## Introduction

The K-5 standards provide students with a solid foundation in whole numbers, addition, subtraction, multiplication, division, fractions and decimals—which help young students build the foundation to successfully apply more demanding math concepts and procedures, and move into applications.

The standards stress not only procedural skill but also conceptual understanding, to make sure students are learning and absorbing the critical information they need to succeed at higher levels.

These standards define what students should understand and be able to do in their study of mathematics. What does mathematical understanding look like? One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student's mathematical maturity, why a particular mathematical statement is true or where a mathematical rule comes from. There is a world of difference between a student who can summon a mnemonic device to expand a product such as $(a + b)(x + y)$ and a student who can explain where the mnemonic comes from. The student who can explain the rule understands the mathematics, and may have a better chance to succeed at a less familiar task such as expanding $(a + b + c)(x + y)$. Mathematical understanding and procedural skill are equally important, and both are assessable using mathematical tasks of sufficient richness.

All students must have the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary in their post-school lives. The standards do provide clear signposts along the way to the goal of college and career readiness for all students.

National Governors Association Center for Best Practices, Council of Chief State School Officers. "Common Core State Standards - Mathematics." National Governors Association Center for Best Practices, Council of Chief State School Officers, Washington D.C., 2010. Web. 20 June 2012. <http://www.corestandards.org/the-standards/mathematics>.

**Gifted & Talented**

The Saddle River School District extends learning opportunities to all high achieving students. It supports the philosophy that every student has special talents and gifts. The Saddle River School District's enrichment and gifted & talented programs offer a unique approach to servicing all students while maintaining a focus on those who are identified as needing pull out services through the district's screening/criteria process. The Saddle River School District's enrichment program focuses on bringing out the special talents in all learners as enrichment instruction is delivered to all students in grades kindergarten through fifth grade. The program follows the Joseph Renzulli schoolwide enrichment model that concentrates on "schools being a place for talent development," (Renzulli, 1994). The program follows a wide-range of enriching/developing activities based upon student strengths and interests. Additionally, the program focuses on enriching activities across the curriculum in providing complementary and developing features/standards for all subject areas. The enrichment program builds upon existing student learning standards in all content areas in coordination with instruction and student needs.

The Saddle River School District Gifted & Talented program offers pull-out instruction for those students meeting the multiple measures and specific criteria set forth and approved by the board of education. The identification process may/can begin as early as kindergarten. The gifted and talented program follows the central theme that all appropriate curriculum standards are followed and that those standards are the foundation for developing student learning opportunities and standards across the curriculum. The gifted and talented program will provide the following in coordination with each content area when and where appropriate:

- Develop students' abilities and engage critical thinking skills
- Expand students' creative thought process and responses
- Advance students' research skills needed to become independent learners
- Develop students' abilities to self-evaluate their own learning process
- Enrich students' abilities in seeking and expanding their own knowledge in subject content areas and individual talents
- Develop students' ability to interact effectively in small-group and large-group setting
- Heighten students' ability in expanding on student learning standards to strengthen appropriate skills necessary for 21st century learning

**English Language Learners (ELL)**

The Saddle River School District recognizes the importance of increasing language proficiency while gaining confidence and strength so that academic goals and New Jersey state learning standards can be met. English Language Learners in the Saddle River School District are identified through a multitude of measures. These measure include, but are not limited to: a home language survey, parental conferencing, and daily teacher observations. Based on the information/data collected, the Saddle River School District will determine if a formal approved language assessment is necessary. The World-Class Instructional Design and Assessment (WIDA) is the assessment tool for those students recommended for ELL testing.

The Saddle River School District will provide the following accommodations for ELL students:

- Basic skills with a focus a the specific language skills
- Use of a translation dictionary (ipad, google translator, bilingual word to word dictionary)
- Preferential seating
- Extended time and/or modified classroom assignments
- Print out of teacher notes/lessons for additional review

- Extended time and/or modified assessments
- Extended time/accommodation for standardized testing in coordination with state regulations

**Special Education Students**

The Saddle River School District special education department offers a full continuum of services for students who are eligible for special education services. In order to meet the specific requirements for each learner, programs are developed so that that social, emotional and educational needs are met within the least restrictive environment. The specific program for each learner is based on individual needs where goals and objectives are set and followed accordingly. These individual educational plans follow a specific plan that is aligned to the student learning standards and may include, but is/are not limited to:

- Individual education plan
- Pull-out support
- Replacement content instruction
- In-class support
- Instructional aide(s)
- Support services (i.e.; speech, physical therapy, occupational therapy)
- Presentation accommodations (i.e.; notes, outlines, instructions, lists, organization)
- Response accommodations (i.e.; dictations, audio, dictionaries, calculation devices, scribes)
- Setting accommodations (i.e.; lighting, acoustics, seat placement, testing, sensory tools)
- Timing accommodations (i.e.; completing tasks, frequent breaks, processing directions)
- Scheduling accommodations (i.e.; spacing out projects/assignments, order of schedule)
- Organizational accommodations (i.e.; highlighter, time management, planning)
- Assignment modifications (i.e.; fewer tasks, alternate questions)
- Technology support (i.e; ipad, word processing, specific programs/apps)
- Testing accommodations (i.e.; extended time, placement, seating, time)

Students who require additional services outside of the district's resource program, may require an out-of-district placement. In this event, the Child Study Team will coordinate accordingly to ensure that all necessary learning standards are being met.

**Students in Danger of Failing**

For those students in danger of failing, the Saddle River School District has a specific referral process to ensure that student needs are being met. The Intervention & Referral Services (I&RS) is an interdisciplinary team of professional within the school that addresses a full range of student/staff needs and concerns. This process is designed to maximize student success and establish goals and benchmarks to promote outcomes that positively reflect academics, health, behavior, self-esteem, work habits and strong character. The I&RS team is comprised of a chairperson, child study team member, teachers and other school professionals so that a continuous system of support can be provided. The team provides a plan so that short and long term goals can be established and strategies can be implemented and designed specifically for each student. In trying to achieve success, the team works collaboratively in making growth for each student a top priority and adhere to a plan that is achievable but rigorous. This plan, as set by New Jersey I&RS Team Process, may contain, but is not limited to the following;

- Request for assistance
- Information collection
- Parent Notification
- Problem solving within the I&RS team
- Developing an I&RS action plan
- Supporting, evaluating and continuing the process

In evaluating and monitoring students, the I&RS team closely calculates a plan so that curriculum needs can be met. In order to achieve and demonstrate success, the Saddle River School District provides modifications and support so that consideration is given to, but not limited to, the following:

- Student strengths/weaknesses
- Classroom and standardized assessments
- Academic records
- Social and behavioral patterns
- Previous history or concern
- Participation in class (and interaction with peers)
- Health related concerns
- Family concerns
- Retention of information/instruction
- Student interests
- Independent & group work habits
- Emotional status
- Study habits (at home/school)
- Present level of functioning
- Expectations (academic, social, behavioral, etc.)
- Following classroom rules/directions/procedures

As the I&RS team formulates a plan, many ongoing concerns are addressed within the team and may include parental notification/input. The problem solving objectives as set forth by New Jersey I&RS Team Process will:

- Describe the problem
- Identify the priority
- Develop objectives
- Review previous interventions
- Create new strategies
- Analyze and evaluate solutions

The Saddle River School District continues to inform and update staff of the I&RS procedures. The procedures are as follows:

- Teacher recognizes a problem(s) with a particular student in class and refers the student to the I&RS committee by filling out the appropriate paperwork. An I&RS meeting is scheduled to and the committee and appropriate staff members gather to discuss and begin the proactive process of assistance.
- Information from the teacher(s), administrator(s), and other school personnel is collected.
- Parent notification where/when appropriate
- The I&RS team begins the problem solving process by offering ideas and suggestions pertaining to the problems while prioritizing the most important issues.
- The I&RS team develops an action plan with specific strategies that can be implemented to achieve both short term and long term goals.
- The I&RS team meets regularly to evaluate and support the action plan (and to adjust accordingly when/where appropriate). Parents are notified on an ongoing basis to continue communication in the support of implementing the strategies set forth in the action plan.

Basic Skills Instruction is also a valuable resource that the Saddle River School District uses to meet the needs of struggling students. Students who require additional academic support will be offered that assistance in all subject areas. This system allows the students to receive in-class or pull-out support when

and where appropriate so that grade level curriculum and student learning goals can be met. This program is an intervention system used to create a positive and constructive learning environment so that students can achieve success.

After the I&RS action plan has been in place the team may continue with the current strategies, offer/discuss new strategies or decide that the student should be referred to the district's child study team. In the instance of referring a student to the child study team, it can be concluded that many of the strategies from the action plan were not benefitting the student as intended. The child study team them would follow the guidelines for the referral process and notify the parents/guardians of the potential special education recommendation.

