



ISS Curriculum Document – Standards and Learning Objectives

- Grade: 2
- Subject: Math
- Text: Heath Mathematics - Chapter 3, 1, 4 Lesson 3.1 (Tens)

Standard 1.1 – Numbers and Operations – Understand numbers, ways of representing numbers, relationships among numbers and number systems.

Learning Objectives

- Count with understanding and recognize “how many” in sets of objects (being able to group by sets of tens up to 100. Counting by tens.
- Use multiple models to develop initial understandings of place value and the base-ten number system; (Use manipulates such as cubes, graphs, charts, tally marks and calculators.
- Develop understanding of the relative position and magnitude of whole numbers and of ordinal numbers and cardinal numbers and their connections; (identify ordinal numbers to tenth and identify ordinal position to thirty-first. Know cardinal numbers to 100 in order using number line, skip counting and grouping).
- Develop a sense of whole numbers and represent and use them in flexible ways, including relating, composing, and decomposing numbers; (Generate combinations of numbers with sums through *-- Complete fact families. Use greater than and less than to relate sums and numbers. Breaking down numbers to form fact families).
- Connect number words and numerals to the quantities they represent, using various physical models and representations; (recognize sets and write number for 0-100 as well as read word names 0-100. Understand the concept of numbers in word problems by using graphs, charts, matching, and other manipulative).
- Understand and represent commonly used fractions such as $\frac{1}{4}$, $\frac{1}{3}$ and $\frac{1}{2}$.



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- Grade:
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Standard 1.2 – Numbers and Operations – Understand meanings of operations and how they relate to one another.

Learning Objectives

- Understand various meanings of addition and subtraction of whole numbers and the relationship between the two operations; (Addition facts through 20 using doubles, using tens for subtraction, counting on, ten frames, addition of 2 and 3 digit numbers.
- Understand the effects of adding and subtracting whole numbers. (learning combinations, understanding the inverse relationship when adding or subtracted 1-20).
- Understand situations that entail multiplication and division, such as equal groupings of objects and sharing equally. (Using word problems, picture problems, parts of a set, division in order to show an understanding of the concept.



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- Grade:
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Standard 1.3 – Numbers and Operations – Compute fluently and make reasonable estimates.

Learning Objectives

- Develop and use strategies for whole-number computations, with a focus on addition and subtraction; (Add and subtract one, and 2 digit numbers. Addition facts through 20).
- Develop fluency with basic number combinations for addition and subtraction; (Easily demonstrate ability to add and subtract one and two digit numbers including the addition fact through 20 by recording, acting out story type problems and estimating the sums and difference)
- Use a variety of methods and tools to compute, including objects, mental computation, estimation, paper and pencil, and calculators.



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- Grade:
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Standard 2.1 – Algebra – Understand patterns, relations, and functions.

Learning Objectives

- Sort, classify, and order objects by size, number, and other properties; (grouping objects by attributes using a single property such as number of sides, corners, faces, straight, or curved line; color).
- Recognize, describe, and extend patterns such as sequences of sounds and shapes or simple numeric patterns and translate from one representation to another; (create, copy and extend patterns with actions, objects, words and numbers)
- Analyze how both repeating and growing patterns are generated. (Through sounds, shapes and numeric patterns by using manipulatives, group work and independent practice).



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- Grade:
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Standard 2.2 – Algebra – Represent and analyze mathematical situations and structures using algebraic symbols.

Learning Objectives

- Illustrate general principles and properties of operations, such as commutative, using specific numbers; (Adding with regrouping 1 and 2 digit numbers to find the sum and difference by generating and demonstrating the ability to express the commutative property)
- Use concrete, pictorial, and verbal representations to develop an understanding of invented and conventional symbolic notations. (The ability to transfer information by reading, writing and give a verbal description of numbers, sentences and graphs/chart).



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- Grade:
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Standard 2.3 - Algebra – Use mathematical models to represent and understand quantitative relationships.

Learning Objectives

- Model situations that involve the addition and subtraction of whole numbers, using objects, pictures, and symbols. (The ability to represent information by reading, writing and give a verbal description of numbers, sentences and graphs/chart).



