Last Updated: Monday, March 20, 2023 by Curriculum Developer 1

UDACS Kindergarten Mathematics Curriculum

Fingers and plastic bears are manipulated and counted as part of the Kindergarten mathematics curriculum, with work consistently moving to the pictorial and abstract levels. To begin the year, Kindergarten students start out classifying and categorizing objects, leading to making one group. Students learn the way each number from 0 to 10 relates to five using fingers, cubes, drawings, 5-groups, and the Rekenrek, an abacus with a color change after the fifth bead. The materials support students in seeing all numbers to ten in relation to five, as they also see them on their fingers, the best manipulative of all! This renders 6, 7, 8, 9, and 10 more friendly as they see, for example, the 3 and 5 embedded within 8. Students close the module by investigating patterns of 1 more and 1 less (excluding the word than) using models.

The Kindergarten mathematics curriculum is based on the Story Units in Eureka Math Squared and aligned with the PA Core Standards for Mathematics. Ordinal numbers will also be incorporated into daily routines, for example, "Please line up your color tiles so that red tiles make up the first group on the left, green tiles make the second group, and blue tiles make the third group."

Fluency develops as students move away from counting-based strategies toward reasoning-based strategies and before they have mastery of the facts. Fluency develops from conceptual understanding (understanding the meanings of the operations and situations that can be modeled with a particular operation). This understanding develops through the use of student hands-on activities and mathematical language that support students' capacity to explain their thinking. Students then must learn strategies that provide ways of reasoning about what happens when operating with particular numbers. In order to use these strategies accurately and flexibly, students need sufficient, strategic, and meaningful practice extended over time. The possible fluency calendar:

The mathematics curriculum is designed to provide all students with the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary to succeed in high school and beyond. Teachers will recognize that accommodations cannot be just an extra set of resources for particular students. Scaffolds are built into the Story Units, so adherence to the modules is the primary scaffolding tool. Specific resources are included within this curriculum to highlight strategies that can provide critical access for all students. Teachers will refer to the scaffolds for English Language Learners, for Students with Disabilities, for Students Performing Below Grade Level and for Students Above Grade Level.

Unit Planner: Unit 1 Add and Subtract Within 5
K Math

Elementary School / 2022-2023 / Kindergarten / Mathematics / K Math / Week 1 - Week 7

Last Updated: Monday, March 20, 2023 by Curriculum Developer 1

Unit 1 Add and Subtract Within 5

- Unit Planner
- Lesson Planner

Unit Description

Kindergarten starts out with solidifying the meaning of numbers to 10 with a focus on embedded numbers and relationships to 5 using fingers, cubes, drawings, 5 groups and the Rekenrek. Students then investigate patterns of "1 more" and "1 less" using models such as the number stairs. Because fluency with addition and subtraction within 5 is a Kindergarten goal, addition within 5 is begun in unit 1 as another representation of the decomposition of numbers.

Standards

PA: Core - Mathematics (2014)

PA: Grade K

CC.2.1: Numbers and Operations

(A) Counting & Cardinality

CC.2.1.K.A.1: Know number names and write and recite the count sequence.

CC.2.1.K.A.2: Apply one-to-one correspondence to count the number of objects.

Mathematical Practice

Mathematical Practice Standards describes the habits of mind required to reach a level of mathematical proficiency

Make sense of problems and persevere in solving them.

Reason abstractly and quantitatively.

Construct viable arguments and critique the reasoning of others.

Model with mathematics.

Use appropriate tools strategically.

Attend to precision.

Look for and make use of structure.

Look for and make sense of regularity in repeated reasoning.

All teachers will be trained and familiar with the Standards Aligned System (SAS) for ELD

Big Ideas

- Practices, Processes, and Proficiencies
- Number uses, Classification, and Representation
- Numbers 1-10 and the Number Line
- Mathematical relationships among numbers can be represented, compared, and communicated.
- Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.
- Patterns exhibit relationships that can be extended, described, and generalized.

- Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.
- Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
- Measurement attributes can be quantified, and estimated using customary and non-customary units of measure.
- Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.
- Data can be modeled and used to make inferences.

Learning Targets/I Can Statements

I can or will be able to:

Count 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 objects.

Count groups of 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 objects shown in different ways.

Read and write the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10.

Read and write the number 0.

Use 0 to tell when there are no objects.

Show ways to make 10

Count up to the number 10

Compare groups to see whether they are equal by matching.

Grammar and Writing Targets

Essential Questions

- What is counting?
- How do we write numbers?
- How do we count?
- What do good math thinkers do?
- How can numbers from 0 to 10 be compared and ordered?
- How is mathematics used to quantify, compare, represent, and model numbers?
- How can mathematics support effective communication?
- How are relationships represented mathematically?
- How can recognizing repetition or regularity assist in solving problems more efficiently?

Enduring Understandings

- Counting tells how many are in a group, regardless of their arrangement or the order in which they were counted.
- There is a unique symbol that goes with each number word.
- Zero is a number that tells how many objects there are when there are none.
- There is more than one way to show a number.
- There is a specific order to the set of whole numbers.
- Numbers to 10 in Different Configurations, Math Drawings, and Expressions

- Arrange, analyze, and draw sequences of quantities of 1 more, beginning with numbers other than 1.
- Good math thinkers use math to explain why they are right.

Transfer

Count 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

Recognize 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 in different arrangements.

Read and write 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10

Identify the number 0.

Students will be able to independently use their learning to:

1. Make sense of and persevere in solving complex and novel mathematical problems.
2. Use effective mathematical reasoning to construct viable arguments and critique the reasoning of others.
3. Communicate precisely when making mathematical statements and express answers with a degree of precision appropriate for the context of the problem/situation.
4. Apply mathematical knowledge to analyze and model situations/relationships using multiple representations and appropriate tools in order to make decisions, solve problems, and draw conclusions.
5. Make use of structure and repeated reasoning to gain a mathematical perspective and formulate generalized problem solving strategies.

Assessments and/or Performance Tasks

Formative- student work samples and teacher developed assessments in addition to Eureka math resources for assessment

Vocabulary

Count, counting path, one, two, three, four, five, number, number story (sentence), none, part, whole, order, hidden partners, compare, equal, group, exactly the same number as, not exactly the same number as, match, sort, greater than, less than, model, 1 more (e.g., 4. 1 more is 5.), 1 less (e.g., 4. 1 less is 3.)

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

Manipulatives Kit Mathabc Rekenrek Student whiteboards & markers Tape Diagrams

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text.

Enrichment: Problems for enrichment are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Behavior management plan
- Have student repeat directions to check for understanding
- Modified test content, format, length, sessions
- Center-Based Instruction
- Check work frequently for understanding
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Multi-sensory presentation
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Student working with an assigned partner
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Graphic organizers
- Preferential seating
- Manipulatives
- Multi-tiered assignments
- Teacher initiated weekly folder
- White boards & markers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 2 Two Dimensional & Three Dimensional Shapes
K Math

Elementary School / 2022-2023 / Kindergarten / Mathematics / K Math / Week 8 - Week 13

Last Updated: Monday, March 20, 2023 by Curriculum Developer 1

Unit 2 Two Dimensional & Three Dimensional Shapes

- Unit Planner
- Lesson Planner

Unit Description

Students learn to identify and describe squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders and spheres. During this unit students also practice their fluency with numbers to 10.

Standards

PA: Core - Mathematics (2014)

PA: Grade K

CC.2.1: Numbers and Operations

(A) Counting & Cardinality

CC.2.1.K.A.2: Apply one-to-one correspondence to count the number of objects.

CC.2.3: Geometry

(A) Geometry

CC.2.3.K.A.1: Identify and describe two- and three-dimensional shapes.

CC.2.3.K.A.2: Analyze, compare, create, and compose two- and three- dimensional shapes.

Mathematical Practice

Mathematical Practice Standards describes the habits of mind required to reach a level of mathematical proficiency

Make sense of problems and persevere in solving them.

Reason abstractly and quantitatively.

Construct viable arguments and critique the reasoning of others.

Model with mathematics.

Use appropriate tools strategically.

Attend to precision.

Look for and make use of structure.

Look for and make sense of regularity in repeated reasoning.

All teachers will be trained and familiar with the Standards Aligned System (SAS) for ELD

Big Ideas

- Two- and three-dimensional objects can be identified by examining their attributes.
- Two- and three-dimensional objects can be compared.
- Mathematical relationships among numbers can be represented, compared, and communicated.
- Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.
- Patterns exhibit relationships that can be extended, described, and generalized.

- Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.
- Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
- Measurement attributes can be quantified, and estimated using customary and non-customary units of measure.
- Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.
- Data can be modeled and used to make inferences.

Learning Targets/I Can Statements

- Sort and identify 2-D shapes by their attributes.
- Correctly name shapes regardless of their orientation or overall size.
- Show ways to make 10
- Count groups of objects (1-10)

Grammar and Writing Targets

Essential Questions

- How can I compare shapes?
- How is mathematics used to quantify, compare, represent, and model numbers?
- How can mathematics support effective communication?
- How are relationships represented mathematically?
- How can recognizing repetition or regularity assist in solving problems more efficiently?

Enduring Understandings

Two- and three-dimensional objects can be described, classified, analyzed by their attributes, and their location can be described quantitatively.

Spatial relationships, including shape and dimension, are used to draw, construct, model, and represent real situations or to solve problems.

Geometric properties and theorems are used to describe, model, and analyze situations.

The application of the attributes of geometric shapes support mathematical reasoning and problem solving.

Geometric properties and theorems are used to describe, model, and analyze situations

Transfer

Objects in the environment can be described by referring to the shape of the object.

Students will be able to independently use their learning to:

Make sense of and persevere in solving complex and novel mathematical problems.

Use effective mathematical reasoning to construct viable arguments and critique the reasoning of others.

Communicate precisely when making mathematical statements and express answers with a degree of precision appropriate for the context of the problem/situation.

Apply mathematical knowledge to analyze and model situations/relationships using multiple representations and appropriate tools in order to make decisions, solve problems, and draw conclusions.

Make use of structure and repeated reasoning to gain a mathematical perspective and formulate generalized problem solving strategies

Assessments and/or Performance Tasks

Eureka Module 2 (See End of Module Assessment #2 in Resources)

• Anecdotal record • Student work samples

Vocabulary

Surface, side, above, below, beside, in front of, next to, behind (position words), Circle, Cone (solid shape), Cube (solid shape), Cylinder (solid shape), Face (flat side of a solid), Flat (two-dimensional shape), Hexagon (flat figure enclosed by six straight sides), Rectangle (flat figure enclosed by four straight sides), Solid (three-dimensional shape), Sphere, Square (flat figure enclosed by four straight, equal sides) and Triangle (flat figure enclosed by three straight sides

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text.

Enrichment: Problems for enrichment are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Behavior management plan
- Have student repeat directions to check for understanding
- Modified test content, format, length, sessions
- Center-Based Instruction
- Check work frequently for understanding
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Multi-sensory presentation
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Student working with an assigned partner
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms

- Graphic organizers
- Preferential seating
- Manipulatives
- Multi-tiered assignments
- Teacher initiated weekly folder
- White boards & markers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 3 Length, Width, Height, and Numbers to 10
K Math

Elementary School / 2022-2023 / Kindergarten / Mathematics / K Math / Week 14 - Week 21

Last Updated: Monday, March 20, 2023 by Curriculum Developer 1

Unit 3 Length, Width, Height, and Numbers to 10

- Unit Planner
- Lesson Planner

Unit Description

Students begin to experiment with comparison of length, weight and capacity. Students first learn to identify the attribute being compared, moving away from non-specific language such as "bigger" to "longer than," "heavier than," or "more than." Comparison begins with developing the meaning of the word "than" in the context of "taller than," "shorter than," "heavier than," "longer than," etc. The terms "more" and "less" become increasingly abstract later in Kindergarten. "7 is 2 more than 5" is more abstract than "Jim is taller than John

Standards

PA: Core - Mathematics (2014)

PA: Grade K

CC.2.1: Numbers and Operations

(A) Counting & Cardinality

CC.2.1.K.A.3: Apply the concept of magnitude to compare numbers and quantities.

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.K.A.1: Extend concepts of putting together and taking apart to add and subtract within 10.

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.K.A.1: Describe and compare measurable attributes of objects.

CC.2.4.K.A.4: Classify objects and count the number of objects in each category.

Mathematical Practice

Mathematical Practice Standards describes the habits of mind required to reach a level of mathematical proficiency

Make sense of problems and persevere in solving them.

Reason abstractly and quantitatively.

Construct viable arguments and critique the reasoning of others.

Model with mathematics.

Use appropriate tools strategically.

Attend to precision.

Look for and make use of structure.

Look for and make sense of regularity in repeated reasoning.

All teachers will be trained and familiar with the Standards Aligned System (SAS) for ELD

Big Ideas

Practices, Processes, and Proficiencies

Numbers 1-10 and the Number Line

Comparison of length, weight, and capacity

Mathematical relationships among numbers can be represented, compared, and communicated.

Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.

Patterns exhibit relationships that can be extended, described, and generalized.

Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.

Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.

Measurement attributes can be quantified, and estimated using customary and non-customary units of measure.

Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.

Data can be modeled and used to make inferences.

Learning Targets/I Can Statements

- Identify the length, weight or capacity of an object.
- Compare the length of two or more objects saying "longer/shorter than".
- Compare the weight of two or more objects saying "heavier than".
- Compare the capacity of two or more by saying "more than".
- Compare groups to see whether they are equal by matching.

Grammar and Writing Targets

Essential Questions

How can I compare lengths of objects?

How can I compare weights of objects?

How can I compare the capacity of objects?

How is mathematics used to quantify, compare, represent, and model numbers?

How can mathematics support effective communication?

How are relationships represented mathematically?

How can recognizing repetition or regularity assist in solving problems more efficiently?

Enduring Understandings

Objects in the environment can be compared by referring to their length, weight and or capacity

Mathematics is used to quantify, compare, represent, and model numbers.

Mathematics is support effective communication.

Recognizing repetition or regularity assist in solving problems more efficiently.

Transfer

Objects in the environment can be described by referring to their length, weight and or capacity.

Students will be able to independently use their learning to:

Make sense of and persevere in solving complex and novel mathematical problems.

Use effective mathematical reasoning to construct viable arguments and critique the reasoning of others.

Communicate precisely when making mathematical statements and express answers with a degree of precision appropriate for the context of the problem/situation.

Apply mathematical knowledge to analyze and model situations/relationships using multiple representations and appropriate tools in order to make decisions, solve problems, and draw conclusions.

Make use of structure and repeated reasoning to gain a mathematical perspective and formulate generalized problem solving strategies

Assessments and/or Performance Tasks

Eureka Module 3 (See End of Module Assessment #3 in Resources) Anecdotal record, Student work

Vocabulary

Balance scale, capacity (with reference to volume), compare (specifically using direct comparison), endpoint (with reference to alignment for direct comparison), enough/not enough (comparative term), heavier than/lighter than (weight comparison), height (vertical distance measurement from bottom to top)

Length, longer than/shorter than (length comparison), more than/fewer than (discrete quantity comparison), more than/less than, taller than/shorter than (height comparison), same as, weight

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

⓾ Manipulatives Kit ⓾ IXL ⓾ Mathabc ⓾ Rekenrek ⓾ Individual whiteboards ⓾ Math Toolkit (Games)

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text.

Enrichment: Problems are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Behavior management plan
- Have student repeat directions to check for understanding
- Modified test content, format, length, sessions
- Center-Based Instruction
- Check work frequently for understanding
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Multi-sensory presentation
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Student working with an assigned partner
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Graphic organizers
- Preferential seating
- Manipulatives
- Multi-tiered assignments
- Teacher initiated weekly folder
- White boards & markers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 4 Number Pairs Addition
K Math

Elementary School / 2022-2023 / Kindergarten / Mathematics / K Math / Week 22 - Week 27

Last Updated: Monday, March 20, 2023 by Curriculum Developer 1

Unit 4 Number Pairs Addition

- Unit Planner
- Lesson Planner

Unit Description

Number comparison leads to a further study of embedded numbers (e.g., "3 is less than 7" leads to, "3 and 4 make 7," and 3 + 4 = 7,). "1 more, 2 more, 3 more" lead into addition (+1, +2, +3). Students now represent stories with blocks, drawings, and equations.

Standards

PA: Core - Mathematics (2014)

PA: Grade K

CC.2.1: Numbers and Operations

(A) Counting & Cardinality

CC.2.1.K.A.2: Apply one-to-one correspondence to count the number of objects.

CC.2.1.K.A.3: Apply the concept of magnitude to compare numbers and quantities.

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.K.A.1: Extend concepts of putting together and taking apart to add and subtract within 10.

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.K.A.4: Classify objects and count the number of objects in each category.

Mathematical Practice

Mathematical Practice Standards describes the habits of mind required to reach a level of mathematical proficiency

Make sense of problems and persevere in solving them.

Reason abstractly and quantitatively.

Construct viable arguments and critique the reasoning of others.

Model with mathematics.

Use appropriate tools strategically.

Attend to precision.

Look for and make use of structure.

Look for and make sense of regularity in repeated reasoning.

All teachers will be trained and familiar with the Standards Aligned System (SAS) for ELD

Big Ideas

- Practices, Processes, and Proficiencies

- Number uses, Classification, and Representation
- Numbers 1-10 and the Number Line
- Equivalence
- Addition
- Mathematical relationships among numbers can be represented, compared, and communicated.
- Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.
- Patterns exhibit relationships that can be extended, described, and generalized.
- Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.
- Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
- Measurement attributes can be quantified, and estimated using customary and non-customary units of measure.
- Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.
- Data can be modeled and used to make inferences.

Learning Targets/I Can Statements

Compare one number to another

Add one more, 2 more, and or 3 more to a number

Find a number is less than another number.

Represent number stories with blocks, drawings, and equations.

Use critical thinking to make sense.

Grammar and Writing Targets

Essential Questions

How can you compare one number to another?

How can you use models (drawings) to compare numbers?

How can patterns be used to describe relationships in mathematical situations?

How can recognizing repetition or regularity assist in solving problems more efficiently?

Enduring Understandings

Using the concept of magnitude numbers can be compared to quantities.

Data be organized and represented to provide insight into the relationship between quantities.

Probability and data analysis can be used to make predictions.

Transfer

Numbers can be compared using models or drawings.

Equations are a way to represent numbers.

Students will be able to independently use their learning to:

Make sense of and persevere in solving complex and novel mathematical problems.

Use effective mathematical reasoning to construct viable arguments and critique the reasoning of others.

