

### **Upon graduation an Assumption Parish School student will:**

1. Add, subtract, multiply, and divide whole numbers, decimals, fractions, and rational numbers
2. Apply computational skills to problem solving situations.
3. Demonstrate telling time and making change.
4. Recognize and apply proper math vocabulary.
5. Apply math skills in the world around them.
6. Employ technology to assist in math computation.
7. Measure and convert within the standard and metric measurement system.
8. Identify geometric shapes and terms as well as determine their volume, area, perimeter, and circumference
9. Compute percentages to apply to everyday life.
10. Interpret data from various types of graphs.
11. Construct graphs to represent data.
12. Determine probability of events and odds in favor of and against an event.
13. Identify and memorize basic pre-algebra concepts.
14. Formulate and solve algebraic equations.
15. Apply algebraic skills to real life problem solving situations.

### **Understand numbers, representation, relationships, systems**

Count with understanding & recognize "how many"  
Use models to develop place value and the base-ten system  
Understand position and magnitude of ordinal & cardinal numbers  
Develop whole numbers: relating, composing, decomposing #s  
Connect number words and numerals to quantities they represent  
Understand and represent common fractions:  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{3}$   
Understand place value and compare whole #s and decimals  
recognize equivalent expressions and generate them  
Develop understanding of fractions as parts of whole  
Use models to judge the size of fractions  
Recognize & generate equivalent fractions, decimals, & percents  
Explore numbers less than 0 by extending the number line  
Describe classes of numbers by characteristics, i.e. their factors  
Solve problems with fractions, decimals, and percents  
Compare & order fractions, decimals, & percents & on numberline  
Develop meaning for percents  $>100$  and  $<1$   
Understand & use ratios & proportions to show relationships  
Use exponential, scientific, and calculator notation  
Use factors, multiples, prime factoring, relative primes to prob solv  
Develop meaning for integers; represent & compare quantities

### **Understand meanings of operations and their relationships**

Meanings & relationships of whole number addition & subtraction  
Understand effects of adding and subtracting whole numbers  
Understand situations involving multiplication and division  
Understand meanings of multiplication and division  
Understand effects of multiplying and dividing whole numbers  
Relationships between operations, i.e. division as inverse of mult.  
Use properties of operations, i.e. distributivity of mult. over addition  
Understand arithmetic operations with fractions, decimals, & integers  
Use associative and commutative and distributive in computation  
Use inverse relationships and squaring to find square roots & prob solv

### **NUMBER OPERATIONS**

#### **Compute fluently and make reasonable estimates**

Strategies for whole-number computation, focus on addition & subt.  
Develop fluency with basic add. & subt. number combinations

Use variety to compute: objects, mental math, estimation, paper & pencil, calculator  
Develop fluency with basic mult. & div. number combinations and mental math(30x50)  
Develop fluency in adding, subtracting, multiplying, and dividing whole numbers  
Strategies to estimate whole-number computations and reasonableness of answers  
Strategies to estimate fraction and decimal computation in situations of student experience  
Use visual models and equivalent forms to add & subt common fractions and decimals  
Select whole number & fraction computation tools:mental math, estimation, calculator, paper...  
Select fraction & decimal computation tools: mental math, estimation, calculator, ...  
Develop & analyze algorithms to compute fractions, decimals, & integers  
Develop & analyze algorithms to compute rational-number and judge reasonableness of answers  
Develop, analyze, & explain problem solving for proportions, i.e. scaling, & equivalent ratios

## **ALGEBRA**

### **Understand patterns, relations, and functions**

Sort, classify, & order objects by size, number, & other properties  
Recognize, describe, & extend patterns; translate one representation to another  
Analyze how repeating and growing patterns are generated  
Describe, extend, and make generalizations about geometric & numeric patterns  
Represent & analyze patterns & functions, using words, tables, & graphs  
Represent & analyze patterns & functions, using symbolic rules  
Relate and compare different forms of representation for a relationship  
Identify functions as linear or nonlinear and contrast properties from graphs, equations