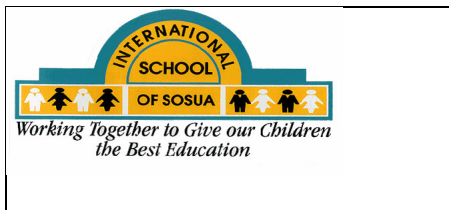
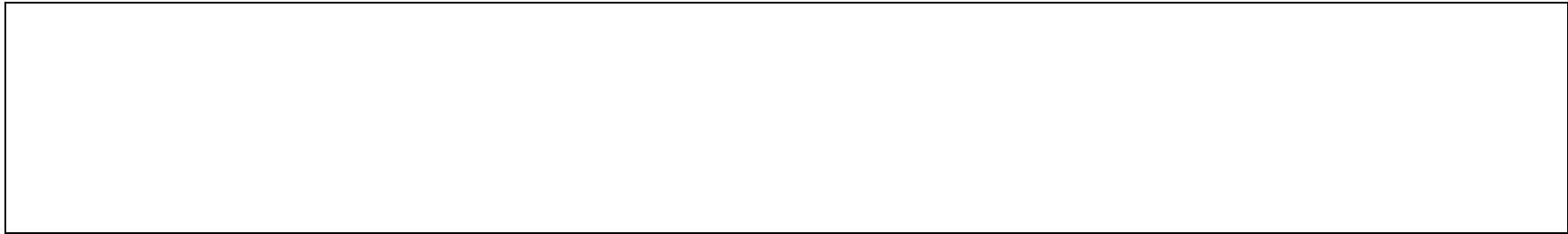
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- Grade:
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Standard 2.4 – Algebra – Analyze change in various concepts.

Learning Objectives

- Describe qualitative change, such as a student's growing taller; (describe, estimate, compare and measure using non-standard units of measurements such blocks, paper clips, straws).
- Describe quantitative change, such as a student's growing two inches in one year.(describe, estimate, compare and measure using standard units of measurements such as Rulers, Yard Sticks, Pounds, Cups, Pints, Quart, Gallon and Temperature).



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- Grade:
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Standard 3.1 – Geometry – Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.

Learning Objectives

- Recognize, name, build, draw, compare, and sort two- and three-dimensional shapes; (recognize, create and label rectangle, cylinder, cones, pyramid, rectangle, prism, cube, sphere, circle and square. Identify and describe objects in own environment depicting 2 and 3 dimensional shapes.)
- Describe attributes and parts of two-and three-dimensional shapes; (use single property such as sides, corners, faces and straight or curved lines etc).
- Investigate and predict the results of putting together and taking apart two- and three-dimensional shapes. (manipulate solids using special and concrete shapes. Put together and take apart in order to complete puzzles, and tessellations.



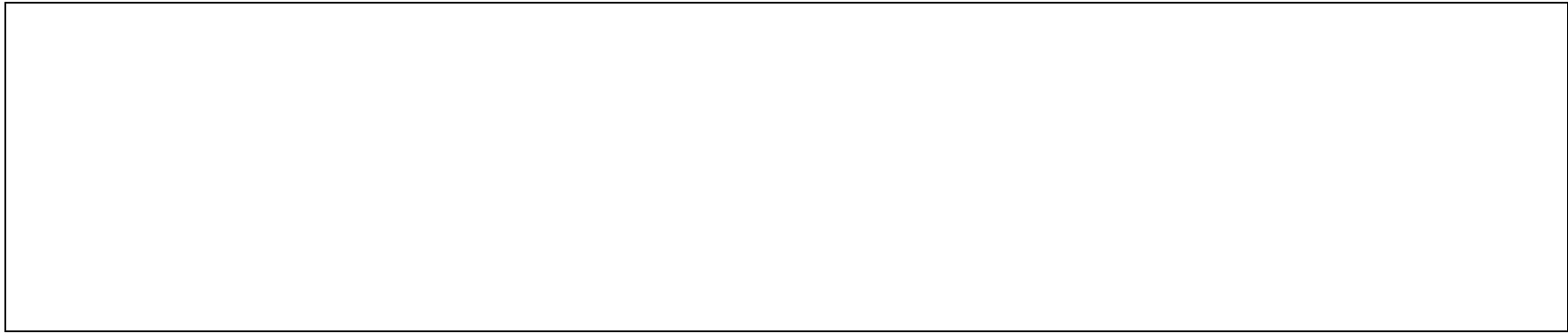
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- Grade:
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Standard 3.2 – Geometry – Specify locations and describe spatial relationships using coordinate geometry and other representational systems.