## Unit 1 Overview

**Content Area: Mathematics**

**Unit Title:** Operations and Algebraic Thinking

**Target Course/Grade Level: Grade 2**

**Unit Summary**

In this unit students develop addition and subtraction strategies based on their developing sense of how numbers can be composed and decomposed and on the inverse relationship between addition and subtraction. Students learn to create arrays of up to 5 rows and 5 columns, then add these equal groups to find the total, setting the foundation for multiplication and area in grade 3.

**Primary interdisciplinary connections:** Reading, Language Arts, Science, Social Studies

**21st century themes:**

- Critical Thinking/Problem Solving
- Communication
- Collaboration

**Unit Rationale**

A firm grounding in the big picture of how operations with numbers interrelate and how they are vital tools in life can help students build the positive attitudes that will help them become confident, efficient, and effective problem-solvers (McConnell, 2011)

Algebraic thinking develops problem-solving skills. Students must analyze what they know and don't know about a problem, determine a method for finding solutions, and check results for accuracy. Algebra provides students with resources for dealing with real-world situations in a "systematic, analytic manner." (McConnell, 2011)

Recognizing, analyzing and constructing patterns helps to build a "strong foundation of algebra readiness", and is central to both art and science. (McConnell, 2011)

## Learning Targets

**Standards**

- 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 the end of Grade 2, know from memory all sums of two one-digit numbers.
- 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.
- 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.
- 2.NBT.B.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.
- 2.NBT.B.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.

**Content Statements**

- Represent and solve problems involving addition and subtraction.

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**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS**

- Add and subtract within 20.
- Work with equal groups of objects to gain foundations for multiplication.
- Use place value understanding and properties of operations to add and subtract.

| **Indicator** | |
|---|---|
| 2.OA.A.1 | Add and subtract within 100 to solve 1- and 2-step word problems with unknowns in any position. |
| 2.OA.B.2 | • Add and subtract fluently within 20 using mental strategies such as decomposing and composing numbers using 10 as the benchmark number.<br>• By the end of grade 2, know from memory all sums of two 1-digit numbers. |
| 2.OA.C.4 | Write an addition equation with repeated equal addends from a rectangular array (up to 5 rows and 5 columns) and solve to find the total number. |
| 2.NBT.B.5 | Use a variety of strategies (place value, properties of operations, and/or the relationship between addition and subtraction) to add and subtract within 100. |
| 2.NBT.B.6 | Add up to four 2-digit numbers based on place value and properties of operations. |
| 2.NBT.B.9 | Apply addition and subtraction strategies based on place value and the properties of operations and explain why they work using drawings or objects. |

**Unit Essential Questions**

- Topic 1: What are some ways to think about addition and subtraction?
- Topic 2: What are strategies for finding addition facts?
- Topic 3: What are strategies for finding subtraction facts?
- Topic 4: What is the relationship between arrays and repeated addition?

**Unit Enduring Understandings Topic 1:**

- *Parts of a whole* is one interpretation of addition. Addition number sentences can be used to show parts of a whole.
- *Joining parts to make a whole* is one interpretation of addition. Addition number sentences can be used to show *joining parts of a whole*.
- *Separating parts from a whole* and *comparison* are two interpretations of subtraction. Subtraction number sentences can be used to show *separating parts from a whole* or *comparison* subtraction situations.
- Addition and subtraction have an inverse relationship. The inverse relationship between addition and subtraction can be used to find subtraction facts; every subtraction fact has a related addition fact.
- Some problems can be solved by using objects to act out the actions in the problem.

**Topic 2:**

- The number relationships of *0-more-than, 1-more-than,* and *2-more-than* are the basis for addition facts with 0, 1, and 2.
- Doubles facts can be associated with memorable real-world situations.
- Basic addition facts that are near doubles can be

| | |
|---|---|
| | found using a related doubles fact. |

| | |
|---|---|
| | • Addition facts involving 9 can be changed to an equivalent fact with 10. Addition facts involving 8 can be changed to an equivalent fact with 10.<br>• Two numbers can be added in any order.<br>• Three or more numbers can be grouped and added in any order.<br>• Information in a problem can often be shown using a picture or diagram and used to understand and solve the problem. Some problems can be solved by writing and completing a number sentence or equation.<br>**Topic 3:**<br>• The number relationships of *0-less-than, 1-less-than,* and *2-less-than* are the basis for subtraction facts with 0, 1, and 2.<br>• Addition and subtraction have an inverse relationship. The inverse relationship between addition and subtraction can be used to find subtraction facts; every subtraction fact has a related addition fact.<br>• Some subtraction facts can be found by subtracting from minuend (the larger number) an amount to get to 10 and then subtracting the amount that remains.<br>• Sometimes the answer to one problem or question is needed to find the answer to another problem or question.<br>**Topic 4:**<br>• Repeated addition involves joining equal groups.<br>• An array involves joining equal groups and is one way to think about repeated addition.<br>• Information in a problem can often be shown using a diagram and used to solve the problem. Some problems can be solved by writing and completing a number sentence or equation. |

**Unit Learning Targets**

*Students will ...*

- add and subtract within 100 to solve 1- and 2-step word problems with unknowns in any position.
- add up to four 2-digit numbers using place value and properties of operations.
- understand that numbers can be added in any order.
- understand that numbers can be grouped in any order, then added.
- add and subtract fluently within 20 mentally using 10 as a benchmark.
- use a variety of strategies to add and subtract within 100.
- write an addition equation with repeated equal addends from a rectangular array of up to 5 rows and 5 columns, then solve to find the total number.

- apply addition and subtraction strategies based on place value and properties of operations, then explain why they work using drawings or objects.
- know from memory all sums of two 1-digit numbers by the end of Grade 2.

## Evidence of Learning

**Summative Assessment (14 days per topic)**
Each topic has a summative test and performance assessment.

**Materials needed:** listed in each topic as per teacher's guide for that topic.

**Teacher Resources:**
*enVision Math: Realize Edition* Topic 1, *Understanding Addition and Subtraction enVision Math Common Core: Realize Edition* Topic 2, *Addition Strategies*
*enVision Math Common Core: Realize Edition* Topic 3, *Subtraction Strategies enVision Math Common Core: Realize Edition* Topic 4, *Working with Equal Groups*

**Formative Assessments**

- teacher observation
- homework
- Lesson *Additional Activity*
- prior knowledge assessment
- guided practice
- Lesson *Quick Check*
- *Daily Common Core Review*

## Topic/Lesson Plans

| Topic | Timeframe |
|---|---|
| Topic 1<br>*Understanding Addition and Subtraction* | 14 days |
| Topic 2<br>*Addition Strategies* | 14 days |
| Topic 3<br>*Subtraction Strategies* | 14 days |
| Topic 4<br>*Working with Equal Groups* | 14 days |

**Teacher Notes:**
This unit consists of four topics from the *enVision Math* series with anywhere from 4 to 7 lessons per topic. These four topics address the Operations and Algebraic Thinking domain of the Common Core Standards for Mathematics for Grade 2 students. In addition, these four topics address all eight of the Standards for Mathematical Practice.

Essential questions and enduring understandings were taken directly from the textbook series used by the district, *enVision Math Common Core: Realize Edition*

**Curriculum Development Resources**

Click the links below to access additional resources used to design this unit:

NJDOE. "Model Curriculum: Mathematics (K-12) - Grade 2." *Model Curriculum: Mathematics (K-12) - Grade 2*. New Jersey Dept. of Education, n.d. Web. 08 Apr. 2015. <http://www.state.nj.us/education/modelcurriculum/math/1.shtml>.

Charles, Randall. *enVision Math Common Core*. Realize ed. Grade 1. Upper Saddle River: Pearson Education, 2015. Print. enVision Math

"Grade 2 » Operations & Algebraic Thinking." Grade 2 » Operations & Algebraic Thinking. N.p., n.d. Web. 08 Apr. 2015.

