

Third Grade

MA.03.PS.03

Produce identifiable evidence of a second look at the concepts/strategies/calculations to defend a solution.

CCG: Communication :
Communicate mathematical thinking coherently and clearly. Use the language of mathematics to express mathematical ideas precisely.

Second Grade

MA.02.PS.04

Use pictures, symbols, and/or vocabulary to convey the path to the identified solution.

Third Grade

MA.03.PS.04

Use pictures, symbols, and/or vocabulary to convey the path to the identified solution.

CCG: Accuracy :
Accurately solve problems that arise in mathematics and other contexts.

Second Grade

MA.02.PS.05

Accurately solve problems using mathematics.

Third Grade

MA.03.PS.05

Accurately solve problems using mathematics.