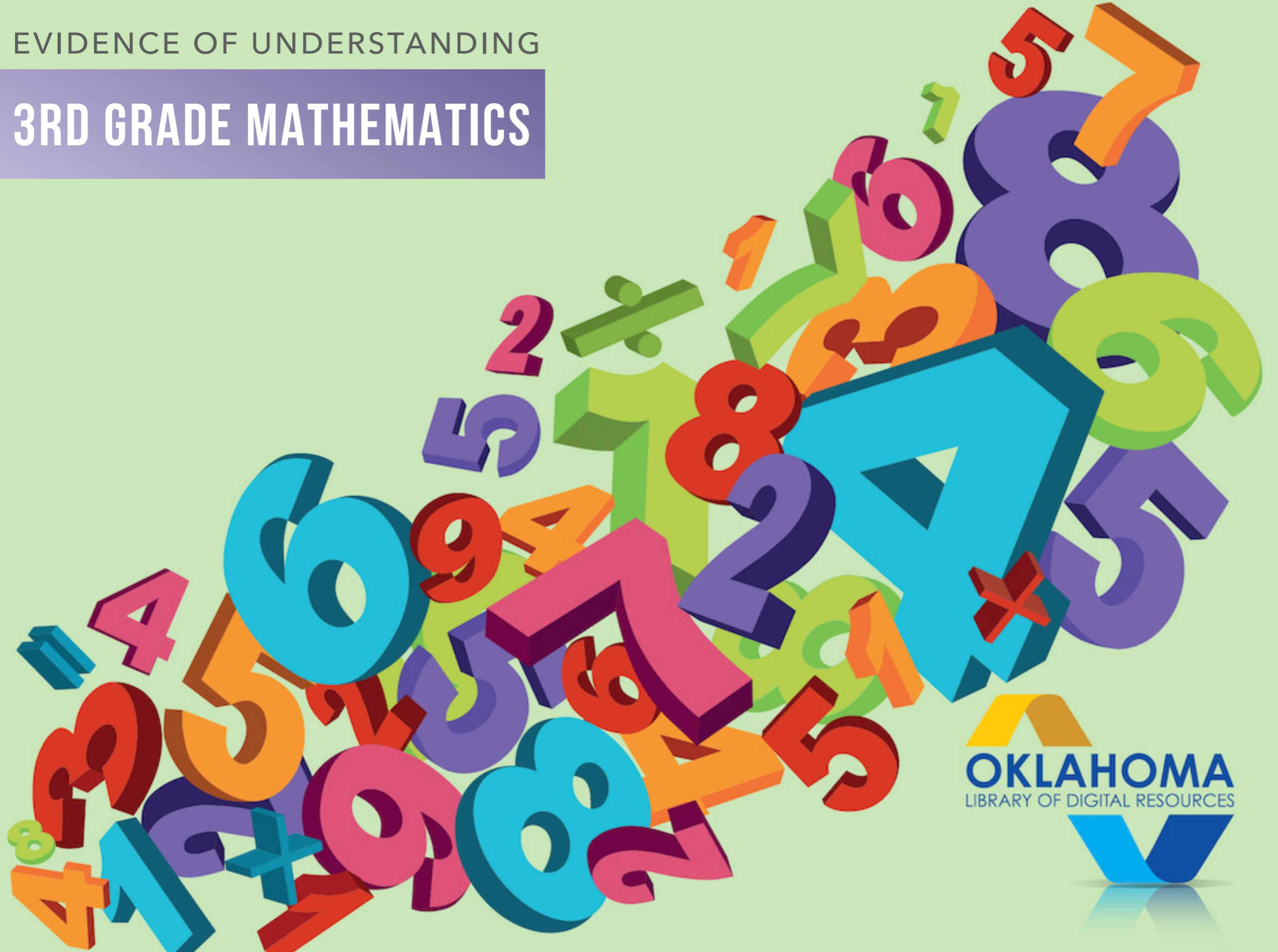


EVIDENCE OF UNDERSTANDING

3RD 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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GETTING TO KNOW OKLDR

WHO IS OSSBA?

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?

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



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

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.
- 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.
- See anything that needs to be changed or enhanced? Contact us at: okldr@ossba.org.