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| Topic 1 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Content Area: Mathematics** | | | | | | | | | |
| **Topic Title:** *Understanding Addition and Subtraction* | | | | | | | | **Timeframe:** 14 days | |
| **Lesson Components** | | | | | | | | | |
| **21st Century Themes** | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy |
| **21st Century Skills** | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | |
| **Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts, | | | | | | | | | |
| **Integration of Technology:** digital resources are part of this series | | | | | | | | | |

**Materials needed:**

- number cubes
- counters
- connecting cubes
- paper bag
- number cards 0-11 and 12-20
- paper
- crayons
- part-part-whole mat
- index cards
- two-color counters

**Topic 1 Vocabulary:**

- part
- whole
- add
- sum
- addition sentence
- plus (+)
- equals (=)
- join
- subtract
- difference
- subtraction sentence
- minus (-)
- separate
- more

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- fewer
- related
- fact family

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|
| Students:<br>● will join two groups and write addition number sentences to tell how many in all. (1-1)<br>● will model joining stories and write an addition number sentence. (1-2)<br>● will solve problems by writing subtraction number sentences. (1-3)<br>● will write subtraction sentences to solve stories about separating groups. (1-4)<br>● will write subtraction sentences to solve stories about comparing groups. (1-5)<br>● will write related addition and subtraction facts. (1-6)<br>● will use counters to model and solve addition and subtraction problems. (1-7) | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Standards Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |

**Differentiation**

- TE pg. 1E
- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math Common Core: Realize Edition* Topic 1 – 4 teacher's guides, workbooks, digital

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resources, manipulatives

| Topic 2 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Content Area: Mathematics** | | | | | | | | | | | | |
| **Topic Title:** *Addition Strategies* | | | | | | | | **Timeframe:** 14 days | | | | |
| **Lesson Components** | | | | | | | | | | | | |
| **21st Century Themes** | | | | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy | | | |
| **21st Century Skills** | | | | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | | | | |
| **Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts, | | | | | | | | | | | | |
| **Integration of Technology:** digital resources are part of this series | | | | | | | | | | | | |

**Materials needed:**

- counters
- paper clips
- pencils
- number cards 0-11
- connecting cubes
- paper bags
- crayons
- beads
- index cards
- double ten-frame mat
- two-color counters
- number cubes
- cotton balls

**Topic 2 Vocabulary:**

- doubles
- near doubles
- addend
- number sentence

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| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|
| Students:<br>● will master addition facts involving 0, 1, and 2. (2-1)<br>● will master addition facts in which both addends are the same. (2-2)<br>● will master addition facts where the addends are 1 apart. (2-3)<br>● will use the commutative property to find sums. (2-4)<br>● will find the sum of three addends using any order. (2-5)<br>● will find sums by making 10 when adding. (2-6)<br>● will draw a picture and write a number sentence to solve a story problem. (2-7) | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |

**Differentiation**

- TE pg. 35C
- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math Common Core: Realize Edition* Topic 1 – 4 teacher's guides, workbooks, digital resources, manipulatives

| Topic 3 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Content Area: Mathematics** | | | | | | | | | |
| **Topic Title:** *Subtraction Strategies* | | | | | | | **Timeframe:** 14 days | | |
| **Lesson Components** | | | | | | | | | |
| **21st Century Themes** | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy |
| **21st Century Skills** | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | |
| **Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts, | | | | | | | | | |
| **Integration of Technology:** digital resources are part of this series | | | | | | | | | |

**Materials needed:**

- number cards 0-11 and 12-20
- counters
- connecting cubes
- paper and pencil
- number cubes
- subtraction fact cards
- two-color counters
- cups
- double ten-frame mat

**Topic 3 Vocabulary:**

- no new vocabulary words

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|
| Students:<br>● will subtract 0, 1, and 2 from a number by applying the concepts of *0-less-than, 1-less-than,* and *2-less-than* a number. (3-1)<br>● will use addition | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |

| | | |
|---|---|---|
| doubles facts to | | |

| | | |
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| subtract. (3-2)<br>● will find differences by using related addition facts to 10. (3-3)<br>● will find differences by using related addition facts to 18. (3-4)<br>● will use the *make-10* strategy to subtract. (3-5)<br>● will solve two-question problems by using the answer to the first question to answer the second question. (3-6) | a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | |

**Differentiation**

- TE pg. 69C
- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math Common Core: Realize Edition* Topic 1 – 4 teacher's guides, workbooks, digital resources, manipulatives

| Topic 4 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Content Area: Mathematics** | | | | | | | | | |
| **Topic Title:** *Working with Equal Groups* | | | | | | **Timeframe:** 14 days | | | |
| **Lesson Components** | | | | | | | | | |
| **21st Century Themes** | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy |
| **21st Century Skills** | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | |

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**Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts,

**Integration of Technology:** digital resources are part of this series

**Materials needed:**

- counters
- paper clips
- pencils
- two-color counters
- crayons
- index cards

**Topic 4 Vocabulary:**

- array

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|
| Students:<br>● will model repeated addition to write number sentences. (4-1)<br>● will build arrays to model repeated addition situations. (4-2)<br>● will use repeated addition to solve problems. (4-3)<br>● will draw pictures and write number sentences to solve addition problems. (4-4) | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |

**Differentiation**

- TE pg. 99C
- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

# 2nd Grade Wandell School Math Curricula

Aligned to the New Jersey Student Learning Standards

**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS**

**Resources Provided**

- *enVision Math Common Core: Realize Edition* Topic 1 – 4 teacher's guides, workbooks, digital resources, manipulatives

## Unit 2 Overview

**Content Area: Mathematics**

**Unit Title:** Number and Operations in Base Ten

**Target Course/Grade Level: Grade 2**

**Unit Summary**

This unit involves students in making sense of our number system by continuing their experiences with counting numbers. Counting experiences provide children with an exposure to place value which is the basis of the structure of our number system. Students use connecting cubes to model numbers; the cubes give students opportunities to observe the combinations of tens and ones needed to create a given number and to compose and decompose tens when adding two numbers. Children use a hundreds chart to observe patterns in the number system. These experiences strengthen students' number sense and form the foundation for success in problem solving. Students are taught to use place value to develop mental addition and subtraction strategies. The focus is on understanding the structure of numbers to add and subtract, rather than arbitrary rules. By the end of the unit, students are adding and subtracting within 1,000 using strategies based on place-value understanding, properties of operations, and the relationship of addition and subtraction as inverse operations. Throughout the unit, students apply their number sense to solve one- and two-step word problems.

**Primary interdisciplinary connections:** Reading, Language Arts, Science, Social Studies

**21st century themes:**

- Critical Thinking/Problem Solving
- Communication
- Collaboration

**Unit Rationale**

A firm grounding in the big picture of how operations with numbers interrelate and how they are vital tools in life can help students build the positive attitudes that will help them become confident, efficient, and effective problem-solvers (McConnell, 2011)

Algebraic thinking develops problem-solving skills. Students must analyze what they know and don't know about a problem, determine a method for finding solutions, and check results for accuracy. Algebra provides students with resources for dealing with real-world situations in a "systematic, analytic manner." (McConnell, 2011)

Recognizing, analyzing and constructing patterns helps to build a "strong foundation of algebra readiness", and is central to both art and science. (McConnell, 2011)

## Learning Targets

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**Standards**

- 2.NBT.A.1a 100 can be thought of as a bundle of ten tens — called a "hundred."
- 2.NBT.A.1b The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
- 2.NBT.A.2 Count within 1000; skip-count by 5s, 10s, and 100s
- 2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
- 2.NBT.A.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.
- 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.
- 2.NBT.B.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.
- 2.NBT.B.8 Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900
- 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.
- 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.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 2s; write an equation to express an even number as a sum of two equal addends.
- 2.MD.B.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

**Content Statements**

- Understand place value.
- Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones.
- Use place value understanding and properties of operations to add and subtract.
- Represent and solve problems involving addition and subtraction.
- Work with equal groups of objects to gain foundations for multiplication.
- Relate addition and subtraction to length.

| CPI # | Cumulative Progress Indicator (CPI) from NJDOE Model Curriculum |
|---|---|
| 2.NBT.A.1a | • Represent a 3-digit number as specific amounts of 100s, 10s, and 1s.<br>• Identify 10 tens as 100 |

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| | |
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| 2.NBT.A.1b | Represent the century numbers as a 2, 3, 4, . . .9 followed by two zeros to indicate no tens and no ones. |
| 2.NBT.A.2 | Skip count by 5s, 10s, and 100s to 1000 beginning at any multiple of 1, 5, 10, or 100. |
| 2.NBT.A.3 | ● Read numbers to 1,000 using base-ten numerals, number names and expanded form.<br>● Write numbers to 1,000 using base-ten numerals, number names and expanded form. |
| 2.NBT.A.4 | Use <, >, and = to record the results of comparing two 3-digit number by decomposing the 3-digit number into 100s, 10s, and 1s. |
| 2.NBT.B.5 | Use a variety of strategies (place value, properties of operations, and/or the relationship between addition and subtraction) to fluently add and subtract within 100. |
| 2.NBT.B.6 | Add up to four 2-digit numbers based on place value and properties of operations. |
| 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.8 | Mentally add 10 or 100 to a given number 100-900; and mentally subtract 10 or 100 from a given number 100-900 |
| 2.NBT.B.9 | Apply addition and subtraction strategies based on place value and the properties of operations and explain why they work using drawings or objects. |
| 2.OA.A.1 | Add and subtract within 100 to solve 1- and 2-step word problems with unknowns in any position. |
| 2.OA.C.3 | ● Recognize that in groups of objects (up to 20), can be counted by 2s, and that in groups of odd numbers, objects will not pair up evenly (one will be left over).<br>● Write an equation to illustrate that all even numbers can be formed from the addition of two equal addends. |
| 2.MD.B.6 | Use a number line of equally spaced points to represent whole number sums and differences (within 100) related to length |

**Unit Essential Questions**

- Topic 5: How can numbers to 100 be shown and compared?
- Topic 6: How can sums be found mentally?
- Topic 7: How can differences be found mentally?
- Topic 8: What is a standard procedure for adding two-digit numbers?
- Topic 9: What is a standard procedure for subtracting two-digit numbers?
- Topic 10: What number patterns are helpful I reading and writing numbers to 1,000?
- Topic 11: What are the ways to add and subtract three-digit numbers?

