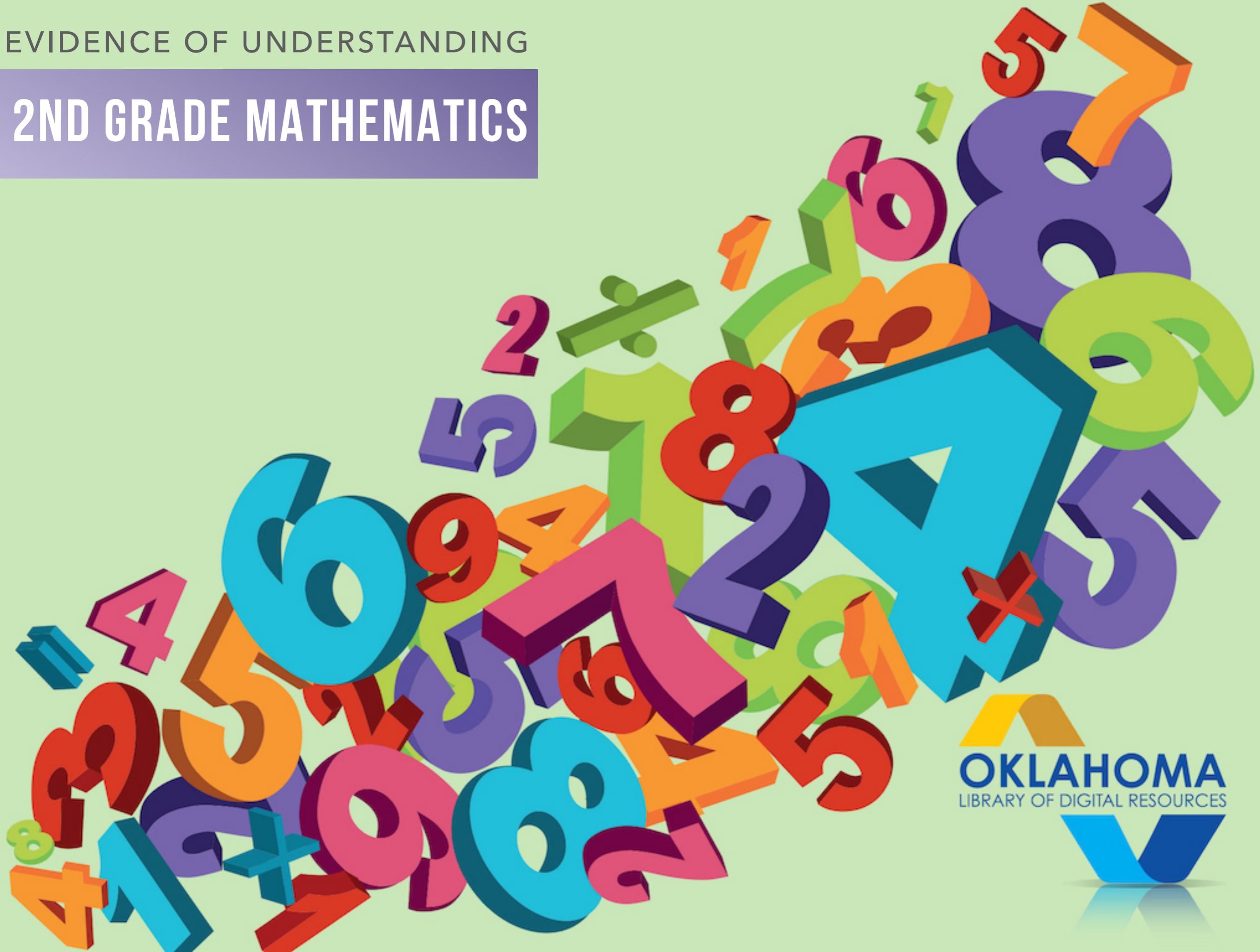# 2ND GRADE MATHEMATICS

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 1,000

2.N.1.1 Read, write, discuss, and represent whole numbers up to 1,000. Representations may include numerals, words, pictures, tally marks, number lines and manipulatives.

2.N.1.2 Use knowledge of number relationships to locate the position of a given whole number on an open number line up to 100.

2.N.1.3 Use place value to describe whole numbers between 10 and 1,000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1,000 is 10 hundreds.

2.N.1.4 Find 10 more or 10 less than a given three-digit number. Find 100 more or 100 less than a given three-digit number.

2.N.1.5 Recognize when to round numbers to the nearest 10 and 100.

2.N.1.6 Use place value to compare and order whole numbers up to 1,000 using comparative language, numbers, and symbols (e.g., 425 > 276, 73 < 107, page 351 comes after page 350, 753 is between 700 and 800).

Evidence of Understanding

Students will be able to prove, represent, and compare the place value of whole numbers up to 1000 and how to round the nearest tens and hundreds using evidence, rationals, and/or number lines.

