## Winslow Schools Mathematics Curriculum - Grade 2 <br> Unit 2

| Overview | Standards for Mathematical Content | Unit Focus | Standards for Mathematical Practice |
| :---: | :---: | :---: | :---: |
| Unit 2 <br> Place Value <br> Strategies for <br> Addition and <br> Subtraction |  | - Represent and solve problems involving addition and subtraction <br> - Add and subtract within 20 <br> - Work with equal groups of objects to gain foundations for multiplication <br> - Reason with shapes and their attribute <br> - Use place value understanding and properties of operations to add and subtract <br> - Understand place value | MP. 1 Make sense of problems and persevere in solving them. <br> MP. 2 Reason abstractly and quantitatively. <br> MP. 3 Construct viable arguments and critique the reasoning of others. |
| Unit 2: <br> Suggested Open <br> Educational <br> Resources | 2.OA.B. 2 Hitting the Target Number <br> 2.OA.C. 3 Red and Blue Tiles <br> 2.OA.C. 4 Counting Dots in Arrays <br> 2.G.A. 2 Partitioning a Rectangle into Unit Squares <br> 2.NBT.B. 6 Toll Bridge Puzzle <br> 2.NBT.B. 7 How Many Days Until Summer Vacation? <br> 2.NBT.B. 9 Peyton and Presley Discuss Addition |  | MP. 5 Use appropriate tools strategically. <br> Attend to precision. <br> MP. 7 Look for and make use of structure. <br> MP. 8 Look for and express regularity in repeated reasoning. |

Major Supporting Additional (Identified by PARCC Model Content Frameworks).

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| Curriculum Unit 2 | Standards |  | Pacing |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Days | Unit Days |
| Unit 2 <br> Place Value Strategies for Addition and Subtraction | - 2.OA.A.1* | Add and subtract within 100 to solve 1- and 2-step word problems with unknowns in any position. | 7 | 45 |
|  | - 2.OA.B. ${ }^{\text {** }}$ | Fluently add and subtract within 10 using mental strategies. | 2 |  |
|  | - 2.OA.C. 3 | Write an equation to express an even number as a sum of two equal addends. | 3 |  |
|  | - 2.OA.C. 4 | Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends. | 3 |  |
|  | - 2.G.A. 2 | Partition a rectangle into rows and columns of same-size squares and count to find the total number | 2 |  |
|  | - 2.NBT.B.5* | Use a variety of strategies (place value, properties of operation, and/or the relationship between addition and subtraction) to add and subtract within 50 . | 6 |  |
|  | - 2.NBT.B. 6 | Add up to four two -digit numbers using strategies based on place value and properties of operations. | 4 |  |
|  | - 2.NBT.B. 7 | Add and subtract within 1000 , using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. | 10 |  |
|  | - 2.NBT.B. 9 | After applying addition and subtraction strategies based on place value and the properties of operations, explain why these strategies work using drawings or objects [for example, $37+12$ equals $30+7+10+2$ (place value) which equals $30+10+7$ +2 (property of operations)]. | 3 |  |
|  | - 2.NBT.A.2* | Count within 1000 by ones, fives, tens, and hundreds beginning at any multiple of 1 , 5,10 , or 100 (e.g. begin at 505 and skip count by 5 up to 605 , or begin at 600 and skip count by 100 up to 1000 ). | 2 |  |
|  | Assessment, Re-teach and Extension |  | 3 |  |