### **Represent & analyze math situations & structures with algebraic symbols**

Illustrate principles & properties of operations, such as commutativity, using numbers  
Use concrete, pictorial, and verbal representations to develop symbolic notations  
Identify properties as commutativity, associativity, and distributivity to compute whole #s  
Represent a variable as an unknown quantity using a letter or a symbol  
Express mathematical relationships using equations  
Develop an initial conceptual understanding of different uses of variables  
Explore relationships between symbolic expressions & graphs of lines, intercept, slope  
Use symbolic algebra to represent situations to solve problems, esp. linear relationships  
Recognize & generate equivalent forms for simple alg expr and solve linear equations

### **Use mathematical models to represent & understand quantitative relationships**

Model situations that involve addition & subtraction of whole numbers using objects,...  
Model problem situations with objects & use representations: graphs, tables, equations  
Model & solve contextualized problems with representations: graphs, tables, equations

### **Analyze change in various contexts**

Describe qualitative change, such as a student's growing taller  
Describe quantitative change, such as a student's growing 2 inches in one year  
Investigate how change in one variable relates to change in a second variable  
Identify & describe situations with constant or varying rates of change & compare them  
Use graphs to analyze the nature of changes in quantities in linear relationships

## **GEOMETRY**

### **Analyze characteristics & properties of 2 & 3 dimensional shapes and develop mathematical arguments about geometric relationships**

Recognize, name, build, draw, compare, and sort 2 & 3 dimensional shapes  
Describe attributes and parts of 2 & 3 dimensional shapes  
Investigate & predict results of putting together and taking apart 2&3 dim shapes  
Identify, compare, & analyze attributes of 2&3 dim shapes and develop vocabulary  
Classify 2&3 dim shapes according to properties, i.e. triangles, pyramids...  
Investigate & reason about subdividing, combining, & transforming shapes  
Explore congruence and similarity  
Make & test conjectures about geometric properties and relationships

and develop logical arguments to justify conclusions  
Precisely describe, classify, & understand relationships among 2&3 dim objects  
Understand relationships of angles, sides, perimeters, areas, & volumes in similarity  
Create & critique inductive & deductive arguments: congruence, similarity, and  
the Pythagorean theorem

### **Specify locations & describe spatial relationships using coordinate geometry and other representational systems**

Describe recognize name, build, draw, compare, & sort 2&3 dimensional shapes  
Describe, name, and interpret direction & distance in navigating space and apply  
ideas about direction and distance  
Find and name locations with simple relationships: "near to," maps, coordinate sys  
Describe location & movement using common language & geometric vocabulary  
Make & use coordinate systems to specify locations & describe paths  
Find distance between points along horizontal & vertical lines of a coordinate sys  
Use coordinate geometry to represent and examine properties of geom shapes  
Use coordinate geometry to examine spacial geom shapes: regular polygons

### **Apply transformations & use symmetry to analyze mathematical situations**

Recognize and apply slides, flips, and turns  
Recognize and create shapes that have symmetry  
Predict & describe results of sliding, flipping, and turning 2 dimensional objects  
Describe a motion or series of motions that will show 2 shapes are congruent  
Identify & describe line & rotational symmetry in 2&3 dimensional shapes & design  
Describe sizes, positions, & orientations of shapes: flips, turns, slides, scaling  
Examine congruence, similarity, & line or rotational symmetry in transformations

### **Use visualization, spacial reasoning, & geometric modeling to solve prob**

Create mental images of geom shapes using spacial memory & visualization  
Recognize& represent shapes from different perspectives  
Relate ideas in geometry to ideas in number & measurement  
Recognize geom shapes & structures in the environment & specify their location  
Build & draw geometric objects  
Create & describe mental images of objects, patterns, and paths  
Identify & build a 3-dim object from 2-dim representations of that object  
Use geom models to solv prob in other areas of math, i.e. number, measurement  
Recognize geom ideas & relationships & apply to classroom or everyday life prob  
Draw geom objects w specified prop, such as side lengths or angle measurements  
Use 2-dim representations of 3-dim objects to visualize & prob solv: surface area,vol  
Use visual tools such as networks to represent & solve problems  
Use geom models to represent & explain numerical & algebaic relationships  
Recognize & apply geometric ideas & relationships in areas outside the classroom  
such as in art, science, and everyday life

