

KELLI LARRUBIA

Second Grade

Math Unit

This unit plan and sample lesson follow CCSS math standards and Multiple Intelligence principles.



MATH UNIT

Learning Outcomes

The goals of this unit are to strengthen students' flexibility with math strategies to add numbers up to 1,000. Students will develop a conceptual understanding of addition in order to explain these strategies and concepts to others.

CCSS.MATH.CONTENT.2.NBT.B.7



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Enduring Understandings

The desired understandings for this unit are for students to deepen their number sense and apply addition strategies to solve addition problems within numbers to 1,000. Students should also be able to explain these strategies to others.

Essential Question


Why are addition strategies important to know?

Knowledge

Students will acquire a conceptual understanding of addition with 3+ digit numbers.

Skills

Numerical fluency within 20 (adding numbers within 20 with fluency), use of strategies to add numbers within 1,000, and communication skills to explain their math thinking, critical thinking skills to analyze addition problems and notice mistakes.



Unit

Assessments

Controlling for Misconceptions

Predictable misunderstandings include lack of addition fluency with numbers between 1 and 20, and calculation errors with regrouping when adding (adding “backwards” by starting to add with the hundreds place instead of starting with the ones). Assessments will aim to control for such misconceptions in order to highlight levels of proficiency.

Pre-Assessment

Before implementing the unit lessons, it will be important to gather information on students’ prior knowledge and skill set. The first two days of the unit will serve as informal assessment days for the teacher and exploration days for the students. Students will showcase their number sense through a nature hunt and a number game. The teacher can utilize a checklist to determine student mastery of concepts. Separate anecdotal notes may be helpful as well in preparation for small group instruction later in the unit.

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Self-Assessment

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Summative Assessment

By the summative assessment, students will have had ample practice and choice in demonstrating addition strategies and the learning targets of the unit.

This summative assessment will challenge students to use an MI of choice to demonstrate their understanding of sample problems that include...

- Addition without regrouping
- Addition with regrouping in the ones place
- Addition with regrouping in the tens place
- Addition with regrouping in the ones and tens place

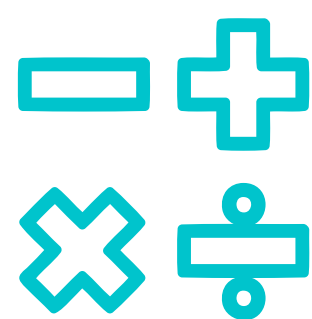
Students will submit their work to a final individual Padlet that will include test questions. They will attach their answer to the appropriate question to prove they understand how to solve that type of addition problem. Students may select from a variety of options when answering each question.

These include:

- A mathematical drawing (base ten blocks or another visual representation to accurately represent the problem/answer)
- Create a real world/natural connection to an addition problem and solve it
- Create a word problem and solve it (video or written)
- Song/rap or skip-counting (when relevant)
- Demonstration of solving numbers with base ten blocks (video/photo)
- Video/audio/type share of strategies/process for solving addition problem(s)

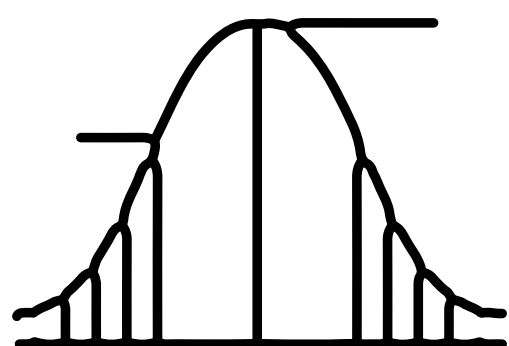
Multiple Intelligence Connections

Logical/ Mathematical



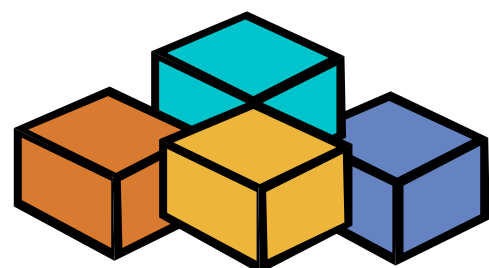
Applied math strategies, fluency and number sense work

