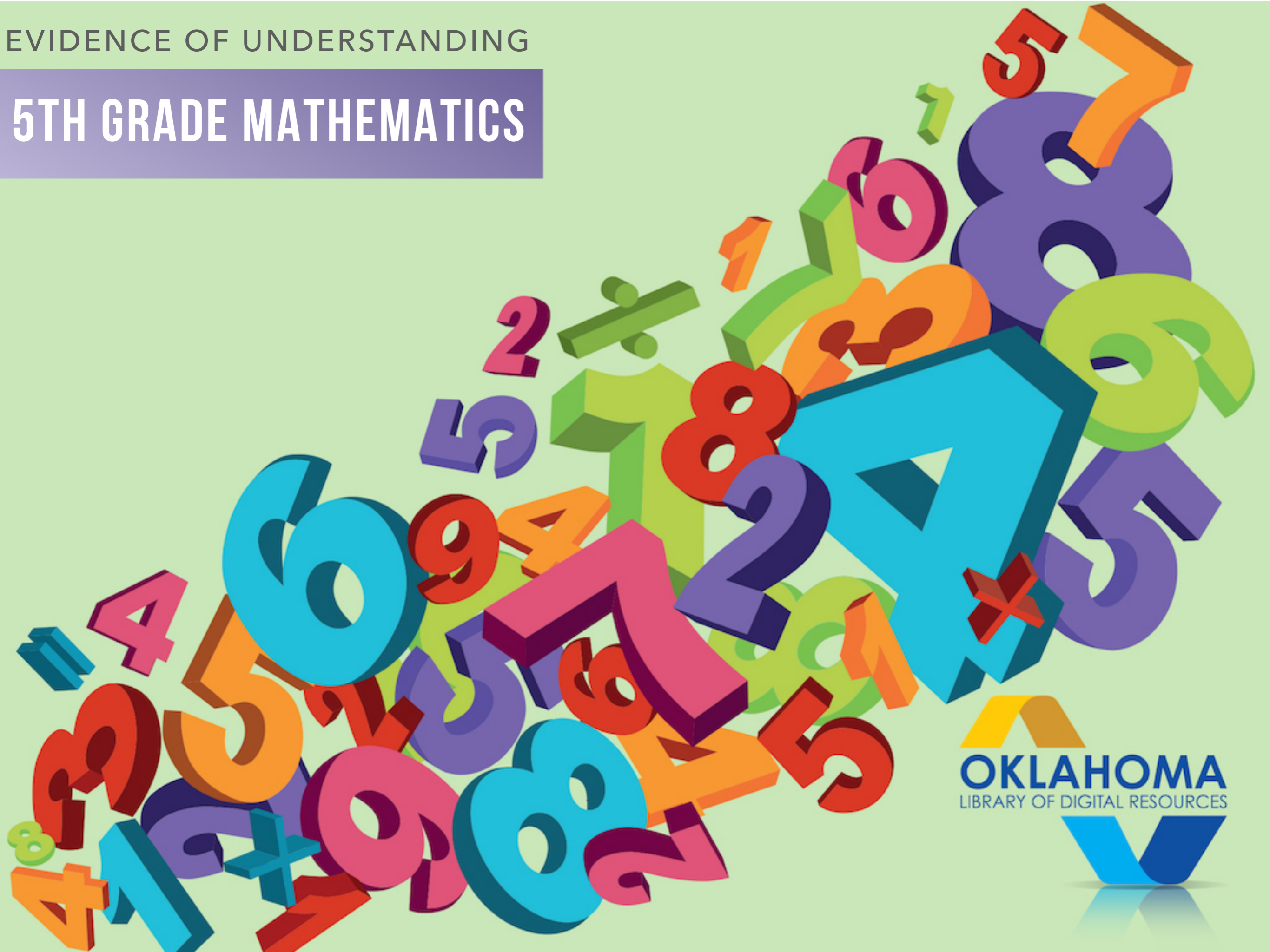


EVIDENCE OF UNDERSTANDING

# 5TH GRADE MATHEMATICS



The Oklahoma Library of Digital Resources is an innovative initiative to provide Oklahoma educators with high-quality, interactive teaching resources.