Learning Objectives

- Describe, name, and interpret relative positions in space and apply ideas about relative position;
- Describe, name, and interpret direction and distance in navigating space and apply ideas about direction and distance;
- Find and name locations with simple relationships such as “near to” and in coordinate systems such as maps.



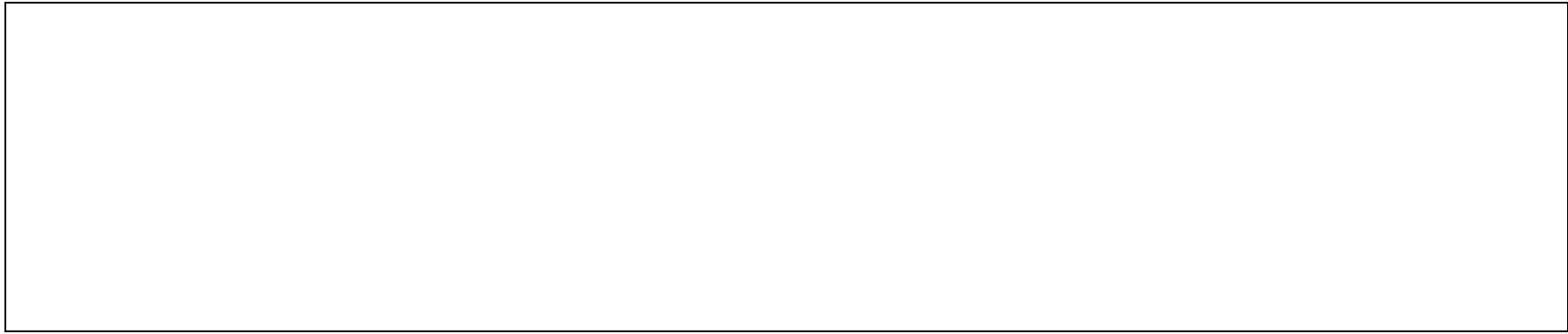
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Standard 3.3 – Geometry – Apply transformations and use symmetry to analyze mathematical situations.

Learning Objectives

- Recognize and apply slides, flips, and turns;
- Recognize and create shapes that have symmetry.



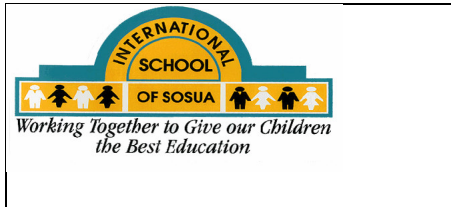
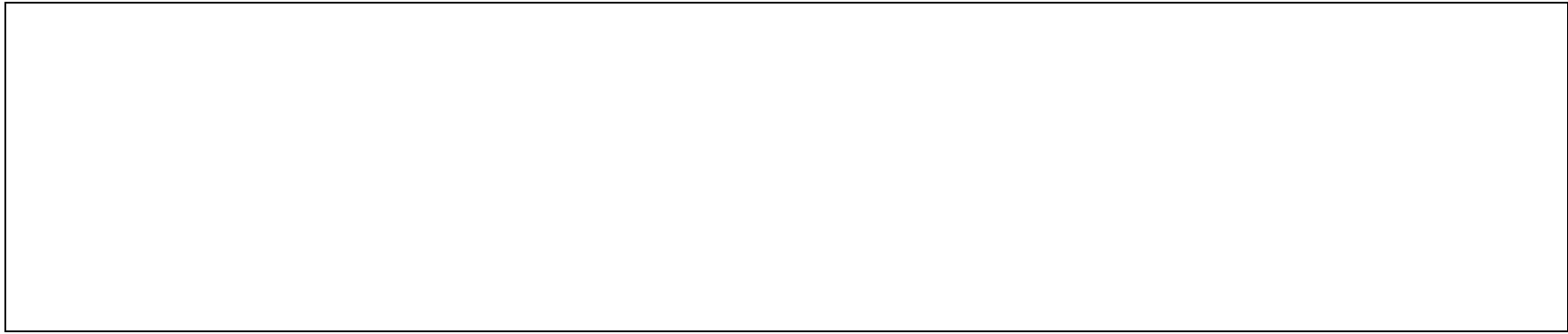
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Standard 3.4 – Geometry – Use visualization, spatial reasoning, and geometric modeling to solve problems.