Digital Tools

- *Whiteboard Application-* Educreations , Whiteboard: Absolute Board, Show Me, Google Jamboard, Explain Everything

- *Video-* Clips, WeVideo, Do-Ink, iMovie

- *Content Application-* ABCYA - Comparing Number Values

- *Content Application-* Number Line - Math Learning Center

In Practice

- Students will formulate a video use a video editing app to represent whole numbers in various forms.

- Students will use interactive whiteboards or content applications to identify number locations up to 1000.

- Students will use content application, video editor, or interactive whiteboard to demonstrate an understanding of place value.

- Students will use interactive whiteboard or app of choice to demonstrate an understanding of how to round correctly.

- Students will use content application to explain how to solve math problems such as comparing and contrasting with digital manipulative.

ONE AND TWO DIGIT NUMBERS

2.N.2.1 Use the relationship between addition and subtraction to generate basic facts up to 20.

2.N.2.2 Demonstrate fluency with basic addition facts and related subtraction facts up to 20.

2.N.2.3 Estimate sums and differences up to 100.

2.N.2.4 Use strategies and algorithms based on knowledge of place value and equality to add and subtract two-digit numbers.

2.N.2.5 Solve real-world and mathematical addition and subtraction problems involving whole numbers up to 2 digits.

2.N.2.6 Use concrete models and structured arrangements, such as repeated addition, arrays and ten frames to develop understanding of multiplication.

Evidence of Understanding

Students will be able to use content applications to demonstrate fluency with addition and subtraction facts up to 20 and create concrete models (arrays and ten frames) to justify understanding of multiplication using a word processor and video editor.

Digital Tools

- *Video-* Clips, WeVideo, Do-Ink, iMovie

- *Content Application-* Abcya Math Facts Basketball

- *Whiteboard Application* Educreations , Whiteboard: Absolute Board, Show Me, Google Jamboard, Explain Everything

In Practice

- Students will use the content application to practice addition and subtraction facts.

- Students will use a video editor to create a video of themselves solving real world mathematical problems explaining their steps.

- Students will create and solve a word problem using a ten frame in an interactive whiteboard app.

EXPLORE FOUNDATIONAL IDEAS FOR FRACTIONS

2.N.3.1 Identify the parts of a set and area that represent fractions for halves, thirds, and fourths.

2.N.3.2 Construct equal-sized portions through fair sharing including length, set, and area models for halves, thirds, and fourths.

Evidence of Understanding

Students will be able identify the parts of a set/area and formulate fractions for the space using halves, thirds, and fourths constructing fair sharing models for them.

Digital Tools

- *Sketch Application*- Tayasui Sketches School, Draw and Tell Google Draw

- *Content Application -* Geoboard

In Practice

- Students will use Geoboard, to create area of sets of shapes for halves, thirds, and fourths.

- Students will use a sketch application to draw, divide, and label shapes into halves, thirds, and fourths creating a slideshow or recording then transferring to their digital portfolio.

DETERMINE COINS AND THEIR VALUES

2.N.4.1 Determine the value of a collection(s) of coins up to one dollar using the cent symbol.

2.N.4.2 Use a combination of coins to represent a given amount of money up to one dollar.

Evidence of Understanding

Students will be able to use content applications and websites to interpret the value of a collection of coins up to a dollar.

Digital Tools

- Video- Clips, WeVideo, Do-Ink, iMovie

- Whiteboard Application Educreations , Whiteboard: Absolute Board, Show Me, Google Jamboard, Explain Everything

- *Content Application*- Splash Math - Counting Money -ABCYA - Learning Coins Math Learning Money

In Practice

- Using an interactive whiteboard students will identify the value and use the correct symbol of coins.

- Students will use a content application to practice interpreting the value of a group of coins using the correct symbol.

- Using a video editor, students will record themselves sorting and identifying the value of a group of coins up to a dollar.

ALGEBRAIC REASONING AND ALGEBRA

DESCRIBE PATTERNS

2.A.1.1 Represent, create, describe, complete, and extend growing and shrinking patterns with quantity and numbers in a variety of real-world and mathematical contexts

2.A.1.2 Represent and describe repeating patterns involving shapes in a variety of contexts.

Evidence of Understanding

Students will be able to represent, create, describe, complete, and extend growing and shrinking patterns with numbers in a variety of contexts using content applications.

Digital Tools

- *Whiteboard Application -* Educreations , Whiteboard: Absolute Board, Show Me, Google Jamboard, Explain Everything

- *Content Application-* ABCYA - Number Patterns

- *Content Application-* Pattern Blocks

In Practice

- Students will use content applications to practice describing patterns of shapes.

- Students will use an interactive whiteboard app to locate symbols and create, describe, and complete growing and shrinking patterns.

USE NUMBER SENTENCES

2.A.2.1 Use objects and number lines to represent number sentences.

2.A.2.2 Generate real-world situations to represent number sentences and vice versa.

2.A.2.3 Apply commutative and identity properties and number sense to find values for unknowns that make number sentences involving addition and subtraction true or false.

Evidence of Understanding

Students will be able to use objects and number lines to model number sentences and demonstrate their knowledge.