We appreciate our sponsors:



Thank you to the following educators for their work in curating digital resources:

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Traci Brownen, Weatherford Public Schools

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Julie Copeland, Merritt Public Schools

Lauren Duke, Putnam City Public Schools

Paula Dyer, Putnam City Public Schools

Tonya Gaunt, Clinton Public Schools

Becky King, Woodward Public Schools

Julia Nail, Woodward Public Schools

Sarah Pepper, Merritt Public Schools

Kendra Rakes, Bartlesville Public Schools

Tawn Rundle, Merritt Public Schools

Heather Sparks, Mid-Del Public Schools

Laura Splawn, Merritt Public Schools

Taler Broadbent, Merritt Public Schools

Robyn Wright, Sand Springs Public Schools

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# GETTING TO KNOW OKLDR

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# WHO IS OSSBA?

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The Oklahoma State School Boards Association (OSSBA) works to promote quality public education for the children of Oklahoma through training and information services to school board members. The Association is a leader among leaders in Oklahoma education and a visible presence in the local school districts and throughout the state.

The OSSBA was created in 1944 to provide support for local school board members with a variety of information, assistance, and representation services. OSSBA reaches every school board member through training opportunities. It creates and encouraged effective leaders to promote public education and cultivates productive alliances with governing bodies. OSSBA trains school board members to participate in an effective and supportive manner to provide direction for educational innovation and improves public perception of education in Oklahoma by sharing strategies and tools with our member school districts to focus on the success of Oklahoma public education.

OSSBA works with school boards to demonstrate the impact they have on student achievement. We work to provide meaningful two-way communication of advocacy, services, and training activities to local boards of education and their stakeholders. Other services we provide that have a direct impact on student achievement include strategic planning and superintendent searches. Our legal team provides free legal information to the school districts.

# WHY OKLDR?

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In the summer of 2016, OSSBA set out on a journey assist teachers in the integration of technology into their classrooms. The Oklahoma Library of Digital Resources (OKLDR) became a collection of digital content resources selected by Oklahoma educators to support the Oklahoma Academic Standards. The resources were curated by teachers from school districts across Oklahoma. Each collection contained a variety of learning resources, such as videos, apps, pdf documents, and websites, and are designed so that teachers can then build their lesson plans. The resources helped bridge the digital equity gap among students while helping schools make the most of limited resources.

After collaborating with educators, school and district leaders for a couple of years, OKLDR has been enhanced in the following ways:

- Resources are now an Open Education Resource (OER) “book” format, making it easier to use and accessible on multiple devices.
- Resources map to ESSA expectations for evidence of student understanding and students’ mastery of the academic standards.
- Tools are now agnostic and can be used on multiple devices.
- Lessons are now focused on student engagement through the use of technology. The first OKLDR version focused on teacher resources. This is a major change.
- To prioritize student learning, teacher resources are now located at the back of each book.



# HOW TO USE THIS BOOK

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**The Oklahoma Academic Standards** for this lesson are grouped together by key topics. Sometimes you will see only one standard, but other times you will see a grouping of standards.



**Evidence of Understanding** is the key. This is the concept you want your students to master that reinforces the standards. Mastery means deeper understanding, not just “skim the surface” learning.



**Digital Tools** are the recommended applications and/or tools for the lesson. Think of this element as the “supplies box.”



**In Practice** is a suggested activity to engage the students to demonstrate mastery of the standard. You will notice that this is just one suggested lesson, and sometimes there might be a second lesson. The suggested lesson, developed by Oklahoma teachers, is meant to give you a starting point. You might decide to use the lesson or it might give you an idea of something else you could do to teach the concept.



# MOVING FORWARD

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As you can see the OKLDR book has been designed to inspire educators to have students demonstrate their understanding of the Oklahoma Academic Standards through the use of technology as a productivity tool. While educators have limited time in the day to plan and research high quality content, this book is a jumping off point, with suggested peer-reviewed activities and resources.

While you might encounter extra white space in the book, it is intentional for growth. As you integrate the activities into your lessons, you are encouraged to send us student work samples that might be included in the book, as well as additional activities and resources that could be included in future revisions.

## Next Steps:

- We would love to add samples of student work to the activities, so please send the work to: [okldr@ossba.org](mailto:okldr@ossba.org).
- If you would like to be involved in future course creation, or know teachers who would like to be involved, please contact us at: [okldr@ossba.org](mailto:okldr@ossba.org).
- See anything that needs to be changed or enhanced? Contact us at: [okldr@ossba.org](mailto:okldr@ossba.org).

