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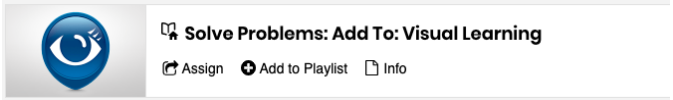
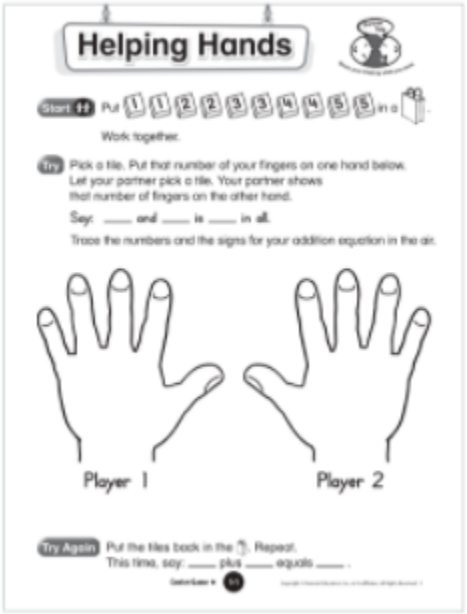
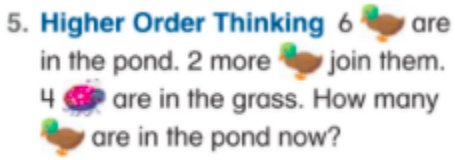
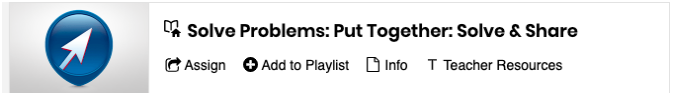
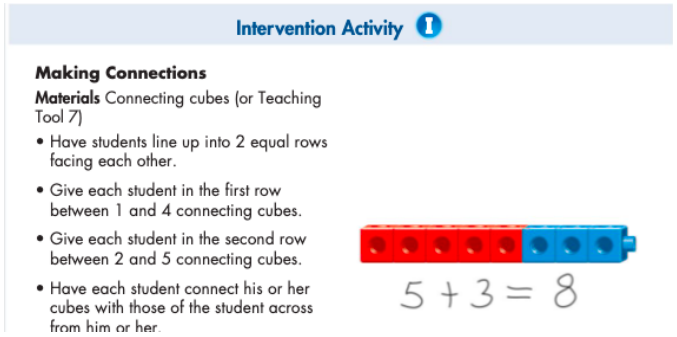
GRADE 1 - TOPIC 1 - SOLVE ADDITION AND SUBTRACTION PROBLEMS TO 10

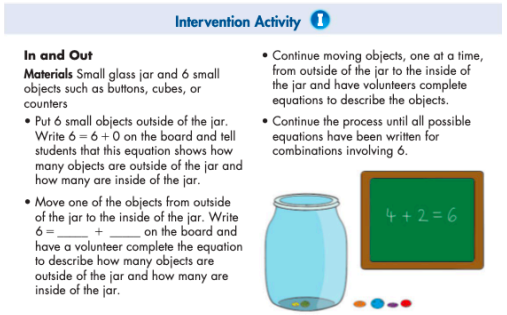
Tools	Models	Strategies	Math in Practice Book Suggested Activities
Ten Frame Number Path/Strip Number Bead String (20) Rekenrek/Number Rack Counters: • Unifix or Snap Cubes (Teaching Tool 7) • Two-colored counters • Square Tiles • Bear Counters	Diagrams: • Number line • Bar/Tape Diagram • Number Bond Pictorials: • Make drawing of amounts • Make a ten frame sketch • Arrows for matching in comparison situations	• Count all (Level 1) • Count on (Level 2) • Doubles, plus 1 or minus 1 • Add 1 or minus 1 strategy to see the next or previous number in the counting sequence • 1:1 Matching of nested numbers when comparing in subtraction situations • Decompose numbers • Make a 5 • Make a 10 • Apply the Commutative Property of Addition • Apply the Zero Property	**Equations and word problems need to be made/provided in order for students to engage in the following centers:** **MODULE 1: Exploring Addition Word Problems with Sums to 20** • Modeling a Problem with Counters pg. 14 • Beginning, Middle, and End pg. 14 • Four Ways pg. 15 • Simple Drawings pg. 15 • Adding To on a Number Lines pg. 17 • Part-Part-Whole Mats or Number Bonds pg. 16 and pg. 17 • Number Lines pg. 16 and pg. 17 • Show Both Ways pg. 24 • What is the Question pg. 31- (note: this is higher level task)