Communicate precisely when making mathematical statements and express answers with a degree of precision appropriate for the context of the problem/situation.

Apply mathematical knowledge to analyze and model situations/relationships using multiple representations and appropriate tools in order to make decisions, solve problems, and draw conclusions.

Make use of structure and repeated reasoning to gain a mathematical perspective and formulate generalized problem solving strategies

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 4 (See End of Module Assessment #4 in Resources)

Anecdotal record, Student work samples

Vocabulary

Addition (specifically using add to with result unknown, put together with total unknown, put together with both addends unknown), addition and subtraction sentences (equations), make 10, minus (–) , number bond (mathematical model), number pairs or partners (embedded numbers), part, put together (add), subtraction, take apart (decompose), take away (subtract), Whole (total)

Resources/Suggested Materials

Resources: Resources: Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• Manipulatives Kit • IXL • Mathabc • Rekenrek • Individual whiteboards • Math Toolkit (Games)

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text.

Enrichment: Problems are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Behavior management plan
- Have student repeat directions to check for understanding
- Modified test content, format, length, sessions
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- Check work frequently for understanding
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- Extended time on tests/ quizzes
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Suggested Scaffolds

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Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 5 Numbers 10-20 and Counting to 100
K Math

Elementary School / 2022-2023 / Kindergarten / Mathematics / K Math / Week 28 - Week 32

Last Updated: Monday, March 20, 2023 by Curriculum Developer 1

Unit 5 Numbers 10-20 and Counting to 100

- Unit Planner
- Lesson Planner

Unit Description

After students have a meaningful experience of addition and subtraction within 10 in Unit 4, they progress to exploration of numbers 10-20. They apply their skill with and understanding of numbers within 10 to teen numbers, which are decomposed as "10 ones and some ones." For example, "12 is 2 more than 10." The number 10 is special; it is the anchor that will eventually become the "ten" unit in the place value system in Grade 1.

Standards

PA: Core - Mathematics (2014)

PA: Grade K

CC.2.1: Numbers and Operations

(A) Counting & Cardinality

CC.2.1.K.A.1: Know number names and write and recite the count sequence.

CC.2.1.K.A.2: Apply one-to-one correspondence to count the number of objects.

CC.2.1.K.A.3: Apply the concept of magnitude to compare numbers and quantities.

(B) Number & Operations in Base Ten

CC.2.1.K.B.1: Use place value to compose and decompose numbers within 19.

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.K.A.1: Extend concepts of putting together and taking apart to add and subtract within 10.

Mathematical Practice

Mathematical Practice Standards describes the habits of mind required to reach a level of mathematical proficiency

Make sense of problems and persevere in solving them.

Reason abstractly and quantitatively.

Construct viable arguments and critique the reasoning of others.

Model with mathematics.

Use appropriate tools strategically.

Attend to precision.

Look for and make use of structure.

Look for and make sense of regularity in repeated reasoning.

All teachers will be trained and familiar with the Standards Aligned System (SAS) for ELD

Big Ideas

Numbers, measures, expressions

Mathematical relationships among numbers can be represented, compared, and communicated.

Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.

Patterns exhibit relationships that can be extended, described, and generalized.

Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.

Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.

Measurement attributes can be quantified, and estimated using customary and non-customary units of measure.

Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.

Data can be modeled and used to make inferences.

Learning Targets/I Can Statements

- Count to 100 by ones and tens.
- Count forward beginning with a given number within the known sequence (instead of having to begin at 1)
- Write numbers from 0-20.
- Recognize and count numbers in a specific sequence on a hundred chart

Grammar and Writing Targets

Essential Questions

How can I show numbers beyond 10?

What do numbers tell me?

How can you compare one number to another?
How can you use models (drawings) to compare numbers?
How can patterns be used to describe relationships in mathematical situations?
How can recognizing repetition or regularity assist in solving problems more efficiently?

Enduring Understandings

Numbers, measures, expressions, equations and inequalities can represent mathematical situations and structures in many equivalent forms.

Transfer

Counting by ones and 1-10

Writing the numbers 1-10

Students will be able to independently use their learning to:
Make sense of and persevere in solving complex and novel mathematical problems.
Use effective mathematical reasoning to construct viable arguments and critique the reasoning of others.
Communicate precisely when making mathematical statements and express answers with a degree of precision appropriate for the context of the problem/situation.
Apply mathematical knowledge to analyze and model situations/relationships using multiple representations and appropriate tools in order to make decisions, solve problems, and draw conclusions.
Make use of structure and repeated reasoning to gain a mathematical perspective and formulate generalized problem solving strategies

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 5 (See End of Module Assessment #5 in Resources)

Anecdotal record Student work samples

Vocabulary

Column, pattern, hundred chart, 10 ones and some ones,

Hide, Zero cards (called Place Value cards in later grades), regular counting by ones from 11 to 20 (eleven, twelve, thirteen, etc.), regular counting by tens to 100, Say Ten counting by tens to 100, teen numbers

Resources/Suggested Materials

Resources: Resources: Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• Manipulatives Kit • IXL • Mathabc • Rekenrek • Individual white boards • Math Toolkit (Games)

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text.

Enrichment: Problems are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Behavior management plan
- Have student repeat directions to check for understanding
- Modified test content, format, length, sessions
- Center-Based Instruction
- Check work frequently for understanding
- Computer or electronic device utilization
- Extended time on tests/ quizzes

- Modified assignment format
- Multi-sensory presentation
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Student working with an assigned partner
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Graphic organizers
- Preferential seating
- Manipulatives
- Multi-tiered assignments
- Teacher initiated weekly folder
- White boards & markers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 6 Analyzing, Comparing and Composing Shapes
K Math

Elementary School / 2022-2023 / Kindergarten / Mathematics / K Math / Week 33 - Week 37

Last Updated: Monday, March 20, 2023 by Curriculum Developer 1

Unit 6 Analyzing, Comparing and Composing Shapes

- Unit Planner
- Lesson Planner

Unit Description

Unit 6 rounds out the year with an exploration of shapes. Students build shapes from components, analyze and compare them, and discover that they can be composed of smaller shapes, just as larger numbers are composed of smaller numbers

Standards

PA: Core - Mathematics (2014)

PA: Grade K

CC.2.3: Geometry

(A) Geometry

CC.2.3.K.A.1: Identify and describe two- and three-dimensional shapes.

CC.2.3.K.A.2: Analyze, compare, create, and compose two- and three- dimensional shapes.

Mathematical Practice

Mathematical Practice Standards describes the habits of mind required to reach a level of mathematical proficiency

Make sense of problems and persevere in solving them.

Reason abstractly and quantitatively.

Construct viable arguments and critique the reasoning of others.

Model with mathematics.

Use appropriate tools strategically.

Attend to precision.

Look for and make use of structure.

Look for and make sense of regularity in repeated reasoning.

All teachers will be trained and familiar with the Standards Aligned System (SAS) for ELD

Big Ideas

- Comparison and Relationships
- Geometric Figures
- Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (number of sides and vertices/corners), and other attributes (having sides equal in length).
- Mathematical relationships among numbers can be represented, compared, and communicated.
- Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.

- Patterns exhibit relationships that can be extended, described, and generalized.
- Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.
- Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
- Measurement attributes can be quantified, and estimated using customary and non-customary units of measure.
- Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.
- Data can be modeled and used to make inferences.

Learning Targets/I Can Statements

- Analyze and compare 2-D and 3-D shapes.
- Analyze, compare, and make different 2-D and 3-D shapes using math.
- Make 2-D shapes using other 2 -D shapes.
- Build 2-D shapes that match given attributes.
- Correctly name shapes regardless of their orientation or overall size.
- Compare solid shapes to learn whether they roll, stack or slide.
- Utilize critical thinking to make sense of problems and persevere to solve.

Grammar and Writing Targets

Essential Questions

- How can solid figures be named, described, compared, and composed?
- What are some of the attributes of 3-D shapes?
- How are 3-D and 2-D shapes related?
- How can you use models (drawings) to compare numbers?
    - How can patterns be used to describe relationships in mathematical situations?
    - How can recognizing repetition or regularity assist in solving problems more efficiently?

Enduring Understandings

- 2-D shapes can be sorted and identified by their attributes.
- Objects shaped like spheres, cones, and cylinders can roll. Objects shaped like cubes, cones, and cylinders can stack and slide.
- The flat surfaces of many solid figures have specific 2-D shapes.
- Good math thinkers know what the problem is about, make a plan to solve it, and keep trying if they get stuck.
- You can make 2-D shapes by putting together two or more 2-D shapes.
- When building a given 2-D shape, the shape must exhibit all of the attributes of the shape.
- 3-D shapes can be combined to make other 3-D shapes.

Transfer

Analyze and compare two-dimensional shapes.

Analyze and compare three-dimensional shapes.

Compare 2-D and 3-D shapes.

Compare 2-D shapes from other 2-D shapes.

Model and build 2-D and 3-D shapes by building shapes from components (sticks and clay balls) and draw shapes.

Students will be able to independently use their learning to:

Make sense of and persevere in solving complex and novel mathematical problems.

Use effective mathematical reasoning to construct viable arguments and critique the reasoning of others.

Communicate precisely when making mathematical statements and express answers with a degree of precision appropriate for the context of the problem/situation.

Apply mathematical knowledge to analyze and model situations/relationships using multiple representations and appropriate tools in order to make decisions, solve problems, and draw conclusions.

Make use of structure and repeated reasoning to gain a mathematical perspective and formulate generalized problem solving strategies

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 6 (See End of Module Assessment #6 in Resources) Anecdotal record, Student work

Vocabulary

Sides, surface, roll, flat surface

First, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth (ordinal numbers)

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• Manipulatives Kit • IXL • Mathabc • Rekenrek • Individual white boards • Math Toolkit (Games)

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text.

Enrichment: Problems are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Behavior management plan
- Have student repeat directions to check for understanding
- Modified test content, format, length, sessions
- Center-Based Instruction
- Check work frequently for understanding
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Multi-sensory presentation
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Student working with an assigned partner
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
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- Preferential seating
- Manipulatives
- Multi-tiered assignments
- Teacher initiated weekly folder
- White boards & markers

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https://drive.google.com/file/d/1JHz50_EVYyuWk3TIHdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

UDACS Grade 1 Mathematics Curriculum

The first-grade mathematics curriculum has students work to further understand the meaning of addition and subtraction begun in Kindergarten, largely within the context of the Grade 1-word problem types. They begin intentionally building fluency with addition and subtraction facts—a major gateway to later grades. Instructional time will focus on the following four critical areas:

1. Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take-from, put-together, take-apart, and compare situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand the connections between counting and addition and subtraction (e.g., adding two is the same as counting on two). They use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., "making tens") to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the relationship between addition and subtraction.

2. Students develop, discuss, and use efficient, accurate, and generalizable methods to add within 100 and subtract multiples of 10. They compare whole numbers (at least to 100) to develop an understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.

3. Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement.

4. Students compose and decompose plane or solid figures (e.g., put two triangles together to make a quadrilateral) and build an understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

The mathematics curriculum is designed to provide all students with the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary to succeed in high school and beyond. Scaffolding is folded into the Story Units in such a way that it is part of its very DNA, so adherence to the modules is the primary scaffolding tool. Specific resources are included within this curriculum to highlight strategies that can provide critical access for all students. Teachers will refer to the scaffolds for English Language Learners, Students with Disabilities, Students Performing Below Grade Level, and for Students Above Grade Level.

Unit Planner: Unit 1 Sums and Differences to 10
1 Math

Elementary School / 2022-2023 / Grade 1 / Mathematics / 1 Math / Week 1 - Week 6

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 1 Sums and Differences to 10

- Unit Planner
- Lesson Planner

Unit Description

In Grade 1, work with numbers to 10 continues to be a major stepping-stone in learning the place value system. In Unit 1, students work to further understand the meaning of addition and subtraction begun in Kindergarten, largely within the context of the Grade 1 word problem types. They begin intentionally and energetically building fluency with addition and subtraction facts—a major gateway to later grades.

Standards

PA: Core - Mathematics (2014)

PA: Grade 1

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.1.A.1 Represent and solve problems involving addition and subtraction within 20.

CC.2.2.1.A.2 Understand and apply properties of operations and the relationship between addition and subtraction.

Big Ideas

- Tell and model addition and subtraction stories (within 10)
- Construct arguments when solving problems
- Practices, Processes, and Proficiencies
- Operation Meanings and Relationship
- Mathematical relationships among numbers can be represented, compared, and communicated.
- Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.
- Patterns exhibit relationships that can be extended, described, and generalized.
- Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.
- Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
- Measurement attributes can be quantified, and estimated using customary and non-customary units of measure.
- Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.
- Data can be modeled and used to make inferences.

Learning Targets/I Can Statements

- Add zero to a number to get that number as the sum
- Count items in groups by joining them together and completing an addition number sentence.
- Model addition by joining parts together to make a whole.

- Understand subtraction as an unknown addend problem
- Use models to subtract when given the whole and a part
- Tell an addition or subtraction number story when given a pictorial representation that shows an addition or subtraction situation.

Grammar and Writing Targets

Essential Questions

- What are some ways to think about addition and subtraction?
- What do good math thinkers do?

Enduring Understandings

- Adding to is one interpretation of addition.
- Putting two parts together to make a whole is one interpretation of addition.
- Decomposing numbers can be used to solve addition word problems in which the total is known, but the parts are unknown.
- Taking away one part from a whole is one interpretation of subtraction.
- Comparing two groups to find how many more objects are in one group than another group is one interpretation of subtraction.
- Finding a missing part of a whole is an interpretation of both addition and subtraction.
- Good math thinkers use math to explain why they are right.
- Fluently subtract

Transfer

- Solve problems: add to and put together
- Solve problems: both addends unknown.
- Solve problems: take from.
- Solve problems: compare situations.
- Solve problems: put together and take apart

Students will be able to independently use their learning to:

Make sense of and persevere in solving complex and novel mathematical problems.

Use effective mathematical reasoning to construct viable arguments and critique the reasoning of others.

Communicate precisely when making mathematical statements and express answers with a degree of precision appropriate for the context of the problem/situation.

Apply mathematical knowledge to analyze and model situations/relationships using multiple representations and appropriate tools in order to make decisions, solve problems, and draw conclusions.

Make use of structure and repeated reasoning to gain a mathematical perspective and formulate generalized problem solving strategies.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 1 (See End of Module Assessment #1 in Resources)

• Anecdotal record • Student work

Vocabulary

Expressions, equivalent forms, equations, sums, addends, equal sign, compare

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• Manipulatives Kit • IXL • Mathabc • Rekenrek • Student whiteboards

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Enrichment: Problems are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Behavior management plan
- Have student repeat directions to check for understanding
- Modified test content, format, length, sessions
- Center-Based Instruction
- Check work frequently for understanding
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Graphic organizers
- Multi-sensory presentation
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Student working with an assigned partner
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Preferential seating
- Manipulatives
- Multi-tiered assignments
- Teacher initiated weekly folder
- White boards & markers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 2 Introduction to Place Value
1 Math

Elementary School / 2022-2023 / Grade 1 / Mathematics / 1 Math / Week 7 - Week 13

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 2 Introduction to Place Value

- Unit Planner
- Lesson Planner

Unit Description

In Unit 2, students add and subtract within 20. Work begins by modeling "adding and subtracting across ten" in word problems and with equations. Solutions involving decomposition and composition like that shown to the right for 8 + 5 reinforce the need to "make 10." In Unit 1, students loosely grouped 10 objects to make a ten. They now transition to conceptualizing that ten as a single unit (using 10 linking cubes stuck together, for example). This is the next major stepping-stone in understanding place value, learning to group "10 ones" as a single unit: 1 ten. Learning to "complete a unit" empowers students in later grades to understand "renaming" in the addition algorithm, to add 298 and 35 mentally (i.e., 298 + 2 + 33), and to add measurements like 4 m, 80 cm, and 50 cm (i.e., 4 m + 80 cm + 20 cm + 30 cm = 4 m + 1 m + 30 cm = 5 m 30 cm).

Standards

PA: Core - Mathematics (2014)

PA: Grade 1

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.1.B.1: Extend the counting sequence to read and write numerals to represent objects.

CC.2.1.1.B.2: Use place value concepts to represent amounts of tens and ones and to compare two digit numbers.

CC.2.1.1.B.3: Use place value concepts and properties of operations to add and subtract within 100.

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.1.A.1 Represent and solve problems involving addition and subtraction within 20.

CC.2.2.1.A.2 Understand and apply properties of operations and the relationship between addition and subtraction.

Big Ideas

- Numbers and the Number Line
- Operation Meanings and Relationships
- Basic Facts and Algorithms
- Addition and subtraction have an inverse relationship
- The base-ten number system is a way to organize, represent and compare numbers using groups of ten and place value

Learning Targets/I Can Statements

- Add zero to a number to get that number with sums up to 20
- Count items in groups by joining them together and completing an addition number sentence within 20.

- Tell an addition or subtraction number story when given a pictorial representation that shows an addition or subtraction situation.
- Subtract within 20 demonstrating fluency for subtraction within 10.
- Understand subtraction as an unknown addend problem
- Identify mathematical statements as true or false.

Grammar and Writing Targets

Essential Questions

- How do you use strategies to add numbers?
- How do you use strategies to subtract numbers?
- How can I use place value?

Enduring Understandings

- Good math thinkers use math to explain why they are right.
- Addition and subtraction have an inverse relationship.

Transfer

- Count on to add.
- Count on to add using an open number line.
- Identify and use doubles, doubles-plus-1, and doubles-plus-2 facts.
- Make 10 to add.
- Explain addition and subtraction strategies.
- Solve addition word problems with facts to 20.
- Use critique reasoning to solve math problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 2 (See End of Module Assessment #2 in Resources)

• Anecdotal record • Student work

Vocabulary

Equal sign, equations, inequalities, addition (subtraction) number sentence, greater than, regroup

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• Manipulatives Kit • IXL • Mathabc • Rekenrek • Student whiteboards

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Enrichment: Problems are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 3 Ordering and Comparing Length Measurements
1 Math

Elementary School / 2022-2023 / Grade 1 / Mathematics / 1 Math / Week 14 - Week 20

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 3 Ordering and Comparing Length Measurements

- Unit Planner
- Lesson Planner

Unit Description

Unit 3, which focuses on measuring and comparing lengths indirectly and by iterating length units, gives students a few weeks to practice and internalize "making a 10" during daily fluency activities.

Standards

PA: Core - Mathematics (2014)

PA: Grade 1

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.1.B.1: Extend the counting sequence to read and write numerals to represent objects.