Digital Tools

- *Story Telling Application* - ChatterPix Kids, Shadow Puppets EDU, Book Creator, Seesaw, Pages, Write About This, Google Docs

- *Sketch Application*- Tayasui Sketches School, Draw and Tell Google Draw

- *Content Application*- Sushi Monster

In Practice

- Students will practice determining true and false statements for addition and subtraction using Sushi Monster.

- Students will use a story telling application to define and give examples of commutative and identity properties and create number sentences using data that the teacher provides.

GEOMETRY AND MEASUREMENT

TWO-DIMENSIONAL FIGURES

2.GM.1.1 Recognize trapezoids and hexagons.

2.GM.1.2 Describe, compare, and classify two-dimensional figures according to their geometric attributes.

2.GM.1.3 Compose two-dimensional shapes using triangles, squares, hexagons, trapezoids, and rhombi.

2.GM.1.4 Recognize right angles and classify angles as smaller or larger than a right angle.

Evidence of Understanding

Students will be able to use a content application to practice recognizing, describing, and comparing two-dimensional figures .

Digital Tools

- *Sketch Application*- Sketches School, Notes, ibis, Absolute Board, Google Draw, Auto Draw, Do-Ink, Paper by 53

- *Content Application*- Math Geoboard

- *Video Editor*- Clips, WeVideo, Flipgrid, iMovie, Loom, PowerDirector

In Practice

- Students will design shapes using Geoboard and differentiate the angles in the shapes they constructed.

- Student will use a sketch application to create examples of different shapes.

- Students will describe, compare, and classify the shapes and angles based on their distinguishing attributes using a video editor.

LENGTH AS A MEASURABLE ATTRIBUTE

2.GM.2.1 Explain the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object.

2.GM.2.2 Explain the relationship between length and the numbers on a ruler by using a ruler to measure lengths to the nearest whole unit.

2.GM.2.3 Explore how varying shapes and styles of containers can have the same capacity.

Evidence of Understanding

Students will be able to use various applications to prove that shapes are similar and distinguish the relationship between the sizes using a ruler to measure length.

Digital Tools

- *Video Editor- Clips, WeVideo, Flipgrid, iMovie, Loom, Majisto*

- *Digital Camera*

- *Augmented Reality- Augmented Reality Ruler*

In Practice

- Students will take photos of a shape and access a ruler and record the digital measurements.

- Students will use the Measure app to measure a certain shape of objects in the classroom and take screenshots.

- Students will import the screenshots into a video editor to reflect on the various objects in the classroom that are the same shape and describe lengths and compare capacities.

TELL TIME QUARTER HOUR

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 be able to use a content application to evaluate and write the time correctly to the quarter-hour on an analog and digital clock.

Digital Tools

- *Sketch Application*- Sketches School, Notes, ibis, Absolute Board, Google Draw, Auto Draw, Do-Ink, Paper by 53

- *Content Application*- Tell Time,Clock Practice

- *Video Editor*- Clips, WeVideo, iMovie, Loom, Majisto

In Practice

- Students will use Tell Time to evaluate their knowledge of telling time to the quarter-hour.

- Students will use a sketch application to create analog clock and label the clocks by different hours and every quarter minute.

- Students will use a video editor to record themselves critiquing the clocks that another classmate has created.

DATA AND PROBABILITY

COLLECT, ORGANIZE AND INTERPRET DATA

2.D.1.1 Explain that the length of a bar in a bar graph or the number of objects in a picture graph represents the number of data points for a given category.

2.D.1.2 Organize a collection of data with up to four categories using pictographs and bar graphs with intervals of 1s, 2s, 5s or 10s.

2.D.1.3 Write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one.

2.D.1.4 Draw conclusions and make predictions from information in a graph.

Evidence of Understanding

Students will be able to use poll results to create and summarize a bar graph or a pictograph via sketch tools; resulting in the ability to solve one-word step problems (addition and subtraction) using the pictographs or bar graphs created.

Digital Tools

- *Polling Application-* Plickers, Poll Everywhere

- *Content Application-* Turtle Diary - Charts and Graphing, Create Graph

- *Interactive White Board-* Showbie, Realtimeboard, Simple Whiteboard, Explain EDU, Jamboard,

- *Video Editor-* Clips, WeVideo, Flipgrid, iMovie, Loom, Majisto

In Practice

- Students will utilize the Content Applications to review bar-graphs and pictographs.

- Students will gather data within their class.

- Students will use an interactive whiteboard application to graph different preferences of food, toys, sports, etc.

- Students will summarize their graph findings using complete sentences or video explanation.

RESOURCES

TEACHER RESOURCES

Websites

- ABCYA

- CK 12 Mathematics

- IXL Mathematics

- Math Learning Center

- Math Worksheets

- National Council of Teachers of Mathematics

- Shape Math

STUDENT RESOURCES

Content Applications:

- Counting Money

- Measure Length - Tiny Chicken

- Number Pieces

- Sushi Monster

Websites:

- Counting Money

- Fractions

- Fraction Models

- GeoBoard

- Make a Bar Graph

- Math Vocabulary Cards