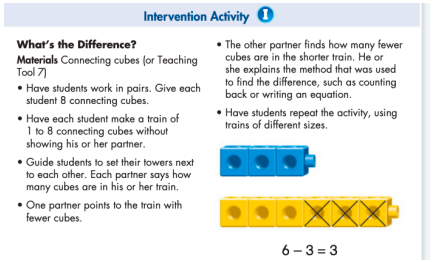
Prior to Topic implementation watch the PD video, then test your knowledge of the problem types by watching the Topic 1 Animated Math Story Video. Please note that the numeral 1 as written in the text may be easily confused by students as the lowercase letters “i” or “l”.

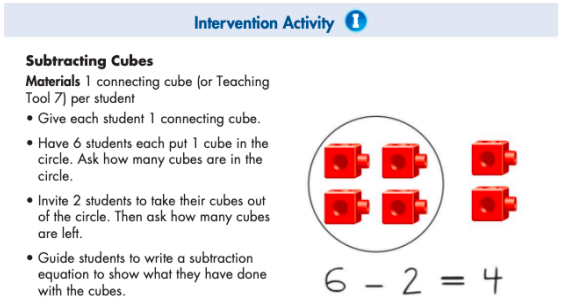
Day	Do	Don’t	Introduction of New Academic Vocabulary
1	For Teacher **ONLY** prior to Lesson: Watch Listen and Look For Video, watch the Solve Problem video for teacher PD. Lesson 1: Solve Problems: Add To • Gather formative assessment data by observing students as you play the Interactive Math Story. • Provide students with Unifix/Snap Cubes. • Show the sample work and connect to students that	• Don’t Show the Solve the Problem Video to students. • Don’t do the Daily Review unless as part of a routine with a small group discourse structure (e.g., Talking Chips from Kagan) that builds consensus. • In Part 2 problem #5 should be adjusted. This problem is like the riddle, “Who is buried in Grant’s tomb?” They have ducks and ladybugs. Unless we convert the ducks and ladybugs to animals, as we	1. Add 2. Sum 3. Plus 4. Equals 5. Equation

	have similar work. Ask students to explain the differences between the two work samples. • Use the video pace out the conversation during the mini-lesson:  • Use Sage and Scribe (Kagan) to have students discuss and collaboratively solve the problems in Part 1. • Focus on connecting the physical materials to the equations created. • As an option, do the On-Level task instead of Part 2, with the entire class ★ On-Level  	don't add unlike units. Also, this is a reading comprehension question as they are just asking about the ducks.  	
2	Lesson 2: Solve Problem: Put Together • Use a Pairs Compare (Kagan) strategy to get students to share their work for the Step 1 part of the lesson. • Use the video if possible to segment and discuss the problem Step 2.  • Provide students with more workspace, either paper	• Present this problem as is, but rather discuss the concept that a conversion was made from ladybugs and bees to bugs. Emphasis the fact we only add like units, so we had to convert the addends to bugs. Look out for these problems where conversions occur and make connections to the work that students will do in higher mathematics, e.g., fractions with unlike denominators, decimals, equations with variables.	1. Parts 2. Whole