Learning Objectives

- Create mental images of geometric shapes using spatial memory and spatial visualization;
- Recognize and represent shapes from different perspectives;
- Relate ideas in geometry to ideas in number and measurement;
- Recognize geometric shapes and structures in the environment and specify their location.



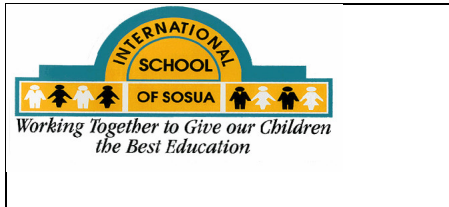
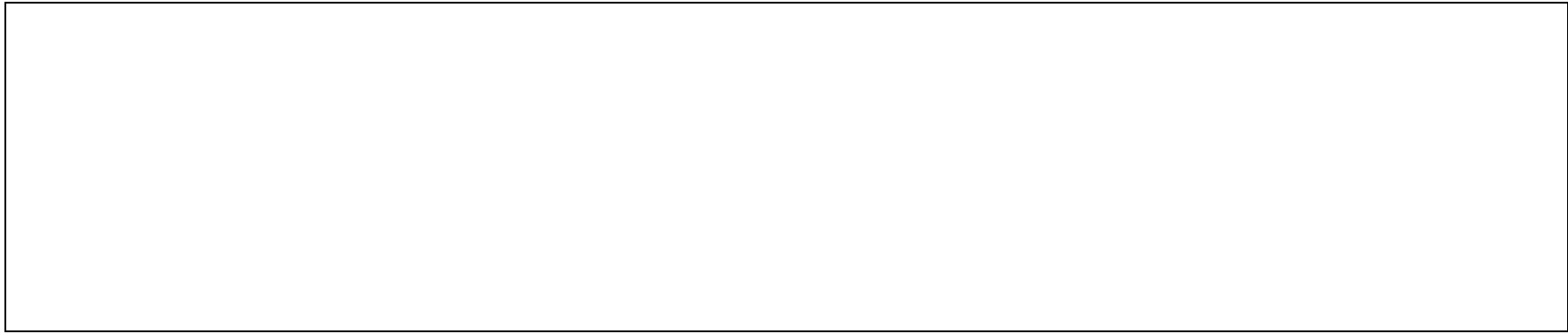
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Standard 4.1 – Measurement – Understand measurable attributes of objects and the units, systems, and process of measurement.

Learning Objectives

- Recognize the attributes of length, volume, weight, area, and time;
- Compare and order objects according to these attributes;
- Understand how to measure using nonstandard and standard units;
- Select an appropriate unit and tool for the attribute being measured.



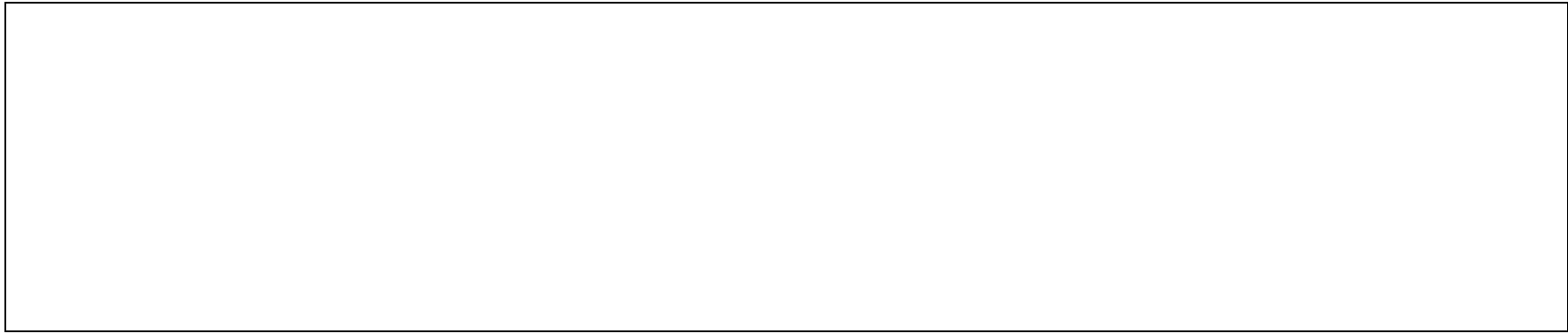
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Standard 4.2 – Measurement – Apply appropriate techniques, tools, and formulas to determine measurements.