# NUMBERS AND OPERATIONS

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# DIVIDE MULTI-DIGIT NUMBERS

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5.N.1.1 Estimate solutions to division problems in order to assess the reasonableness of results.

5.N.1.2 Divide multi-digit numbers, by one- and two-digit divisors, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.

5.N.1.3 Recognize that quotients can be represented in a variety of ways, including a whole number with a remainder, a fraction or mixed number, or a decimal and consider the context in which a problem is situated to select and interpret the most useful form of the quotient for the solution.

5.N.1.4 Solve real-world and mathematical problems requiring addition, subtraction, multiplication, and division of multi-digit whole numbers. Use various strategies, including the inverse relationships between operations, the use of technology, and the context of the problem to assess the reasonableness of results.



## Evidence of Understanding

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Students will be able to use a design tool and voice recording to create an anchor chart on division of multi-digit numbers, estimate solutions to division problems, and recognize that quotients can be represented in a variety of ways.



## Digital Tools

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- *Design tools* - Canva, Web Poster Wizard, Collage Maker
- *Voice Record Application* - Voice Memos, Voice Record Pro
- *QR Code Generator* - QR Code Generator, QR Stuff, Flowcode



## In Practice

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- Students will work in small groups and use a design tool to create an anchor chart demonstrating steps, vocabulary, and other important information to go with each standard above, professionally critiquing peers during project.
- Students will create an anchor chart using their design tool of choice, then synthesize their anchor chart and voice recording (that describes the anchor chart and steps involved) to create an interactive visual using a QR code generator.

# FRACTIONS AND DECIMALS

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5.N.2.1 Represent decimal fractions (e.g.,  $\frac{1}{10}$ ,  $\frac{1}{100}$ ) using a variety of models (e.g., 10 by 10 grids, rational number wheel, base-ten blocks, meter stick) and make connections between fractions and decimals.

5.N.2.2 Represent, read and write decimals using place value to describe decimal numbers including fractional numbers as small as thousandths and whole numbers as large as millions.

5.N.2.3 Compare and order fractions and decimals, including mixed numbers and fractions less than one, and locate on a number line.

5.N.2.4 Recognize and generate equivalent decimals, fractions, mixed numbers, and fractions less than one in various contexts.



## Evidence of Understanding

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Students will be able to use a game board application to create a matching game that represents decimals, fractions and place value.

Students will be able to recognize and create equivalent decimals, fractions, mixed numbers, and fractions less than one.



## Digital Tools

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- Game Board App- [Gamestructor](#), [Flippity](#)
- *Content Application* - [Fractions Math Learning Center](#)
- *Content Application* - [Number Line Math Learning Center](#)



## In Practice

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- Students will design models, decimals, fractions with and without using the content applications above.
- Students will use a game board application to create a game on matching fractions, decimals, and number line placement.
- Students will use a game board application to create a game on dragging/matching place value with a number up to the millions.
- Students will evaluate and critique games created by their peers when they are all complete.

# DENOMINATORS

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5.N.3.1 Estimate sums and differences of fractions with like and unlike denominators, mixed numbers, and decimals to assess the reasonableness of the results.

5.N.3.2 Illustrate addition and subtraction of fractions with like and unlike denominators, mixed numbers, and decimals using a variety of representations (e.g., fraction strips, area models, number lines, fraction rods).

5.N.3.3 Add and subtract fractions with like and unlike denominators, mixed numbers, and decimals, using efficient and generalizable procedures, including but not limited to standard algorithms in order to solve real-world and mathematical problems including those involving money, measurement, geometry, and data.

5.N.3.4 Find 0.1 more than a number and 0.1 less than a number. Find 0.01 more than a number and 0.01 less than a number. Find 0.001 more than a number and 0.001 less than a number.



## Evidence of Understanding

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Students will be able to use an interactive whiteboard or video application to practice and demonstrate adding and subtracting fractions using like and unlike denominators.





## Digital Tools

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- *Interactive Whiteboard Application* - [Explain EDU](#), [Jamboard](#), [ShowMe Sketches School](#)
- *Video Editor*- [Clips](#), [WeVideo](#), [Flipgrid](#), [iMovie](#), [Loom](#), [Majisto](#)



## In Practice

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- Students create a set of fractions with like and unlike denominators.
- Students will use an interactive whiteboard to create illustrations adding and subtracting fractions with like and unlike denominators, mixed numbers, and decimals.
- Students will create a video to prove their understanding of all steps by transferring their work to a video editor.
- Students will evaluate and critique peer videos.