NUMBERS AND OPERATIONS

WHOLE NUMBERS UP TO 100,000



3.N.1.1 Read, write, discuss, and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives.

3.N.1.2 Use place value to describe whole numbers between 1,000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones, including expanded form.

3.N.1.3 Find 1,000 more or 1,000 less than a given four- or five-digit number. Find 100 more or 100 less than a given four- or five-digit number.

3.N.1.4 Use place value to compare and order whole numbers up to 100,000, using comparative language, numbers, and symbols.



Evidence of Understanding

Students will write, draw, and represent place value of numbers through a word processor, spreadsheet and/or digital portfolio.

Students will be able to compare numbers using symbols to show their understanding or greater, less than, or equal to numbers by using a whiteboard.



Digital Tools

- *Word Processor* - Pages, Google Docs, Microsoft Word
- *Whiteboard* - Educreations
- *Digital Portfolio* - Seesaw
- *Spreadsheet*- Numbers, Google Sheets, Microsoft Excel
- *Video* - YouTube - Place Value
- *Video* - Khan Academy - Place Value and Rounding



In Practice

- Students will watch videos to help build understanding of place value using YouTube and Khan Academy.
- Students will use drawing application to recreate numbers in place value, comparing numbers, and ordering numbers.
- Students will use a video application to record themselves showing a number line they created with 6 numbers given by the teacher.
- Students will explain how they ordered the numbers in the video for understanding.
- Students will use the digital handoff feature of the Educreations app to add numbers to a number line.

MULTI-DIGIT WHOLE NUMBERS



3.N.2.1 Represent multiplication facts by using a variety of approaches, such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line and skip counting.

3.N.2.2 Demonstrate fluency of multiplication facts with factors up to 10.

3.N.2.3 Use strategies and algorithms based on knowledge of place value and equality to fluently add and subtract multi-digit numbers.

3.N.2.4 Recognize when to round numbers and apply understanding to round numbers to the nearest ten thousand, thousand, hundred, and ten and use compatible numbers to estimate sums and differences.

3.N.2.5 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.

3.N.2.6 Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups.

3.N.2.7 Recognize the relationship between multiplication and division to represent and solve real-world problems.

3.N.2.8 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two-digit number by a one-digit number.



Evidence of Understanding

Students will represent multiplication facts through a variety of approaches. For example, showing an array to represent 2×2 using a Word Processor, Video Editor or Digital Portfolio.

Students will solve real-world problems using addition, subtraction, and recognize the relationship between multiplication and division through content applications.



Digital Tools

- *Video Editor* - Clips
- *Digital Portfolio* - Seesaw
- *Content Application* - Reflex Math or *Website* - Reflex Math
- *Content Application*-Geo Board
- *Word Processor* - Pages, Google Docs, Microsoft Word



In Practice

- Students will work with a partner and use a video editor to record themselves using manipulatives to show arrays or number lines of multiplication or division problems provided by the teacher.
- Students will use a word processor to create their own subtraction and addition problems that they will trade with classmates to solve.
- Using Reflex Math students can practice addition, subtraction, multiplication, and division.
- Students will use Math Geoboards to practice creating arrays.

UNDERSTAND FRACTIONS



3.N.3.1 Read and write fractions with words and symbols.

3.N.3.2 Construct fractions using length, set, and area models.

3.N.3.3 Recognize unit fractions and use them to compose and decompose fractions related to the same whole. Use the numerator to describe the number of parts and the denominator to describe the number of partitions.

3.N.3.4 Use models and number lines to order and compare fractions that are related to the same whole.



Evidence of Understanding

Students will be able to write fractions using words, pictures, and symbols, as well as construct fractions using length, set, and area models by using Brainiac application.

Students will order and compare fractions using models and number lines by using applications Fractions and Number Line.



Digital Tools

- Camera
- *Content Application* - [Fractions - Brainingcamp](#)
- *Content Application* - [Fractions Math Learning center](#)
- *Content Application* - [Number Line Learning Center](#)



In Practice

- Students will use the Fractions app to practice composing and decomposing fractions.
- Students will practice recognizing fractions on a number line using Number Line application.
- Using Fractions Brainingcamp students will create fraction tiles and use to compare fractions related to the same whole number.
- Students will use the Camera application to take a picture of an object and will then use the Markup tool to divide the object into fractions.

