**6th Grade Year Long Math UBD**

**UbD Curriculum Template 2.0
Designer: Patty Albo
Date: Start = May 2015 Finish = July 2015**

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|  **Stage 1 Desired Results**  |
| **Directions:** Choose multiple CCSS (or other standards), copy and paste them here, and unpack them for big ideas and assessment verbs by highlighting. **Common Core State Standards (**[**www.corestandards.org**](http://www.corestandards.org)**), Next Generation Science Standards (**[**http://www.nextgenscience.org**](http://www.nextgenscience.org)**), Indigenous Standards (found in Course Sites).** Ratios and Proportional Relationships* **Understand ratio concepts and use ratio reasoning to solve problems.**

The Number System* **Apply and extend previous understandings of multiplication and division to divide fractions by fractions.**
* **Multiply and divide multi-digit numbers and find common factors and multiples.**
* **Apply and extend previous understandings of numbers to the system of rational numbers.**

Expressions and Equations* **Apply and extend previous understandings of arithmetic to algebraic expressions.**
* **Reason about and solve one-variable equations and inequalities.**
* **Represent and analyze quantitative relationships between dependent and independent variables.**

Geometry* **Solve real-world and mathematical problems involving area, surface area, and volume.**

Statistics and Probability* **Develop understanding of statistical variability.**
* **Summarize and describe distributions.**

Mathematical Practices1. **Make sense of problems and persevere in solving them.**
2. **Reason abstractly and quantitatively.**
3. **Construct viable arguments and critique the reasoning of others.**
4. **Model with mathematics.**
5. **Use appropriate tools strategically.**
6. **Attend to precision.**
7. **Look for and make use of structure.**
8. **Look for and express regularity in repeated reasoning.**
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| Other than the big ideas explicitly in the standards you chose, what big ideas might frame this yearlong curriculum?1. You can, I can, We all can do Math.
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| CHOSEN BIG IDEAS(S): | ***Transfer*** |
| I want my students to understand that everyone can problem solve, so that in the long-run, on their own, they will be able to express their thoughts on any problem with confidence.   |
| ***Meaning*** |
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| *Enduring Understandings:** All students can reason and communicate proficiently in mathematics.
* All students can learn skills and how to use math vocabulary, forms of representation, materials, tools, techniques, and intellectual methods of math.
* All students have the ability to learn to define and solve problems with reason, insight , inventiveness, and technical proficiency.
* All students have the ability to question.
 | Essential Questions:* Am I communicating well exactly what I am trying to say?
* Have I explored all areas of the question or problem?
* Did I work with others and hear as well as share thoughts and ideas?
* Did I ask all the questions that I had?
* Did I discuss my answers and reasonings with others?
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| *Students will know…* * Unit 1: Factors and Multiples
* Unit 2: Ratios, Rational Numbers and Equivalence
* Unit 3: Addition, subtraction, multiplication, division of fractions, fact families
* Unit 4: Area, perimeter, surface area, volume
* Unit 5: Addition, subtraction, multiplication and division of decimals, and estimation
* Unit 6: How to analysis data distributions, including shape, mean, median and mode.
* Unit 7: How to recognize variables, variables expressions, equations, inequalities; representations of relationships in tables, graphs, and equations.
 | *Students will be able to…** explain relationships among factors, multiples, divisors, and products.
* Understand why two expressions are equivalent.
* explain fractions and decimals as numbers that can be located on the number line, compared, counte, partitioned, and decomposed.
* explain ratios as comparisons of two numbers.
* explain equivalence of fractions and ratios, and use equivalence to solve problems.
* explain estimation as a tool for a variety of situations and develop strategies for estimating results of arithmetic operations.
* revisit and develop meanings for the four arithmetic operation and skill at using algorithms for each.
* show that variables can represent unknown values and equations to represent relationships.
* show area and perimeter as a measure
* explain how to find area and perimeter of parallelograms and triangles.
* find the surface area and volume of a three-dimensional shape.
* explain their understanding of percents through various contexts.
* explain their understanding of variables, expressions and equations.
* use the process of statistical investigation
* distinguish data and data types.
* will be able to explain degree of variability ( or spread)
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| **Stage 2 - Evidence** |
| **Evaluative Criteria** | **Assessment Evidence** |
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| --- | --- | --- |
| Ruberic | Complete | Not yet complete |
| My Favorite Number Project  | x |  |
| Measuring Project |  | x |
| Build An Aquarium Project |  | x |
| Order Form Project |  | x |
| Is Anyone Typical Project |  | x |
| Looking back questions |  | x |

* Completed Ruberics can be found in Math section of google doc account.
 | PERFORMANCE TASK(S): Students will use weebly to design a web page where they can display and elaborate on their work in math. They will be given the opportunity to elaborate on their understanding of all topics covered.  What (cognitive verb + big idea):At the end of each unit students will display and explain each project on their weebly site. Students will not only show math but they will write about the concepts and how they can be used in other applications. Why (copied and pasted EUs from Stage 1):* All students can reason and communicate proficiently in mathematics.
* All students can learn skills and how to use math vocabulary, forms of representation, materials, tools, techniques, and intellectual methods of math.
* All students have the ability to learn to define and solve problems with reason, insight , inventiveness, and technical proficiency.
* All students have the ability to question.