Visual/Spatial



Represent numbers visually : drawings and virtual manipulatives

Bodily/ Kinesthetic



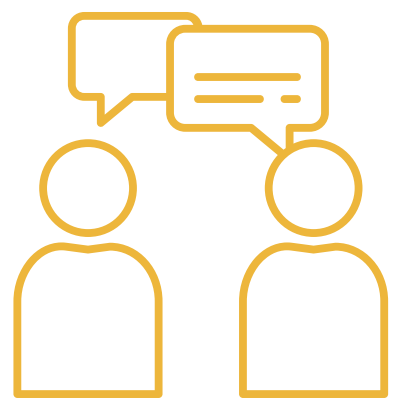
Explore mathematical concepts utilizing manipulatives

Intrapersonal

Data analysis and reflection processes

MI Connections (cont.)

Interpersonal



Math discussion opportunities

Linguistic



Relevant math vocabulary activities, written explanations

Naturalist



Math literature relating numbers to our world

Musical



Rhythmic skip-counting

Unit Outline

Lesson	Multiple Intelligence Focus	Content Knowledge or Skill	Effective Teaching Strategy	Lesson Assessment	Student Reflection Strategy
1	Bodily-Kinesthetic Interpersonal Naturalistic	Recalling Prior knowledge of number sense and addition When do people use addition in their lives? How big is a three-digit number? What are some ideas from nature that can be used for math problems? (ex: leaves on a tree, ants in an anthill, clouds in the sky)	Inquiry facilitation	Outdoor nature number hunt (weather permitting). Observation of a student's number sense as it relates to the world around them.	Group share
2	Bodily-Kinesthetic Interpersonal Visual-Spatial Logical-Mathematical	Recalling Prior knowledge of number sense and addition. Build to 100 Game! Students practice exchanging values of base ten blocks when they need to regroup (ex: exchanging 10 ones blocks for 1 ten block). Why are addition strategies important to know?	Observation Gathering Data for Pretest	Chapter 2 Checklist ● Can students count accurately, moving between 100's, 10's and 1's? ● Which students recognize that regrouping is required in example 2?	Group share
3	Bodily-Kinesthetic Intrapersonal Visual-Spatial Logical-Mathematical	Addition without regrouping, using 3D and virtual/pictorial representations to add numbers	Direct Instruction Modeling Scaffolding	Note student ability to build the 3 digit numbers and add on some more. This is an opportunity to practice building, counting and shifting between the place values.	Padlet, individual reflection
4	Bodily-Kinesthetic Intrapersonal Visual-Spatial Logical-Mathematical	Addition without regrouping, using 3D and virtual/pictorial representations to add numbers	Modeling Scaffolding	Chapter 2 Checklist	Padlet, individual reflection
5	Intrapersonal Visual-Spatial Logical-Mathematical Musical	Addition with regrouping in the ones place, using 3D and virtual manipulatives to add numbers, Choral skip-counting in the 1's (ex: 126, 127, 128, 129, 130, 131), Doubles and Doubles + 1 songs	Direct Instruction Modeling Scaffolding	Chapter 2 Checklist Watch for students having trouble adding on and trading ones in for a ten and some more.	Padlet, individual reflection
6	Intrapersonal Visual-Spatial Logical-Mathematical	Addition with regrouping in the ones place, using 3D and virtual/pictorial representations to add numbers	Student partner shares with accountable talk strategies	Chapter 2 Checklist	Padlet, individual reflection
7	Intrapersonal Visual-Spatial Logical-Mathematical Musical	Addition with regrouping in the tens place, using 3D and virtual/pictorial representations to add numbers, Choral skip-counting in the 10's (ex: 480, 490, 500, 510 / 172, 182, 192, 202)	Direct Instruction Modeling Scaffolding	Chapter 2 Checklist	Padlet, individual reflection
8	Intrapersonal Visual-Spatial Logical-Mathematical Linguistic Interpersonal	Addition with regrouping in the tens place Write a letter to a friend who was absent today. Explain the steps of how to solve this problem $242 + 173$ OR create a poster to show this friend how they might solve this problem.	Modeling Scaffolding	Chapter 2 Checklist	Padlet, individual reflection

Unit Outline (cont.)