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| Unit 2 Grade 2 |  |  |
| :---: | :---: | :---: |
| Content Standards | Suggested Standards for Mathematical Practice | Critical Knowledge \& Skills |
| - 2.OA.A.1. Use addition and subtraction within 100 to solve oneand two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. *(benchmarked) | MP. 1 Make sense of problems and persevere in solving them. <br> MP 2 Reason abstractly and quantitatively. <br> MP. 3 Construct viable arguments and critique the reasoning of others. <br> MP. 4 Model with mathematics. <br> MP. 5 Use appropriate tools strategically. <br> MP. 8 Look for and express regularity in repeated reasoning. | Concept(s): No new concept(s) introduced <br> Students are able to: <br> - count on and put together to add to solve one- and two-step word problems. <br> - take from or take apart to subtract to solve one- and two-step word problems. <br> - use drawings and equations to represent the problem. <br> Learning Goal 1: Add and subtract within 100 to solve 1- and 2-step word problems with unknowns in any position. |
| - 2.OA.B.2. Fluently add and subtract within 20 using mental strategies. <br> By end of Grade 2, know from memory all sums of two one-digit numbers.*(benchmarked) | MP 2 Reason abstractly and quantitatively. MP. 7 Look for and make use of structure. MP. 8 Look for and express regularity in repeated reasoning. | Concept(s): No new concept(s) introduced <br> Students are able to: <br> - add within 10 using mental strategies with accuracy and efficiency. <br> - subtract within 10 using mental strategies with accuracy and efficiency. <br> Learning Goal 2: Fluently add and subtract within 10 using mental strategies. |
| - 2.OA.C.3. Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2 s ; write an equation to express an even number as a sum of two equal addends | MP 2 Reason abstractly and quantitatively. <br> MP. 3 Construct viable arguments and critique the reasoning of others. <br> MP. 7 Look for and make use of structure. <br> MP. 8 Look for and express regularity in repeated reasoning | Concept(s): <br> - Even: groups having even numbers of objects will pair up evenly. <br> - Odd: groups having odd numbers of objects will not pair up evenly. <br> Students are able to: <br> - pair up to 20 object, count by 2 s and determine whether the group contains an even or odd number of objects. <br> - write an equation to express an even number as a sum of two equal addends. <br> Learning Goal 3: Write an equation to express an even number as a sum of two equal addends. |

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- 2.OA.C.4. Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends

MP 2 Reason abstractly and quantitatively.
MP. 3 Construct viable arguments and critique the reasoning of others.
MP. 7 Look for and make use of structure.
MP. 8 Look for and express regularity in repeated reasoning.

Concept(s):

- Arrays as arrangements of objects.

Students are able to:

- with objects arranged in an array, use repeated addition to find the total.
- with objects arranged in an array, write an equation to express repeated addition.
Learning Goal 4: Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.
- 2.G.A.2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
- 2.NBT.B.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
*(benchmarked)
- 2.NBT.B.6. Add up to four two-digit numbers using strategies based on place value and properties of operations.

MP 2 Reason abstractly and quantitatively. MP. 6 Attend to precision.
MP. 8 Look for and express regularity in repeated reasoning.

Concept(s): No new concept(s) introduced
Students are able to:

- partition a rectangle into rows and columns of same-size squares and count to find the total number.

Learning Goal 5: Partition a rectangle into rows and columns of same-size squares and count to find the total number
MP 2 Reason abstractly and quantitatively.
MP. 7 Look for and make use of structure.
MP. 8 Look for and express regularity in repeated reasoning.

## Concept(s): No new concept(s) introduced

Students are able to:

- with accuracy and efficiency, add and subtract within 50 using strategies based on place value.
- with accuracy and efficiency, add and subtract within 50 using strategies based on properties of operations.
- with accuracy and efficiency, add and subtract within 50 using strategies based on the relationship between addition and subtraction.
Concept(s): No new concept(s) introduced
Students are able to:
- add three two digit numbers using place value strategies and properties of operations.
- add four two digit numbers using place value strategies and properties of operations.
Learning Goal 7: Add up to four two -digit numbers using strategies based on place value and properties of operations.
Learning Goal 6: Use a variety of strategies (place value, properties of operation, and/or the relationship between addition and subtraction) to add and subtract within 50 .


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- 2.NBT.B.7. Add and subtract within

1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

- 2.NBT.B.9. Explain why addition and subtraction strategies work, using place value and the properties of operations.

MP 2 Reason abstractly and quantitatively.
MP. 4 Model with mathematics.
MP. 5 Use appropriate tools strategically.
MP. 7 Look for and make use of structure.
MP. 8 Look for and express regularity in repeated reasoning.

## MP 2 Reason abstractly and quantitatively.

MP. 3 Construct viable arguments and critique the reasoning of others.
MP. 4 Model with mathematics.
MP. 5 Use appropriate tools strategically.
MP. 7 Look for and make use of structure.
MP. 8 Look for and express regularity in repeated reasoning.

MP 2 Reason abstractly and quantitatively.
MP. 7 Look for and make use of structure. MP. 8 Look for and express regularity in repeated reasoning.