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.1.A.1 Represent and solve problems involving addition and subtraction within 20.

Big Ideas

- Some questions can be answered by collecting, organizing, representing, and analyzing data.
- The question to be answered determines the data collected, how to best collect it and how best to represent it.

Learning Targets/I Can Statements

- Express the length of an object as a whole number of length units, by laying objects end to end.
- Measure common objects (and/or pictures of objects) using nonstandard units of measure.
- Compare and order lengths of objects.
- Compare the length of two objects indirectly.

Grammar and Writing Targets

Essential Questions

- How do I determine length?
- How do I compare lengths?

Enduring Understandings

- Some attributes of objects are measurable, i.e. length.
- Lengths can be ordered and compared using indirect measurement.
- The length of an object can be expressed as a whole number of length units.

Transfer

- There are multiple ways to make 10, i.e. 9+1, 3+7.
- Counting on a number line.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 3 (See Mid Module Assessment Task and End of Module Assessment #3 in Resources)

• Anecdotal record • Student work • Exit Slip

Vocabulary

Short, shorter, shortest, long, longer, longest, compare, length

Resources/Suggested Materials

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• Manipulatives Kit • IXL • Mathabc • Rekenrek • Student whiteboards

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Enrichment: Problems are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions

- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
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- Graphic organizers
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- Cubing activities
- Goal setting with students
- Tutoring by peers

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Suggested Sample Lessons

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Unit Planner: Unit 4 Place Value, Comparison + and - 1 Math

Elementary School / 2022-2023 / Grade 1 / Mathematics / 1 Math / Week 21 - Week 26

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 4 Place Value, Comparison + and -

- Unit Planner
- Lesson Planner

Unit Description

Unit 4 returns to understanding place value. Addition and subtraction within 40 rest on firmly establishing a "ten" as a unit that can be counted, first introduced at the close of Unit 2. Students begin to see a problem like 23 + 6 as an opportunity separate the "2 tens" in 23 and concentrate on the familiar addition problem 3 + 6. Adding 8 + 5 is related to solving 28 + 5; complete a unit of ten and add 3 more

Standards

PA: Core - Mathematics (2014)

PA: Grade 1

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.1.B.1: Extend the counting sequence to read and write numerals to represent objects.

CC.2.1.1.B.2: Use place value concepts to represent amounts of tens and ones and to compare two digit numbers.

CC.2.1.1.B.3: Use place value concepts and properties of operations to add and subtract within 100.

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.1.A.1 Represent and solve problems involving addition and subtraction within 20.

CC.2.2.1.A.2 Understand and apply properties of operations and the relationship between addition and subtraction.

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.1.A.2: Tell and write time to the nearest half hour using both analog and digital clocks.

Big Ideas

- Practices, Processes, and Proficiencies
- Number uses, Classification, and Representation
- Numbers and the Number Line
- The Base-10 Numeration System
- Equivalence
- Basic Facts and Algorithms

Learning Targets/I Can Statements

- Add to multiples of 10.
- Use mental math to add tens to two-digit numbers.
- Use a hundred chart to add tens and ones.
- Use a number line to solve addition problems.
- Solve addition problems by using blocks or drawings.
- Make a ten to help solve addition problems.
- Add 2 two-digit numbers.
- Use models to subtract tens.
- Use a hundred chart to subtract a multiple of ten from another multiple of ten.
- Use an open number line to solve subtraction problem,
- Use addition to subtract tens.
- Use mental math to subtract ten from a two-digit number.
- Solve addition and subtraction problems using different strategies.
- Model and solve problems by drawing a picture and writing an equation.
- Tell and write time by the hour and half hour.

Grammar and Writing Targets

Essential Questions

- What are ways to use tens and ones to add?
- How can I use what I know about subtraction to subtract tens?
- What do good math thinkers do?

Enduring Understandings

- Adding groups of ten is similar to adding numbers less than ten.
- When adding tens to a two-digit number, the tens digit changes and the ones digit remains unchanged.
- When a two-digit number is added to a one-digit number, the ones are added to the ones and sometimes it is necessary to compose a ten.
- Subtracting a multiple of 10 from another multiple of 10, is similar to subtracting numbers less than 10.
- Subtracting multiples of 10 is like counting back by 10s.
- Addition and subtraction have an inverse relationship.
- When subtracting tens from a two-digit number, the tens digit changes and the ones digit remains unchanged.
- You can use different strategies to solve addition and subtraction.
- Good math thinkers use math they know to show and solve problems.

Transfer

- Add tens and ones using a hundred chart.
- Add tens and ones using an open number line.
- Add tens and ones using models.
- Make a ten to add.
- Subtract tens using models.
- Subtract tens using a hundred chart.
- Subtract tens using an open number line.
- Use addition to subtract tens.
- Use mental math to subtract ten.
- Add using place value.
- Use strategies to add and subtract.

- Model with math to solve problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 4 (See End of Module Assessment #4 in Resources)

• Anecdotal record • Student work

Vocabulary

Continue using mathematical terms: Equal sign, equations, inequalities, addition (subtraction) number sentence, greater than, regroup

Resources/Suggested Materials

Resources: Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• Manipulatives Kit • IXL • Mathabc • Rekenrek • Student whiteboards

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Enrichment: Problems are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding

- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 5 Identifying, Composing, Partitioning Shapes
1 Math

Elementary School / 2022-2023 / Grade 1 / Mathematics / 1 Math / Week 27 - Week 32

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 5 Identifying, Composing, Partitioning Shapes

- Unit Planner
- Lesson Planner

Unit Description

In Unit 5, students think about attributes of shapes and practice composing and decomposing geometric shapes. They also practice work with addition and subtraction within 40 during daily fluency activities (from Unit 4). Thus, this module provides important "internalization time" for students between two intense number-based units. The unit placement also gives more spatially-oriented students the opportunity to build their confidence before they return to arithmetic.

Standards

PA: Core - Mathematics (2014)

PA: Grade 1

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.1.A.1 Represent and solve problems involving addition and subtraction within 20.

CC.2.3: Geometry

(A) Geometry

CC.2.3.1.A.1: Compose and distinguish between two- and three-dimensional shapes based on their attributes.

CC.2.3.1.A.2: Use the understanding of fractions to partition shapes into halves and quarters.

Big Ideas

- Practices, Processes, and Proficiencies
- Geometric Figures
- Compose new two-dimensional shapes from two-dimensional shapes
- Attributes of three-dimensional shapes

Learning Targets/I Can Statements

- Use attributes to match shapes.
- Define two-dimensional shapes by their attributes.
- Use materials to build and draw two-dimensional shapes.
- Combine two-dimensional shapes to make another two-dimensional shape.
- Define three-dimensional shapes by their number of edges, vertices, and faces or flat surfaces.
- Choose defining attributes of three-dimensional shapes.
- Combine three-dimensional shapes to make another three-dimensional shape.
- Find differences among various shapes.
- Divide shapes into halves and/or quarters.

- Solve addition and subtraction problems within 40

Grammar and Writing Targets

Essential Questions

- How can you define shapes and compose new shapes?
- What do good math thinkers do?

Enduring Understandings

- Two-dimensional shapes have attributes that define them and make them different from one another.
- Two-dimensional shapes can be combined to make new two-dimensional shapes.
- Three-dimensional shapes have attributes that define them and make them different from one another.
- Three-dimensional shapes can be combined to form other three-dimensional shapes or the shapes of common, everyday objects.
- Good math thinkers know what the problem is about, have a plan to solve it, and keep trying if they get stuck.

Transfer

- Use attributes to define two-dimensional shapes.
- Build and draw two-dimensional shapes by attributes.
- Compose two-dimensional shapes.
- Use attributes to define three-dimensional shapes.
- Compose with three-dimensional shapes.
- Makes sense and persevere when solving problems.
- Use addition to subtract tens.
- Use mental math to subtract ten.
- Use strategies to practice addition and subtraction.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 5 (See End of Module Assessment #5 in Resources)

• Anecdotal record • Student work

Vocabulary

2-D shapes, sides, vertices, edges, faces, flat surface, rectangular prism, three-dimensional shapes

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• Manipulatives Kit • IXL • Mathabc • Rekenrek • Student whiteboards

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Enrichment: Problems are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

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Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 6 Place Value, Comparison, + and - to 100
1 Math

Elementary School / 2022-2023 / Grade 1 / Mathematics / 1 Math / Week 33 - Week 37

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 6 Place Value, Comparison, + and - to 100

- Unit Planner
- Lesson Planner

Unit Description

Although Unit 6 focuses on "adding and subtracting within 100," the learning goal differs from the "within 40" unit. Here, the new level of complexity is to build off the place value understanding and mental math strategies that were introduced in earlier units. Students explore by using simple examples and the familiar units of 10 made out of linking cubes, bundles, and drawings. Students also count to 120 and represent any number within that range with a numeral.

Standards

PA: Core - Mathematics (2014)

PA: Grade 1

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.1.B.2: Use place value concepts to represent amounts of tens and ones and to compare two digit numbers.

CC.2.1.1.B.3: Use place value concepts and properties of operations to add and subtract within 100.

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.1.A.2 Understand and apply properties of operations and the relationship between addition and subtraction.

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.1.A.4 Represent and interpret data using tables/charts.

Big Ideas

- Practices, Processes, and Proficiencies
- Number uses, Classification, and Representation
- Numbers and the Number Line
- The Base-10 Numeration System
- Equivalence
- Operation Meanings and Relationships
- Basic Facts and Algorithms
- Patterns, Relations, and Functions

Learning Targets/I Can Statements

- Count by 10s and 1s to 120.
- Count on a number chart to 120.
- Find number patterns on a number chart.
- Count to 120 using an open number line.
- Write numerals to show how many objects are in a group.
- Make a table based on the number of objects in each category.

Grammar and Writing Targets

Essential Questions

How can you use what you already know about counting to count past 100?

Enduring Understandings

- Adding groups of ten is similar to adding numbers less than ten.
- When adding tens to a two-digit number, the tens digit changes and the ones digit remains unchanged.
- When a two-digit number is added to a one-digit number, the ones are added to the ones and sometimes it is necessary to compose a ten.
- Subtracting a multiple of 10 from another multiple of 10, is similar to subtracting numbers less than 10.
- Subtracting multiples of 10 is like counting back by 10s.
- Addition and subtraction have an inverse relationship.
- When subtracting tens from a two-digit number, the tens digit changes and the ones digit remains unchanged.
- You can use different strategies to solve addition and subtraction problems.
- Good math thinkers use math they know to show and solve problems.

Transfer

- Count by 1s or 10s to 120.
- Count on an open number line.
- Count and write numerals.
- Use repeated reasoning to solve problems.
- Add tens and ones using a hundred chart.
- Add tens and ones using an open number line.
- Add tens and ones using models.
- Make a ten to add.
- Add using place value.
- Subtract tens using a hundred chart.
- Subtract tens using an open number line.
- Use addition to subtract tens.
- Use mental math to subtract ten.
- Use strategies to practice subtraction.
- Model with math to solve problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 6 (See End of Module Assessment #6 in Resources) • Anecdotal record • Student work

Vocabulary

hundreds chart, tens digit, ones, digit, row

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• Manipulatives Kit • IXL • Mathabc • Rekenrek • Student whiteboards

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Enrichment: Problems are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

UDACS Grade 2 Mathematics Curriculum

The second-grade mathematics curriculum is based on the Story Units in Eureka Math Squared and aligned with the PA Core Standards for Mathematics. Instructional time in grade four will focus on four critical areas:

1. Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g.,853 is 8 hundreds + 5 tens + 3 ones).

2. Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.

3. Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.

4. Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two-and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

The mathematics curriculum is designed to provide all students with the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary to succeed in high school and beyond. Teachers will recognize that accommodations cannot be just an extra set of resources for particular students. Scaffolding is folded into the Story Units in such a way that it is part of its very DNA, so adherence to the modules is the primary scaffolding tool. Specific resources are included within this curriculum to highlight strategies that can provide critical access for all students. Teachers will refer to the scaffolds for English Language Learners, Students with Disabilities, Students Performing Below Grade Level and Students Above Grade Level.

Unit Planner: Unit 1 Sums and Differences to 10
2 Math

Elementary School / 2022-2023 / Grade 2 / Mathematics / 2 Math / Week 1 - Week 5

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 1 Sums and Differences to 10

- Unit Planner
- Lesson Planner

Unit Description

From Grade 1, students have fluency of addition and subtraction within 10 and extensive experience working with numbers to 100. Unit 1 of Grade 2 establishes a motivating, differentiated fluency program in the first few weeks that will provide each student with enough practice to achieve mastery of the new required fluencies (i.e., adding and subtracting within 20 and within 100) by the end of the year. Students learn to represent and solve word problems using addition and subtraction: a practice that will also continue throughout the year

Standards

PA: Core - Mathematics (2014)

PA: Grade 2

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.2.A.1: Represent and solve problems involving addition and subtraction within 100.

CC.2.2.2.A.2: Use mental strategies to add and subtract within 20.

Big Ideas

Numbers, measures, expressions, equations and inequalities can represent mathematical situations and structures in many equivalent forms.

Learning Targets/I Can Statements

- Count on to add and add in any order.
- Use the number line and count to find sums by starting with the greater addend and count on the other addend.
- Fluently add and subtract within 20 using mental strategies.

Grammar and Writing Targets

Essential Questions

What are strategies for finding addition and subtraction facts?

Enduring Understandings

What are strategies for finding addition and subtraction facts?

Transfer

- Use addition facts strategies.
- Use doubles and near doubles facts to solve addition problems.
- Make a 10 to add.
- Use addition fact patterns.
- Count on and count back to subtract.
- Think addition to subtract.
- Make a 10 to subtract.
- Practice addition and subtraction facts using mental math.
- Solve addition and subtraction word problems.
- Construct arguments when solving mathematical problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 1 (See End of Module Assessment #1 in Resources)

• Anecdotal record • Student work

Vocabulary

Count on, Equations, Addends, Sum

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• https://elemath.hallco.org/web/ • Manipulatives Kit • IXL • Splash Math

• individual whiteboards • Rekenrek • mathabc

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Enrichment: Problems in the teacher guides (Challenge Problem) and online.

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments

- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 2 Addition and Subtraction of Length Units 2 Math

Elementary School / 2022-2023 / Grade 2 / Mathematics / 2 Math / Week 6 - Week 9

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 2 Addition and Subtraction of Length Units

- Unit Planner
- Lesson Planner

Unit Description

In Unit 2, students learn to measure and estimate using standard units for length and solve measurement word problems involving addition and subtraction of length. A major objective is for students to use measurement tools with the understanding that linear measure involves an iteration of units and that the smaller a unit, the more iterations are necessary to cover a given length. Students work exclusively with metric units, i.e. centimeters and meters, in this unit to support upcoming work with place value concepts in Unit 3. Units also play a central role in the addition and subtraction algorithms of Units 4 and 5. An underlying goal for this unit is for students to learn the meaning of a "unit" in a different context, that of length. This understanding serves as the foundation of arithmetic, measurement, and geometry in elementary school

Standards

PA: Core - Mathematics (2014)

PA: Grade 2

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.2.A.1: Represent and solve problems involving addition and subtraction within 100.

CC.2.2.2.A.2: Use mental strategies to add and subtract within 20.

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.2.A.1: Measure and estimate lengths in standard units using appropriate tools.

Big Ideas

- Practices, Processes, and Proficiencies
- Number Uses, Classification, and Representation
- Comparison and Relationships
- Estimation
- Measurement

Learning Targets/I Can Statements

- Estimate the length of an object by relating the length of the object to a measurement that is known.
- Estimate measures and use a ruler to measure length and height to the nearest inch.
- Estimate measures and use tools to measure the length and height of objects to the nearest inch, foot, and yard.
- Estimate measures and use a ruler to measure length and height to the nearest centimeter or meter.
- Measure the length and height of objects using different metric units.
- Tell how much longer one object is than another.

- Choose tools, units, and methods that help in having precision when measuring.
- Solve problems by adding or subtracting length measurements.
- Add or subtract to solve problems about measurements.
- Add and subtract to solve measurement problems by using drawings and equations.
- Add and subtract on a number line.
- Choose the best tool to use to solve problems.

Grammar and Writing Targets

Essential Questions

- What are ways to measure length?
- How can you add and subtract lengths?
- What do good math thinkers do?

Enduring Understandings

- The length of a known object can be used to estimate the length of another object to the nearest inch, foot, or yard.
- Length and height are measurable using inches, feet, and yards.

Transfer

- Estimate length.
- Measure with inches.
- Estimate and measure using inches, feet, and yards.
- Measure length using different customary units.
- Measure with centimeters.
- Estimate and measure with centimeters.
- Compare lengths.
- Add and subtract with measurements.
- Find unknown measurements.
- Add and subtract on a number line.
- Use appropriate tools to solve mathematical problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 2 (See Mid Module Assessment Task & End of Module Assessment #2 in Resources).

• Anecdotal record • Student work

Vocabulary

estimate, inch, foot, yard, height, nearest inch, centimeter, nearest centimeter, meter

Resources/Suggested Materials

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• https://elemath.hallco.org/web/ • Manipulatives Kit • IXL • Splash Math

• individual whiteboards • Rekenrek • Mathabc

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Enrichment: Problems in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
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- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
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- Student working with an assigned partner
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- Assistive technology
- Allow students to correct errors
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- Jigsaw
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- Tutoring by peers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

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Suggested Scaffolds

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Suggested Sample Lessons

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Unit Planner: Unit 3 Place Value, Counting & Comparison to 1000
2 Math

Elementary School / 2022-2023 / Grade 2 / Mathematics / 2 Math / Week 10 - Week 13

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 3 Place Value, Counting & Comparison to 1000

- Unit Planner
- Lesson Planner

Unit Description

All arithmetic algorithms are manipulations of place value units: ones, tens, hundreds, etc. In Unit 3, students extend their understanding of base ten notation and apply their understanding of place value to count and compare numbers to 1000. In Grade 2 the place value units move from a proportional model to a non-proportional number disk model The place value table with number disks can be used through Grade 5 for modeling very large numbers and decimals, thus providing students greater facility with and understanding of mental math and algorithms

Standards

PA: Core - Mathematics (2014)

PA: Grade 2

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.2.B.1: Use place value concepts to represent amounts of tens and ones and to compare three digit numbers.

CC.2.1.2.B.2: Use place value concepts to read, write, and skip count to 1000.

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.2.A.1: Represent and solve problems involving addition and subtraction within 100.

CC.2.2.2.A.2: Use mental strategies to add and subtract within 20.

