MATHEMATICS COMMON CORE CURRICULUM UNIT #5 Grade 2* North Smithfield Public Schools

	F UNIT: Repres	ent data and reason wit	h shapes and their attribu	utes. G	RADE: 2		
	DATE PRESEN	ITED:	DATE DUE: LENG		TH OF TIME: @seven weeks		
OVERVI	EW OF UNIT:						
In this unit students will make estimations and measure with various tools to determine length. They will recognize and draw shapes and partition them into parts. They will read and create graphs and interpret their data.			ESSENTIAL QUESTIONS How can a line plot be used to show units of measurement? Why would you display data in different ways? How might you represent your data in a way that makes sense? What problems might you create from your data? How do the attributes help identify the shape? Students identify, describe, and draw triangles, quadrilaterals, pentagons, and hexagons How might you partition this rectangle into four equal shares (pieces)? In what other ways might you partition the rectangle into four shares?				
TANDA	ARDS: Common Counting and Cardinality CC	Operations and Algebraic Thinking OA	rds – Grade level dom Number and Operations in Base Ten	Number and Operations – Fractions	Measurement and Data MD	Geometry G	
		2.OA. 2	□ 2.NBT. 5,7		□ 2.MD.9,10	□ 2.G.1,2,3	
					Device Modeling with		
TANDA	ARDS: Mathema	atical Practices grad	es K-12		Geometry G-MG		
1. 2.	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 express regularity in repeated reasoning 		
DCUS I	MATHEMATICS	STANDARDS:					
 Add and subtract within 20 2.OA.2 Reason with shapes and their attributes. 2.G.1,2,3 Use place value understanding and properties of operations to add and subtract 2.NBT.5 Use place value understanding and properties of operations to add and subtract 2.NBT.5 							
Арр	blied Learning S problem solving	tandards: communicatio	n critical thi	nking re	esearch refle	ection/ evaluation	
NDURI t the end ecognize s interpr	NG UNDERSTAN d of this unit stude and draw shapes w et the data.	NDING: nts will be able to make with specific attributes a	estimations and measure and partition them into partition the partition	ements to determine the arts. Students will also r	e length of various objects ead and create a variety c	. They will f graphs as well	

PRIOR KNOWLEDGE:

- Solve addition and subtraction problems and word problems less than 20.
- Relate addition and subtraction to measurement problems.
- Understand that a two digit number represents tens and ones.
- Recognize shapes and their attributes.
- Draw two dimensional shapes rectangle, square, triangle, circle ,trapezoid
- Partition circles and rectangles into two and four equal parts.

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STUDENT OBJECTIVES, SKILLS and/or NEW KNOWLEDGE:

- Doing mathematics involves a variety of processes including problem solving, reasoning, communicating, connecting, and representing.
- Decomposing and recomposing numbers to solve addition and subtraction problems helps students make sense of number relationships.
- Fluency in addition and subtraction within 20 (using various strategies) is critical to understanding addition and subtraction of larger numbers. TUSD
- Addition and subtraction have an inverse relationship. This inverse relationship can be used to find subtraction and/or addition facts. Every subtraction fact has a related addition fact.
- Composing and decomposing numbers by place value allows for efficiency for addition and subtraction computation.
- Sometimes it is necessary to compose a unit of the next higher value when adding multi-digit numbers.
- Flexible methods for computation require a strong understanding of the operations of addition and subtraction and their properties.
- Adding and subtracting hundreds or tens is similar to adding or subtracting single digit numbers.
- Comparing an estimate with the answer is a way to make sure the computation is reasonable.
- While working on addition and subtraction algorithms the use of place value models will help to strengthen the students understanding of both the algorithm and place value.
- Measurement data can be represented on line plots.
- The foundation of a line plot is a number line; an 'X' corresponds to the value of the nearest whole unit on the line for every piece of data.
- Labeling graphs or line plots helps to interpret the representation.
- Data can be analyzed to compare and contrast information.
- Categorical data can be represented in many ways, including picture graphs and bar graphs.
- Measurement data can be represented on line lots.
- The foundation of a line plot is a number line; an 'X' corresponds to the value of the nearest whole unit on the line for every piece of data.
- Labeling graphs or line plots helps to interpret the representation.
- Data can be analyzed to compare and contrast information.
- Shapes can be classified by their attributes.
- Shapes can be composed and decomposed to make different shapes.
- Shapes can be used to represent fractions by partitioning them into equal shares (pieces).
- Rectangles can be partitioned into rows and columns of equal sized pieces (Note: This is a foundation for multiplication and area)
- Equal shares can be different shapes within the same whole.
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- Equal shares can be different shapes within the same whole.