## Concept(s):

- In adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones.
- Sometimes it is necessary to compose or decompose tens or hundreds. Students are able to:
- add and subtract within 1000 , using concrete models or drawings.
- add and subtract within 1000 using strategies based on place value.
- add and subtract within 1000 using properties of operations or the relationship between addition and subtraction.
- relate the strategies to a written method.

Learning Goal 8: Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method.
Concept(s): No new concept(s) introduced
Students are able to:

- Explain, using objects and drawings, why addition and subtraction strategies based on place value work.
- Explain, using objects and drawings, why addition and subtraction strategies based on properties of operations work.

Learning Goal 9: After applying addition and subtraction strategies based on place value and the properties of operations, explain why these strategies work using drawings or objects [for example, $37+$ 12 equals $30+7+10+2$ (place value) which equals $30+10+$ $7+2$ (property of operations)].
Concept(s): No new concept(s) introduced
Students are able to:

- count within 1000 by ones.
- count within 1000 by fives, tens, and hundreds beginning at any multiple of 5, 10, or 100 .
Learning Goal 10: Count within 1000 by ones, fives, tens, and hundreds beginning at any multiple of $1,5,10$, or 100 (e.g. begin at 505 and skip count by 5 up to 605 , or begin at 600 and skip count by 100 up to 1000 ).

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| Unit 2 Grade 2 |  |
| :--- | :--- |
| School/District Formative Assessment Plan | School/District Summative Assessment Plan |
| Pre-Assessment, Quizzes | Link It |
| Exit Tickets | Chapter Assessments |
| Daily Monitoring | Go Math Performance Assessment Task |
| Interactive Notebook |  |
| Math Portfolio |  |
| Go Math Mid Chapter Checkpoint |  |
| Go Math Show What You Know |  |
| Go Math Quick Checks |  |

## Prerequisite skills:

Achieve the Core Coherence Map
https://achievethecore.org/coherence-map/

| Standards: |  |
| :--- | :--- |
| 2.OA.A.1 | 1.OA.1 |
| 2.OA.B.2 | 1.OA.6 |
| 2.OA.C.3 | 1.OA.5 |
| 2.OA.C.4 |  |
| 2.G.A.2 | 1.G.3 |
| 2.NBT.B.5 | 1.NBT.4 |
| 2.NBT.B.6 | 1.NBT.4 |
| 2.NBT.B.7 | 1.NBT.4 |
| 2.NBT.B.9 | 1.NBT.6 |
| 2.NBT.A.2 | 1.OA.5 |

## Winslow Schools <br> Mathematics Curriculum - Grade 2 <br> Unit 2

## Common Misconceptions:

2.OA.A. 1 Some students end their solution to a two-step problem after they complete the first step. They may have misunderstood the question or only focused on finding the first part of the problem. Students need to check their work to see if their answer makes sense in terms of the problem situation. They need many opportunities to solve a variety of twostep problems and develop the habit of reviewing their solution after they think they have finished. Many children have misconceptions about the equal sign. Students can misunderstand the use of the equal sign even if they have proficient computational skills. The equal sign means, "is the same as" however, many primary students think that the equal sign tells you that the "answer is coming up." Students need to see examples of number sentences with an operation to the right of the equal sign and the answer on the left, so they do not over-generalize from those limited examples. They might also be predisposed to think of equality in terms of calculating answers rather than as a relation because it is easier for young children to carry out steps to find an answer than to identify relationships among quantities. Students might rely on a key word or phrase in a problem to suggest an operation that will lead to an incorrect solution. They might think that the word left always means that subtraction must be used to find a solution. Students need to solve problems where keywords are contrary to such thinking.
2.OA.C. 3 Students will look at the number of digits to determine if the number is odd or even instead of the quantity itself. Example: 53 is an even number because it has 2 digits. This is a misconception. Students will determine whether a number is odd or even by the first digit in the number instead of the digit in the ones place.
2.NBT.B.5-2.NBT.B. 9 Students may think that the 4 in 46 represents 4 , not 40 or 4 tens. Students need many experiences representing two-and three-digit numbers with manipulatives that group (base ten blocks) and those that do NOT group, such as counters, etc.
When adding two-digit numbers, some students might start with the digits in the ones place and record the entire sum. Then they add the digits in the tens place and record this sum Assess students' understanding of $a$ ten and provide more experiences modeling addition with grouped and pre-grouped base-ten materials as mentioned above.
When subtracting two-digit numbers, students might start with the digits in the ones place and subtract the smaller digit from the greater digit. Then they move to the tens and the hundreds places and subtract the smaller digits from the greater digits. Assess students' understanding of $a$ ten and provide more experiences modeling subtraction with grouped and pre-grouped base-ten materials