How (GRASPS, written to and for students):**Goal:** To design a web page to be used as the students end of year demo. **Role:** Student will be displaying and explaining their understanding of math concepts and multiple ways in which each concept can be used. (more detail to come as I develop exactly what will be expected of students)**Audience:** Anyone attending demos. ( Parents, teachers, fellow students, family members, and community members) **Situation:** Students work on website throughout the year. Students then set up a display and in a professional manner present the year long work and practices to audience. ( I am thinking of having students present in class this year as well). In the past this has been set up in a gallery type situation. **Product, Performance, and Purpose:**  Product will be the website, performance will be to present website to persons attending demos, purpose will be students showing and explaining the concepts presented in math and to express how they can use them in the future. **Standards and Criteria for Success:** Standards and Criteria are not all fully developed at this time. In years past we as a grade level have developed questions to be asked to students by observers. We allow a variety of observers to grade each student on answers provided.  |
| <type here> | OTHER EVIDENCE:  |
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| **Stage 3 – Learning Plan** *What units will you teach, and what skills will students master, as a result of this yearlong curriculum?* |

\_\_\_2015\_\_\_\_\_\_ - \_\_\_\_2016\_\_\_\_\_\_ Academic Year Curriculum Map Template

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| Unit Big Idea (Title) | Unit Essential Question(s) | Unit Standard(s) | Assessment(s) | Time Frame |
| What big idea anchors this unit? | What EQ will anchor conceptual, critical thinking related to the big idea? | What core standard(s) anchors this unit, and therefore what observable skills will you evaluate ? | What summative assessment will provide you evidence of skills and understanding? | What is the approximate time frame for the teaching and learning in this unit? |
| 1. Prime Time -A primary goal of this Unit is to help students learn some new and useful strategies for finding factors and multiples of whole numbers.
 |  | Common Core Content Standards6.NS.B.46.EE.A.16.EE.A.2a6.EE.A.2b6.EE.A.2c6.EE.A.36.EE.A.4**Mathematical Practices**Making 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 . | Check- up one (quiz) after investigation 1Partner Quiz after investigation 2Check - up two (quiz) after investigation 3Unit Test after investigation 4 My Favorite Number ProjectTO DO LIST\*Use the Unit Readiness skill sheet.\*Use Vocabulary Chart \*Have the students complete the self-assessment at end of unit.\*Send home parent letter first day of Unit\*Print graphic organizer for students who will benefit from its use.  | 22-25 school days. Time will need to be adjusted for advanced and tiered class. Have to think out project time. Would like to give some class time.  |
| 1. Comparing Bits & Pieces - to help students deepen their understanding of equivalent fractions and build on this understanding as they explore ratios.
 |  | Common Core Content Standards6.RP.A6.RP.A.16.RP.A.26.RP.A.36.RP.A.3a6.RP.A.3b6.RP.A.3c6.NS.C.56.NS.C.66.NS.C.6a6.NS.C.6b6.NS.C.6c6.NS.C.76.NS.C.7a6.NS.C.7b6.NS.C.7c6.NS.C.7d**Mathematical Practices**Same as above | Partner Quiz after investigation 1Check- up one (quiz) after investigation 2Check - up two (quiz) after investigation 3Unit Test after investigation 4 Students will work in group on Looking back questions.TO DO LIST\*Use the Unit Readiness skill sheet.\*Use Vocabulary Chart \*Have the students complete the self-assessment at end of unit.\*Send home parent letter first day of Unit\*Print graphic organizer for students who will benefit from its use.  | 25-28 school days. Time will need to be adjusted for advanced and tiered class. Have to think out time for looking back work time. Would like to give some class time.  |
| 1. Lets be Rational- to develop meaning for and skill with computations involving fractions