Big Ideas

- Numbers and the Number Line
- The Base-10 Numeration System
- Equivalence
- Comparison and Relationships
- Patterns, Relations, and Functions

Learning Targets/I Can Statements

- Understand place value and count by hundreds to 1,000.
- Use place-value blocks and drawings to model and write three-digit numbers.
- Tell the value of the digit by where it is placed in a number.
- Read and write three-digit numbers in expanded form, standard form, and word form.
- Make a name a number in different ways to show the same value.

- Use place-value patterns to mentally count by 1s and 10s from a given number.
- Skip count by 5s, 10s, and 100s using a number line.
- Compare numbers using place value.

Grammar and Writing Targets

Essential Questions

- How can you count, read, and show numbers to 1,000?
- What do good math thinkers do?

Enduring Understandings

- Numbers can be used to tell how many.
- The number system is based on groups of ten.
- The position of a digit in a number tells its value.
- There are three common ways to write numbers: standard form, word form, and expanded form.
- Numbers can be named in many ways.
- Place-value patterns can help you mentally count by 1s or 10s from a given number.

Transfer

Understand hundreds.

Model, read, and write three-digit numbers.

Name place values.

Use different ways to name the same number.

Use place value patterns with numbers.

Skip count by five, ten, and 100 to 1000.

Compare numbers using place value.

Compare numbers on the number line.

Look for and use structure to solve mathematical problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 3 (See End of Module Assessment #3 in Resources)

• Anecdotal record • Student work

Vocabulary

hundred, thousand, digit, place-value chart, standard form, expanded form, word form, compare, greater than, less than, equals, decrease, increase

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• https://elemath.hallco.org/web/ • Manipulatives Kit • IXL

• individual whiteboards • Rekenrek • mathabc • Splash Math

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Enrichment: Problems in the teacher guides (Challenge Problem) and online.

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 4 Addition & Subtraction Word Problems to 100
2 Math

Elementary School / 2022-2023 / Grade 2 / Mathematics / 2 Math / Week 14 - Week 18

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 4 Addition & Subtraction Word Problems to 100

- Unit Planner
- Lesson Planner

Unit Description

In Unit 4, students apply their work with place value units to add and subtract within 200 moving from concrete to pictorial to abstract. This work deepens their understanding of base-ten, place value, and the properties of operations. It also challenges them to apply their knowledge to one-step and two-step word problems. During this unit, students also continue to develop one of the required fluencies of the grade: addition and subtraction within 100

Standards

PA: Core - Mathematics (2014)

PA: Grade 2

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.2.B.1: Use place value concepts to represent amounts of tens and ones and to compare three digit numbers.

CC.2.1.2.B.3: Use place value understanding and properties of operations to add and subtract within 1000.

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.2.A.1: Represent and solve problems involving addition and subtraction within 100.

CC.2.2.2.A.2: Use mental strategies to add and subtract within 20.

Big Ideas

- Practices, Processes, and Proficiencies
- The Base-10 Numeration System
- Equivalence
- Operation Meanings and Relationships
- Properties
- Basic Facts and Algorithms

Learning Targets/I Can Statements

- Add numbers using partial sums.
- Use models to add two-digit numbers and then explain the work.
- Add 3 or 4 two-digit numbers.
- Use mental math strategies and models to add more than two numbers.

- Use place value and models subtract one-digit and two-digit numbers.
- Use place value and regrouping to subtract.
- Add to check subtraction.
- Subtract two-digit numbers and decide when to regroup and when not to regroup.
- Use drawings, models and equations to solve word problems.
- Reason about word problems and use bar diagrams and equations to solve them.

Grammar and Writing Targets

Essential Questions

- What are strategies for adding numbers to 200?
- What are strategies for subtracting numbers to 200?
- What do good math thinkers do?

Enduring Understandings

- When adding two-digit numbers, add the ones and tens separately and then add these partial sums to find the total sum.
- Addition algorithms and addition strategies can be used to add more than 2 two-digit numbers.
- The standard subtraction algorithm can be used to break the calculation into simpler steps, starting with the ones and then moving to the tens.
- The standard algorithm for subtracting a two-digit number from a two-digit number is just an extension of the algorithm for subtracting a one-digit number from a two-digit number.
- The inverse relationship between addition and subtraction can be used to solve and check subtraction problems.
- Good math thinkers know how to think about words and numbers to solve problems.

Transfer

- Add with partial sums.
- Use models to add two-digit numbers.
- Add more than 2 two-digit numbers.
- Regroup 1 ten for 10 ones.
- Use models to subtract one-digit and two-digit numbers.
- Subtract one-digit and two-digit numbers.
- Use addition to check subtraction.
- Solve one-step and two-step problems.
- Use reasoning to solve mathematical problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 4 (See End of Module Assessment #4 in Resources)

• Anecdotal record • Student work

Vocabulary

partial sum, regroup, compatible numbers

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• https://elemath.hallco.org/web/ • Manipulatives Kit • IXL

• individual whiteboards • Rekenrek • mathabc • Splash Math

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Enrichment: Problems are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

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https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 5 Addition & Subtraction Within 1000
2 Math

Elementary School / 2022-2023 / Grade 2 / Mathematics / 2 Math / Week 19 - Week 23

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 5 Addition & Subtraction Within 1000

- Unit Planner
- Lesson Planner

Unit Description

Unit 5 builds upon the work of Unit 4. Students again use place value strategies, manipulatives, and math drawings to extend their conceptual understanding of the addition and subtraction algorithms to numbers within 1000. They maintain addition and subtraction fluency within 100 through daily application work to solve one- and two-step word problems of all types. A key component of Units 4 and 5 is that students use place value reasoning to explain why their addition and subtraction strategies work.

Standards

PA: Core - Mathematics (2014)

PA: Grade 2

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.2.B.3: Use place value understanding and properties of operations to add and subtract within 1000.

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.2.A.1: Represent and solve problems involving addition and subtraction within 100.

CC.2.2.2.A.2: Use mental strategies to add and subtract within 20.

CC.2.2.2.A.3: Work with equal groups of objects to gain foundations for multiplication.

Big Ideas

- Practices, Processes, and Proficiencies
- Numbers and the Number Line
- The Base-10 Numeration System
- Equivalence
- Comparison and Relationships
- Patterns, Relations, and Functions

Learning Targets/I Can Statements

- Use an open number line to add three-digit numbers.
- Add three-digit numbers using mental math strategies.
- Add three-digit numbers using partial sums.
- Use models to add three-digit numbers.
- Use different addition strategies and explain why they work.
- Add and/or subtract 10 or 100 mentally using place-value strategies.
- Use an open number line to count back to subtract three-digit numbers.
- Use an open number line to add up to subtract three-digit numbers.

- Use mental math to subtract.
- Use models to subtract three-digit numbers.
- Explain why subtraction strategies work using models, place value, and mental math.
- Solve problems that take more than one step.

Grammar and Writing Targets

Essential Questions

- What are strategies for adding numbers to 1,000?
- What are strategies for subtracting numbers to 1,000?
- What do good math thinkers do?

Enduring Understandings

- Place-value patterns and basic facts can be used to mentally add 10 or 100 to any given three-digit number.
- Three-digit numbers can be broken apart using hundreds, tens, and ones, and added in different ways.
- To add three-digit numbers, add the hundreds, the tens, and the ones separately, and then add the partial sums to find the total sum.
- The standard addition algorithm for three-digit numbers breaks the calculation into simpler calculations using place value, starting with the ones, then the tens, and then the hundreds.
- Good math thinkers look for things that repeat in a problem. They use what they learn from one problem to help them solve other problems.
- Place-value patterns and basic facts can be used to mentally subtract 10 or 100 from any given three-digit number.
- Three-digit numbers can be broken apart using hundreds, tens, and ones to subtract in different ways.
- The standard subtraction algorithm for three-digit numbers breaks the calculation into simpler calculations using place value, starting with the ones, then the tens, and then the hundreds.
- The standard subtraction algorithm and subtraction strategies can be used to subtract with three-digit numbers.
- Good math thinkers know what the problem is about, have a plan to solve it, and keep trying if they get stuck.

Transfer

- Add 10 and 100.
- Add on an open number line.
- Add using mental math.
- Add using partial sums.
- Use models to add.
- Explain addition strategies.
- Subtract 10 and 100.
- Count back to subtract on an open number line.
- Add up to subtract on an open number line.
- Subtract using mental math.
- Use models to subtract.
- Explain subtraction strategies.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 5 (See Mid Module Assessment Task and End of Module Assessment #5 in Resources)

• Anecdotal record • Student work

Vocabulary

Calculate, partial sums, equivalence, compare

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

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• individual whiteboards • Rekenrek • mathabc • Splash Math

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Enrichment: Problems are suggested in the teacher guides (Challenge Problem) and several are available online.

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments

- Cubing activities
- Goal setting with students
- Tutoring by peers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

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Unit Planner: Unit 6 Foundations of Multiplication and Division
2 Math

Elementary School / 2022-2023 / Grade 2 / Mathematics / 2 Math / Week 24 - Week 28

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 6 Foundations of Multiplication and Division

- Unit Planner
- Lesson Planner

Unit Description

In Unit 6, students extend their understanding of a unit to build the foundation for multiplication and division wherein any number, not just powers of ten, can be a unit. Making equal groups of "four apples each" establishes the unit "four apples" (or just four) that can then be counted: 1 four, 2 fours, 3 fours, etc. Relating the new unit to the one used to create it lays the foundation for multiplication: 3 groups of 4 apples equal 12 apples (or 3 fours is 12).

Standards

PA: Core - Mathematics (2014)

PA: Grade 2

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.2.B.3: Use place value understanding and properties of operations to add and subtract within 1000.

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.2.A.1: Represent and solve problems involving addition and subtraction within 100.

CC.2.2.2.A.3: Work with equal groups of objects to gain foundations for multiplication.

Big Ideas

- Practices, Processes, and Proficiencies
- Operation Meanings and Relationships
- Properties
- Basic Facts and Algorithms
- Variables, Expressions, and Equations
- Solving Equations and Inequalities

Learning Targets/I Can Statements

- Model problems using equations with unknowns in any position.
- Use drawings and equations to make sense of the words in problems.
- Model and solve two-step problems using equations.
- Use different ways to solve two-step problems.
- Use reasoning to write and solve number stories.

Grammar and Writing Targets

Essential Questions

- What are strategies for adding numbers to 100?
- What are strategies for subtracting numbers to 100?
- How can you solve word problems that use adding and subtracting?
- What do good math thinkers do?

Enduring Understandings

- To subtract, sometimes it is necessary to regroup 1 ten as 10 ones.
- You can use pencil and paper to subtract to record the regrouping in the tens and ones places.
- The standard subtraction algorithm can be used to break the calculation into simpler steps, starting with the ones and then moving to the tens.
- The standard algorithm for subtracting a two-digit number from a two-digit number is just an extension of the algorithm for subtracting a one-digit number from a two-digit number.
- The inverse relationship between addition and subtraction can be used to solve and check subtraction problems.
- Subtraction problems involving two-digit numbers can be solved using subtraction strategies or the standard subtraction algorithm.
- Bar diagrams, equations, and objects are used to solve one-step and two-step word problems.
- Write equations to model and solve word problems using a symbol to represent the unknown.
- Good math thinkers know how to think about words and numbers to solve problems.

Transfer

- Represent addition and subtraction problems.
- Solve addition and subtraction problems.
- Solve two-step problems.
- Use reasoning to solve mathematical problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 6 (See End of Module Assessment #6 in Resources)

• Anecdotal record • Student work

Vocabulary

Addends, even numbers, repeated addition, decompose

Resources/Suggested Materials

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• https://elemath.hallco.org/web/ • Manipulatives Kit • IXL

• individual whiteboards • Rekenrek • mathabc • Splash Math

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
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- Goal setting with students
- Tutoring by peers

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https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

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Suggested Sample Lessons

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Unit Planner: Unit 7 Problem Solving with Length, Money and Data
2 Math

Elementary School / 2022-2023 / Grade 2 / Mathematics / 2 Math / Week 29 - Week 33

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 7 Problem Solving with Length, Money and Data

- Unit Planner
- Lesson Planner

Unit Description

Unit 7 provides another opportunity for students to practice their algorithms and problem-solving skills with perhaps the most well-known, interesting units of all: dollars, dimes, and pennies. Measuring and estimating length is revisited in this unit n the context of units from both the customary system (e.g., inches and feet) and the metric system (e.g., centimeters and meters). As they study money and length, students represent data given by measurement and money data using picture graphs, bar graphs, and line plots.

Standards

PA: Core - Mathematics (2014)

PA: Grade 2

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.2.A.1: Measure and estimate lengths in standard units using appropriate tools.

CC.2.4.2.A.2: Tell and write time to the nearest five minutes.

CC.2.4.2.A.3: Solve problems using coins and paper currency.

CC.2.4.2.A.4: Represent and interpret data using line plots, picture graphs, and bar graphs.

CC.2.4.2.A.6: Extend the concepts of addition and subtraction to problems involving length.

Big Ideas

- Practices, Processes, and Proficiencies
- Number Uses, Classification, and Representation
- Comparison and Relationships
- Estimation
- Measurement

Learning Targets/I Can Statements

- Estimate the length of an object by relating the length of the object to a measurement that is known.
- Estimate measures and use a ruler to measure length and height to the nearest inch.
- Estimate measures and use tools to measure the length and height of objects to the nearest inch, foot, and yard.
- Measure the length and height of objects using different metric units.
- Tell how much longer one object is than another.
- Choose tools, units, and methods that help in having precision when measuring.

- Solve problems with dollar bills and coins that model 100 cents.
- Reason about values of coins and dollar bills, and find different ways to make the same total value.
- Tell time to the nearest five minutes.
- Say the time in different ways.
- Tell time and use reasoning to state if the event is happening in the a.m. or p.m.
- Represent and interpret data using graphs and line plots.

Grammar and Writing Targets

Essential Questions

- What are ways to measure length?
- How can you add and subtract lengths?
- How can you solve problems involving counting money?

Enduring Understandings

- The length of a known object can be used to estimate the length of another object to the nearest inch, foot, or yard.
- Length and height are measurable using inches, feet, yards, centimeters and meters.
- When measuring length, the longer the chosen unit, the fewer units are needed. The shorter the unit is, the more units are needed.
- The lengths of two objects can be compared by subtracting to find the difference.
- Measurements in the same unit, such as inches, can be added or subtracted in the same way as adding and subtracting whole numbers.
- Pictures and equations can be used to solve word problems involving measurements.
- A sum can be represented as the total length of two line segments on a number line.
- Money is measurable and the value of coins can be quantified using cent amounts.
- Word problems about money can often be solved by adding and subtracting.
- Good math thinkers know how to think about words and numbers to solve problems.
- Time can be told to the nearest five minutes.
- Time can be described before and after the hour in different ways.
- Certain time periods can be described using the abbreviations a.m. or p.m.
- Good math thinkers know how to pick the right tools to solve math problems.
- Graphs and line plots are used to represent and analyze data.

Transfer

- Estimate length.
- Estimate and measure using inches, feet, and yards.
- Measure length using different customary units.
- Measure length is in different metric units.
- Compare lengths.
- Solve problems with coins.
- Solve problems with dollar bills.
- Use reasoning to solve mathematical problems.
- Tell time to the nearest five minutes.
- Tell time before and after the hour.
- Tell time and use reasoning to determine if an event is happening in the A.M. or P.M.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 7 (See End of Module Assessment #7 in Resources)

• Anecdotal record • Student work

Vocabulary

dime, nickel, penny, quarter, half-dollar, cents, greatest value, least value, dollar, dollar sign, dollar bills, tally marks, quarter past, half past, quarter to

Resources/Suggested Materials

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Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
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- Cubing activities
- Goal setting with students
- Tutoring by peers

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Suggested Scaffolds

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Suggested Sample Lessons

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Unit Planner: Unit 8 Shapes & Fractions as Equal Parts of Shape
2 Math

Elementary School / 2022-2023 / Grade 2 / Mathematics / 2 Math / Week 34 - Week 37

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 8 Shapes & Fractions as Equal Parts of Shape

- Unit Planner
- Lesson Planner

Unit Description

Students finish Grade 2 by describing and analyzing shapes in terms of their sides and angles. In Unit 8, students investigate, describe, and reason about the composition and decomposition of shapes to form other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades

Standards

PA: Core - Mathematics (2014)

PA: Grade 2

CC.2.3: Geometry

(A) Geometry

CC.2.3.2.A.1: Analyze and draw two- and three-dimensional shapes having specified attributes.

CC.2.3.2.A.2: Use the understanding of fractions to partition shapes into halves, quarters, and thirds.

Big Ideas

- Geometric figures
- Partition circles and rectangles into halves, thirds, and fourths

Learning Targets/I Can Statements

- Recognize shapes by how they look.
- Describe plane shapes by how they look.
- Draw polygon shapes.
- Draw cubes and describe how they look.
- Divide rectangles into equal squares.
- Divide circles and rectangles into halves, thirds, and fourths.
- Make equal shares that do not have the same shape.
- Use repeated reasoning to divide rectangles into rows and columns and create designs with equal shares.
- Utilize critical thinking to make sense of problems and persevere in solving them.

Grammar and Writing Targets

Essential Questions

- How can shapes be described, compared, and broken into parts?
- What do good math thinkers do?

Enduring Understandings

- Two-dimensional shapes can be classified and sorted based on their attributes.
- Polygons can be described by their number of sides and angles.
- Two-dimensional shapes can be defined and differentiated based on attributes.
- Describe a cube by talking about its faces, edges, and vertices.
- A rectangle can be divided into rows and columns of squares that are all the same size.
- A whole can have equal shares called halves, thirds, and fourths.
- Divide a whole into equal shares in different ways.
- Good math thinkers look for things that repeat in a problem. They use what they learn from one problem to help them solve other problems.

Transfer

- Recognize two-dimensional shapes.
- Recognize polygons and angles.
- Draw two-dimensional shapes.
- Describe cubes.
- Divide rectangles into equal squares.
- Partition shapes.
- Make equal shares with different shapes.
- Use repeated reasoning to solve mathematical problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 8 (See Mid Module and End of Module Assessment #8 in Resources)

• Anecdotal record • Student work

Vocabulary

vertices, quadrilaterals, pentagons, hexagons, polygon, angle, right angle, cube, face, edge, equal shares, halves, thirds, fourths

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• https://elemath.hallco.org/web/ • Manipulatives Kit • IXL

• individual whiteboards • Rekenrek • mathabc • Splash Math

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

Enrichment: Problems are suggested in the teacher guides (Challenge Problem).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

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Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

UDACS Grade 3 Mathematics Curriculum

The content of the third-grade mathematics curriculum is based upon the Eureka Math Squared program and the PA Core Standards. The instructional time should focus on four critical areas:

Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models. Multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.

Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole. For example, 1/2 of the paint in a small bucket could be less paint than 1/3 of the paint in a larger bucket, but 1/3 of a ribbon is longer than 1/5 of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.

Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect the area to multiplication and justify using multiplication to determine the area of a rectangle.

Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

The mathematics curriculum is designed to provide all students with the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary to succeed in high school and beyond. Teachers will also recognize that accommodations cannot be just an extra set of resources for particular students. Scaffolds are part of the Story Units, so adherence to the modules is the primary scaffolding tool. Specific resources are included within this curriculum to highlight strategies that can provide critical access for all students. Teachers will refer to the scaffolds for English Language Learners, Students with Disabilities, Students Performing Below Grade Level, and for Students Above Grade Level.

Unit Planner: Unit 1 Properties of Multiplication and Division 3 Math

Elementary School / 2022-2023 / Grade 3 / Mathematics / 3 Math / Week 1 - Week 5

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 1 Properties of Multiplication and Division

- Unit Planner
- Lesson Planner

Unit Description

This Unit builds upon the foundation of multiplicative thinking with units started in grade 2. First, students concentrate on the meaning of multiplication and division and begin developing fluency for learning products involving factors of 2, 3, 4, 5, and 10. The restricted set of facts keeps learning manageable, and also provides enough examples to do one-and two-step word problems and to start measurement problems involving weight, capacity and time in unit 2.

Standards

PA: Core - Mathematics (2014)

PA: Grade 3

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.3.B.1: Apply place value understanding and properties of operations to perform multi-digit arithmetic.
M03.A-T.1.1.1
M03.A-T.1.1.2
M03.A-T.1.1.3
M03.A-T.1.1.4

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.3.A.1 Represent and solve problems involving multiplication and division.
M03.B-O.1.1.1
M03.B-O.1.1.2
M03.B-O.1.2.1
M03.B-O.1.2.2

CC.2.2.3.A.3 Demonstrate multiplication and division fluency.

CC.2.2.3.A.4 Solve problems involving the four operations, and identify and explain patterns in arithmetic.
M03.B-O.3.1.1
M03.B-O.3.1.2
M03.B-O.3.1.3
M03.B-O.3.1.4
M03.B-O.3.1.5
M03.B-O.3.1.6
M03.B-O.3.1.7

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.3.A.3 Solve problems and make change involving money using a combination of coins and bills.
M03.D-M.1.3.1
M03.D-M.1.3.2
M03.D-M.1.3.3

Big Ideas

- Multiplication
- Division
- Commutative Property
- Distributive Property
- Practices and processes

Learning Targets/I Can Statements

- Interpret the meaning of factors—the size of the group or the number of groups.
- Understand the meaning of the unknown as the number of groups in division.
- Interpret the unknown in division using the array model.
- Use arrays to model the commutative and distributive properties.
- Model division as the unknown factor in multiplication using arrays and tape diagrams.
- Interpret the quotient as the number of groups or the number of objects in each group using units of 2,4,5,10.
- Multiply and divide using units of 2-5, and 10
- Solve two-step word problems involving multiplication and division, and assess the reasonableness of answers.
- Solve two-step word problems involving all four operations, and assess the reasonableness of answer

Grammar and Writing Targets

Essential Questions

- How can you use multiplication (or division) to solve word problems?
- How can you apply the properties of operations as strategies to multiply and divide?

Enduring Understandings

- Equal groups can be represented using arrays and equations to multiply, divide, add, and subtract.
- Division is an unknown-factor problem.
- Addition can be used to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns.

Transfer

- Complete multiplication problems with 2, 5, and 10 as factors.
- Multiply by10.
- Identify patterns of basic multiplication facts.
- Model with math to solve mathematical problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 1 (See End of Module Assessment #1 in Resources) • iReady diagnostic • Anecdotal record • Student work

Vocabulary

array, commutative property/commutative, equal groups distribute, factor, number of groups, parentheses, product, quotient, rotate, unit, unknown, expression, number bond, tape diagram, value

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• https://elemath.hallco.org/web/ • Manipulatives Kit • Rekenrek • iReady • IXL • Mathabc

• Individual whiteboards • Splash Math • tape diagram • number bond

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, iReady

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

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Suggested Sample Lessons

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Unit Planner: Unit 2 Place Value Problems and Units of Measure
3 Math

Elementary School / 2022-2023 / Grade 3 / Mathematics / 3 Math / Week 6 - Week 11

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 2 Place Value Problems and Units of Measure

- Unit Planner
- Lesson Planner

Unit Description

Unit 2 focuses on measurement of time and metric weight and capacity. In explanatory lessons, students decompose a kilogram into 100 gram, 10 gram and 1 gram weights and decompose a liter into analogous amounts of milliliters. Metric measurement thereby develops the concept of mixed units, e.g. 3 kilograms 400 grams is clearly related to 3 thousands, 4 hundreds. Students then apply their new understanding of number to place value, comparison and rounding, composing larger units when adding, decomposing into smaller units when subtracting. Students also draw proportional tape diagrams to solve word problems. (e.g., "if this tape represents 62kg, then a tape representing 35kg needs to be slightly longer than half the 62 kg bar..."). Drawing the relative sizes of the lengths involved in the model prepares students to locate fractions on a number line in unit 5 (where they learn to locate points on the number line relative to each other and relative to the whole unit). Unit 2 also provides students with internalization time for learning the 2, 3, 4, 5, and 10 facts as part of their fluency activities.

Standards

PA: Core - Mathematics (2014)

PA: Grade 3

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.3.B.1: Apply place value understanding and properties of operations to perform multi-digit arithmetic.
M03.A-T.1.1.1
M03.A-T.1.1.2
M03.A-T.1.1.3
M03.A-T.1.1.4

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.3.A.1 Represent and solve problems involving multiplication and division.
M03.B-O.1.1.1
M03.B-O.1.1.2
M03.B-O.1.2.1
M03.B-O.1.2.2

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.3.A.1 Solve problems involving measurement and estimation of temperature, liquid volume, mass or length.
M03.D-M.1.2.1
M03.D-M.1.2.2
M03.D-M.1.2.3

CC.2.4.3.A.2 Tell and write time to the nearest minute and solve problems by calculating time intervals.
M03.D-M.1.1.1
M03.D-M.1.1.2

Big Ideas

- Practices, Processes, and Proficiencies
- Estimation
- Measurement

Learning Targets/I Can Statements

- Count by fives and ones on the number line as a strategy to tell time to the nearest minute on the clock.
- Solve word problems involving time intervals within 1 hour by counting backward and forward using the number line and clock.
- Solve word problems involving time intervals within 1 hour by adding and subtracting on the number line.
- Solve one-step word problems involving metric weights within 100 and estimate to reason about solutions.
- Solve mixed word problems involving all four operations with grams, kilograms, liters, and milliliters given in the same units.
- Round two- and three-digit numbers to the nearest ten and/or hundred on the vertical number line.
- Add measurements using the standard algorithm to compose larger units twice.
- Estimate sums and differences of measurements by rounding, and then solve mixed word problems.

Grammar and Writing Targets

Essential Questions

- How can time, capacity, and mass be measured and found?
- What do good math thinkers do?

Enduring Understandings

- Clocks can be used to tell time to the nearest minute.
- Elapsed time can be found by finding the total amount of time that passes between a starting time and an ending time.
- Time intervals can be added or subtracted to solve problems.
- Benchmarks can be used to estimate capacity.
- Capacity is a measure of the amount of liquid a container can hold.
- Mass is a measure of the quantity of matter in an object.
- Problems involving mass and volume can often be solved by a picture or diagram.
- Good math thinkers know how to think about words and numbers to solve problems.

Transfer

- Find time to the minute.
- Measure elapsed time.
- Solve word problems involving time.
- Estimate and measure liquid volume.
- Estimate and measure mass.
- Solve word problems involving volume and mass.
- Use reasoning to solve mathematical problems.

Assessments and/or Performance Tasks

Eureka Module 2 (See End of Module Assessment #2 in Resources) • Anecdotal record • Student work

Vocabulary

About, addend, capacity, continuous, endpoint, gram, interval, kilogram, liquid volume, plot, milliliter, point, round, standard algorithm, ≈ (symbol used to show that an answer is approximate)

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• https://elemath.hallco.org/web/ • Manipulatives Kit • IXL • Mathabc • Rekenrek • Individual whiteboards

• Splash Math • Mr. Nussbaum • Khan Academy

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, iReady

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https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

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Suggested Sample Lessons

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Unit Planner: Unit 3 Multiplication and Division Multiple of 10 3 Math

Elementary School / 2022-2023 / Grade 3 / Mathematics / 3 Math / Week 12 - Week 15

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 3 Multiplication and Division Multiple of 10

- Unit Planner
- Lesson Planner

Unit Description

Students learn the remaining multiplication and division facts in Unit 3 as they continue to develop their understanding of multiplication and division strategies within 100 and use those strategies to solve two-step word problems. The "2, 3, 4, 5and 10 facts" module (Module 1) and the "0, 1, 6, 7, 8, 9 and multiples of 10 facts" (Unit 3) both provide important, sustained time for work in understanding the structure of rectangular arrays to prepare students for area in Unit 4. This work is necessary because students initially find it difficult to distinguish the different units in a grid, count them and recognize that the count is related to multiplication. Tiling also supports a correct interpretation of the grid.

Standards

PA: Core - Mathematics (2014)

PA: Grade 3

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.3.B.1: Apply place value understanding and properties of operations to perform multi-digit arithmetic.
M03.A-T.1.1.1
M03.A-T.1.1.2
M03.A-T.1.1.3
M03.A-T.1.1.4

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.3.A.1 Represent and solve problems involving multiplication and division.
M03.B-O.1.1.1
M03.B-O.1.1.2
M03.B-O.1.2.1
M03.B-O.1.2.2

CC.2.2.3.A.3 Demonstrate multiplication and division fluency.

CC.2.2.3.A.4 Solve problems involving the four operations, and identify and explain patterns in arithmetic.
M03.B-O.3.1.1
M03.B-O.3.1.2
M03.B-O.3.1.3
M03.B-O.3.1.4
M03.B-O.3.1.5
M03.B-O.3.1.6
M03.B-O.3.1.7

Big Ideas

- Practices, Processes, and Proficiencies
- Operation Meanings and Relationships
- Properties

- Basic Facts and Algorithms
- Patterns, Relations, and Functions

Learning Targets/I Can Statements

- Apply the distributive and commutative properties to relate multiplication facts $5 \times n + n$ to $6 \times n$ and $n \times 6$ where n is the size of the unit.
- Multiply and divide with familiar facts using a letter to represent the unknown.
- Use the distributive property as a strategy to multiply and divide using units of 6 and 7.
- Interpret the unknown in multiplication and division to model and solve problems using units of 6 and 7.
- Interpret the unknown in multiplication and division to model and solve problems.
- Solve two-step word problems involving all four operations and assess the reasonableness of solutions.
- Use place value strategies and the associative property $n \times (m \times 10) = (n \times m) \times 10$ (where n and m are less than 10) to multiply by multiples of 10.

Grammar and Writing Targets

Essential Questions

- How can unknown multiplication facts be found using patterns and properties?
- What do good math thinkers do?

Enduring Understandings

- There are patterns in the products for multiplication with a factor of 2, 5, or 10.
- There are patterns in the products for multiplication facts with a factor of 0 or 1.
- Patterns can be used to solve multiplication problems.
- Basic multiplication facts can be found by identifying patterns.
- Information in a problem often can be shown using a diagram that can be used to solve the problem.

Transfer

- Complete multiplication problems with 2, 5, and 9 as factors.
- Multiply by 0, 1, and 10.
- Identify patterns of basic multiplication facts.
- Model with math to solve mathematical problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 2 (See Mid Module and End of Module Assessment Tasks #2 in Resources) • Anecdotal record • Student work

Vocabulary

Multiple, product, Identify Property of Multiplication, Zero Property of Multiplication

Resources/Suggested Materials

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• https://elemath.hallco.org/web/ • Manipulatives Kit • Kahn Academy • Mathabc • Rekenrek

• Individual whiteboards • Splash Math • Mr. Nussbaum • IXL • iReady

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, iReady (3-5)

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Suggested Scaffolds

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Suggested Sample Lessons

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Unit Planner: Unit 4 Multiplication and Area
3 Math

Elementary School / 2022-2023 / Grade 3 / Mathematics / 3 Math / Week 16 - Week 21

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 4 Multiplication and Area

- Unit Planner
- Lesson Planner

Unit Description

In unit 4 students are ready to investigate area. They measure the area of a shape by finding the total number of same-size units of area, e.g. tiles, required to cover the shape without gaps and overlaps. When that shape is a rectangle with whole-number side lengths, it is easy to partition the rectangle into squares with equal areas

Standards

PA: Core - Mathematics (2014)

PA: Grade 3

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.3.A.5 Determine the area of a rectangle and apply the concept to multiplication and to addition.
M03.D-M.3.1.1
M03.D-M.3.1.2

CC.2.4.3.A.6 Solve problems involving perimeters of polygons and distinguish between linear and area measures.
M03.D-M.4.1.1

Big Ideas

- Practices, Processes, and Proficiencies
- Comparison and Relationships
- Geometric Figures

Learning Targets/I Can Statements

- Identify quadrilaterals and use attributes to describe them.
- Classify shapes according to their attributes.
- Analyze and compare quadrilaterals and group them by their attributes.
- Solve mathematical problems precisely, efficiently, and accurately by using appropriate tools and mathematical vocabulary.

Grammar and Writing Targets

Essential Questions

- How can two-dimensional shapes be described, analyzed, and classified?
- What do good math thinkers do?

Enduring Understandings

- Quadrilaterals can be described and classified by their sides and angles.
- Shapes can be classified by their attributes.
- Quadrilaterals can be classified by their attributes.
- Good math thinkers are careful about what they write and say, so their ideas about math are clear.

Transfer

- Describe quadrilaterals.
- Classify shapes.
- Analyze and compare quadrilaterals.
- Use precision to solve mathematical problems.

Assessments and/or Performance Tasks

Eureka Module 4 (See End of Module Assessment #4 in Resources)

• Anecdotal record • Student work

Vocabulary

polygon, side, quadrilateral, angle, vertex, trapezoid, parallel sides, parallelogram, rectangle, right angle, rhombus, square, convex, concave

Resources/Suggested Materials

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• Mr. Nussbaum • Khan Academy • iReady

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text and iReady.

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Suggested Scaffolds

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Suggested Sample Lessons

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Unit Planner: Unit 5 Fractions as Numbers on the Number Line
3 Math

Elementary School / 2022-2023 / Grade 3 / Mathematics / 3 Math / Week 22 - Week 26

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 5 Fractions as Numbers on the Number Line

- Unit Planner
- Lesson Planner

Unit Description

One goal of Unit 5 is for students to transition from thinking of fractions as area or parts of a figure to points on a number line. To make that jump, students think of fractions as being constructed out of unit fractions: "1 fourth" is the length of a segment on the number line such that the length of four concatenated fourth segments on the line equals 1 (the whole). Once the unit "1 fourth" has been established, counting them is as easy as counting whole numbers" 1 fourth, 2 fourths, 3 fourths, 4 fourths, 5 fourths, etc. Students also compare fractions, find equivalent fractions in special cases, and solve problems that involve fractions

Standards

PA: Core - Mathematics (2014)

PA: Grade 3

CC.2.1: Numbers and Operations

(C) Number & Operations - Fractions

CC.2.1.3.C.1: Explore and develop an understanding of fractions as numbers.
M03.A-F.1.1.1
M03.A-F.1.1.2
M03.A-F.1.1.3
M03.A-F.1.1.4
M03.A-F.1.1.5

CC.2.3: Geometry

(A) Geometry

CC.2.3.3.A.2 Use the understanding of fractions to partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole.
M03.C-G.1.1.3

Big Ideas

- Practices, Processes, and Proficiencies
- Number uses, Classification, and Representation
- Numbers and the Number Line
- Data Collection and Representation
- Equivalence
- Comparison and Relationships

Learning Targets/I Can Statements

- Understand how to read and write unit fractions for equal-sized parts of a region.
- Use a fraction to represent multiple copies of a unit fraction.

- Determine and draw the whole when given one part.
- Represent fractions on a number line.
- Measure length to the nearest fourth inch and show the data on a line plot.
- Measure length to the nearest half-inch and show the data on a line plot.
- Determine when a problem has either extra or missing information.
- Find equivalent fractions that name the same part of the whole.
- Represent equivalent fractions on a number line.
- Use models, such as fraction strips, to compare fractions that refer to the same whole and have the same denominator.
- Use models, such as fraction strips, to compare fractions that refer to the same whole and have the same numerator.
- Use benchmark numbers to compare fractions.
- Use a number line to compare fractions.
- Use fraction names to represent whole numbers.
- Construct math arguments using fractions.

Grammar and Writing Targets

Essential Questions

- What are different interpretations of a fraction?
- What are different ways to compare fractions?
- What do good math thinkers do?

Enduring Understandings

- A unit fraction represents one part of a whole that has been divided into equal parts.
- The whole can be found given a fractional part.
- Points on a number line can represent fractions.
- A number line can be used to represent fractions greater than 1.
- The line plot is a way to organize data on a number line.
- Good math thinkers think about ways to solve a problem and don't give up if they get stuck.

Transfer

- Divide regions into equal parts.
- Understand the whole.
- Utilize a number line to represent fractions.
- Measure length and make a line plot.
- Use models to find equivalent fractions.
- Use the number line to find equivalent fractions.
- Use models to compare fractions with the same denominator.
- Compare fractions using benchmarks.
- Compare fractions using the number line.
- Use fraction names for whole numbers.
- Construct arguments to solve mathematical problems.
- Make sense and persevere when solving mathematical problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 5 (See End of Module Assessment #5 in Resources) • Anecdotal record • Student work

Vocabulary

fraction, unit fraction, numerator, denominator, nearest half-inch, nearest fourth inch, line plot

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, iReady (3-5)

Enrichment Problems are suggested in the teacher guides (Challenge Problem),.