## Number Fluency:

2.OA.A.1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
2.OA.B.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.
2.NBT.A.2. Count within 1000 ; skip-count by $5 \mathrm{~s}, 10 \mathrm{~s}$, and 100 s .
2.NBT.B.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Achieve the Core - GoMath Fluency Activities
https://achievethecore.org/page/2853/go-math-k-5-guidance-documents
Achieve the Core - Fluency Activities
https://achievethecore.org/page/2948/fluency-resources-for-grade-level-routines
Math Coach - Fact Fluency http://schoolwires.henry.k12.ga.us/Page/21865
Math Wire - Basic Facts Link http://mathwire.com/numbersense/bfactslinks.html
Math Fact Practice http://www.playkidsgames.com/games/mathfact/mathFact.htm

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| District/School Tasks | District/School Primary and Supplementary Resources |
| :---: | :---: |
| Examples of CCSS Items - Delaware Comparison Document <br> Delaware DOE Common Core Item Bank for Mathematics - Grade 2 <br> http://www.doe.k12.de.us/cms/lib09/DE01922744/Centricity/Domain/111/Math_G rade_2-Nov.pdf | Text - Go Math <br> North Carolina Dept of Ed. Wikispaces: <br> http://maccss.ncdpi.wikispaces.net/Elementary <br> Flip Book <br> http://community.ksde.org/Default.aspx?tabid=5646 <br> 101 Math Discourse Questions: <br> http://www.casamples.com/downloads/100MathDiscourseQuestions_Printable.pdf <br> Asking Effective Questions <br> http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/CBS_AskingEffectiveQu estions.pdf <br> Think Central <br> https://www- <br> k6.thinkcentral.com/ePC/viewResources.do?method=retrieveResources\&pageName=reso urcepage <br> Xtra Math <br> https://xtramath.org/\#/home/index <br> Prodigy <br> https://www.prodigygame.com/Play/ |
| Instructional Best Practices and Exemplars |  |
| 1. Identifying similarities and differences <br> 2. Summarizing and note taking <br> 3. Reinforcing effort and providing recognition <br> 4. Homework and practice <br> 5. Nonlinguistic representations | 6. Cooperative learning <br> 7. Setting objectives and providing feedback <br> 8. Generating and testing hypotheses <br> 9. Cues, questions, and advance organizers 10. Manage response rates |

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| Vocabulary |  |
| :--- | :--- |
| 2.OA.A.1 <br> Reppesent and solve problems involving addition and subtraction. <br> add, subtract, more, less, equal, equation, putting together, taking from, taking apart, <br> addend, comparing, unknown | 2.G.A.2 <br> Reason with shapes and their attributes. <br> partition, equal size, equal shares, half, halves, thirds, half of, a third of, whole, two halves, <br> three thirds, four fourths, rows, columns <br> 2.NBT.B.5, 6, 7 \& 9 <br> Use perace value understanding and properties of operations to add and subtract. <br> fluent, compose, decompose, place value, digit, ten more, ten less, one hundred more, one <br> hundred less, add, subtract, sum, equal, addition, subtraction, regroup <br> 2.NBT.A.2 <br> Understand place value. <br> hundreds, tens, ones, skip count, base-ten, number names to 1,000 (e.g., one, two, thirty, <br> etc.) |
| Add and subtract within 20. <br> add, subtract, sum, more, less, equal, equation, putting together, taking from, taking <br> apart, addend | 2.OA.C.3 \& 4 <br> Work with equal groups of objects to gain foundations for multiplication. <br> odd, even, row, column, rectangular array, equal, addend, equation, sum |
| 9.1 Personal Financial Literacy, 9.2 Career Awareness, Exploration, and Preparation and Training, 9.4 Life Literacies and Key Skills |  |