Learning Objectives

- Measure with multiple copies of units of the same size, such as paper clips laid end to end;
- Use repetition of a single unit to measure something larger than the unit, for instance, measuring the length of a room with a single meter stick;
- Use tools to measure;
- Develop common referents for measures to make comparisons and estimates.



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Standard 5.1 – Data Analysis and Probability – Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.

Learning Objectives

- Pose questions and gather data about themselves and their surroundings;
- Sort and classify objects according to their attributes and organize data about the objects;
- Represent data using concrete objects, pictures, and graphs.



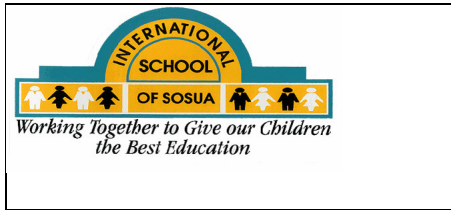
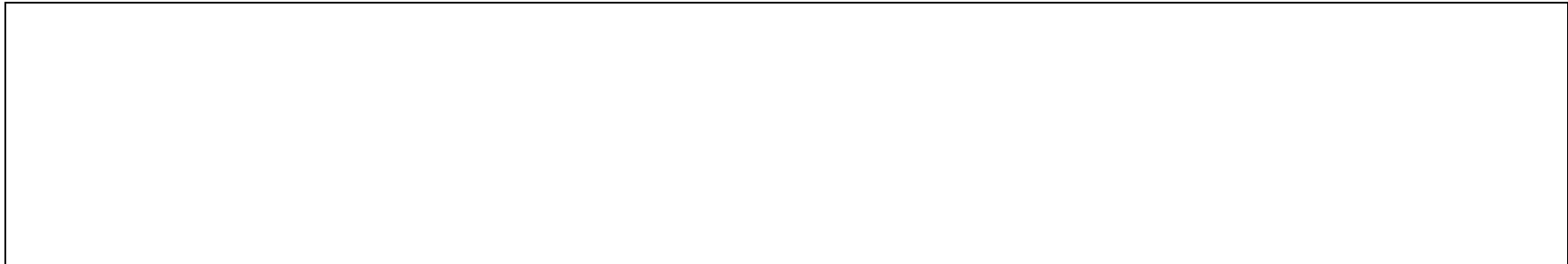
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Standard 5.2 – Data Analysis and Probability – Select and use appropriate statistical methods to analyze data.

Learning Objectives

- Describe parts of the data and the set of data as a whole to determine what the data show.



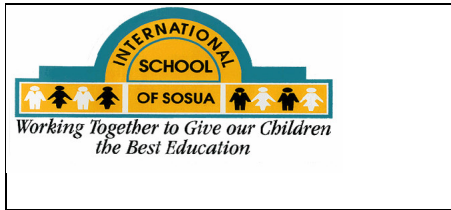
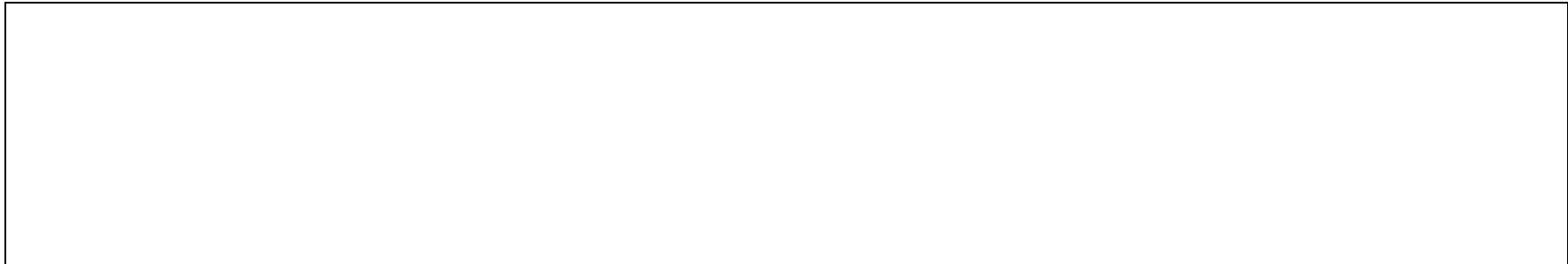
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Standard 5.3 – Data Analysis and Probability – Develop and evaluate inferences and predictions that are based on data.