DETERMINE VALUE SET OF COINS OR BILLS



3.N.4.1 Use addition to determine the value of a collection of coins up to one dollar using the cent symbol and a collection of bills up to twenty dollars.

3.N.4.2 Select the fewest number of coins for a given amount of money up to one dollar.



Evidence of Understanding

Students will add a collection of coins up to a dollar and a collection of bills up to twenty dollars using the app Money by The Math Learning Center.



Digital Tools

- *Video Editor* - [Clips](#)
- *Content Application* - [Money The Math Learning Center](#)



In Practice

- Students will practice adding money coins up to twenty dollars using the Money application.
- Teachers will label prices on different objects throughout the room. Students will be given manipulative play money.
- Students will use a video editor to video themselves describing what they bought, how much it cost, and explain which coins/dollar bills they plan to use to "purchase," and how much change they should get back.

ALGEBRAIC REASONING AND ALGEBRA

NUMERICAL AND GEOMETRIC PATTERNS



3.A.1.1 Create, describe, and extend patterns involving addition, subtraction, or multiplication to solve problems in a variety of contexts.

3.A.1.2 Describe the rule (single operation) for a pattern from an input/output table or function machine involving addition, subtraction, or multiplication.

3.A.1.3 Explore and develop visual representations of growing geometric patterns and construct the next steps.



Evidence of Understanding

Students will create, describe, and extend patterns involving addition, subtraction, or multiplication to solve problems using a spreadsheet.



Digital Tools

- *Spreadsheet- [Numbers](#), [Google Sheets](#), [Microsoft Excel](#)*
- *Content Application - [Sheppard Software - Fruit Shoot Skip Count](#)*



In Practice

- Students will use a spreadsheet to apply their knowledge and understanding of an input/output table.
- Students will create their own numbers and operation to apply their understanding.
- Students will practice solving addition, subtraction, multiplication problems using the link [Sheppard Software - Fruit Shoot Skip Count](#).

USE NUMBER SENTENCES



3.A.2.1 Find unknowns represented by symbols in arithmetic problems by solving one-step open sentences (equations) and other problems involving addition, subtraction, and multiplication. Generate real-world situations to represent number sentences.

3.A.2.2 Recognize, represent and apply the number properties (commutative, identity, and associative properties of addition and multiplication) using models and manipulatives to solve problems.



Evidence of Understanding

Students will generate real-world situations to represent number sentences using a Video Editor or Word Processor.

Students will be able to recognize, represent, and apply number properties by creating and using models and manipulative to solve problems.



Digital Tools

- *Word Processor* - Pages, Google Docs, Microsoft Word
- *Video Editor* - Clips



In Practice

- Students will use a word processor to draw/write number sentences that they have experienced in real life.
- For example, how much candy they have received per house during Halloween and how much they would have at the end of their adventure!
- Students will use a video editor to create a video demonstrating and describing an assigned property by the teacher.

GEOMETRY AND MEASUREMENT

USE GEOMETRIC ATTRIBUTES



3.GM.1.1 Sort three-dimensional shapes based on attributes.

3.GM.1.2 Build a three-dimensional figure using unit cubes when picture/shape is shown.

3.GM.1.3 Classify angles as acute, right, obtuse, and straight.



Evidence of Understanding

Students will sort and draw three-dimensional shapes using pictures and drawing tools in a Word Processor, Spreadsheet and/or Presentation to along with Geo Board.

Students will be able to classify angles as acute, right, obtuse, and straight by identifying angles in pictures or drawing angles in Geo Board.



Digital Tools

- *Manipulative* - Geo Board,
- *Word Processor* - Pages, Google Docs, Microsoft Word
- *Spreadsheet*- Numbers, Google Sheets, Microsoft Excel
- *Presentation* - Keynote, Microsoft Powerpoint, Google Slides



In Practice

- Student will use a word processor or spreadsheet to sort three-dimensional shapes.
- Students will build or create three-dimensional figures using Geo board.
- Students will classify angles using pictures and Geo Board.
- They will take pictures and edit the picture by drawing and identifying the angle on the picture using the markup tool.
- Student will share their pictures using a presentation tool.