# ALGEBRAIC REASONING AND ALGEBRA

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# NUMERICAL PATTERNS

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5.A.1.1 Use tables and rules of up to two operations to describe patterns of change and make predictions and generalizations about real-world and mathematical problems.

5.A.1.2 Use a rule or table to represent ordered pairs of whole numbers and graph these ordered pairs on a coordinate plane, identifying the origin and axes in relation to the coordinates..



## Evidence of Understanding

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Students will be able to use tables and rules to describe patterns of change and predictions about real-world and mathematical using a spreadsheet application.

Students will be able to use a rule or function table to represent ordered pairs of whole numbers and graph them on a coordinate plane.



## Digital Tools

- *Spreadsheet*- Numbers, Google Sheets, Microsoft Excel
- *Word Processor* - Pages, Microsoft Word, Google Docs
- *Sketch Application*- Tayasui Sketches School Sketches School, Notes, ibis, Absolute Board, Google Draw, Auto Draw, Do-Ink, Paper by 53,



## In Practice

- Students will use a spreadsheet application to create tables and rules to describe patterns and predictions of real-world mathematical problems and ordered pairs.
  - Sample challenge: How much it would cost if Katie paid fifty cents for an ice cream sandwich? What if she had to buy eight ice cream sandwiches, what would the total be all together?
- Students will take or find a photo of coordinate plane using a camera and transfer the image into a sketch application to graph the ordered pairs they created also labeling the x axis, y axis, and origin.

# INTERPRET EXPRESSION EQUATIONS

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5.A.2.1 Generate equivalent numerical expressions and solve problems involving whole numbers by applying the commutative, associative, and distributive properties and order of operations (no exponents).

5.A.2.2 Determine whether an equation or inequality involving a variable is true or false for a given value of the variable.

5.A.2.3 Evaluate expressions involving variables when values for the variables are given.



## Evidence of Understanding

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Students will be able to practice generating equivalent numerical expressions and solve problems by applying the commutative, associative, and distributive properties and order of operations using a spreadsheet.

Students will be able to determine whether an equation with a variable is true or false using a word processor and distinguish/locate the error in false equations.



## Digital Tools

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- Video Editor- Clips, WeVideo, Flipgrid, iMovie, Loom, Clips, Do-Ink, Storyblocks, Majisto
- Game Board App- Gamestructor, Flippity



## In Practice

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- Students will create a catchy song about the rules of order of operations and use a video editor to create a video that is similar to a TikTok, Instagram reel, or YouTube video. Teacher will provide a rubric with specific requirements on video requirements to include standards.
- Students will use a game board application to create a game that evaluate expressions involving variables when values for the variables are given.

# GEOMETRY AND MEASUREMENT

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# TWO AND THREE DIMENSIONAL FIGURES

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5.GM.1.1 Describe, classify and construct triangles, including equilateral, right, scalene, and isosceles triangles. Recognize triangles in various contexts.

5.GM.1.2 Describe and classify three-dimensional figures including cubes, rectangular prisms, and pyramids by the number of edges, faces or vertices as well as the shapes of faces.

5.GM.1.3 Recognize and draw a net for a three-dimensional figure (e.g., cubes, rectangular prisms, pyramids)..



## Evidence of Understanding

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Students will be able to use content applications to practice describing, classifying and constructing triangles (equilateral, right scalene, and isosceles), and three-dimensional figures (cubes, rectangular prisms, and pyramids) as well as be able to recognize and draw a net for a three-dimensional figure synthesizing their projects parts with a video editor.



## Digital Tools

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- *Animation* - [Powtoon](#)[Flipaclip](#), [Animatic](#), [Blabberize](#) [Blabberize App](#)
- *Sketch Application*- [Sketches School](#), [Notes](#), [ibis](#), [Absolute Board](#), [Google Draw](#), [Auto Draw](#), [Do-Ink](#), [Paper by 53](#),



## In Practice

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- Students will practice recognizing the volume of rectangular prisms, surface area of three dimensional figures, and find the perimeters of polygons using a content application.
- Students will use an animation application to have each shape explain its classification.
- Students will then create a video with all of the types of triangles and 3D figures in the standards.