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 6 Collecting and Displaying Data
3 Math

Elementary School / 2022-2023 / Grade 3 / Mathematics / 3 Math / Week 27 - Week 31

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 6 Collecting and Displaying Data

- Unit Planner
- Lesson Planner

Unit Description

In Unit 6, students leave the world of exact measurements behind. By applying their knowledge of fractions from Unit 5, they estimate lengths to the nearest halves and fourths of an inch and record that information in bar graphs and line plots. This unit also prepares students for the multiplicative comparison problems of Grade 4 by asking students "how many more" and "how many less" questions about scaled bar graphs

Standards

PA: Core - Mathematics (2014)

PA: Grade 3

CC.2.1: Numbers and Operations

(C) Number & Operations - Fractions

CC.2.1.3.C.1: Explore and develop an understanding of fractions as numbers.
M03.A-F.1.1.1
M03.A-F.1.1.2
M03.A-F.1.1.3
M03.A-F.1.1.4
M03.A-F.1.1.5

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.3.A.1 Solve problems involving measurement and estimation of temperature, liquid volume, mass or length.
M03.D-M.1.2.1
M03.D-M.1.2.2
M03.D-M.1.2.3

CC.2.4.3.A.4 Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs.
M03.D-M.2.1.1
M03.D-M.2.1.2
M03.D-M.2.1.3
M03.D-M.2.1.4

Big Ideas

- Practices, Processes, and Proficiencies
- Data Collection and Representation

Learning Targets/I Can Statements

- Represent fractions on a number line.

- Measure length to the nearest fourth inch and show the data on a line plot.
- Measure length to the nearest half-inch and show the data on a line plot.
- Determine when a problem has either extra or missing information.
- Use graphs to compare and interpret data.
- Use frequency tables and picture graphs to compare and interpret data.
- Use scaled bar graphs to represent data sets.
- Use graphs to solve problems.
- Use word, symbols, and numbers to accurately and precisely solve mathematical problems.

Grammar and Writing Targets

Essential Questions

- How can data be represented, interpreted, and analyzed?
- What do good math thinkers do?

Enduring Understandings

- Certain kinds of graphs are appropriate for certain kinds of data.
- The type of graph used is based on the data being presented.
- Some problems can be solved by making, reading, and analyzing a graph.
- Good math thinkers are careful about what they write and say so their ideas about math are clear.

Transfer

- Read picture graphs and bar graphs.
- Make picture graphs and bar graphs.
- Solve word problems using information in graphs.
- Use precision when solving mathematical problems.

Assessments and/or Performance Tasks

Eureka Module 6 (See End of Module Assessment #6 in Resources)

• Anecdotal record • Student work

Vocabulary

data, scaled picture graph, scale, key, scaled bar graph, frequency table, survey

Resources/Suggested Materials

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• https://elemath.hallco.org/web/ • Manipulatives Kit • IXL • Mathabc • Rekenrek

• Individual whiteboards • Splash Math • Mr. Nussbaum • Khan Academy • iReady

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, iReady (3-5)

Enrichment Problems are suggested in the teacher guides (Challenge Problem).

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https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

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Suggested Sample Lessons

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Unit Planner: Unit 7 Geometry and Measurement Word Problems
3 Math

Elementary School / 2022-2023 / Grade 3 / Mathematics / 3 Math / Week 32 - Week 37

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 7 Geometry and Measurement Word Problems

- Unit Planner
- Lesson Planner

Unit Description

Unit 7 rounds out the year with plenty of time to solve two-step word problems involving the four operations, and to improve fluency for concepts and skills initiated earlier in the year. Students also describe, analyze, and compare properties of two-dimensional shapes. By now, students have done enough work with both linear and area measurement models to understand that there is no relationship in general between the area of a figure and perimeter, which is one of the concepts taught in the last module

Standards

PA: Core - Mathematics (2014)

PA: Grade 3

CC.2.3: Geometry

(A) Geometry

CC.2.3.3.A.1 Identify, compare, and classify shapes and their attributes.
M03.C-G.1.1.1
M03.C-G.1.1.2

CC.2.3.3.A.2 Use the understanding of fractions to partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole.
M03.C-G.1.1.3

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.3.A.1 Solve problems involving measurement and estimation of temperature, liquid volume, mass or length.
M03.D-M.1.2.1
M03.D-M.1.2.2
M03.D-M.1.2.3

CC.2.4.3.A.5 Determine the area of a rectangle and apply the concept to multiplication and to addition.
M03.D-M.3.1.1
M03.D-M.3.1.2

CC.2.4.3.A.6 Solve problems involving perimeters of polygons and distinguish between linear and area measures.
M03.D-M.4.1.1

Big Ideas

- Practices, Processes, and Proficiencies
- Measurement

Learning Targets/I Can Statements

- Compare and classify quadrilaterals and other polygons.
- Create a tangram puzzle and observe relationships among the shapes.
- Solve word problems in varied contexts using a letter to represent the unknown.
- Measure side lengths in whole-number units to determine the perimeter of polygons.
- Determine the perimeter of regular polygons and rectangles when whole number measurements are unknown.
- Use all four operations to solve problems involving perimeter and unknown measurements.
- Construct rectangles with a given perimeter using unit squares and determine their areas.
- Solve a variety of word problems involving area and perimeter using all four operations.

Grammar and Writing Targets

Essential Questions

- How can perimeter be measured and found?
- How can area be measured and found?

Enduring Understandings

- Area of a polygon can be measured using multiplication and/or unit squares.
- Shapes can have the same perimeter but different areas.
- Shapes can have the same area but different perimeters.

Transfer

- Understand perimeter.
- Find the perimeter of common shapes.
- Use perimeter to find unknown side lengths.
- Understand area.
- Find the area of common shapes.
- Use reasoning to solve mathematical problems.

Assessments and/or Performance Tasks

Eureka Module 7 (See End of Module Assessment #7 in Resources) • iReady assessment • Anecdotal record • Student work

Vocabulary

Diagonal, regular polygon, perimeter, tessellate

Resources/Suggested Materials

Eureka Teacher's Guide & digital resources (practice problems, homework), videos with teaching tips, Spanish text, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• https://elemath.hallco.org/web/ • Manipulatives Kit • IXL • Mathabc • Rekenrek • Individual whiteboards • Splash Math

• Mr. Nussbaum • Khan Academy • iReady

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, iReady (3-5)

Enrichment Problems are suggested in the teacher guides (Challenge Problem).

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

UDACS Grade 4 Mathematics Curriculum

The content of the fourth-grade mathematics curriculum is based on the Eureka Math Squared program and the PA Core Standards. The instructional time should focus on three critical areas: (1) developing understanding and fluency with multi-digit multiplication, and developing an understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition, and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

1. Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.

2. Students develop an understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., 15/9 = 5/3), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

3. Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of the properties of two-dimensional objects and their use of them to solve problems involving symmetry.

The goal of fluency in fourth grade is for students to add and subtract within 1,000,000

The mathematics curriculum is designed to provide all students with the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary to succeed in high school and beyond. Teachers will also recognize that accommodations cannot be just an extra set of resources for particular students. Scaffolds are part of the Story Units, so adherence to the modules is the primary scaffolding tool. "The modules that make up A Story of Units propose that the components of excellent math instruction do not change based on the audience." However, specific resources are included within this curriculum to highlight strategies that can provide critical access for

all students. Teachers will refer to the scaffolds for English Language Learners, Students with Disabilities, Students Performing Below Grade Level, and Students Above Grade Level.

The iReady online program will be used to establish a baseline assessment and monitor student growth. Based on the fall assessment, some students will be selected to receive individualized instruction using the program throughout the year.

Unit Planner: Unit 1 Place Value, Rounding, and Algorithms 4 Math

Elementary School / 2022-2023 / Grade 4 / Mathematics / 4 Math / Week 1 - Week 5

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 1 Place Value, Rounding, and Algorithms

- Unit Planner
- Lesson Planner

Unit Description

In Unit 1 Students extend their work with whole numbers. They begin with large numbers using familiar units (hundreds and thousands) and develop their understanding of millions by building knowledge of the pattern of *times ten* in the base ten system on the place value chart. Students extend their work with whole numbers. They begin with large numbers using familiar units (hundreds and thousands) and develop their understanding of millions by building knowledge of the pattern of times ten in the base ten system on the place value chart (4.NBT.1). They recognize that each sequence of three digits is read as hundreds, tens, and ones followed by the naming of the corresponding base thousand unit (thousand, million, billion).1

Standards

PA: Core - Mathematics (2014)

PA: Grade 4

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.4.B.1 Apply place value concepts to show an understanding of multidigit whole numbers.
M04.A-T.1.1.1
M04.A-T.1.1.2
M04.A-T.1.1.3
M04.A-T.1.1.4

CC.2.1.4.B.2 Use place value understanding and properties of operations to perform multi-digit arithmetic.
M04.A-T.2.1.1
M04.A-T.2.1.2
M04.A-T.2.1.3
M04.A-T.2.1.4

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.4.A.4 Generate and analyze patterns using one rule.
M04.B-O.3.1.1
M04.B-O.3.1.2
M04.B-O.3.1.3

Big Ideas

- Practices, Processes, and Proficiencies
- Number uses, Classification, and Representation
- The Base-10 Numeration System
- Equivalence
- Comparison and Relationships
- Estimation

Learning Targets/I Can Statements

- Read and write numbers in expanded form, with numerals, and using numbered names.
- Recognize the relationship between adjacent digits in a multi-digit number.
- Use place value to compare multi-digit numbers.
- Use previously learned concepts and skills to construct arguments about place value.

Grammar and Writing Targets

Essential Questions

- When is it appropriate to estimate versus calculate?
- How do algorithms support solving real-world problems?
- What do good math thinkers do?

Enduring Understandings

- Our number system is based on groups of 10.
- In a multi-digit whole number, a digit in one place represents 10 times what it would represent in the place immediately to its right.
- Place value can be used to compare numbers.
- Rounding whole numbers is a process for finding the multiple of 10, 100, and so on closest to a given number.
- Good math thinkers use math to explain why they are right and talk about the math that others do, too.

Transfer

- Identify and write numbers through 1 million.
- Identify and use place value relationships.
- Compare whole numbers.
- Round whole numbers.
- Construct arguments when solving math problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 1 (See Mid Module and End of Module Assessment #1 in Resources)

• iReady diagnostic • Anecdotal records • Student work

Vocabulary

place value, millions, period, expanded form, greater than symbol, less than symbol, rounding, conjecture

Resources/Suggested Materials

Eureka - Teacher's Guide, digital resources (practice problems, homework,), videos with teaching tips, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• https://elemath.hallco.org/web/ • Manipulatives Kit • Rekenrek • iReady • IXL • Mathabc

• Individual whiteboards • Splash Math • tape diagram • number bond

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, iReady

Problems for enrichment are suggested in the teacher guides (Challenge Problem).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

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Suggested Scaffolds

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Suggested Sample Lessons

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Unit Planner: Unit 2 Unit Conversions
4 Math

Elementary School / 2022-2023 / Grade 4 / Mathematics / 4 Math / Week 6 - Week 10

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 2 Unit Conversions

- Unit Planner
- Lesson Planner

Unit Description

The idea of a mixed unit shows up in varied contexts. For instance, students have become accustomed to thinking of 250 as the mixed units of 2 hundreds 5 tens. Mixed units are also used in the context of 2 hr. 5 min., $2.50, 2 km 5 m, 2′ 5″, and 258 (hours and minutes, dollars and cents, kilometers and meters, feet and inches, ones and eighths). Unit 2 uses length, mass and capacity in the metric system to convert between units using place value knowledge. Students recognize patterns of converting units on the place value chart, just as 1000 grams is equal 1 kilogram, 1000 ones is equal to 1 thousand. Conversions are recorded in two- column tables and number lines, and are applied in single- and multi-step word problems solved by the addition and subtraction algorithm or a *Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. (4.MD.1, 4.MD.2) Interim 1- 4.MD.A.1* special strategy. Mixed unit practice prepares students for multidigit operat

Standards

PA: Core - Mathematics (2014)

PA: Grade 4

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.4.A.1 Represent and solve problems involving the four operations.
M04.B-O.1.1.1
M04.B-O.1.1.2
M04.B-O.1.1.3
M04.B-O.1.1.4

CC.2.2.4.A.2 Develop and/or apply number theory concepts to find factors and multiples.
M04.B-O.2.1.1

CC.2.2.4.A.4 Generate and analyze patterns using one rule.
M04.B-O.3.1.1
M04.B-O.3.1.2
M04.B-O.3.1.3

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit.
M04.D-M.1.1.1
M04.D-M.1.1.2
M04.D-M.1.1.3
M04.D-M.1.1.4

Big Ideas

- Practices, Processes, and Proficiencies
- Equivalence
- Variables, Expressions, and Equations
- Solving Equations and Inequalities

- Ratio and Proportionality
- Measurement

Learning Targets/I Can Statements

- Investigate and use the formulas for area and perimeter of rectangles.
- Demonstrate understanding of area and perimeter formulas by solving multi-step real-world problems and multiplicative comparison word problems.
- Interpret and represent patterns when multiplying by 10, 100, and 1,000 in arrays and numerically.

Grammar and Writing Targets

Essential Questions

- How can you convert from one unit to another?
- How can you be precise when solving math problems?
- What do good math thinkers do?

Enduring Understandings

- To convert from a larger unit of length to a smaller unit of length, multiply the number of larger units by the conversion factor, that is, the number of smaller units in each larger unit.
- To convert from a larger unit of capacity to a smaller unit of length, multiply the number of larger units by the conversion factor, that is, the number of smaller units in each larger unit.
- To convert from a larger unit of weight to a smaller unit of length, multiply the number of larger units by the conversion factor, that is, the number of smaller units in each larger unit.
- Some problems can be solved by applying the formula for the perimeter of a rectangle or the formula for the area of a rectangle.
- Good math thinkers are careful about what they write and say, so their ideas about math are clear.

Transfer

- Recognize and create equivalence with customary units of length and capacity.
- Recognize and create equivalence with customary units of weight.
- Recognize and create equivalence with metric units of length.
- Recognize and create equivalence with metric units of capacity and mass.
- Solve perimeter and area problems.
- Use precision to solve mathematical problems.

Assessments and/or Performance Tasks

Eureka Module 2 (See Mid Module and End of Module Assessment #2 in Resources)

• Anecdotal record • Student work

Vocabulary

capacity, quart, gallon, cup, pint, fluid ounce, weight, ounce, pound, ton, millimeter, centimeter, meter, kilometer, mass, milliliter, liter, gram, milligram, kilogram, perimeter, area, formula

Resources/Suggested Materials

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• Individual whiteboards • Splash Math • tape diagram • number bond

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, iReady (3-5)

Problems for enrichment are suggested in the teacher guides (Challenge Problem).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

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Suggested Scaffolds

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Suggested Sample Lessons

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Unit Planner: Unit 3 Multi-digit Multiplication and Division 4 Math

Elementary School / 2022-2023 / Grade 4 / Mathematics / 4 Math / Week 11 - Week 15

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 3 Multi-digit Multiplication and Division

- Unit Planner
- Lesson Planner

Unit Description

Students use place value understanding and visual representations to solve multiplication and division problems with multi-digit numbers. As a key area of focus for Grade 4, this unit moves slowly but comprehensively to develop students' ability to reason about the methods and models chosen to solve problems with multi-digit factors and dividends. Students use place value understanding and visual representations to solve multiplication and division problems with multi-digit numbers. As a key area of focus for Grade 4, this module moves slowly but comprehensively to develop students' ability to reason about the methods and models chosen to solve problems with multi-digit factors and dividends.

Standards

PA: Core - Mathematics (2014)

PA: Grade 4

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.4.A.1 Represent and solve problems involving the four operations.
M04.B-O.1.1.1
M04.B-O.1.1.2
M04.B-O.1.1.3
M04.B-O.1.1.4

CC.2.2.4.A.2 Develop and/or apply number theory concepts to find factors and multiples.
M04.B-O.2.1.1

CC.2.2.4.A.4 Generate and analyze patterns using one rule.
M04.B-O.3.1.1
M04.B-O.3.1.2
M04.B-O.3.1.3

Big Ideas

- Practices, Processes, and Proficiencies
- The Base-10 Numeration System
- Equivalence
- Operation Meanings and Relationships
- Estimation
- Properties
- Basic Facts and Algorithms
- Variables, Expressions, and Equations
- Solving Equations and Inequalities
- Patterns, Relations, and Functions

Learning Targets/I Can Statements

- Multiply multiple of 10, 100, and 1,000 by single digits recognizing patterns.
- Multiply two-digit multiple of 10 by two-digit multiple of 10 with the area model.
- Use place value disks to represent two-digit by one-digit multiplication.
- Extend the use of place value disks to represent three-and four-digit by one-digit multiplication using the standard algorithm.
- Connect the area model and the partial products method to the standard algorithm.
- Solve two-step word problems using multiplication, addition, or subtraction.
- Solve division word problems with/without remainders (using the array and area models and place value disks).
- Represent and solve division problems requiring decomposing a remainder in the tens.
- Find whole-number quotients and remainders.
- Find factor pairs for numbers to 100 and use the understanding of factors to define prime and composite.
- Use division and the associative property to test for factors and observe patterns.
- Determine if a whole number is a multiple of another number.

Grammar and Writing Targets

Essential Questions

- How can you use the distributive property to multiply?
- How can you use and model multiplication to solve problems?
- How can mental math be used to divide?
- How can quotients be estimated?
- How can the steps for dividing be explained and modeled?
- What do good math thinkers do?

Enduring Understandings

- Basic facts in place-value patterns can be used to mentally multiply a two-digit number by a multiple of 10.
- Place-value blocks, area models, and arrays provide ways to visualize and find products.
- Products of two-digit by two-digit multiplication problems can be estimated.
- The expanded algorithm for multiplying with two-digit numbers is an extension of the expanded algorithm for multiplying one-digit numbers.
- The distributive property can be used to multiply 2 two-digit numbers by breaking the computation down into for simpler products and adding the partial products together.
- The expanded algorithm for multiplication can be represented with arrays.
- The standard multiplication algorithm involves breaking the calculation into simpler ones using place value and properties of operations.
- There is more than one way to estimate a quotient. Substituting compatible numbers is an efficient technique for estimating quotients.
- There is more than one way to estimate a quotient. Place-value patterns in compatible numbers are efficient technique for estimating quotients.
- When dividing, the remainder must be less than the divisor.
- Division with partial quotients involves breaking apart the dividend, dividing the parts, and adding the partial quotients.
- The standard division algorithm breaks the calculation into simpler calculations using basic facts, place value, the relationship between multiplication and division, and estimation.
- Good math thinkers make sense of problems, think of ways to solve them, and do not give up if they get stuck.