 |  | Common Core Content Standards6.NS.A.16.NS.B.36.NS.B.46.EE.A.26.EE.A.2a6.EE.A.2b6.EE.A.2c6.EE.A.36.EE.A.46.EE.B.56.EE.B.66.EE.B.7**Mathematical Practices**Same as above | Check- up one (quiz) after investigation 1Partner Quiz after investigation 2Check - up two (quiz) after investigation 3Unit Test after investigation 4 Measuring ProjectTO DO LIST\*Use the Unit Readiness skill sheet.\*Use Vocabulary Chart \*Have the students complete the self-assessment at end of unit.\*Send home parent letter first day of Unit\*Print graphic organizer for students who will benefit from its use.  | 20-23 school days. Time will need to be adjusted for advanced and tiered class. Have to think out project time. Would like to give some class time.  |
| 1. Covering & Surrounding - students can build a robust understanding of what it means to measure area, perimeter, surface area, and volume. They develop strategies for measuring perimeter and area of both rectangular and non rectangular shapes
 |  | Common Core Content Standards6.NS.C.86.EE.A.26.EE.A.2a6.EE.A.2c6.EE.A.36.EE.A.46.EE.B.66.EE.C.96.G.A.16.G.A.26.G.A.36.G.A.4**Mathematical Practices**Same as above | Check- up one (quiz) after investigation 1Check - up two (quiz) after investigation 2Partner Quiz after investigation 3Unit Test after investigation 4 Build An Aquarium Project. TO DO LIST\*Use the Unit Readiness skill sheet.\*Use Vocabulary Chart \*Have the students complete the self-assessment at end of unit.\*Send home parent letter first day of Unit\*Print graphic organizer for students who will benefit from its use.  | 25-30 school days. Time will need to be adjusted for advanced and tiered class. Have to think out project time. Would like to give some class time.  |
| 1. Decimal Ops - students will engage in problem situations that help them develop algorithms for adding, subtracting, multiplying, and dividing decimals
 |  | Common Core Content Standards6.RP.A.16.RP.A.26.RP.A.36.RP.A.3b6.RP.A.3c6.NS.A.16.NS.B.26.NS.B.36.EE.A.26.EE.A.2a6.EE.A.36.EE.B.56.EE.B.66.EE.B.7**Mathematical Practices**Same as above | Check- up one (quiz) after investigation 1Check - up two (quiz) after investigation 2Partner Quiz after investigation 3Unit Test after investigation 4 Order Form Project.TO DO LIST\*Use the Unit Readiness skill sheet.\*Use Vocabulary Chart \*Have the students complete the self-assessment at end of unit.\*Send home parent letter first day of Unit\*Print graphic organizer for students who will benefit from its use.  | 23-26 school days. Time will need to be adjusted for advanced and tiered class. Have to think out project time. Would like to give some class time.  |
| 1. Variables and Patterns - Students explore three ways of representing and changing situation and later writing symbolic expressions using two variables.
 |  | Common Core Content Standards6.RP.A.26.RP.A.3a6.RP.A.3b6.RP.A.3d6.NS.C.6c6.NS.C.86.EE.A.16.EE.A.26.EE.A.2a6.EE.A.2b6.EE.A.2c6.EE.A.46.EE.B.56.EE.B.66.EE.B.76.EE.B.86.EE.C.9**Mathematical Practices**Same as above | Check- up one (quiz) after investigation 1Partner Quiz after investigation 2Check - up two (quiz) after investigation 3Unit Test after investigation 4 Students will work in group on Looking back questions.TO DO LIST\*Use the Unit Readiness skill sheet.\*Use Vocabulary Chart \*Have the students complete the self-assessment at end of unit.\*Send home parent letter first day of Unit\*Print graphic organizer for students who will benefit from its use.  | 26-29 school days. Time will need to be adjusted for advanced and tiered class. Have to think out time for looking back work time. Would like to give some class time.  |
| 1. Data About Us - this unit gives students opportunities to ask questions about people around them, then collect data to answer these questions.
 |  | Common Core Content Standards6.RP.A.36.RP.A.3A6.SP.A.16.SP.A.26.SP.A.36.SP.B.46.SP.B.5A6.SP.B.5B6.SP.B.5C6.SP.B.5D6.NS.C.66.NS.C.7**Mathematical Practices**Same as above | Check- up one (quiz) after investigation 1Partner Quiz after investigation 2Check - up two (quiz) after investigation 3Unit Test after investigation 4 Is Anyone Typical Project. TO DO LIST\*Use the Unit Readiness skill sheet.\*Use Vocabulary Chart \*Have the students complete the self-assessment at end of unit.\*Send home parent letter first day of Unit\*Print graphic organizer for students who will benefit from its use.  | 23-26 school days. Time will need to be adjusted for advanced and tiered class. Have to think out project time. Would like to give some class time.  |

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