# VOLUME AND SURFACE AREA

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5.GM.2.1 Recognize that the volume of rectangular prisms can be determined by the number of cubes ( $n$ ) and by the product of the dimensions of the prism ( $a \times b \times c = n$ ). Know that rectangular prisms of different dimensions ( $p$ ,  $q$ , and  $r$ ) can have the same volume if  $a \times b \times c = p \times q \times r = n$ .

5.GM.2.2 Recognize that the surface area of a three-dimensional figure with rectangular faces with whole numbered edges can be found by finding the area of each component of the net of that figure. Know that three-dimensional shapes of different dimensions can have the same surface area.

5.GM.2.3 Find the perimeter of polygons and create arguments for reasonable values for the perimeter of shapes that include curves.



## Evidence of Understanding

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Students will be able to create a prototype of a new modern beverage container or bowl that demonstrates their understanding of rectangular prisms, area of three-dimensional figures and perimeter of polygons.



## Digital Tools

- *Sketch Application- [Sketches School](#), [Notes](#), [ibis](#), [Absolute Board](#), [Google Draw](#), [Auto Draw](#), [Do-Ink](#), [Paper by 53](#),*
- *3D Design Tool- [Tinkercad](#)*
- *Design Tools - [Canva](#), [Web Poster Wizard](#), [Collage Maker](#)*



## In Practice

- Students will create a prototype of a new drink container or bowl that is a rectangular prism using a sketch application or 3D design tool.
- Students will then explain how they found SA and Volume of their container and design a flyer using a design tool that promotes their new product.
- Students will find real life polygons and use their markup tool to prove their understanding of the process of finding find perimeter.

# ANGLE AND LENGTH

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5.GM.3.1 Measure and compare angles according to size.

5.GM.3.2 Choose an appropriate instrument and measure the length of an object to the nearest whole centimeter or 1/16-inch.

5.GM.3.3 Recognize and use the relationship between inches, feet, and yards to measure and compare objects.

5.GM.3.4 Recognize and use the relationship between millimeters, centimeters, and meters to measure and compare objects.



## Evidence of Understanding

---

Students will be able to measure and compare angles according to size and choose instruments to measure length of any objects.

Students will practice recognizing and use the relationship between inches, feet, and yards to measure and compare objects, as well as millimeters, centimeters, and meters using a video editor.



## Digital Tools

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- Content Application - Abcya: Bow and Angle
- Camera
- *Sample Map*- Street Map
- *Sketch Application*- Sketches School, Notes, ibis, Absolute Board, Google Draw, Auto Draw, Do-Ink, Paper by 53,



## In Practice

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- Students will practice measuring and comparing angles using the Content Application.
- Students will use a map of Downtown in a city in Oklahoma and a sketch application and label one of each types of angle and include the measurement.
- Students will also measure the longest street using mm, cm, meters, inches, feet, and yards to compare the differences.

# DATA AND PROBABILITY

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# MEASURES OF CENTRAL TENDENCY

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5.D.1.1 Find the measures of central tendency (mean, median, or mode) and range of a set of data. Understand that the mean is a “leveling out” or central balance point of the data.

5.D.1.2 Create and analyze line and double-bar graphs with whole numbers, fractions, and decimals increments.



## Evidence of Understanding

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Students will be able to find mean, median, mode, and range of a set of data and indicate the solutions using a spreadsheet application.



## Digital Tools

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- *Spreadsheet- Numbers, Google Sheets, Microsoft Excel*
- *Polling Application- Plickers, Poll Everywhere*



## In Practice

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- Students will use a spreadsheet in conjunction with a polling application to record data gathered (ex: height and how far student can jump; height and shoe size) and find the mean, median, mode and range.
- After organizing data and evaluating results, students can use peer evaluation for critiquing and review.

# RESOURCES

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# TEACHER

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- [Home School Math - Word Problems](#)
- [Math Wire - Guess My Rule Game](#)
- [ABCYA - Math Quiz](#)
- [ABCYA - Math Quiz](#)
- [Math Games - Number Patterns](#)
- [Math Is Fun - Algebra Open Math Problems](#)
- [Math Games Solve the Variable](#)

# STUDENT

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- [Standard Measurement for Kids](#)
- [TPT - Elapsed Time Task Cards](#)
- [ABCYA - Measuring](#)
- [Telling Time with Minutes](#)
- [Khan Academy - Time Difference](#)
- [Khan Measurement and Data](#)
- [Juke Box - Frequency Tables](#)