## **MEASUREMENT**

### **Understand measurable attributes of objects & the units, systems, and processes of measurements**

Recognize attributes of length, volume, weight, area, & time  
Compare & order objects according to these attributes  
Understand how to measure using nonstandard & standard units  
Select an appropriate unit & tool for the attribute being measured  
Understand attributes such as length, area, weight, volume, & size of  
of angle and select the appropriate type of unit for measuring  
Understand need for measuring with standard units and become familiar  
with standard units in the customary and metric systems  
Carry out simple unit conversions within a measurement system

Understand that measurements are approximations & how differences affect precision

Explore what happens to 2-dim shape measurements such as perimeter and area when the shape is changed in some way

Understand both metric and customary systems of measurement

Understand relationships among units, convert units within a system

Understand, select, & use units of appropriate size & type to measure angles, perimeter, area, surface area, and volume

### **Apply appropriate techniques, tools, & formulas to determine meas**

Measure with multiple copies of the same size unit, i.e. paper clips...

Use repetition of a single unit to measure something larger than the unit i.e. measuring length of a room with a single meterstick

Use tools to measure

Develop common referents for measures to make comparisons & estimate

Develop strategies to estimate perimeters, areas, & vol of irregular shape

Select & apply appropriate standard units & tools to measure length, area, volume, weight, time, temperature, and the size of angles

Select & use benchmarks to estimate measurements

Develop, understand, and use formulas to find areas of rectangles, and related triangles and parallelograms

Develop strategies to determine surf area & vol of rectangular solids

Use common benchmarks to select appropriate methods to estimate meas

Select & apply techniques & tools to accurately find length, area, volume and angle measures to appropriate levels of precision

Develop & use formulas to determine circumferences, area of triangles, parallelograms, trapezoids, and circles and more complex shapes

Develop strategies to determine surf area & vol of selected prisms, pyramids, and cylinders

Solve problems involving scale factors, using ratio and proportion

Solve simple problems with rates & derived meas: velocity, density...

### **DATA AND PROBABILITY**

#### **Formulate questions that can be addressed with data and collect organize, and display relevant data to answer them**

Pose questions & gather data about themselves & their surroundings

Sort & classify objects according to attributes & organize data about them

Represent data using concrete objects, pictures, and graphs

Design investigations to address a question & consider how data-collection methods affect the nature of the data set

Collect data using observations, surveys, and experiments

Represent data using tables & graphs: line plots, bar graphs, line graphs...

Recognize differences in representing categorical & numerical data

Formulate questions, design studies, and collect data about a characteristic shared by two populations or different characteristics within a population

Select, create, and use appropriate graphical representations of data, including histograms, box plots, and scatterplots.

#### **Select & use appropriate statistical methods to analyze data**

Describe parts of the data & the set of data as a whole to interpret the data

Describe the shape & important features of a set of data and compare related data sets, with an emphasis on how the data are distributed

Use measures of center (focus on median) & understand what each does and does not indicate about the data set

Compare different representations of the same data & evaluate how well each

representation shows important aspects of the data

Find, use, & interpret meas of center & spread: mean, interquartile range

Discuss & understand correspondence between data sets and their

graphical symbols: histograms, stem&leaf plots, box plots, scatterplots

### **Develop & evaluate inferences & predictions based on data**

Discuss events related to students' experiences as likely or unlikely

Propose & justify conclusions & predictions based on data & design studies  
to further investigate the conclusions or predictions

Use observations about difference between 2 or more samples to make  
conjectures about the populations from which samples were taken

Make conjectures about possible relationships between 2 characteristics  
of a sample from scatterplots of data and lines of fit