Lesson	Multiple Intelligence Focus	Content Knowledge or Skill	Effective Teaching Strategy	Lesson Assessment	Student Reflection Strategy
9	Intrapersonal Visual-Spatial Logical-Mathematical Interpersonal	Student choice day: practice regrouping in ones or tens	Differentiation Small group instruction with students who can benefit from support with regrouping in the ones and regrouping in the tens.	Google Quiz data, Chapter 2 Checklist, anecdotal notes from small group	Google Quiz: regrouping in ones and regrouping in the tens. Students reflect on their immediate score and make a choice for their practice today. Second attempt at the close of the lesson.
10	Intrapersonal Visual-Spatial Logical-Mathematical Music	Addition with regrouping in the ones and tens place, using 3D and virtual/pictorial representations to add numbers, Choral skip-counting in the 1's, 10's, 100's, to practice moving across decades and centuries. (ex: 394, 494, 594, 694)	Small group instruction with students who can benefit from support with regrouping in the ones and tens.	Chapter 2 Checklist, anecdotal notes from small group	Padlet, individual reflection
11	Intrapersonal Visual-Spatial Logical-Mathematical	Addition with regrouping in the ones and tens place, Using 3D and virtual/pictorial representations to add numbers	Small group instruction with students who can benefit from support with regrouping in the ones and tens.	Chapter 2 Checklist, anecdotal notes from small group	Padlet, individual reflection
12	Intrapersonal Interpersonal Visual-Spatial Linguistic	Student choice day: practice regrouping strategies Math vocabulary games to deepen understanding of regrouping. Why are addition strategies important to know?	Differentiation Small group instruction: scaffolding and enrichment	Chapter 2 Checklist, anecdotal notes from small group	Small group discussion via Google Meets
13	Intrapersonal Interpersonal Bodily-Kinesthetic Musical Logical-Mathematical	Student choice day: practice regrouping strategies Rhyme and Rhythm games related to three digit addition. Varying levels of difficulty. Students choose which games to participate in based on their Google Quiz data. Another option: students can create "real world" addition problems for others to solve. Why are addition strategies important to know?	Small group instruction: scaffolding and enrichment	Chapter 2 Checklist, anecdotal notes from small group	Google Quiz: regrouping in ones and regrouping in the tens. Students reflect on their immediate score and make a choice for their practice today.
14	Opportunities for: Intrapersonal Visual-Spatial Logical-Mathematical Interpersonal Bodily-Kinesthetic Linguistic Musical Naturalistic	Summative Assessment	Feedback	Assessment Guide Scoring Rubric. If students correctly answer the question, they receive appropriate credit for that question.	Individual reflection before and after graded results



Sample Lesson

Lesson Overview

The ninth lesson of this unit is designed as a **consolidation day** in which students will review data and make learning choices based on their level of understanding thus far in the unit. Students will have just practiced addition with regrouping in the ones, and in the tens separately.

It is important that students have a solid understanding of each skill before learning addition with regrouping in the ones and tens, combined.

This lesson provides students with a day of reflection and review before the more complicated regrouping lessons. This day will also include peer and self-feedback which supports students as they work to become assessment-capable learners.

The learning choices will include games and activities related to addition with regrouping in the ones and addition with regrouping in the tens.

Students choose which skill to practice based on their data. For example, if their data shows they have successfully completed addition problems with regrouping in the ones, but they did not answer all of the addition problems with regrouping in the tens correctly, that student should likely choose games related to the skill they still need to practice.



Common Core Standard

CCSS.MATH.CONTENT.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.

Arts Standard

National Core Arts Standards, Second Grade “Creating”

VA:Cr1.2.2a Make art or design with various materials and tools to explore personal interests, questions, and curiosity.

Lesson Assessment

After the development of the lesson, students will create a helper tool that describes or shows the math skill they practiced that day. This tool will serve as a resource for students as they solve these types of problems in the future.

