Kindergarten Mathematics

A. <u>NUMBER</u>: Students use numbers in everyday and mathematical contexts to quantify or describe phenomena, develop concepts of operations with different types of numbers, use the structure and properties of numbers with operations to *solve* problems, and perform mathematical computations. Students develop number sense related to magnitude, estimation, and the effects of mathematical operations on different types of numbers. It is expected that students use numbers flexibly, using forms of numbers that best match a situation. Students compute efficiently and accurately. *Estimation* should always be used when computing with numbers or solving problems.

Whole Number

Pre-K-2 Performance Indicators & Descriptors

1. Students *understand* and use number notation and place value to 1000 in numerals.

a. Read and write numbers to 1000 using numerals.
b. Recognize the place values of digits in numbers (hundreds, tens, and ones).
c. Compare and order one-digit, two-digit, and three-digit numbers.

2. Students *understand* and use procedures to add and subtract whole numbers with one and two digits.

a. Use and explain multiple strategies for computation.
b. Use an operation appropriate to a given situation.

Lewiston Public Schools – Expectations in Whole Number

- Count, recognize, represent, name, and order a number of objects (up to 30).
- Count backwards from 10
- Estimate using concrete objects up to and including 20 objects
- Compare two or more sets of objects (up to ten objects in each group) and identify which set is equal to, more than, or less than the other.
- Use counting strategies to find out how many items are in two sets when they are combined, separated, or compared.
- Determine the sum of two one-digit numbers using concrete objects and/or pictures

Rational Number

Pre-K-2 Performance Indicators & Descriptors

3. Students recognize unit fractions including 1/2, 1/4, and 1/3.

Lewiston Public Schools – Expectations in Rational Number

- There are no local expectations in reall number for kindergarten students.

Real Number

Pre-K-2 Performance Indicators & Descriptors

No performance indicator.

Although no performance indicators are stated, students are expected to use only rational numbers at this level.

Lewiston Public Schools – Expectations in Real Number

- There are no local expectations in rational number for kindergarten students.

B. <u>DATA:</u> Students make measurements and collect, display, evaluate, analyze, and compute with data to describe or *model* phenomena and to make decisions based on data. Students compute statistics to summarize data sets and use concepts of probability to make predictions and describe the uncertainty inherent in data collection and measurement. It is expected that when working with measurements students:

- ***understand* that most measurements are approximations and that taking repeated measurements reveals this variability;**
- ***understand* that a number without a *unit* is not a measurement, and that an appropriate *unit* must always be attached to a number to provide a measurement;**
- ***understand* that the *precision* and *accuracy* of a measurement depends on selecting the appropriate tools and *units*; and**
- **use *estimation* comparing measures to *benchmarks* appropriate to the type of measure and *units*.**

Measurement and Approximation

Pre-K-2 Performance Indicators & Descriptors

1. Students *understand* and use *units* of time, temperature, and money.

a. Apply and use sequences of hours in a day, days in a week, and months in a year.
b. Tell time to the hour and half hour.
c. Identify and give the value of different coins.
d. Find the total value of collections of coins up to $1.00.
e. Read temperature on thermometers with scales marked with one degree intervals.

Lewiston Public Schools – Expectations in Measurement and Approximation

- Demonstrate an understanding of the concepts of times (e.g. morning, afternoon, evening, today, yesterday, tomorrow, week, year) and tools that measure time (e.g. clock, calendar).
- Name the days of the week.

.Data Analysis

Pre-K-2 Performance Indicators & Descriptors

2. Students read, construct, and *interpret* picture graphs.

Lewiston Public Schools – Expectations Data Analysis

- Count data, fill in and explain a simple picture graph.

Probability

Pre-K-2 Performance Indicators & Descriptors

No performance indicator.

Although no performance indicators are stated, students are expected to have experiences with probability in these grades, but it is not expected that the knowledge will be secure.

Lewiston Public Schools – Expectations in Probability

1. There are no local expectations in probability for kindergarten students.

C. <u>GEOMETRY:</u> Students use measurement and observation to describe objects based on their sizes and shapes; *model* or construct two-dimensional and three-dimensional objects; *solve* problems involving geometric properties; compute areas and volumes based on object properties and dimensions; and perform transformations on geometric figures. When making or calculating measures students use *estimation* to check the reasonableness of results.

Geometric Figures

Pre-K-2 Performance Indicators & Descriptors

1. Students recognize, *classify*, and *create* geometric figures in two and three dimensions.

a. Identify shapes in the physical environment.
b. *Classify* figures as circles, triangles, and quadrilaterals by focusing on their properties.
c. *Create* shapes by using objects to combine and *decompose* other shapes.

Lewiston Public Schools – Expectations Geometric Figures

- Identify, name and describe a variety of shapes such as squares, triangles, circles, rectangles, hexagons, and trapezoids in a variety of ways (size, orientation).
- Identify rectangles in the environment and discuss how they are alike and different
- Identify, sort, and classify objects by attributes (size, color, shape, quantity) and identify which objects do not belong to a particular group.

Geometric Measurement

Pre-K-2 Performance Indicators & Descriptors

2. Students *understand* how to measure length and capacity and use appropriate *units*.

a. Measure length and capacity by *direct and indirect comparison*.
b. Measure the length and capacity of objects using non-standard *units*.
c. Measure the length of objects to whole inches and centimeters.

Lewiston Public Schools – Expectations in Geometric Measurement

- Compare and order objects by length, using direct (comparing with each other) and indirect (comparing with a third object) comparisons.
- Measure length in nonstandard units.

Transformations

Pre-K-2 Performance Indicators & Descriptors
No performance indicator.

Although no performance indicators are stated, students are expected to have experiences with symmetry, transformations, and congruence in these grades, but it is not expected that the knowledge will be secure.

Lewiston Public Schools – Expectations in Transformations

- There are no local expectations in transformations for kindergarten students.

D. <u>ALGEBRA:</u> Students use symbols to represent or *model* quantities, patterns, and relationships and use symbolic manipulation to *evaluate* expressions and *solve* equations. Students *solve* problems using symbols, tables, graphs, and verbal rules choosing the most effective representation and converting among representations.

Symbols and Expressions

Pre-K-2 Performance Indicators & Descriptors

1. Students *understand* how to represent quantities as simple expressions using addition and subtraction.

a. Show that any quantity can be represented by multiple equivalent expressions where each represents the quantity ten.
b. Know that addition is commutative and apply this *understanding* in computation and problem-solving.
c. Know that addition and subtraction are inverse operations and apply this *understanding* in computation and problem-solving.

Lewiston Public Schools – Expectations in Symbols and Expressions

- Generate number combinations up to 5.

Equations and Inequalities

Pre-K-2 Performance Indicators & Descriptors

2. Students *understand* that the equal sign means, "is the same as."

a. Identify true and false number sentences.
b. Describe what makes number sentences true or false and apply this knowledge.
c. Find solutions for unknowns in simple open number sentences such as 12 = 4 + [ ].

Lewiston Public Schools – Expectations in Equations and Inequalities

- Use concrete objects to show equal or not equal

Functions And Relations

Pre-K-2 Performance Indicators & Descriptors

3. Students *understand* how to *create*, identify, describe, and extend patterns given a pattern or a rule.

a. Describe, extend, and *create* repeating patterns.
b. Describe, extend, and *create* growing patterns.

Lewiston Public Schools – Expectations in Functions and Relations

- Identify, describe, and extend patterns based on shape, size, color, sound or number.