Learning Objectives

- Discuss events related to students’ experiences as likely or unlikely.



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Standard 5.4 – Data Analysis and Probability – Understand and apply basic concepts of probability.

Learning Objectives

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Standard 6.1 – Problem Solving – Build new mathematical knowledge through problem solving.

Learning Objectives

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Standard 6.2 - Problem Solving – Solve problems that arise in mathematics and in other contexts.

Learning Objectives

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Standard 6.3 – Problem Solving – Apply and adapt a variety of appropriate strategies to solve problems.

Learning Objectives

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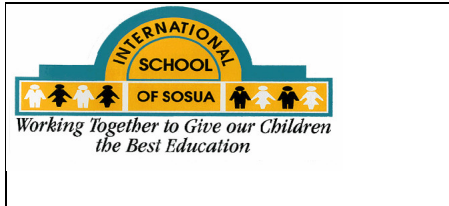
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Standard 6.4 – Problem Solving – Monitor and reflect on the process of mathematical problem solving.

Learning Objectives

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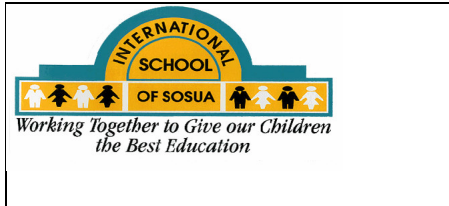
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Standard 7.1 – Reasoning and Proofs - Recognize reasoning and proof as fundamental aspects of mathematics.

Learning Objectives

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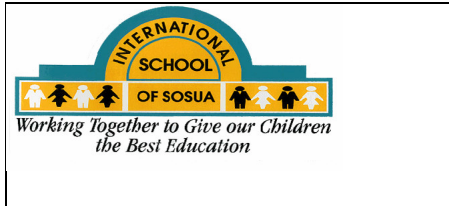
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Standard 7.2 – Reasoning and Proofs – Make and investigate mathematical conjectures.

Learning Objectives

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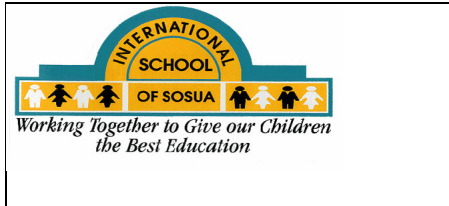
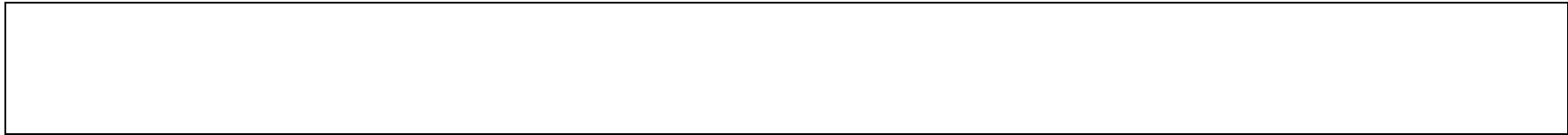
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Standard 7.3 – Reasoning and Proofs – Develop and evaluate mathematical arguments and proofs.

Indicators

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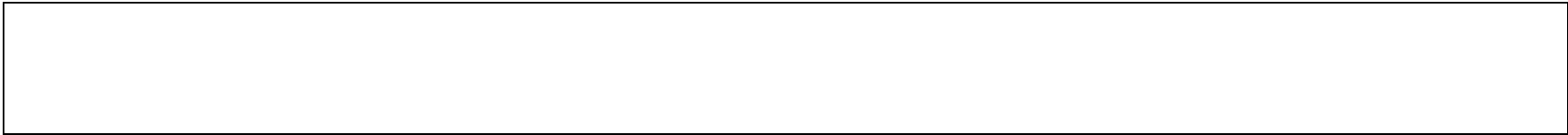
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Standard 7.4 – Reasoning and Proofs – Select and use various types of reasoning and methods and proof.