SUGGESTED PROBLEMS:

ASSESSMENT PROBLEMS

2. OA.2 Fluently add and subtract within 20 using mental strategies. By end of Grade 2; know from memory all sums of two one-digit numbers. Use strategies such as (from grade 1):

- counting on; •
- making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14);
- decomposing a number leading to a ten (e.g., 13 4 = 13 3 1 = 10 1 = 9);
- using the relationship between addition and subtraction (e.g., •
 - knowing that 8 + 4 = 12, one knows 12 8 = 4);
- creating equivalent but easier or known sums (e.g., adding 6+7 by creating the known equivalent 6+6+1=12+1=13).

2. NBT.5 Basic

http://www.illustrativemathematics.org/standards/k8 (Jamir's Penny Saving Jar)

2. NBT.5 Advanced

- http://www.illustrativemathematics.org/standards/k8 (Saving Money 1 and Saving Money 2)
- 2. MD.9 Basic
- http://www.illustrativemathematics.org/standards/k8 (Hand Span Measures)
- 2. G.3. Basic

1.

2.

5.

• http://www.illustrativemathematics.org/standards/k8 (Which Pictures Represent One Half? Representing Half of a Rectangle)

ACTIVITIES, PRODUCTS, PERFORMANCE, and ASSESSMENTS: see curriculum introduction

Application to real world	6.	Graphic organizers
problems	7.	Graphing

- 7. Creating charts/collecting 8.
 - Interviews 9. Journals
 - 10. KWL charts
- 3. Collaboration -
- interpersonal 4. Conferencing

problems

data

Exhibits

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- - 13. Oral presentations
- 14. Problem/Performance based/common tasks
- 15. Real-life applications
- involving graphing 16. Represent numbers
- 17. Rubrics/checklists
 - (mathematical practice, modeling)
- 18. Technology
- 19. Summarizing and notetaking
- 20. Tests and quizzes
- 21. Writing genres Arguments/ opinion Informative

HIGHER ORDER THINKING SKILLS: Web's Depth of Knowledge 2 – 4 or Bloom's Taxonomy

Web's Depth of Knowledge

skill/conceptual understanding

- strategic reasoning
- extended reasoning

Bloom's Taxonomy

- apply
- analyze
- synthesize/create
- evaluate

ADDITIONAL RESOURCES: see curriculum for specifics

- 2.OA.2 SE/TE: Lessons 2-1, 2-2, 2-3, 2-6, 3-1, 3-2, 3-3, 3-4, 3-5
- 1, 8-2, 8-3, 8-4, 8-5, 8-7, 8-8, 8-9, 9-1, 9-2, 9-3, 9-4, 9-5,
- 9-6, 9-7, 9-8, 9-9, 14-1, 14-2, 14-3
- 2.NBT.7 SE/TE: Lessons 7-5,11-1, 11-2, 11-3, 11-4,11-5, 11-6, 11-7, 11-8,11-9
- 2.MD.9 SE/TE: Lesson 16-4
- 2.MD.10 SE/TE: Lessons 16-3,16-5, 16-6
- 2.G.1 SE/TE: Lessons 12-1,12-2, 12-3, 12-4 12-5,12-8
- 2.G.2 SE/TE: Lesson 12-6
- 2.G.3 SE/TE: Lesson 12-7

11. Mathematical Practices

- 12. Modeling ★

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VOCABULARY

OA

- Addend
- Addition sentence Area model
- Array
- Composing
- Decomposing
- Difference
- Doubles
- Equals
- NBT
- ٠
- After Before •
- ٠ Between
- Equal to •

- MD
- Bar graph
- Categories
- Centimeter, meter
- Clock (analog and digital) • Inch, Feet, yard Length
- Coin
- Data
- Dime
- Dollar
- G
- Angle (instead of corner)
- Attribute
- Circle Edges
- Columns (2-dimensional) One-half
 - One-third
- Faces (3-dimensional)
- Fourths
- Fraction
- Halves
- Hexagon
- Rectangle • Rhombus

• Even

• Factor

• Fewer

Minus

• More

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•

•

•

• Estimate

• Line plot

Horizontal

One-fourth

• Pentagon

• Quadrilateral

• Line

• Linear

• Graph

• Hour

• Fact families

Mental math

Multiplication

Greater than

Greatest

Less than

• Measure, measurement

Least

Minuend

Rows

- Odd
- Part
- Product
- Regroup
- Strategy
 - Subtraction sentence
 - Sum
 - Number word .
 - Pattern

- Minute
 - Nickel
 - Penny Pictograph
 - Quarter
 - Represent
- Ruler
 - Variable/symbol
 - Width

 - Shape • Side
 - Square
 - Thirds
 - Trapezoid
- Triangle
- - Vertex (vertices) Vertical

LESSON PLAN for UNIT _____

LESSONS

- Lesson # 1 Summary:
- Lesson #2 Summary:
- Lesson #3 Summary:

OBJECTIVES for LESSON # _____

- Materials/Resources:
- Procedures:
 - Lead –in
 - Step by step
 - Closure
- Instructional strategies: see curriculum introduction
- Assessments: see curriculum introduction
 o Formative
 - Summative