**Unit Enduring Understandings Topic 5:**

- In a two-digit number, the tens digit tells how many groups of ten and the ones digit tells the number of ones.
- The numbers 21-99 are written by joining two number words that describe the number of tens and the number of ones. Numbers through 20 are each represented by a unique number word.
- Our place value number system makes it easy to name the number that is 10 more or 10 less than any other given number by simply adjusting the digit in the tens place.
- Numbers can be used to tell how many.

| | |
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| | ● Place value can be used to compare and order |

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| | numbers.<br>● The position words *before* and *after* can be used to explain number relationships.<br>● Some numbers can be divided into equal parts (even numbers) and some cannot (odd numbers).<br>● In order to solve some problems, data need to be selected from a source outside the statement of the problem, like a chart.<br>**Topic 6:**<br>● Adding tens is like adding ones.<br>● When adding a number less than ten to a two-digit number using the traditional algorithm, it may be necessary to rename 10 ones as 1 ten.<br>● Two-digit numbers can be broken apart using tens and ones and added in different ways.<br>● Patterns on a hundred chart can be used to add numbers and to develop mental math strategies and number sense.<br>● Adding groups of tens is similar to adding numbers less than ten.<br>● Some problems can be solved by identifying elements that repeat in a predictable way.<br>**Topic 7:**<br>● Subtracting tens is like subtracting ones.<br>● To find parts of 100, add on ones to make a ten and count on by tens to reach 100.<br>● Patterns in a hundred chart can be used to subtract numbers and to develop mental math strategies and number sense.<br>● Subtracting groups of tens is similar to subtracting numbers less than ten.<br>● Some problems have data missing needed to find the answer, and some problems have extra data not needed to solve the problem.<br>**Topic 8:**<br>● 10 ones can be regrouped for 1 ten.<br>● The standard addition algorithm for two-digit and one-digit numbers breaks the calculation into simpler calculations using place value, starting with the ones and then the tens. Answers to the simpler calculations are used to give the final sum.<br>● The standard algorithm for adding two-digit and two-digit numbers is just an extension of the |

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| | algorithm for adding two-digit and one-digit |

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| | numbers. The ones are added first, and then the tens.<br>● All sums and differences can be found using models (cubes). Some calculations are done easily using mental math or paper and pencil. More complex calculations can be done using a calculator.<br>● Sums can be represented as lengths on a number line diagram of addition.<br>● Three and four two-digit numbers can be grouped and added in any order.<br>● Information in a problem can often be shown using a diagram to solve the problem. Some problems can be solved by writing and completing a number sentence or equation.<br>**Topic 9:**<br>● 1 ten can be regrouped for 10 ones.<br>● The standard subtraction algorithm breaks the calculation into simpler calculations starting with the ones and then the tens.<br>● The standard algorithm for subtracting two-digit and two-digit numbers is just an extension of the algorithm for subtracting two-digit and one-digit numbers.<br>● All sums and differences can be found using models (cubes). Some calculations are done easily using mental math or paper and pencil. More complex calculations can be done using a calculator.<br>● Differences can be represented as lengths in a number line diagram of subtraction.<br>● The inverse relationship between addition and subtraction can be used to check subtraction.<br>● Sometimes the answer to one problem/question is needed to find the answer to another problem/question.<br>**Topic 10:**<br>● Numbers can be used to tell how many.<br>● Our number system is based on groups of ten. Whenever we get 10 in one place value, we move to the next greater place value.<br>● Adding or subtracting hundreds or tens is similar to adding or subtracting single-digit numbers.<br>● Counting and place-value patterns can be seen on a hundreds chart. |

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| | ● Number lines can help with skip counting.<br>● Place value can be used to compare and order numbers.<br>● Some problems can be solved by identifying elements that repeat in a predictable way.<br>**Topic 11:**<br>● There are a variety of ways to add three-digit numbers.<br>● There is more than one way to do a mental calculation. Techniques for doing addition or subtraction calculations mentally involve changing the numbers or the expressions so the calculation is easy to do mentally.<br>● There is more than one way to estimate a sum. Rounding gives one way to estimate sums.<br>● The standard addition algorithm for three-digit numbers breaks the calculation into simpler calculations using place value starting with the ones, then the tens, and then the hundreds.<br>● There is a variety of ways to subtract three-digit numbers.<br>● The standard subtraction algorithm for three- digit numbers breaks the calculation into simpler calculations using place value starting with the ones, then the tens, and then the hundreds.<br>● Some problems can be solved by reasoning about the conditions in the problem. |

**Unit Learning Targets**
*Students will be able to . .*

- represent a number as specific amounts of 100s, 10s, and 1s.
- identify 10 tens as 100.
- Represent the century numbers as a 2, 3, 4, . .9 indicating the number of hundreds, followed by two zeros, representing no tens and no ones.
- Skip count by 5s and 10s to 100.
- Read and write numbers to 1,000 using base-ten numerals, number names, and expanded form.
- Use symbols <, >, and = to record the results of comparing two 3-digit numbers by decomposing the number into 100s, 10s and 1s.
- Add up to four 2-digit numbers using strategies based on place value and properties of operations.
- Count within 1,000 by 1s, 5s, 10s, and 100s beginning at any multiple of 1, 5, 10 or 100.
- apply a variety of strategies to add and subtract within 1000.
- Apply properties of place value to mentally add or subtract 10 or 100 from a given number within 100- 900.
- Explain why a chosen addition or subtraction strategy works with drawings or objects.

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- Understand that when adding and subtracting it may be necessary to compose or decompose tens or hundreds.
- Add and subtract 1- and 2-step word problems within 100 with unknowns in any position.
- Recognize that objects in groups of even numbers can be counted by 2s and objects in groups of odd numbers will not pair up evenly.
- Write an equation to illustrate that all even numbers can be formed from the addition of two equal addends.
- Use a number line to represent whole number sums and differences related to length within 100 by using equally spaced points.

## Evidence of Learning

**Summative Assessment (14 days per topic)**
Each topic has a summative test and performance assessment.

**Materials needed:** listed in each topic as per teacher's guide for that topic.

**Teacher Resources:**
*enVision Math Common Core: Realize Edition* Topic 5, *Place Value to 100 enVision Math: Realize Edition* Topic 6, *Mental Addition enVision Math Common Core: Realize Edition* Topic 7, *Mental Subtraction*
*enVision Math: Realize Edition* Topic 8, *Adding Two-Digit Numbers enVision Math Common Core: Realize Edition* Topic 9, *Subtracting Two-Digit Numbers enVision Math: Realize Edition* Topic 10, *Place Value to 1,000*
*enVision Math Common Core: Realize Edition* Topic 11, *Three-Digit Addition and Subtraction*

**Formative Assessments**

- teacher observation
- homework
- Lesson *Additional Activity*
- prior knowledge assessment
- guided practice
- Lesson *Quick Check*
- *Daily Review*

## Topic/Lesson Plans

| Topic | Timeframe |
|---|---|
| Topic 5<br>*Place Value to 100* | 14 days |
| Topic 6<br>*Mental Addition* | 14 days |
| Topic 7<br>*Mental Subtraction* | 14 days |
| Topic 8<br>*Adding Two-Digit Numbers* | 14 days |
| Topic 9<br>*Subtracting Two-Digit Numbers* | 14 days |
| Topic 10<br>*Place Value to 1,000* | 14 days |
| Topic 11<br>*Three-Digit Addition and Subtraction* | 14 days |

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**Teacher Notes:**

This unit consists of seven topics from the *enVision Math Common Core* series with anywhere from 5 to 11 lessons per topic. These seven topics address the Number and Operations – Base Ten domain of the Common Core Standards for Mathematics for Grade 2 students. In addition, these four topics address all eight of the Standards for Mathematical Practice.

Essential questions and enduring understandings were taken directly from the textbook series used by the district, *enVision Math Common Core: Realize Edition*

**Curriculum Development Resources**

Click the links below to access additional resources used to design this unit:

NJDOE. "Model Curriculum: Mathematics (K-12) - Grade 2." *Model Curriculum: Mathematics (K-12) - Grade 2*. New Jersey Dept. of Education, n.d. Web. 08 Apr. 2015. <http://www.state.nj.us/education/modelcurriculum/math/1.shtml>.