Multiple Intelligences Foci

Logical-Mathematical

Visual-Spatial

Bodily-Kinesthetic

Intrapersonal

Interpersonal

Materials

- Student computers
- Whiteboard, marker, eraser
- Base Ten Blocks (or other base-ten manipulatives)
- Math Vocabulary Cards
- Mini poster/bookmark paper and coloring materials

Lesson #9

Self-Selected Learning

Lesson Component	Access for All
<p>Initiation/Hook: Students will begin the lesson by answering a few math problems on a Padlet. The two skills that will be tested are addition with regrouping in the ones place and addition with regrouping in the tens place. There will be 4-5 questions for each skill to allow for a valid dipstick of their level of competency with each.</p>	<p>The Padlet platform supports students at various ability levels and provides choice in how students respond to prompts (video, camera, graphics, drawing, typing, audio recording, etc.).</p>
<p>Lesson Development: The teacher will share the answers to the dipstick questions. Students will self-assess and interpret their scores to determine their strengths and any areas for growth. Students will then make a goal for which skill to focus on that day based on their data. They can write their goal in their math journal, or add their goal to their Padlet. Learning Targets will be reviewed: Daily Target: I can analyze my math data and make helpful learning choices to grow my math skills. Long-Term Target: I can think about why addition strategies are important to know.</p>	<p>There are inevitably a few mathematicians that will score successfully with both skills. In that case, it will be important to allow for enrichment opportunities with both skills. Students can select the enrichment opportunity that interests them. A helpful goal-setting sentence starter teachers can share with the class/individual students might be: Today, I plan to work on the _____ skill because my data showed _____. Some students may also benefit from cut + paste options for which goal they will work on.</p>
<p>Guided Practice: Some students will be invited to participate with the teacher in a guided practice for the day's lesson block. These students will likely be those who showed they were near or below expectations for demonstrating both concepts (as evidenced by the dipstick data and other formative data the teacher has collected). In this small group, the teacher can utilize math manipulatives as a way to "show the math" in a more concrete, visual way. The teacher will model regrouping and have students practice what that looks like with tools and with the written algorithm. The teacher can take anecdotal notes or photographs to document the evidence from each group member.</p>	<p>Students who did not show mastery in BOTH skills will be invited to the small group for activities with the teacher. Here, the teacher can scaffold their learning to support their level of understanding. To engage students, the teacher can structure the small group instruction as a set of math games! Students will practice the skills using math tools while playing a math game. Students in the small group can try 2 exit ticket problems with the teacher: one per skill. The teacher will record student answers for additional evidence. Alternatively, to sustain interest, the teacher can take anecdotal data as students participate in the small group math games.</p>

Lesson #9

Self-Selected Learning

Lesson Component	Access for All
<p>Independent Practice: Just before students transition to make independent learning choices (based on their short term daily goals), they will engage in a “partner share” to share their goals. IF students feel comfortable, they can share their data as well. Partners who do feel comfortable sharing data and goals will be able to give peer feedback on whether the goals seem “just-right” or appropriate given the data. Students will then make learning choices based on their skill goal. One example of a learning choice is a math vocabulary game which focuses on the vocabulary necessary for their individual skill. Students have a math problem to solve, and order vocabulary cards into a whiteboard sentence to create a “How - to” for that problem. Students may write, “First I need to...” and then they place the “add the ones” card in the sentence/paragraph. They do this until they complete the “how-to” for solving the entire problem.</p>	<p>Visuals for nonreaders or ELL students will be helpful to use as cues for different learning choice options. The teacher can decide to group students up into skill areas of the room before calling a small group to ensure each student knows where their resources are and students can interact with other peers in their group while the teacher is working with a separate small group. Independent Practice choices will be tailored to: Specific math skills, Interests, Ability levels. They can involve options that are: Written (vocabulary), Recorded (create a tutorial video), Active (math tools, games involving movement), Reflective (journal entry or personal reflection video/audio)</p>
<p>Student Reflection Strategy: Students can create a helper tool that includes an example of the skill goal they practiced. They will show they understand the skill with words, pictures or numbers in a way that will help them to remember that skill in the future. They might share their experience from the day. They can share how they felt, whether they feel “Not Yet, Starting To, or Yes!” with this concept.</p>	<p>The teacher can create a shared poster/video clip of “how to” play the math game with the small group he/she worked with during the day’s lesson. Helper tool options: Mini video reminder on math padlet, Mini poster for the math wall, Bookmark for math journal, Written letter to a friend</p>