Use conjectures to formulate new questions & plan new studies to answer

### **Understand & apply basic concepts of probability**

Describe events as likely or unlikely :certain, equally likely, impossible

Predict the probability of outcomes of simple experiments & test predictions

Understand measure of likelihood of an event represented by a # from 0 to 1

Understand & use appropriate terminology to describe complementary and  
mutually exclusive events

Use proportionality & understanding of probability to make & test conjectures  
about the results of experiments and simulations

Compute probabilities for simple compound events, using such methods as  
organized lists, tree diagrams, and area models

## **PROBLEM SOLVING**

### **Build new mathematical knowledge through problem solving**

Involve a variety of contexts from daily routines and stories

### **Solve Problems that arise in mathematics & in other contexts**

Posing problems and generating new questions

Discuss, involving reflection and reasoning

Embed problems in the mathematics-content curriculum

Posing problems, designing procedures and solving the problem

### **Apply and adapt a variety of appropriate strategies to solve problems**

Children's literature can set the context for problems

Students working together to solve problems

Use graphical representations to visualize problems

### **Monitor & reflect on the process of mathematical problem solving**

Assessment: verbal, performance, paper and pencil

Class as a whole is continually developing and applying conjectures

Teachers motivate by encouraging communication and collaboration

## **REASONING AND PROOF**

### **Recognize reasoning and proof as fundamental aspects of mathematics**

Students are encouraged to make conjectures & given time to search for evidence

Students reason about shape, size, and relationships

### **Make and investigate mathematical conjectures**

Students explain their thinking in classroom conversation

Students are encouraged to make discoveries and talk about them

Examine patterns and structures to detect regularities.

### **Develop and evaluate mathematical arguments and proofs**

Students are encouraged to put forth their own ideas for examination.

Understand relationships and properties.

Understand what a convincing mathematical argument is.

Formulate generalizations and conjectures about observed regularities  
Evaluate conjectures  
Construct and evaluate mathematical arguments.

### **Select and use various types of reasoning and methods of proof**

Teacher's role of listening to student explanations is very important.  
Teacher questioning is particularly important in developing reasoning.  
Use inductive reasoning to search for mathematical relationships through patterns  
The teacher's selection of student reasoning tasks is very important.  
Use deductive reasoning to develop arguments also.  
Teacher needs to assess and help students with their reasoning abilities.

### **COMMUNICATION**

#### **Organize and consolidate mathematical thinking through communication.**

Teachers encourage students to reflect on class conversations  
Use various problems & materials, including calculators & computer applications.

#### **Communicate mathematical thinking coherently and clearly to peers, teachers, and others**

Students work in small groups.  
Manipulate objects and draw pictures.  
Teachers provide opportunities for student discussion.  
Students work in pairs.

#### **Analyze and evaluate the mathematical thinking and strategies of others**

Student participation in classroom math discussion is furthered.  
Students verbally interpret, justify, and conjecture.  
Students reflect on their own understanding and on the ideas of others.

#### **Use the language of mathematics to express mathematical ideas precisely**

Use problems related to the children's experiences in their everyday life.  
Students are required to write about their mathematical experiences.  
Teachers help students build their mathematical vocabulary.

### **CONNECTIONS**

#### **Recognize and use connections among mathematical ideas.**

Use concrete objects to make connections.  
Equivalence and multiplicative reasoning need major emphasis.

#### **Understand how mathematical ideas interconnect & build on one another to produce a coherent whole**

Teachers have the responsibility to help children see connections.  
Infer, measure, communicate, classify, and predict in the classroom.  
Classroom conversation is very important.

#### **Recognize and apply mathematics in context outside of mathematics**

Use examples involving everyday events, i.e. jumping rope in PE  
Integrate work with other subject areas, i.e., science, social studies  
Use teachable mathematical moments that arise in class.  
Compare study results of groups within the class.  
Teachers make connections from present work to previous topics.

### **REPRESENTATIONS**

#### **Create and use representations to organize, record, and communicate mathematical ideas.**

Use physical objects such as fingers, language, drawings, diagrams, physical gestures, and symbols.