Charles, Randall. *enVision Math*. Realize ed. Grade 1. Upper Saddle River: Pearson Education, 2015. Print. enVision Math Common Core

"Grade 2 » Number and Operations – Base Ten" Grade 2 » Number and Operations – Base Ten. N.p., n.d. Web. 10 Apr. 2015.

| Topic 5 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Content Area: Mathematics** | | | | | | | | | |
| **Topic Title:** *Place Value to 100* | | | | | | | **Timeframe:** 14 days | | |
| **Lesson Components** | | | | | | | | | |
| **21st Century Themes** | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy |
| **21st Century Skills** | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | |
| **Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts, | | | | | | | | | |
| **Integration of Technology:** digital resources are part of this series | | | | | | | | | |

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**Materials needed:**

- number cube 1-3
- game markers
- tens rods
- ones units
- connecting cubes
- number cards 0-11
- place value mat A
- index cards
- marker
- hundred chart
- sticky note
- crayons

**Topic 5 Vocabulary:**

- digits
- number word
- > (greater than)
- < (less than)
- = (equal to)
- before
- after
- even
- odd

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|
| Students:<br>● will group objects into tens and ones to show two-digit numbers. (5-1)<br>● will read and write number words for numbers 0-99. (5-2)<br>● will compare two-digit numbers using symbols. (5-3)<br>● will identify and write numbers that are one before and one after | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check* | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |

| | | |
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| given numbers. They | | |

| | | |
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| will also count on and count back to identify missing numbers to 100. (5-4)<br>● will identify and write numbers that are 10 more and 10 less than given numbers. (5-5)<br>● will learn to identify even and odd numbers. (5-6)<br>● will use data from a chart to solve problems. (5-7) | b. prescribe differentiated instruction<br>c. assess leveled homework | |

**Differentiation**

- TE pg. 121C
- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math Common Core: Realize Edition* Topic 5-11 teacher's guides, workbooks, digital resources, manipulatives

| Topic 6 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Content Area: Mathematics** | | | | | | | | | |
| **Topic Title:** *Mental Addition* | | | | | | | | **Timeframe:** 14 days | |
| **Lesson Components** | | | | | | | | | |
| **21st Century Themes** | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy |
| **21st Century Skills** | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | |
| **Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts, | | | | | | | | | |

**Integration of Technology:** digital resources are part of this series

**Materials needed:**

- counters
- number cards 0-11 and 12-20
- place value blocks
- paper bags
- index cards
- single ten-frame mat
- double ten-frame mat
- two-color counters
- little ten-frames
- hundred chart
- crayons
- connecting cubes

**Topic 6 Vocabulary:**

- mental math
- tens digit
- next ten

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|
| Students:<br>● will mentally add multiples of 10 to a two-digit number. (6-1)<br>● will mentally add a two-digit number and a one-digit number. (6-2)<br>● will add a two-digit number to a two-digit number using mental math. (6-3)<br>● will use a hundred chart to add two 2-digit numbers. (6-4)<br>● will add using multiples of 10. (6-5)<br>● will use number patterns to solve problems. (6-6) | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |

**Differentiation**

- TE pg. 155C
- embedded within each lesson

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- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math Common Core: Realize Edition* Topic 5-11 teacher's guides, workbooks, digital resources, manipulatives

| Topic 7 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Content Area: Mathematics** | | | | | | | | | |
| **Topic Title:** *Mental Subtraction* | | | | | | | **Timeframe:** 14 days | | |
| **Lesson Components** | | | | | | | | | |
| **21st Century Themes** | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy |
| **21st Century Skills** | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | |
| **Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts, | | | | | | | | | |
| **Integration of Technology:** digital resources are part of this series | | | | | | | | | |

**Materials needed:**

- game markers
- number cards 0-9
- counters
- little ten-frames
- crayons
- hundred chart
- place value blocks
- paper
- pencils
- connecting cubes

**Topic 7 Vocabulary:**

- no new vocabulary

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| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|
| Students:<br>● will subtract multiples of 10 from two-digit numbers using mental math. (7-1)<br>● will find the missing part of 100 by counting up from the given part. (7-2)<br>● will find the difference between two-digit numbers less than 100. (7-3)<br>● will explore different strategies to subtract two-digit numbers. (7-4)<br>● will determine whether they can solve problems with missing information or extra information. (7-5) | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |
| **Differentiation**<br>● TE pg. 185C<br>● embedded within each lesson<br>● differentiated worksheets/activities for each lesson<br>● leveled homework for each lesson<br>● reteaching resources at the end of each lesson | | |
| **Resources Provided**<br>● *enVision Math Common Core: Realize Edition* Topic 5-11 teacher's guides, workbooks, digital resources, manipulatives | | |

| Topic 8 | |
|---|---|
| **Content Area: Mathematics** | |
| **Topic Title:** *Adding Two-Digit Numbers* | **Timeframe:** 14 days |

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| Lesson Components | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **21st Century Themes** | | | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy | | |
| **21st Century Skills** | | | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | | | |
| **Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts, Art | | | | | | | | | | | |
| **Integration of Technology:** digital resources are part of this series | | | | | | | | | | | |

**Materials needed:**

- unit cubes
- pencils
- paper clips
- place value mat A
- number cards 0-11
- connecting cubes
- colored pencils
- index cards
- tape
- number cubes

**Topic 8 Vocabulary:**

- regroup
- number line

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|
| Students:<br>● will use models to add a one-digit number to a two-digit number. (8-1)<br>● will use concrete models to add a one- digit number to a two- digit number and decide if regrouping is needed. (8-2)<br>● will add a one-digit number to a two-digit number, regroup if necessary, and record | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check* | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |

# 2nd Grade Wandell School Math Curricula

Aligned to the New Jersey Student Learning Standards

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| | | |
|---|---|---|
| the process in a vertical addition frame. (8-3)<br>● will use place-value models and the standard algorithm to add two 2-digit numbers. (8-4)<br>● will use the standard algorithm symbolically to add two-digit numbers with, and without, regrouping. (8-5)<br>● will use number lines to model two-digit addition. (8-6)<br>● will use paper and pencil to add three and four 2-digit numbers. (8-7)<br>● will use different methods to help them solve addition problems. (8-8)<br>● will draw pictures and write number sentences to solve addition problems. (8-9) | b. prescribe differentiated instruction<br>c. assess leveled homework | |

**Differentiation**

- TE pg. 211C
- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math Common Core: Realize Edition* Topic 5-11 teacher's guides, workbooks, digital resources, manipulatives

**Topic 9**

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# 2nd Grade Wandell School Math Curricula

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Content Area: Mathematics** | | | | | | | | | | | |
| **Topic Title:** *Subtracting Two-Digit Numbers* | | | | | | | | **Timeframe:** 14 days | | | |
| **Lesson Components** | | | | | | | | | | | |
| **21st Century Themes** | | | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy | | |
| **21st Century Skills** | | | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | | | |
| **Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts | | | | | | | | | | | |
| **Integration of Technology:** digital resources are part of this series | | | | | | | | | | | |

**Materials needed:**

- connecting cubes
- paper clips
- pencils
- place value mat A
- number cubes
- number cards 0-11
- colored pencils
- index cards
- tape

**Topic 9 Vocabulary:**

- no new vocabulary

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|

| | | |
|---|---|---|
| Students:<br>● will regroup 1 ten as 10 ones when subtracting. (9-1)<br>● will use models to subtract a one-digit number from a two-digit number with or without regrouping. (9-2)<br>● will subtract a one-digit number from a two-digit number with and without regrouping | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |

| | | |
|---|---|---|
| using the standard algorithm. (9-3)<br>● will use models to subtract two-digits numbers, with and without regrouping. (9-4)<br>● will use the standard subtraction algorithm to subtract a two-digit number from another two-digit number. (9-5)<br>● will use number lines to model two-digit subtraction. (9-6)<br>● will relate addition to subtraction by using one operation to check the other. (9-7)<br>● will use different methods to solve two-digit subtraction problems. (9-8)<br>● will solve two-question problems. They will select the operation to solve each question. (9-9) | a. lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | |

**Differentiation**

- TE pg. 253C
- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math Common Core: Realize Edition* Topic 5-11 teacher's guides, workbooks, digital resources, manipulatives

# Topic 10

# 2nd Grade Wandell School Math Curricula

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Content Area: Mathematics** | | | | | | | | | | | |
| **Topic Title:** *Place Value to 1,000* | | | | | | | | **Timeframe:** 14 days | | | |
| **Lesson Components** | | | | | | | | | | | |
| **21st Century Themes** | | | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy | | |
| **21st Century Skills** | | | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | | | |
| **Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts | | | | | | | | | | | |
| **Integration of Technology:** digital resources are part of this series | | | | | | | | | | | |

**Materials needed:**

- game markers
- number cards 10-99
- pencils
- paper clips
- blank hundreds charts
- place value blocks
- tape
- stapler
- index cards
- number cube
- blank spinners

**Topic 10 Vocabulary:**

- hundreds
- thousands
- expanded form
- standard form
- number word
- compare

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|

| | | |
|---|---|---|
| Students:<br>● will count by hundreds to 1,000. (10-1)<br>● will use place-value models to show numbers up to 1,000. | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets |

| | | |
|---|---|---|
| (10-2)<br>● will identify and record three-digit numbers in expanded form, standard form, and number word form. (10-3)<br>● will add and subtract multiples of 10 or 100 to and from a three-digit number without regrouping. (10-4)<br>● will find, identify, and apply number patterns to numbers on a hundred chart. (10-5)<br>● will skip count by different amounts on the number line and use the patterns to identify the numbers that come next. (10-6)<br>● will compare three-digit numbers using the symbols <, >, and =. (10-7)<br>● will solve problems by finding number patterns. (10-8) | Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | ● leveled homework |