UNDERSTAND MEASURABLE ATTRIBUTES



3.GM.2.1 Find perimeter of polygon, given whole number lengths of the sides, in real-world and mathematical situations.

3.GM.2.2 Develop and use formulas to determine the area of rectangles. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns.

3.GM.2.3 Choose an appropriate measurement instrument and measure the length of objects to the nearest whole centimeter or meter.

3.GM.2.4 Choose an appropriate measurement instrument and measure the length of objects to the nearest whole yard, whole foot, or half inch.

3.GM.2.5 Using common benchmarks, estimate the lengths (customary and metric) of a variety of objects.

3.GM.2.6 Use an analog thermometer to determine temperature to the nearest degree in Fahrenheit and Celsius.

3.GM.2.7 Count cubes systematically to identify number of cubes needed to pack the whole or half of a three-dimensional structure.

3.GM.2.8 Find the area of two-dimensional figures by counting total number of same size unit squares that fill the shape without gaps or overlaps.



Evidence of Understanding

Students will use a Word Processor and Spreadsheet to show how to find perimeter of polygons.

Students will use measurement tools to measure the length of a variety of objects, using a video editor they will be able to document their ability to measure these objects.



Digital Tools

- *Word Processor* - Pages, Google Docs, Microsoft Word
- *Video Editor* - Clips
- *Spreadsheet*- Numbers, Google Sheets, Microsoft Excel



In Practice

- Students will use a word processor to measure the polygons that are provided in the clip art. They can use their own personal rulers to measure and record.
- Students will use a video editor to video themselves through out the classroom or school to find objects that they can estimate the lengths, using centimeters, inches, feet, and yard.
- Students will use a spreadsheet to create polygons that have columns and rows, then find the area of each rectangle and then find the total area of all the rectangles put together.

SOLVE PROBLEMS BY TELLING TIME



3.GM.3.1 Read and write time to the nearest 5-minute (analog and digital).

3.GM.3.2 Determine the solutions to problems involving addition and subtraction of time in intervals of 5 minutes, up to one hour, using pictorial models, number line diagrams, or other tools.



Evidence of Understanding

Students will use a Video Editor to show how to write time to the nearest 5-minutes.

Students will use a Word Processing tool to create pictorial models, number line diagrams, and other tools to determine solutions to addition and subtraction problems of time in intervals of 5 minutes using the different applications.



Digital Tools

- *Video Editor* - Clips
- *Word Processor* - Pages, Google Docs, Microsoft Word



In Practice

- Students will use a spreadsheet to graph different preferences of food, toys, sports, etc.
- Students will gather data within their class.
- Students will construct their own graph using the applications provided on their own device.

DATA AND PROBABILITY

SUMMARIZE, CONSTRUCT AND ANALYZE DATA



3.D.1.1 Summarize and construct a data set with multiple categories using a frequency table, line plot, pictograph, and/or bar graph with scaled intervals.

3.D.1.2 Solve one- and two-step problems using categorical data represented with a frequency table, pictograph, or bar graph with scaled intervals.



Evidence of Understanding

Students will construct a data set with multiple categories using frequency table, line plot, pictograph, and/or a bar graph by using a Spreadsheet.



Digital Tools

- *Spreadsheet- Numbers, Google Sheets, Microsoft Excel*



In Practice

- Students will use a video editor to find clocks (digital and analog) around the school and read what time it is currently showing, and predict what time it will be in 5 minutes, or up to an hour later.
- Students will use a word processor to create pictorial models, number line diagrams to show solutions to addition and subtraction problems.

RESOURCES

TEACHER

- Youtube - Multiplication Mash Up
 - Multiplication Made Easy
 - Math is Fun
 - Youtube - Fraction Games
 - Youtube - Let's Learn Fractions
 - Prodigy
 - Mr. Nussbaum Learning and Fun
 - ABCYA - Fraction Fling
 -
- ABC Mouse - Coins
 - Money Transactions
 - ABCYA - Money Counting
 - CK-12 Follow the Rule
 - Tiny Humans - Math Compare
 - Make Another Number Sentence
 - Shape Match
 - Types of Quadrilaterals

STUDENT

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