#### **Select, apply, and translate among mathematical representations to solve problems.**

Students are allowed to explain their representations.

"What if" kinds of thinking should be furthered.

**Use representations to model and interpret physical, social, and mathematical phenomena.**

Teachers encourage student use of multiple representations.

Teachers' listening to students explanations is particularly important.

Students use geometry software and spreadsheets.

Teacher helps students develop confidence as well as competence.

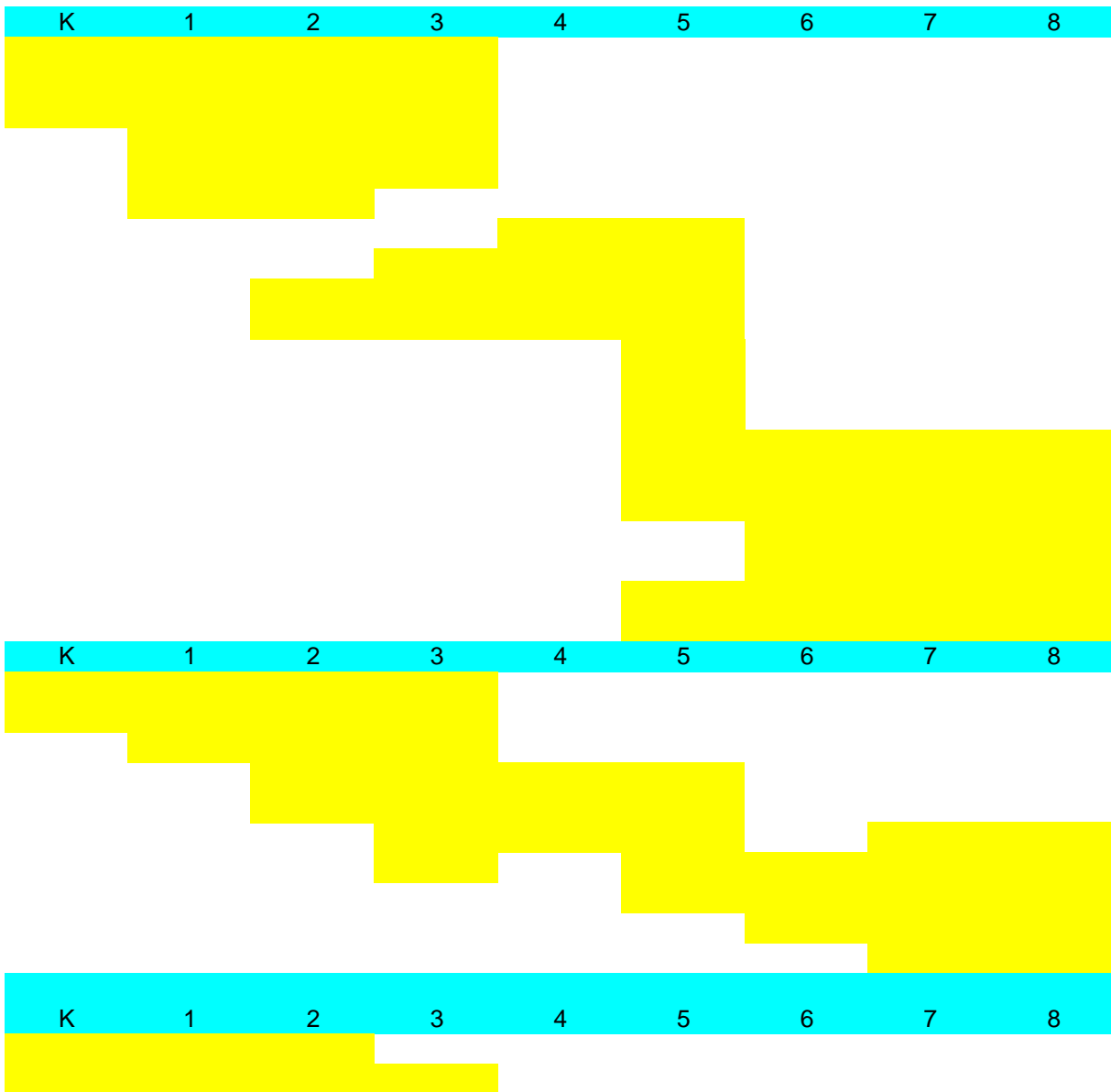
**Use technology within math.**

Integrate calculators in lesson plans.