Transfer

- Use mental math to multiply multiples of 10.

- Use models to multiply two-digit numbers by multiples of 10. Is rounding to estimate.
- Compatible numbers to estimate.
- Use arrays and partial products.
- Multiply using the distributive property.
- Use partial products to multiply by two-digit numbers.
- Multiply two-digit numbers by multiples of 10.
- Multiply two-by two-digit.
- Make sense and persevere when problems solving.
- Use mental math to find quotients.
- Use mental math to estimate quotients.
- Use mental math to estimate quotients are greater dividends.
- Interpret remainders.
- Recognize division as sharing.
- Use partial quotients to divide.
- Divide with one-digit numbers

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 3 (See End of Module Assessment #3 in Resources)

• iReady benchmark • Anecdotal record • Student work

Vocabulary

Variables, expressions, arrays, compatible numbers, remainder, partial quotient

Resources/Suggested Materials

Eureka - Teacher's Guide, digital resources (practice problems, homework,), videos with teaching tips, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• https://elemath.hallco.org/web/ • Manipulatives Kit • Rekenrek • iReady • IXL • Mathabc

• Individual whiteboards • Splash Math • tape diagram • number bond

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, iReady (3-5)

Problems for enrichment are suggested in the teacher guides (Challenge Problem).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization

- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 4 Fractions, Equivalence, Order and Operation
4 Math

Elementary School / 2022-2023 / Grade 4 / Mathematics / 4 Math / Week 16 - Week 21

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 4 Fractions, Equivalence, Order and Operation

- Unit Planner
- Lesson Planner

Unit Description

Students build on their Grade 3 work with unit fractions as they explore fraction equivalence and extend this understanding to mixed numbers. This leads to the comparison of fractions and mixed numbers and the representation of both in a variety of models. Benchmark fractions play an important part in students' ability to generalize and reason about relative fraction and mixed number sizes. Students then have the opportunity to apply what they know to be true for whole number operations to the new concepts of fraction and mixed number operations.

Standards

PA: Core - Mathematics (2014)

PA: Grade 4

CC.2.1: Numbers and Operations

(C) Number & Operations - Fractions

CC.2.1.4.C.1 Extend the understanding of fractions to show equivalence and ordering.
M04.A-F.1.1.1
M04.A-F.1.1.2

CC.2.1.4.C.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
M04.A-F.2.1.1
M04.A-F.2.1.2
M04.A-F.2.1.3
M04.A-F.2.1.4
M04.A-F.2.1.5
M04.A-F.2.1.6
M04.A-F.2.1.7

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.4.A.4 Generate and analyze patterns using one rule.
M04.B-O.3.1.1
M04.B-O.3.1.2
M04.B-O.3.1.3

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.4.A.4 Represent and interpret data involving fractions using information provided in a line plot.
M04.D-M.2.1.1
M04.D-M.2.1.2

Big Ideas

- Practices, Processes, and Proficiencies
- Number Uses, Classification, and Representation
- Numbers and the Number Line
- Equivalence
- Comparison and Relationships
- Estimation

Learning Targets/I Can Statements

- Decompose non-unit fractions and represent them as a whole number times a unit fraction using tape diagrams.
- Decompose unit fractions using area models to show equivalence. Decompose fractions into sums of smaller unit fractions using tape diagrams.
- Use area models and multiplication to show the equivalence of two fractions. Use the area model and division to show the equivalence of two fractions. Explain fraction equivalence using a tape diagram and the number line.
- Use benchmarks to compare two fractions on the number line.
- Use visual models to add and subtract two fractions with the same units.
- Subtract and add more than two fractions and use visual models to solve.
- Solve word problems involving addition and subtraction of fractions.
- Use visual models to add two fractions with related units using the denominators 2, 3, 4, 5, 6, 8, 10, and 12.
- Add a fraction less than 1 to or subtract a fraction less than 1 from a whole number using decomposition and visual models.
- Add and multiply unit fractions to build fractions greater than 1 using visual models.
- Decompose and compose fractions greater than 1 to express them in various forms.
- Solve word problems with line plots.
- Add a mixed number and a fraction.
- Subtract a fraction from a mixed number. Subtract a mixed number from a mixed number.
- Represent the multiplication of fractions using the associative property with visuals.
- Find the product of a whole number and a mixed number using the distributive property.
- Solve multiplicative comparison word problems involving fractions including those involving line plots.
- Find and use a pattern to calculate the sum of all fractional parts between 0 and 1.

Grammar and Writing Targets

Essential Questions

- How do fractions relate to other numbers?
- How do we add and subtract fractions and mixed numbers?
- How do we compare fractions? How do we express fractions as the sum of their parts?

Enduring Understandings

- Models and number lines can be used to decompose fractions for comparison and to determine if fractions are equivalent.
- A pattern can be used to calculate the sum of all fractional parts.
- The distributive property is used to find the product of a whole number and mixed numbers.
- The associative property is used to add fractions and whole numbers.

Transfer

- Use area models to recognize equivalent fractions.

- Use number lines to recognize equivalent fractions.
- Use multiplication to recognize equivalent fractions.
- Generate equivalent fractions through division.
- Use benchmarks to compare fractions.
- Construct arguments to solve mathematical problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 5 (See Mid Module and End of Module Assessment #5 in Resources)

• Anecdotal record • Student work • Exit slip

Vocabulary

fraction, equivalent fraction, numerator, denominator, common factor, benchmark fraction

Resources/Suggested Materials

Eureka - Teacher's Guide, digital resources (practice problems, homework,), videos with teaching tips, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• https://elemath.hallco.org/web/ • Manipulatives Kit • Rekenrek • iReady • IXL • Mathabc

• Individual whiteboards • Splash Math • tape diagram • number bond

See Appendix A.

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, and iReady

Problems for enrichment are suggested in the teacher guides (Challenge Problem).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share

- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

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https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc2Ji4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 5 Decimals and Fractions
4 Math

Elementary School / 2022-2023 / Grade 4 / Mathematics / 4 Math / Week 22 - Week 25

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 5 Decimals and Fractions

- Unit Planner
- Lesson Planner

Unit Description

Students explore decimal numbers via their relationship to decimal fractions, expressing a given quantity in both fraction and decimal forms. Utilizing the understanding of fractions developed throughout Unit 5, students apply the same reasoning to decimal numbers, building a solid foundation for Grade 5 work with decimal operations. This unit provides students their first opportunity to explore decimal numbers via their relationship to decimal fractions, expressing a given quantity in both fraction and decimal forms. Utilizing the understanding of fractions developed throughout the unit, students apply the same reasoning to decimal numbers, building a solid foundation for Grade 5 work with decimal operations.

Standards

PA: Core - Mathematics (2014)

PA: Grade 4

CC.2.1: Numbers and Operations

(C) Number & Operations - Fractions

CC.2.1.4.C.1 Extend the understanding of fractions to show equivalence and ordering.
M04.A-F.1.1.1
M04.A-F.1.1.2

CC.2.1.4.C.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
M04.A-F.2.1.1
M04.A-F.2.1.2
M04.A-F.2.1.3
M04.A-F.2.1.4
M04.A-F.2.1.5
M04.A-F.2.1.6
M04.A-F.2.1.7

CC.2.1.4.C.3 Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g., 19/100).
M04.A-F.3.1.1
M04.A-F.3.1.2
M04.A-F.3.1.3

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.4.A.2 Develop and/or apply number theory concepts to find factors and multiples.
M04.B-O.2.1.1

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit.
M04.D-M.1.1.1
M04.D-M.1.1.2

M04.D-M.1.1.3
M04.D-M.1.1.4

Big Ideas

- Practices, Processes, and Proficiencies
- Number Uses, Classification, and Representation
- Numbers and the Number Line
- The Base-10 Numeration System
- Equivalence
- Comparison and Relationships
- Operation Meanings and Relationships

Learning Targets/I Can Statements

- Use metric measurement to model the decomposition of one whole into tenths.
- Use metric measurement and area models to represent tenths as fractions greater than 1 and decimal numbers.
- Represent mixed numbers with units of tens, ones, and tenths with number disks on a number line and in expanded form.
- Use meters to model the decomposition of one whole into hundredths.
- Model the equivalence of tenths and hundredths using an area model and number disks.
- Use understanding of fraction equivalence to investigate decimal numbers on a place value chart expressed in different units.

Grammar and Writing Targets

Essential Questions

- What does a decimal represent?
- How do we read/write decimals?
- How do we add/subtract decimals, and decimals as money?

Enduring Understandings

- A decimal is another way to represent a fraction.
- Points on a number line can represent fractions and decimals.
- Place value can be used to compare decimals.
- Fractions with denominators of 10 can be written as equivalent fractions with denominators of 100.
- Fractions and decimals can be used to represent amounts of money.
- Good math thinkers look for relationships in math to help solve problems.

Transfer

- Relate fractions and decimals.
- Locate and describe fractions and decimals on the number line.
- Compare decimals.
- Add fractions with denominators of 10 and 100.
- Solve word problems involving money.
- Look for and use structure when solving mathematical problems

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 6 (See End of Module Assessment #6 in Resources)

• Anecdotal record • Student work

Vocabulary

tenth, hundredth, decimal, decimal point

Resources/Suggested Materials

Eureka - Teacher's Guide, digital resources (practice problems, homework,), videos with teaching tips, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• https://elemath.hallco.org/web/ • Manipulatives Kit • Rekenrek • iReady • IXL • Mathabc

• Individual whiteboards • Splash Math • tape diagram • number bond

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, iReady (3-5)

Problems for enrichment are suggested in the teacher guides (Challenge Problem).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation

- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 6 Geometry
4 Math

Elementary School / 2022-2023 / Grade 4 / Mathematics / 4 Math / Week 26 - Week 32

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 6 Geometry

- Unit Planner
- Lesson Planner

Unit Description

This unit introduces points, lines, line segments, rays, and angles, as well as the relationships between them. Students construct, recognize, and define these geometric objects before using their new knowledge and understanding to classify figures and solve problems. With angle measures playing a key role in the work throughout the module, students learn how to create and measure angles, as well as how to create and solve equations to find unknown angle measures. In these problems, where the unknown angle is represented by a letter, students explore both measuring the unknown angle with a protractor and reasoning through the solving of an equation. This connection between the measurement tool and the numerical work lays an important foundation for success with middle-school geometry and algebra. Through decomposition and composition activities, as well as an exploration of symmetry, students recognize specific attributes present in two-dimensional figures. They further develop their understanding of these attributes as they classify two-dimensional figures. Students explore the definitions of familiar quadrilaterals and classify them based on their attributes, including angle measures and parallel and perpendicular lines. This work builds on Grade 3 reasoning about the attributes of shapes and lays a foundation for the hierarchical classification of two-dimensional figures in Grade 5.

Standards

PA: Core - Mathematics (2014)

PA: Grade 4

CC.2.3: Geometry

(A) Geometry

CC.2.3.4.A.1 Draw lines and angles and identify these in two-dimensional figures.
M04.C-G.1.1.1

CC.2.3.4.A.2 Classify two dimensional figures by properties of their lines and angles.
M04.C-G.1.1.2

CC.2.3.4.A.3 Recognize symmetric shapes and draw lines of symmetry.
M04.C-G.1.1.3

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.4.A.6 Measure angles and use properties of adjacent angles to solve problems.
M04.D-M.3.1.1
M04.D-M.3.1.2

Big Ideas

- Practices, Processes, and Proficiencies
- Geometric Figures

Learning Targets/I Can Statements

- Draw and identify perpendicular, parallel, and intersecting lines.
- Classify triangles by line segments and angles.
- Classify quadrilaterals by lines and angles.
- Recognize and draw lines of symmetry.
- Identify line-symmetric figures.
- Draw figures that have line symmetry.

Grammar and Writing Targets

Essential Questions

- What makes a tool and/or strategy appropriate for a given task?
- How is geometry important in our lives?
- How do we classify two-dimensional shapes?

Enduring Understandings

- Lines can be classified as parallel, intersecting, or perpendicular.
- Triangles are classified by their sides and by their angles.
- Quadrilaterals are classified by their sides and by their angles.
- A shape that can fold along a line into matching parts is line-symmetric.
- Good math thinkers use math to explain why they are right and talk about the math that others do as well.

Transfer

- Draw and identify types of lines.
- Classify triangles.
- Classify quadrilaterals.
- Recognize and draw line symmetry.
- Draw shapes with line symmetry.
- Use critique reasoning to solve mathematical problems.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 7 (See End of Module Assessment #7 in Resources)

Anecdotal records Student work

Vocabulary

parallel lines, perpendicular lines, intersecting lines, right triangle, obtuse triangle, acute triangle, equilateral triangle, isosceles triangle, scalene triangle, parallelogram, rectangle, square, rhombus, trapezoid, line symmetric, line of symmetry

Resources/Suggested Materials

Eureka - Teacher's Guide, digital resources (practice problems, homework,), videos with teaching tips, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• https://elemath.hallco.org/web/ • Manipulatives Kit • Rekenrek • iReady • IXL • Mathabc

• Individual whiteboards • Splash Math • tape diagram • number bond

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, and iReady

Problems for enrichment are suggested in the teacher guides (Challenge Problem).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
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- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

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Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

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Unit Planner: Unit 7 Exploring Measurement with Multiplication
4 Math

Elementary School / 2022-2023 / Grade 4 / Mathematics / 4 Math / Week 33 - Week 37

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 7 Exploring Measurement with Multiplication

- Unit Planner
- Lesson Planner

Unit Description

In this 20-day unit, students build their competencies in measurement as they relate multiplication to the conversion of measurement units. Throughout the module, students will explore multiple strategies for solving measurement problems involving unit conversion.

Standards

PA: Core - Mathematics (2014)

PA: Grade 4

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.4.A.1 Represent and solve problems involving the four operations.
M04.B-O.1.1.1
M04.B-O.1.1.2
M04.B-O.1.1.3
M04.B-O.1.1.4

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit.
M04.D-M.1.1.1
M04.D-M.1.1.2
M04.D-M.1.1.3
M04.D-M.1.1.4

Big Ideas

- Practices, Processes, and Proficiencies
- Equivalence
- Variables, Expressions, and Equations
- Solving Equations and Inequalities
- Ratio and Proportionality
- Measurement

Learning Targets/I Can Statements

- Recognize the relative size of customary units of length and convert from a larger unit to a small unit.
- Recognize the relative size of customary units of capacity and convert from a larger unit to a small unit.
- Recognize the relative size of customary units of weight and convert from a larger unit to a small unit.
- Recognize the relative size of metric units of length and convert from a larger unit to a small unit.

- Recognize the relative size of metric units of capacity and mass and convert from a larger unit to a small unit.
- Find the unknown length or width of a rectangle using the known area or perimeter.
- Be precise when solving measurement problems.

Grammar and Writing Targets

Essential Questions

- How is mathematics used to quantify, compare, represent and model numbers?
- What makes a tool and/or strategy appropriate for a task?
- What do good math thinkers do?

Enduring Understandings

- To convert from a larger unit of length to a smaller unit of length, multiply the number of larger units by the conversion factor, that is, the number of smaller units in each larger unit.
- To convert from a larger unit of capacity to a smaller unit of length, multiply the number of larger units by the conversion factor, that is, the number of smaller units in each larger unit.
- To convert from a larger unit of weight to a smaller unit of length, multiply the number of larger units by the conversion factor, that is, the number of smaller units in each larger unit.
- Some problems can be solved by applying the formula for the perimeter of a rectangle or the formula for the area of a rectangle.
- Good math thinkers are careful about what they write and say, so their ideas about math are clear.

Transfer

- Recognize and create equivalence with customary units of length.
- Recognize and create equivalence with customary units of capacity.
- Recognize and create equivalence with customary units of weight.
- Recognize and create equivalence with metric units of length.
- Recognize and create equivalence with metric units of capacity and mass.
- Solve perimeter and area problems.
- Use precision to solve mathematical problems

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 8 (See End of Module Assessment #8 in Resources)

• iReady Benchmark • Exit slips • Anecdotal record • Student work

Vocabulary

capacity, quart, gallon, cup, pint, fluid ounce, weight, ounce, pound, ton, millimeter, centimeter, meter, kilometer, mass, milliliter, liter, gram, milligram, kilogram, perimeter, area, formula

Resources/Suggested Materials

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• https://elemath.hallco.org/web/ • Manipulatives Kit • Rekenrek • iReady • IXL • Mathabc

• Individual whiteboards • Splash Math • tape diagram • number bond

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, iReady

Problems for enrichment are suggested in the teacher guides (Challenge Problem).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
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Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

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Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

UDACS Grade 5 Mathematics Curriculum

In Grade 5, instructional time will focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume.

1. Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)

2. Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.

3. Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real-world and mathematical problems.

The online iReady Mathematics program's assessments will be used to monitor student progress and identify students who need an intervention program. Identified students will use the program 60 minutes/week. Furthermore, effective methods for enabling ELs to meet grade-level expectation are available in Scaffolding Instruction for ELLs: Resource Guide for Mathematics (American Institutes for Research) which provides additional support for ELs. There are sample lessons (prototypes) of various scaffolds that can be used by teachers as guides to modify lessons. The Eureka Story Units are available in Spanish at each grade level including parent materials.

Unit Planner: Unit 1 Place Value and Decimals
5 Math

Elementary School / 2022-2023 / Grade 5 / Mathematics / 5 Math / Week 4 - Week 8

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 1 Place Value and Decimals

- Unit Planner
- Lesson Planner

Unit Description

Whole number patterns with number disks on the place value chart are easily generalized to decimal numbers. As students work word problems with measurements in the metric system, where the same patterns occur, they begin to appreciate the value and the meaning of decimals. Students apply their work with place value to adding, subtracting, multiplying, and dividing decimal numbers with tenths and hundredths.

Standards

PA: Core - Mathematics (2014)

PA: Grade 5

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.5.B.1 Apply place value concepts to show an understanding of operations and rounding as they pertain to whole numbers and decimals.
M05.A-T.1.1.1
M05.A-T.1.1.2
M05.A-T.1.1.3
M05.A-T.1.1.4
M05.A-T.1.1.5

CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals.
M05.A-T.2.1.1
M05.A-T.2.1.2
M05.A-T.2.1.3

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.5.A.1 Interpret and evaluate numerical expressions using order of operations.
M05.B-O.1.1.1
M05.B-O.1.1.2

Big Ideas

- Systems and Operations
- Place Value
- Whole Numbers
- Decimals

Learning Targets/I Can Statements

- Explain patterns in the number of zeros of the product when multiplying a number by powers of 10

- Read, write, and compare decimals to thousandths.
- Round decimals to tenths.
- Name decimal fractions in expanded, unit, and word forms by applying place value reasoning.
- Compare decimal fractions to the thousandths using like units, and express comparisons with >, <, =.
- Add (subtract) decimals using place value strategies and relate those strategies to a written method.
- Multiply a decimal fraction by single-digit whole numbers, including using estimation to confirm the placement of the decimal point.
- Divide decimals using place value understanding including remainders in the smallest unit.
- Solve word problems using decimal operations.