**Differentiation**

- TE pg. 295C
- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math Common Core: Realize Edition* Topic 5-11 teacher's guides, workbooks, digital resources, manipulatives

# Topic 11

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Content Area: Mathematics** | | | | | | | | | | | |
| **Topic Title:** *Place Value to 1,000* | | | | | | | | **Timeframe:** 14 days | | | |
| **Lesson Components** | | | | | | | | | | | |
| **21st Century Themes** | | | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy | | |
| **21st Century Skills** | | | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | | | |
| **Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts, Art | | | | | | | | | | | |
| **Integration of Technology:** digital resources are part of this series | | | | | | | | | | | |

**Materials needed:**

- counters
- pencils
- paper
- place value blocks
- place value mat B

**Topic 11 Vocabulary:**

- no new vocabulary

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|

| | | |
|---|---|---|
| Students:<br>● will explore different strategies for adding three-digit numbers. (11-1)<br>● will add three-digit numbers mentally without regrouping. (11-2)<br>● will choose a method to see if the sum of two 3-digit numbers is enough to equal or exceed a given number. (11-3)<br>● will use place-value blocks to add two 3-digit numbers with regrouping. (11-4)<br>● will use paper and | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |

| | | |
|---|---|---|
| pencil to add two 3-digit numbers with regrouping. (11-5)<br>● will explore different strategies to subtract three-digit numbers. (11-6)<br>● will be given a quantity and one of its parts, and then will find the missing part by counting on or counting back. (11-7)<br>● will use estimation to select two numbers that have a given difference. (11-8)<br>● will use models to subtract three-digit numbers with regrouping. (11-9)<br>● will subtract three-digit numbers using a standard algorithm. (11-10)<br>● will use logical reasoning to solve problems. (11-11) | | |

**Differentiation**

- TE pg. 333C
- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math Common Core: Realize Edition* Topic 5-11 teacher's guides, workbooks, digital resources, manipulatives

## Unit 3 Overview

**Content Area: Mathematics**

**Unit Title:** Geometry

**Target Course/Grade Level: Grade 2**

**Unit Summary**

In this unit, children continue to explore both plane and solid (3D) figures with a focus on defining attributes (number of sides, number of angles). When given a defining attribute, students are asked to draw the appropriate figure. Students then partition rectangles into equal-sized squares and then count the squares to see how many fill the rectangle. This activity lays the groundwork for learning how to calculate area in grade 3. Students continue their explorations into partitioning rectangles and circles into equal pieces and describe the equal shares, and the whole in terms of the equal shares. Students learn that equal shares must have the same area, but do not have to have the same shape. They learn specific vocabulary words with which to describe the shares of the rectangle. These activities are the precursors to fraction work in grade 3; laying the groundwork for fraction understanding.

**Primary interdisciplinary connections:** Reading, Language Arts, Science, Social Studies

**21st century themes:**

- Critical Thinking/Problem Solving
- Communication
- Collaboration

**Unit Rationale**

Geometry connects mathematical understandings with real-world objects and applications.

## Learning Targets

**Standards**

- 2.G.A.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.[1] Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
- 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.G.A.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

[1] Sizes are compared directly or visually, not compared by measuring.

**Content Statements**

- Reason with shapes and their attributes.

| Indicator | |
|---|---|
| 2.G.A.1 | • Recognize and draw shapes having a given attribute (number of angles, number of equal faces).<br>• Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. |
| 2.G.A.2 | Partition a rectangle into rows and columns of same-size squares and count to find the total number. |

| | |
|---|---|
| 2.G.A.3 | • Partition circles and rectangles into two, three, or four equal shares. |

| | |
|---|---|
| | ● Describe the shares using the words halves, thirds, half of, third of, etc.<br>● Describe the whole as two halves, three thirds, four fourths, etc.<br>● Recognize that equal shares of identical wholes do not have to have the same shape. |

| **Unit Essential Questions** | **Unit Enduring Understandings Topic 12:** |
|---|---|
| ● Topic 12: How can shapes and solids be described, compared, and used to make other shapes? | ● Three-dimensional or solid figures have length, width, and height. Many can be described, classified, and analyzed by their faces or flat surfaces, edges, and vertices. Many everyday objects closely approximate standard geometric solids.<br>● A shape can be identified by the number of its sides, vertices, or angles.<br>● Rectangles can be partitioned into equal shares.<br>● A region can be divided into equal-sized parts in different ways. Equal-sized parts of a region have the same area, but not necessarily the same shape.<br>● Some problems can be solved by reasoning about the conditions in the problem. |

**Unit Learning Targets**

*Students will be able to . .*

- Recognize shapes having a given attribute.
- Draw shapes having a given attribute.
- Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
- Partition a rectangle into rows and columns of same size squares and count to find the total number.
- partition circles and rectangles in to two, three, or four equal shares.
- Use the words halves, thirds, half of, third of, to describe the equal shares.
- Describe the whole as two halves, three thirds, four fourths, etc.
- Recognize that equal shares do not have to have the same shape.

## Evidence of Learning

**Summative Assessment (14 days per topic)**

Each topic has a summative test and performance assessment.

**Materials needed:** listed in each topic as per teacher's guide for that topic.

**Teacher Resources:**

*enVision Math Common Core: Realize Edition* Topic 12, *Geometry*

**Formative Assessments**

| | |
|---|---|
| ● teacher observation | • prior knowledge assessment |
| ● homework | • guided practice |

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- Lesson *Additional Activity*
- Lesson *Quick Check*
- *Daily Common Core Review*

| Topic/Lesson Plans | |
|---|---|
| **Topic** | **Timeframe** |
| Topic 12<br>*Geometry* | 14 days |

**Teacher Notes:**

This unit consists of 1 topic from the *enVision Math Common Core* series with seven lessons in the topic. This topic addresses the Geometry domain of the Common Core Standards for Mathematics for Grade 2 students. In addition, this topic addresses all eight of the Standards for Mathematical Practice.

Essential questions and enduring understandings were taken directly from the textbook series used by the district, *enVision Math Common Core: Realize Edition*

**Curriculum Development Resources**

Click the links below to access additional resources used to design this unit:

NJDOE. "Model Curriculum: Mathematics (K-12) - Grade 2." *Model Curriculum: Mathematics (K-12) - Grade 2*. New Jersey Dept. of Education, n.d. Web. 08 Apr. 2015. <http://www.state.nj.us/education/modelcurriculum/math/1.shtml>.

Charles, Randall. *enVision Math Common Core*. Realize ed. Grade 1. Upper Saddle River: Pearson Education, 2015. Print. enVision Math

"Grade 2 » Geometry » Geometry. N.p., n.d. Web. 10 Apr. 2015.

| Topic 12 | |
|---|---|
| **Content Area: Mathematics** | |
| **Topic Title:** *Geometry* | **Timeframe:** 14 days |
| **Lesson Components** | |
| **21st Century Themes** | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy |

| 21st Century Skills | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration |

**Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts, Art

**Integration of Technology:** digital resources are part of this series

**Materials needed:**

- counters
- paper clips
- pencils
- geometric solids
- clay
- straws
- pipe cleaners
- crayons
- construction paper
- markers
- rulers
- color tiles
- sticky notes

**Topic 12 Vocabulary:**

- sphere
- pyramid
- cylinder
- cone
- cube
- rectangular prism
- solid figure
- flat surface
- face
- edge
- vertex (vertices)
- plane shapes
- circle
- square
- triangle
- rectangle
- polygon
- angle
- side
- quadrilateral

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- pentagon
- hexagon
- rows columns

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|
| Students:<br>● will identify solid figures by their faces or flat surfaces, edges, and vertices. (12-1)<br>● will identify the plane shapes that form the flat surfaces of solid figures. (12-2)<br>● will identify and draw polygons (triangles, quadrilaterals, pentagons, and hexagons) and list their attributes. (12-3)<br>● will determine whether a shape has been divided into equal or unequal parts. If the parts are equal, children will count the parts. (12-4)<br>● will divide rectangles into equal squares and count how many squares are needed to completely partition the rectangle. (12-5)<br>● will divide rectangles into equal shares with different shapes. (12-6)<br>● will use clued to solve riddles about plane shapes and solid figures. (12-7) | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |

**Differentiation**

- TE pg. 383C

- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math Common Core: Realize Edition* Topic 12 teacher's guide, workbooks, digital resources, manipulatives

## Unit 4 Overview

**Content Area: Mathematics**

**Unit Title:** Measurement and Data

**Target Course/Grade Level: Grade 2**

**Unit Summary**

In this unit students learn the to identify the different coins that make up our monetary system, and the value of those coins. They learn to represent varying amounts of money using coin combinations and dollar bills as well as represent money amounts in writing. When writing money amounts students are taught how to correctly use the $ and ¢ symbols and the decimal point. Students solve problems involving two-digit money amounts, applying the addition and subtraction strategies they have learned to add and subtract whole numbers.