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Unit 2
Suggested Modifications for Special Education/504
Students with special needs: The students' needs will be addressed on an individual and grade level using a variety of modalities. Accommodations will be made for those students who need extra time to complete assignment. Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Physical expectations and modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered.
$\square$ Provide the opportunity to re-take tests
$\square$ Modify activities/assignments/projects/assessments
$\square$ Breakdown activities/assignments/projects/assessments into manageable units
$\square$ Additional time to complete activities/assignments/projects/assessments
$\square$ Provide an option for alternative activities/assignments/projects/assessments
$\square$ Modify Content
$\square$ Modify Amount
$\square$ Small Group Intervention/Remediation

## Suggested Modifications for At-Risk Students

Formative and summative data will be used to monitor student success. At first signs of failure, student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations
$\square$ Provide the opportunity to re-take testsModify Content
$\square$ Increase one on one time
$\square$ Oral prompts can be givenUsing visual demonstrations, illustrations, and models
$\square$ Give directions/instructions verbally and in simple written format
$\square$ Peer Support
$\square$ Modify activities/assignments/projects/assessments$\square$ Additional time to complete activities/assignments/projects/assessments
$\square$ Provide an option for alternative activities/assignments/projects/assessments
$\square$ Individual Intervention/RemediationAdditional Support MaterialsGuided NotesGraphic OrganizersAdjust Pacing of ContentIncrease one on one timePeer SupportOther Modifications for Special Education:Modify AmountAdjust Pacing of ContentSmall Group Intervention/RemediationIndividual Intervention/RemediationAdditional Support MaterialsGuided NotesGraphic OrganizersOther Modifications for Students At-Risk:

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| English Language Learners | Suggested Modifications for Gifted Students |
| :---: | :---: |
| All WIDA Can Do Descriptors can be found at this link: https://wida.wisc.edu/teach/can-do/descriptors <br> Grades 2-3 WIDA Can Do Descriptors: Listening $\square$ Speaking Reading $\square$ Writing Oral Language <br> Students will be provided with accommodations and modifications that may include: <br> - Relate to and identify commonalities in mathematics studies in student's home country <br> - Assist with organization <br> - Use of computer <br> - Emphasize/highlight key concepts <br> - Teacher Modeling <br> - Peer Modeling <br> - Label Classroom Materials - Word Walls | Students excelling in mastery of standards will be challenged with complex, high level challenges related to the topic. <br> - Raise levels of intellectual demands <br> - Require higher order thinking, communication, and leadership skills <br> - Differentiate content, process, or product according to student's readiness, interests, and/or learning styles <br> - Provide higher level texts <br> - Expand use of open-ended, abstract questions <br> - Critical and creative thinking activities that provide an emphasis on research and in-depth study <br> - Enrichment Activities/Project-Based Learning/ Independent Study <br> Additional Strategies may be located at the links: <br> * Gifted Programming Standards <br> * Webb's Depth of Knowledge Levels and/or Revised Bloom's Taxonomy <br> * REVISED Bloom's Taxonomy Action Verbs |
| Suggested Activities |  |
| Do Now/Warm-Up Whole Group Small Groups Guided Practice Independent Practice Daily 5 CAFÉ | Centers Intervention/Remediation Projects Academic Games Other Suggested Activities: |

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Unit 2
Interdisciplinary Connections
Go Math Big Idea Vocabulary Reader: All About Animals (Math, Reading, Writing, Science)
Go Math Real World Project: My Math Project Storybook "A Bunch of Animals" (Science)
Go Math ThinkCentral STEM Activities (Science)
Go Math Cross-Curricular Science and Social Studies questions, experiments, and activities embedded throughout the chapter

## Integration of Computer Science and Design Thinking

8.2.2.ITH. 3 Identify how technology impacts or improves life.
8.2.2.ITH. 4 Identify how various tools reduce work and improve daily tasks.
8.1.2.NI. 1 Model and describe how individuals use computers to connect to other individuals, places, information, and ideas through a network.
8.1.2.NI. 2 Describe how the internet enables individuals to connect with others worldwide.
8.1.2.CS. 3 Describe basic hardware and software problems using accurate terminology.