Grammar and Writing Targets

Essential Questions

How are whole numbers and decimals written, compared, and ordered?

Enduring Understandings

- Numbers can be used for different purposes and can be classified and represented in different ways
- Numbers, expressions, measures, and objects can be compared and related to other numbers expressions, measures, and objects.
- The set of real numbers is infinite and ordered.
- The base ten system is a scheme for recording numbers using digits 0-9, groups of ten, and place value.
- Numbers can be approximated by numbers that are close.

Transfer

- Write, compare, and order whole numbers and decimals.
- Estimate sums and differences of decimals.
- Add and subtract whole numbers and decimals.
- Apply to real-world mathematical situations.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 1 (See Mid Module Assessment Task & End of Module Assessment #1 in Resources)

• iReady diagnostic • Anecdotal record • Student work

Vocabulary

Exponent, millimeter, thousandths, expression, equation

Resources/Suggested Materials

Eureka - Teacher's Guide, digital resources (practice problems, homework,), videos with teaching tips, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

• https://elemath.hallco.org/web/ • Manipulatives Kit • IXL • Jumpstart • Individual whiteboards

• Splash Math • Mr. Nussbaum • Khan Academy • Mathabc • iReady • Sprints

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- Buzz Math
- mathalicious
- ZapZapMath
- Place value disks
- Place value charts

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Eureka: Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text iReady resources

Problems for enrichment are suggested in the teacher guides (Challenge Problem).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 2 Multi-Digit Number and Fraction Operations
5 Math

Elementary School / 2022-2023 / Grade 5 / Mathematics / 5 Math / Week 9 - Week 14

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 2 Multi-Digit Number and Fraction Operations

- Unit Planner
- Lesson Planner

Unit Description

Using place value patterns and the distributive and associative properties to multiply multi-digit numbers by multiples of 10 and leads to fluency with multi-digit whole number multiplication. Students apply the patterns of the base ten

system to mental strategies and the multiplication and division algorithms.

Standards

PA: Core - Mathematics (2014)

PA: Grade 5

CC.2.1: Numbers and Operations

(B) Number & Operations in Base Ten

CC.2.1.5.B.1 Apply place value concepts to show an understanding of operations and rounding as they pertain to whole numbers and decimals.
M05.A-T.1.1.1
M05.A-T.1.1.2
M05.A-T.1.1.3
M05.A-T.1.1.4
M05.A-T.1.1.5

CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals.
M05.A-T.2.1.1
M05.A-T.2.1.2
M05.A-T.2.1.3

(C) Number & Operations - Fractions

CC.2.1.5.C.2 Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
M05.A-F.2.1.1
M05.A-F.2.1.2
M05.A-F.2.1.3
M05.A-F.2.1.4

CC.2.2: Algebraic Concepts

(A) Operations and Algebraic Thinking

CC.2.2.5.A.1 Interpret and evaluate numerical expressions using order of operations.
M05.B-O.1.1.1
M05.B-O.1.1.2

Big Ideas

- Multiplication of decimals with whole numbers
- Division of whole numbers with two-digit divisors
- Processes for solving word problems

Learning Targets/I Can Statements

- Write and interpret numerical expressions, and compare expressions using a visual model.
- Fluently multiply multi-digit whole numbers using the standard algorithm to solve multi-step word problems.
- Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
- Convert like measurement units within a given measurement system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.
- Use whole-number multiplication to express equivalent measurements.
- Solve two-step word problems involving measurement conversions.
- Divide three- and four-digit dividends by two-digit divisors resulting in two- and three-digit quotients, reasoning about the decomposition of successive remainders in each place value.
- Divide decimal dividends by two-digit divisors, estimating quotients, reasoning about the placement of the decimal point, and making connections to a written method.
- Solve division word problems involving multi-digit division with group size unknown and the number of groups unknown.

Grammar and Writing Targets

Essential Questions

When in your everyday life will you need decimals?

Enduring Understandings

- Place value determines the placement of the decimal point in a product.
- The standard multiplication and division algorithms involving decimals are extensions of the standard multiplication and division algorithms for whole numbers.

Transfer

- Apply standard procedures for estimating and finding products involving decimals
- Apply standard procedures for estimating and finding quotients involving decimals.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 2 (See Mid Module Assessment Task & End of Module Assessment #2 in Resources)

• Anecdotal record • Student work • iReady • Exit slips

Vocabulary

Conversion factor, Decimal fraction, Multiplier

Resources/Suggested Materials

Resources: Eureka - Teacher's Guide, digital resources (practice problems, homework,), videos with teaching tips, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access
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• Mathchimp• www.map/mathshell.org • www.Sandor.com • Mathabc • mathalicious • ZapZapMath
• Place value disks • Place value charts

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Eureka: Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text, iReady resources.

Problems for enrichment are suggested in the teacher guides (Challenge Problem).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
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- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

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https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

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Unit Planner: Unit 3 Addition and Subtraction of Fractions 5 Math

Elementary School / 2022-2023 / Grade 5 / Mathematics / 5 Math / Week 15 - Week 20

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 3 Addition and Subtraction of Fractions

- Unit Planner
- Lesson Planner

Unit Description

Students' understanding of addition and subtraction of fractions extends from earlier work with fraction equivalence and decimals. This module marks a significant shift away from the elementary grades' centrality of base ten units to the study and use of the full set of fractional units from Grade 5 forward, especially as applied to algebra.

Standards

PA: Core - Mathematics (2014)

PA: Grade 5

CC.2.1: Numbers and Operations

(C) Number & Operations - Fractions

CC.2.1.5.C.1 Use the understanding of equivalency to add and subtract fractions.
M05.A-F.1.1.1

CC.2.1.5.C.2 Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
M05.A-F.2.1.1
M05.A-F.2.1.2
M05.A-F.2.1.3
M05.A-F.2.1.4

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.5.A.4 Solve problems involving computation of fractions using information provided in a line plot.
M05.D-M.2.1.1

Big Ideas

Addition and subtraction of fractions.

Learning Targets/I Can Statements

- Make equivalent fractions with the number line, the area model, and numbers.
- Make equivalent fractions with sums of fractions with like denominators.
- Solve two-step word problems using fractions
- Add fractions to and subtract fractions from whole numbers using equivalence and the number line as strategies.
- Solve multi-step word problems; assess reasonableness of solutions using benchmark numbers.

Grammar and Writing Targets

Essential Questions

What is a standard procedure for adding and subtracting fractions with unlike denominators?

Enduring Understandings

Any number, measure, expression, or equation can be represented in infinite ways that have the same value.

Transfer

- Add and subtract fractions with unlike denominators.
- Add and subtract mixed numbers using a standard procedure

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 3 (See Mid Module Assessment Task and End of Module Assessment #3 in Resources)

• iReady • Anecdotal record • Student work • Exit slip

Vocabulary

Benchmark fraction, like denominators, unlike denominators

Resources/Suggested Materials

ureka - Teacher's Guide, digital resources (practice problems, homework,), videos with teaching tips, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

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- www.Sandor.com
- mathalicious
- ZapZapMath
- Place value disks
- Place value charts
- Mathabc

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

iReady resources for intervention and enrichment resources. Additional problems for enrichment are suggested in the teacher guides (Challenge Problems).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding

- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

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Suggested Scaffolds

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Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 4 Multiple and Div. of Fractions and Decimals
5 Math

Elementary School / 2022-2023 / Grade 5 / Mathematics / 5 Math / Week 21 - Week 26

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 4 Multiple and Div. of Fractions and Decimals

- Unit Planner
- Lesson Planner

Unit Description

Students learn to multiply fractions and decimal fractions and begin working with fraction division. Topic A opens the module with an exploration of fractional measurement. Students construct line plots by measuring the same objects using three different rulers accurate to ½, ¼, and 1/8 of an inch. Students compare the line plots and explain how changing the accuracy of the unit of measure affects the distribution of points. This is foundational to the understanding that measurement is inherently imprecise because it is limited by the accuracy of the tool at hand. Students use their knowledge of fraction operations to explore questions that arise from the plotted data. The interpretation of a fraction as division is inherent in this exploration.

Standards

PA: Core - Mathematics (2014)

PA: Grade 5

CC.2.1: Numbers and Operations

(C) Number & Operations - Fractions

CC.2.1.5.C.1 Use the understanding of equivalency to add and subtract fractions.
M05.A-F.1.1.1

CC.2.1.5.C.2 Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
M05.A-F.2.1.1
M05.A-F.2.1.2
M05.A-F.2.1.3
M05.A-F.2.1.4

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.5.A.4 Solve problems involving computation of fractions using information provided in a line plot.
M05.D-M.2.1.1

Big Ideas

- Multiplication and division of fractions and decimal fractions
- Procedures, processes

Learning Targets/I Can Statements

- Measure and compare pencil lengths to the nearest
- 12, 14, and 18 of an inch, and analyze the data through line plots.

- Solve word problems involving the division of whole numbers with answers in the form of fractions or whole numbers.
- Multiply any whole number by a fraction using tape diagrams.
- Find a fraction of a measurement and solve word problems.
- Solve and create fraction word problems involving addition, subtraction, and multiplication.
- Convert measures involving whole numbers and solve multi-step word problems.
- Convert mixed unit measurements and solve multi-step word problems.
- Solve word problems using fraction and decimal multiplication.
- Solve problems involving fraction division.
- Create story contexts for numerical expressions and tape diagrams, and solve word problems.

Grammar and Writing Targets

Essential Questions

- Was there ever a time you wanted to divide items with your friends, but you did not have enough to give each person one item? How did you solve this?
- When in everyday life would you want to multiply a fraction and a whole number?

Enduring Understandings

- Mathematics content and practices can be applied to solve real world problems.
- A fraction describes the division of a whole number into equal parts.
- Numbers can be approximated by numbers that are close.

Transfer

Use standard procedures for estimating and finding products and quotients of fractions and decimals.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 4 (See Mid Module and End of Module Assessment #4 in Resources) and iReady

• Anecdotal record • Student work

Vocabulary

Decimal divisor Simplify

Resources/Suggested Materials

Resources: Eureka - Teacher's Guide, digital resources (practice problems, homework,), videos with teaching tips, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

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- www.Sandor.com
- Buzz Math
- mathalicious
- ZapZapMath
- Place value disks
- Place value charts
- Mathabc

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Eureka: Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text. iReady resources for intervention.

Problems for enrichment are suggested in the teacher guides (Challenge Problem).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

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Suggested Scaffolds

Scaffolding is very important to the implementation of the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Suggested Sample Lessons

Sample Lesson Plans are a very important resource for teachers in implementing the UDAC's curriculum. This work will be developed by teachers and supervisors when the school opens.

Unit Planner: Unit 5 Multiplication and Division of Volume 5 Math

Elementary School / 2022-2023 / Grade 5 / Mathematics / 5 Math / Week 27 - Week 33

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 5 Multiplication and Division of Volume

- Unit Planner
- Lesson Planner

Unit Description

Students work with two- and three-dimensional figures. Volume is introduced to students through concrete exploration of cubic units and culminates with the development of the volume formula for right rectangular prisms. The second half of the module turns to extending students' understanding of two-dimensionall figures. Students combine prior knowledge of area with newly acquired knowledge of fraction multiplication to determine the area of rectangular figures with fractional side lengths. They then engage in hands-on construction of two-dimensional shapes, developing a foundation for classifying the shapes by reasoning about their attributes.

Standards

PA: Core - Mathematics (2014)

PA: Grade 5

CC.2.3: Geometry

(A) Geometry

CC.2.3.5.A.2 Classify two dimensional figures into categories based on an understanding of their properties.
M05.C-G.2.1.1

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.5.A.1 Solve problems using conversions within a given measurement system.
M05.D-M.1.1.1

CC.2.4.5.A.5 Apply concepts of volume to solve problems and relate volume to multiplication and to addition.
M05.D-M.3.1.1
M05.D-M.3.1.2

Big Ideas

- Volume of solids
- Views and models

Learning Targets/I Can Statements

- Compose and decompose right rectangular prisms using layers.
- Find the total volume of solid figures composed of two non-overlapping rectangular prisms.
- Solve word problems involving the volume of rectangular prisms with whole number edge lengths.
- Measure to find the area of rectangles with fractional side lengths.
- Draw, analyze, and classify two-dimensional shapes (trapezoids, parallelograms, rectangles and rhombuses

Grammar and Writing Targets

Essential Questions

- What are some examples of cubes, cones, and cylinders that you see in your life?
- What properties do solids have?
- How can three-dimensional shapes be represented and analyzed?

Enduring Understandings

- Many everyday objects closely approximate standard geometric solids.
- Two and three-dimensional objects, with or without curved surfaces, can be described, classified and analyzed by their attributes.
- Volume is a measure of the amount of space inside a solid figure.

Transfer

Solve real-world problems involving area of figures with fractional side lengths using visual models and/or equations.

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 5 (See Mid Module and End of Module Assessment #5 in Resources) and iReady

- Anecdotal record • Student work • Exit slip

Vocabulary

Base, Bisect, Cubic units, Height, Hierarchy, Unit, Volume of a solid (measurement of space or capacity)

Resources/Suggested Materials

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- www.map/mathshell.org • www.Sandor.com • Buzz Math • mathalicious • ZapZapMath
- Place value disks • Place value charts • Mathabc

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Eureka: Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text.

iReady intervention and enrichment. Problems for enrichment are suggested in the teacher guides (Challenge Problem).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
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- Jigsaw
- Multi-sensory presentation
- Preferential seating
- Graphic organizers
- Multi-tiered assignments
- Cubing activities
- Goal setting with students
- Tutoring by peers

LINK Modifications for Diverse Learners - Curriculum 2022 UDACS:

https://drive.google.com/file/d/1JHz50_EVYyuWk3THdsUAPqd0SXJc27i4/view?usp=share_link

Suggested Scaffolds

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Suggested Sample Lessons

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Unit Planner: Unit 6 Problem Solving with the Coordinate Plane
5 Math

Elementary School / 2022-2023 / Grade 5 / Mathematics / 5 Math / Week 34 - Week 37

Last Updated: Wednesday, March 22, 2023 by Curriculum Developer 1

Unit 6 Problem Solving with the Coordinate Plane

- Unit Planner
- Lesson Planner

Unit Description

Students develop a coordinate system for the first quadrant of the coordinate plane and use it to solve problems. Students use the familiar number line as an introduction to the idea of a coordinate and construct two perpendicular number lines to create a coordinate system on the plane. They see that just as points on the line can be located by their distance from 0, the plane's coordinate system can be used to locate and plot points using two coordinates. They then use the coordinate system to explore relationships between points, ordered pairs, patterns, lines and, more abstractly, the rules that generate them. This study culminates in an exploration of the coordinate plane in real-world applications

Standards

PA: Core - Mathematics (2014)

PA: Grade 5

CC.2.3: Geometry

(A) Geometry

CC.2.3.5.A.1 Graph points in the first quadrant on the coordinate plane and interpret these points when solving real world and mathematical problems.
M05.C-G.1.1.1
M05.C-G.1.1.2

CC.2.4: Measurement, Data and Probability

(A) Measurement and Data

CC.2.4.5.A.2 Represent and interpret data using appropriate scale.
M05.D-M.2.1.2

Big Ideas

- Plane figures
- Coordinate geometry

Learning Targets/I Can Statements

- Construct a coordinate system on a line and plane.
- Plot points, use them to draw lines in the plane, and describe patterns within the coordinate pairs.
- Create a rule to generate a number pattern, and plot the points.
- Draw figures in the coordinate plane and analyze relationships of the coordinate pairs.
- Use coordinate systems to solve real world problems
- Make sense of complex, multi-step problems, and persevere in solving them.
- Share and critique peer solutions.

Grammar and Writing Targets

Essential Questions

- Have you ever had to describe a location so that others could find something, and if so, how did you direct them to find it?
- Why is it important to be able to use a coordinate plane?

Enduring Understandings

- Ordered pairs that satisfy a rule can be used to graph data
- A protractor is used to measure all angles and they are classified in measures of degrees.
- Mathematics concepts and practices can be applied to solve real world problems.
- Perpendicular lines form right angles.

Transfer

- Classify and measure angles
- Describe, classify, and name polygons
- Graph points and show the relationship between sequences on a graph

Assessments and/or Performance Tasks

Common Assessment - Eureka Module 6 (See mid Module Assessment & End of Module Assessment #6 in Resources)

- iReady end of year test • Anecdotal record • Student work • Exit slip

Vocabulary

s, Coordinate, Coordinate pair, Coordinate plane, Ordered pair, Origin, Quadrant, Coordinate grid, x-coordinate, y-coordinate

onacci sequence

Resources/Suggested Materials

Eureka - Teacher's Guide, digital resources (practice problems, homework,), videos with teaching tips, digital interactives and parent sites https://eurekamath.greatminds.org/digital-suite, https://greatminds.org/eureka-math-squared-early-access

- https://elemath.hallco.org/web/ • Manipulatives Kit • IXL • Jumpstart • Individual white boards
- Splash Math • Mr. Nussbaum • Khan Academy • iReady • Sprints
- individual white boards • BuzzMath • Mathplayground • Buzz Math • calculators • Mathchimp
- www.map/mathshell.org • www.Sandor.com • Buzz Math • mathalicious • ZapZapMath
- Place value disks • Mathabc

Speaking Research

Research and Media Literacy

Differentiation/Accommodation

Eureka: Could Do, Must Do Problems, Challenge Problem, videos, vignettes, Spanish work pages and text

iReady are a source of intervention and enrichment activities. Problems for enrichment are suggested in the teacher guides (Challenge Problem).

Integrated Accommodations and Modifications

- Printed copy of board work/notes provided
- Have student repeat directions to check for understanding
- Behavior management plan
- Center-Based Instruction
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Modified assignment format
- Modified test content, format, length, sessions
- Use open book, study guides, test prototypes
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Think-Pair-Share
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use videos, illustrations, pictures & drawings
- Additional time for skill mastery
- Assistive technology
- Allow students to correct errors
- Read alouds
- Check work frequently for understanding
- Flexible grouping
- Highlighted text visual presentation
- Explain/clarify key vocabulary terms
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