Indicators

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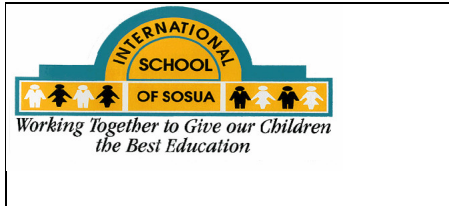
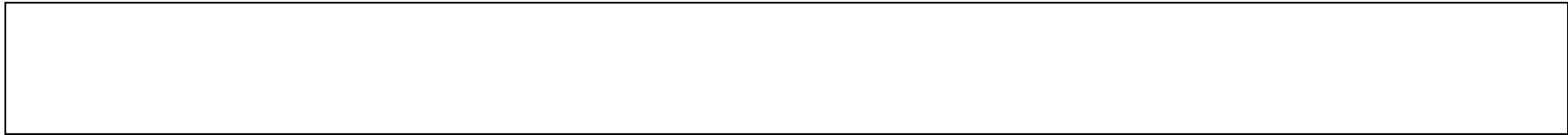
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Standard 8.1 – Communication – Organize and consolidate their mathematical thinking through communication.

Indicators

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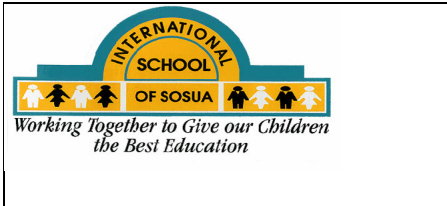
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Standard 8.2 – Communication – Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.

Indicators

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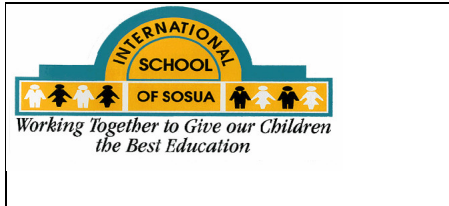
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Standard 8.3 – Communication – Analyze and evaluate the mathematical thinking and strategies of others.

Indicators

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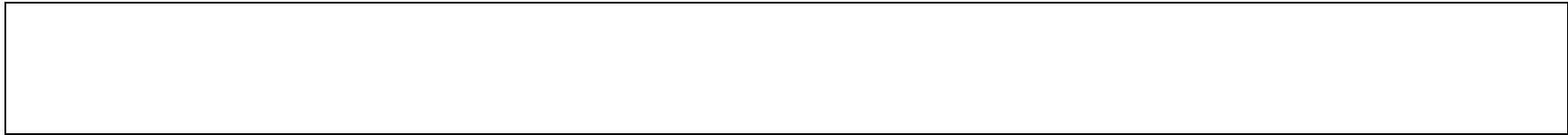
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Standard 8.4 – Communication – Use the language of mathematics to express mathematical ideas precisely.

Indicators

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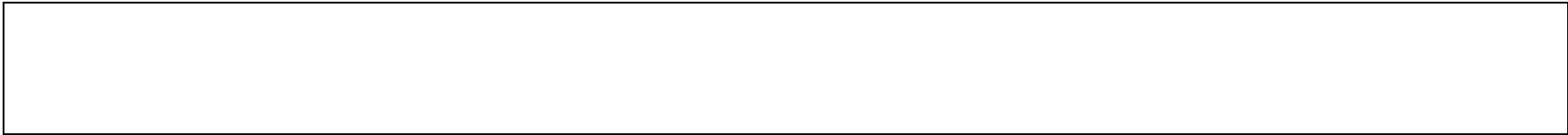
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Standard 9.1 – Connections – Recognize and use connections among mathematical ideas.

Indicators

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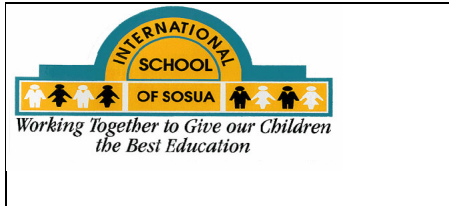
- Grade:
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Standard 9.2 – Connections – Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.

Indicators

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- Grade:
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Standard 9.3 – Connections – Recognize and apply mathematics in contexts outside of mathematics.

Indicators

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Standard 10.1 – Representation – Create and use representations to organize, record, and communicate mathematical ideas.

Indicators

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Standard 10.2 – Representation – Select, apply, and translate among mathematical representations to solve problems.

Indicators

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<p>Standard 10.3 – Representation – Use representations to model and interpret physical, social, and mathematical phenomena.</p>	
<p>Indicators</p> <p>–</p>	