The measurement focus in this unit is on measuring length and height using nonstandard and standard units. Students learn to measure to the nearest whole unit using inch rulers, centimeter rulers, yardsticks and meter sticks. They learn to record these measurements to the nearest inch, foot, yard, centimeter, or meter depending upon the measuring tool used.

Students learn to take measurement data and record it on a line plot. Students continue work with pictographs and bar graphs to represent categorical data. In addition, this unit teaches students to tell time to five minutes and record time using A.M. and P.M.

**Primary interdisciplinary connections:** Reading, Language Arts, Science, Social Studies

**21st century themes:**

- Critical Thinking/Problem Solving
- Communication
- Collaboration

**Unit Rationale**

Geometric measurement connects the two most critical domains of early mathematics, geometry and number, with each providing conceptual support to the other. Measurement is central to mathematics, to other areas of

mathematics (e.g., laying a sensory and conceptual foundation for arithmetic with fractions),

## Learning Targets

**Standards**

- 2.MD.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
- 2.MD.A.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
- 2.MD.A.3 Estimate lengths using units of inches, feet, centimeters, and meters.
- 2.MD.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.
- 2.MD.B.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
- 2.MD.C.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
- 2.MD.C.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?
- 2.MD.D.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
- 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.
- 2.NBT.A.2 Count within 1000; skip-count by 5s, 10s, and 100s.
- 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.
- 2.NBT.B.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.

**Content Statements**

- Measure and estimate lengths in standard units.
- Relate addition and subtraction to length.
- Work with time and money.
- Represent and interpret data.
- Use place value understanding and properties of operations to add and subtract.
- Understand place value.

| **Indicators** | |
|---|---|
| 2.MD.A.1 | Estimate or measure length using appropriate tools (inches, feet, centimeters, meters). |

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| | |
|---|---|
| 2.MD.A.2/A.3 | Measure and object with two different units of measure (within the same system) and explain that the difference in results is due to the size of the unit of measure. |
| 2.MD.A.4 | Compare the lengths of two objects using the same unit of measure and determine which one is longer. |
| 2.MD.B.5 | Add and subtract within 100 in word problems involving lengths using a symbol to represent the unknown number. |
| 2.MD.C.7 | Tell and write time using analog and digital clocks to the nearest 5 minutes using A.M. and P.M. |
| 2.MD.C.8 | Identify, recognize, and solve word problems with dollar bills, quarters, dimes, nickels, and pennies using the $ and the ¢ symbols appropriately. |
| 2.MD.D.9 | Use tools of measurement to measure lengths of several objects to the nearest whole inch; represent this data on a line plot with appropriate whole number units on the horizontal scale. |
| 2.MD.D.10 | Draw a picture graph or bar graph with up to four categories; solve simple put-together, take-apart and compare problems based on information in the graph. |
| 2.NBT.A.2 | Skip count by 1s, 5s and 10s to 1000 beginning at any multiple of 5. |
| 2.NBT.B.5 | Use a variety of strategies to add and subtract within 100. |
| 2.NBT.B.9 | Apply addition and subtraction strategies based on place value and properties of operations and explain why they work using drawings or objects. |

**Unit Essential Questions**

- Topic 13: What strategies can be used to count money?
- Topic 14: How can sums and differences be estimated?
- Topic 15: What is the process for measuring length?
- Topic 16: How can clocks, bar graphs, and pictographs be used to show data and answer questions?

**Unit Enduring Understandings Topic 13:**

- Specific coins or bills each have a unique value. The size of a coin does not indicate its value.
- Money amounts can usually be counted in different ways. When counting money, it is usually easier to start with the coin or bill with the greatest value.
- The same amount of money can often be represented using different combinations of coins and bills.
- Some problems can be solved by generating a list of outcomes and organizing that list in a systematic way so all outcomes are accounted for.

**Topic 14:**

- The process for adding money, written using cent notation, is the same as adding whole numbers.
- The process for subtracting money, written using cent notation, is the same as subtracting whole numbers.
- Rounding can be used to estimate sums and differences as can place value and number

| | |
|---|---|
| | relationships. |

| | |
|---|---|
| | • Some problems can be solved by making a reasoned first try for what the answer might be, and then through additional reasoning arrive at the correct answer.<br>**Topic 15:**<br>• The length of some objects is measurable.<br>• The length of any object can be used as a measurement unit for length, but a standard unit, such as an inch or centimeter, is always the same length.<br>• The length of any object can be used as a measurement unit for length, but a standard unit is always the same length.<br>• Measurement is a process of comparing a uit to the object being measured. The length of any object can be used as a measurement unit for length.<br>• Measurements in the same unit such as inches, can be added or subtracted in the same way as adding and subtracting whole numbers. The measurement unit needs to be written with the sum or difference.<br>• The length of any two objects can be compared by subtracting to find the difference.<br>• Some problems can be solved by using objects to act out the actions in the problem.<br>**Topic 16:**<br>• Time can be given to the nearest five minutes. Time can be expressed using different units that are related to each other. A.M. and P.M. are used to designate certain time periods.<br>• Time can be expressed as before or after the hour.<br>• A calendar shows days, weeks, and months.<br>• That same time can be stated and written in more than one way.<br>• Data can be organized in different ways.<br>• The lengths of objects can be organized in different ways. A line plot can be used as a visual representation of the relative lengths of object.<br>• Each type of graph is most appropriate for certain kinds of data. Pictographs and bar graphs make it easy to compare data.<br>• Some problems can be solved by making, |

# 2nd Grade Wandell School Math Curricula

Aligned to the New Jersey Student Learning Standards

**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS**

| | |
|---|---|
| | reading, and analyzing a graph. |

**Unit Learning Targets**

*Students will be able to . .*

- estimate lengths of objects
- measure lengths of objects using appropriate tools
- measure in inches, centimeters, feet, and meters
- compare measurements of an object taken with two different units of measure (within the same measurement system) and explain that the difference is due to the size of the unit chosen (there will be more inches than feet for the length of a given object because more of the smaller unit is needed)
- compare lengths of two objects measured with the same unit and determine how much longer one object is than the other.
- Add and subtract within 100 to find the solution to word problems involving length using a symbol to represent the unknown quantity.
- use a number line to find sums and differences related to length using equally spaced points on the number line.
- tell and write time using analog and digital clocks to the nearest five minutes using A.M. and P.M. notation.
- solve word problems involving dollar bills, quarters, dimes, nickels and pennies using the $ and ¢ symbols appropriately.
- use tools of measurement to measure objects to the nearest whole unit.
- represent measurements of several objects to the nearest whole unit on a line plot with appropriate whole number units on the horizontal scale.
- draw a picture graph and bar graph with a single unit scale and up to four categories.
- solve simple put-together, take-apart, and compare problems using information represented in the graph.
- count within 1000 by ones, fives, tens and hundreds.
- choose a strategy (place value, properties of operations, inverse relationship) to add and subtract within 100.
- apply addition and subtraction strategies based on place value and properties of operations and explain why they work using drawings or objects.

## Evidence of Learning

**Summative Assessment (14 days per topic)**

Each topic has a summative test and performance assessment.

**Materials needed:** listed in each topic as per teacher's guide for that topic.

**Teacher Resources:**

*enVision Math Common Core: Realize Edition* Topic 13, *Counting Money enVision Math: Realize Edition* Topic 14, *Money*

*enVision Math Common Core: Realize Edition* Topic 15, *Measuring Length enVision Math Common Core: Realize Edition* Topic 16, *Time, Graphs, and Data*

**Formative Assessments**

- teacher observation
- homework
- prior knowledge assessment
- guided practice

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- Lesson *Additional Activity*
- Lesson *Quick Check*
- *Daily Common Core Review*

**Topic/Lesson Plans**

| Topic | Timeframe |
|---|---|
| Topic 13<br>*Counting Money* | 14 days |
| Topic 14<br>*Money* | 14 days |
| Topic 15<br>*Measuring Length* | 14 days |
| Topic 16<br>*Time, Graphs, and Data* | 14 days |

**Teacher Notes:**
This unit consists of 4 topics from the *enVision Math* series with anywhere from four to nine lessons in each topic. This four topics address the Measurement and Data domain of the NJSLS Standards for Mathematics for Grade 2 students. In addition, these topics address all eight of the Standards for Mathematical Practice.

Essential questions and enduring understandings were taken directly from the textbook series used by the district, *enVision Math: Realize Edition*

**Curriculum Development Resources**
Click the links below to access additional resources used to design this unit:

NJDOE. "Model Curriculum: Mathematics (K-12) - Grade 2." *Model Curriculum: Mathematics (K-12) - Grade 2*. New Jersey Dept. of Education, n.d. Web. 08 Apr. 2015. <http://www.state.nj.us/education/modelcurriculum/math/1.shtml>.