Incorporate the use of the laptops in the Math classes

Incorporate the use of the smartboards in the Math classes

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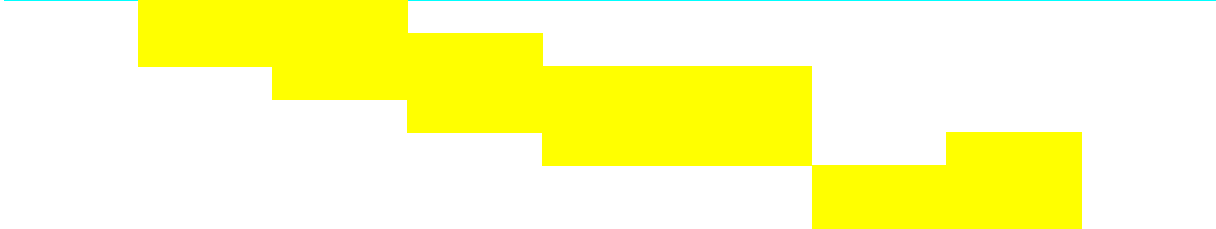




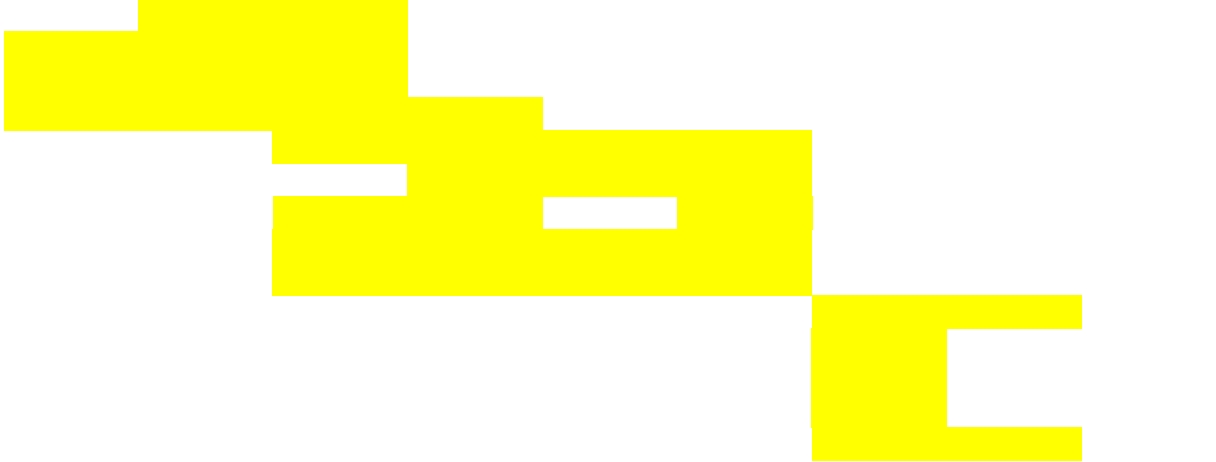
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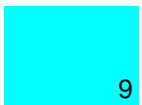
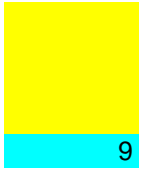
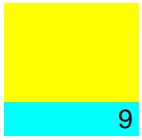
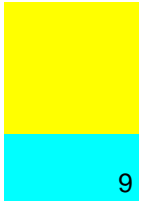
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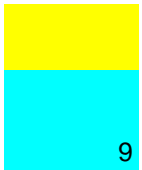


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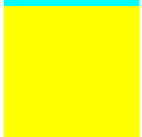


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