Charles, Randall. *enVision Math Common Core*. Realize ed. Grade 1. Upper Saddle River: Pearson Education, 2015. Print. enVision Math

"Grade 2 » Measurement and Data » Measurement and Data. N.p., n.d. Web. 10 Apr. 2015.

**Topic 13**

**Content Area: Mathematics**

| **Topic Title:** *Counting Money* | **Timeframe:** 14 days |
|---|---|

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| Lesson Components | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **21st Century Themes** | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy |
| **21st Century Skills** | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | |
| **Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts, | | | | | | | | | |
| **Integration of Technology:** digital resources are part of this series | | | | | | | | | |

**Materials needed:**

- game markers
- coins
- paper clips
- pencils
- paper bag
- number cube
- dollar bills

**Topic 13 Vocabulary:**

- half dollar
- quarter
- dime
- nickel
- penny
- coins
- cents (¢)
- greatest value
- least value
- dollar bill
- dollar coin
- dollar sign
- decimal point
- tally mark

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|

| | | |
|---|---|---|
| Students:<br>● will identify the value of a group of half- | **Lesson Sequence**<br>1. Interactive Math Story | ● guided practice *Do You Understand?* question |

| | | |
|---|---|---|
| dollars, quarters, dimes, nickels, and pennies. (13-1)<br>● will count collections of coins that include half-dollars, quarters, dimes, nickels, and pennies. (13-2)<br>● will show the same amount of money using different sets of coins. (13-3)<br>● will count money amounts greater than one dollar and write the amount with a dollar sign and a decimal point. (13-4)<br>● will make an organized list to find different combinations of coins. (13-5) | 2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | ● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |

**Differentiation**

- TE pg. 417C
- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math Common Core: Realize Edition* Topic 13 teacher's guide, workbooks, digital resources, manipulatives

| Topic 14 |
|---|
| **Content Area: Mathematics** |

| **Topic Title:** *Money* | **Timeframe:** 14 days |
|---|---|

| Lesson Components | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **21st Century Themes** | | | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy | | |
| **21st Century Skills** | | | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | | | |
| **Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts, | | | | | | | | | | | |
| **Integration of Technology:** digital resources are part of this series | | | | | | | | | | | |
| **Materials needed:**<br>• counters<br>• coins<br>• connecting cubes<br>**Topic 14 Vocabulary:**<br>• no new vocabulary | | | | | | | | | | | |

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|
| Students:<br>• will complete and record addition problems using two-digit coin amounts. (14-1)<br>• will subtract using two-digit coin amounts. (14-2)<br>• will estimate the sum and difference of two 2-digit numbers. (14-3)<br>• will solve problems involving adding and subtracting money by using the try, check, and revise method. (14-4) | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | • guided practice *Do You Understand?* question<br>• lesson *Quick Check*<br>• differentiated activities/worksheets<br>• leveled homework |
| **Differentiation** | | |

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- TE pg. 443C
- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math Common Core: Realize Edition* Topic 14 teacher's guide, workbooks, digital resources, manipulatives

| Topic 15 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Content Area: Mathematics** | | | | | | | | | |
| **Topic Title:** *Money* | | | | | | | | **Timeframe:** 14 days | |
| **Lesson Components** | | | | | | | | | |
| **21st Century Themes** | | | | | | | | | |
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy |
| **21st Century Skills** | | | | | | | | | |
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration | | |
| **Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts, | | | | | | | | | |

**Integration of Technology:** digital resources are part of this series

**Materials needed:**

- counters
- connecting cubes
- number cube
- pencils
- small paper clips
- crayons
- erasers
- index cards
- rulers (standard)
- centimeter rulers
- yardsticks
- meter sticks
- large paper clips
- crayons
- staplers
- books
- string

**Topic 15 Vocabulary:**

- unit
- length
- inch (in.)
- width
- height
- nearest inch
- centimeter (cm)
- nearest centimeter
- foot (ft)
- yard (yd)
- meter (m)

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|
| Students:<br>● will measure the lengths of objects using nonstandard units. (15-1)<br>● will estimate and measure items using | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |

| | | |
|---|---|---|
| | Activity | |

| | | |
|---|---|---|
| inches. (15-2)<br>● will estimate and measure length and height using centimeters. (15-3)<br>● will estimate and measure items that about an inch, foot, and yard. (15-4)<br>● will estimate and measure the lengths and heights of objects in centimeters and meters. (15-5)<br>● will estimate and measure the lengths and heights of objects using different units. (15-6)<br>● will use addition and subtraction to solve measurement problems. (15-7)<br>● will measure to compare length and express the length difference in a standard length unit. (15-8)<br>● will use string and rulers to measure to the nearest inch the length of paths that are not straight. (15-9) | 5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | |

**Differentiation**

- TE pg. 465C
- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math: Realize Edition* Topic 15 teacher's guide, workbooks, digital resources, manipulatives

| Topic 16 | |
|---|---|
| **Content Area: Mathematics** | |
| **Topic Title:** *Time, Graphs, and Data* | **Timeframe:** 14 days |

**Lesson Components**

**21st Century Themes**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Global Awareness | x | Financial, Economic, Business, and Entrepreneurial Literacy | | Civic Literacy | | Health Literacy | | Environmental Literacy |

**21st Century Skills**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Creativity and Innovation | x | Critical Thinking and Problem Solving | x | Communication | x | Collaboration |

**Interdisciplinary Connections:** Science, Social Studies, Reading, Language Arts,

**Integration of Technology:** digital resources are part of this series

**Materials needed:**

- counters
- pencils
- paper clips
- clock face
- geared demonstration clock
- student scissors
- index cards
- inch ruler
- cups
- connecting cubes
- unit cubes
- two-color counters

**Topic 16 Vocabulary:**

- minute hand
- minute
- hour hand
- hour
- half hour
- A.M.
- P.M.
- quarter past
- half past
- quarter to

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- bar graph
- data
- line plot
- symbol
- pictograph

| Goals/Objectives | Learning Activities/Instructional Strategies | Formative Assessment Tasks |
|---|---|---|
| Students:<br>● will learn to associate numerals on an analog clock face with increments of five minutes. (16-1)<br>● will read and express time in terms of quarter and half past an hour and before an hour. (16-2)<br>● will represent a set of data in a bar graph and use the bar graph to solve problems. (16-3)<br>● will use rulers to measure objects and graph the results. (16-4)<br>● will make and use a pictograph to solve problems. (16-5)<br>● will use picture graphs and bar graphs to solve problems. (16-6) | **Lesson Sequence**<br>1. Interactive Math Story<br>2. Topic Opener: game and vocabulary introduction<br>3. Daily Review<br>4. Problem-Based Interactive Learning Activity<br>5. Develop the Concept: Visual Learning<br>a. Guided Practice<br>b. Independent Practice and Problem Solving<br>6. Close/Assess and Differentiate<br>*a.* lesson *Quick Check*<br>b. prescribe differentiated instruction<br>c. assess leveled homework | ● guided practice *Do You Understand?* question<br>● lesson *Quick Check*<br>● differentiated activities/worksheets<br>● leveled homework |

**Differentiation**

- TE pg. 507C
- embedded within each lesson
- differentiated worksheets/activities for each lesson
- leveled homework for each lesson
- reteaching resources at the end of each lesson

**Resources Provided**

- *enVision Math: Realize Edition* Topic 16 teacher's guide, workbooks, digital resources, manipulatives

## LESSON

## REFLECTION

Reflect on the lesson you have developed and rate the degree to which the lesson ***Strongly, Moderately*** or ***Weakly*** meets the criteria below.

| **Lesson Activities:** | **Strongly** | **Moderately** | **Weakly** |
|---|---|---|---|
| Are challenging and require higher order thinking and problem solving skills | | | |
| Allow for student choice | | | |
| Provide scaffolding for acquiring targeted knowledge/skills | | | |
| Integrate global perspectives | | | |
| Integrate 21st century skills | | | |
| Provide opportunities for interdisciplinary connection and transfer of knowledge and skills | | | |
| Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills | | | |
| Are varied to address different student learning styles and preferences | | | |
| Are differentiated based on student needs | | | |
| Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process | | | |
| Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives | | | |

| | | | |
|---|---|---|---|
| Provide opportunities for student reflection and self-assessment | | | |

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Provide data to inform and adjust instruction to better meet the varying needs of learners

| | | |
|---|---|---|
| | | |

| Curriculum Design Template | |
|---|---|
| **Content Area:** | |
| **Course Title:** | **Grade Level:** |

| | |
|---|---|
| **Unit Plan 1** | **Pacing Guide** |
| **Unit Plan 1** | **Pacing Guide** |
| **Unit Plan 3** | **Pacing Guide** |
| **Unit Plan 4** | **Pacing Guide** |
| **Unit Plan 5** | **Pacing Guide** |
| **Unit Plan 6** | **Pacing Guide** |

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| |
|---|
| **Date Created:** |
| **Board Approved on:** |