	or dry erase on desks, to work out the problems better. • This "Intervention Activity" is a much better way to support all learners and could be used instead of Step 2:  **Intervention Activity** **Making Connections** **Materials** Connecting cubes (or Teaching Tool 7) • Have students line up into 2 equal rows facing each other. • Give each student in the first row between 1 and 4 connecting cubes. • Give each student in the second row between 2 and 5 connecting cubes. • Have each student connect his or her cubes with those of the student across from him or her. 5 + 3 = 8 • Use the following in a center for all learners:  On-Level and Advanced Activity Centers **Center Games** Students tell addition stories about joining a number with 2. In the Advanced version, students determine the number they need to add to a given number in order to make 10. ★ On-Level Play a Game ★★ Advanced Play a Game	 2. Jenny sees 1 and 6 . How many bugs does Jenny see in all? • Have the students work on these lessons independently, but rather have them use a Rally Coach /Sage and Scribe (Kagan) strategy to work on the problems collaboratively.	
3	Lesson 3: Solve Problems: Both Addends Unknown • Use Pairs Compare (Kagan) to get students to see the different ways that students would make 5. Record and model the ways presented by the students. Ensure that when the various equations are listed they go in sequential order based on the first addend in the equation. • Have materials that match the images in the textbook available if possible. • Use the following activity as your mini-lesson, if possible. This task is much more hands-on for students and more accessible than penguins in caves. Students could pretend that the counters and containers that they use could be anything where something is inside and the rest are outside.	• Show the "Student Work Samples" from the book, but use actual student work samples from the class.	None

	 • Use the On-Level/Advanced activity for centers and could even send home for students to play with family members.		
4	Lesson 4: Solve Problems: Take From • Consider having students work collaboratively in partnerships on the Step 1 task. • Make sure that students can connect the numbers in the problem to the concrete objects. Watch out for students who represent both the minuend and the subtrahend, as opposed to understanding that this is a take away situation which starts with a total and we take away from that total. • Use the "Student Work Samples" from the text and ask students if both equations match the situations and if so, why? • Provide students with concrete materials to act out each situation. • Use a Rally Coach/Sage and Scribe (Kagan) for the practice problems.	• Use all of the problems, but rather has students work collaboratively to create their own stories like the one in the text.	1. Difference 2. Subtract 3. Minus
5 - 6	Lesson 5: Solve Problems: Compare Situations • Scaffold the Step 1 Task. Take off the question and have students do a Notice and Wonder before you as the questions from the task. • Make connections to the equation and the comparison model of subtraction where we are comparing 3 types of subtraction.	• Don't teach this lesson as is, rather ensure that the lesson is very hands-on. May require 3 days between Lessons 5 and 6. • Don't assume that students will understand when you say 2 more or 3 more. Try to say 1 more first and model with counters. •	More
6 or 7	Lesson 6: Continue To Solve Problems: Compare Situations • Anticipate that the term "fewer" will be challenging for students to grasp. Try to say 1 fewer first and model with counters. • Highlight the "Samples of Student Work" strategies and expand on during the mini-lesson. • Take off the question in the Step 1 task and have the	• Don't do mini-lesson as is, instead do the "Intervention Activity" to support a more hands-on, student-centered, conceptual approach:	Fewer

	student act out the situation, and then do a Notice and Wondering. After that is complete, present the question. • Use the video for the Step 2 task so to pace out how the information is presented to students. This will give students a chance to act out the situation to draw conclusions before they are presented to them.	 **Intervention Activity** **What's the Difference?** **Materials** Connecting cubes (or Teaching Tool 7) • Have students work in pairs. Give each student 8 connecting cubes. • Have each student make a train of 1 to 8 connecting cubes without showing his or her partner. • Guide students to set their towers next to each other. Each partner says how many cubes are in his or her train. • One partner points to the train with fewer cubes. • The other partner finds how many fewer cubes are in the shorter train. He or she explains the method that was used to find the difference, such as counting back or writing an equation. • Have students repeat the activity, using trains of different sizes. 6 – 3 = 3 • Don't do this problem with this lesson, but use it in math centers or in other small groups. Also, consider taking off the question so that students could act out either of the following situations: 1) How many is all? or 2) How many fewer…? 6. **MP.2 Reasoning** Leah uses 3 paperclips. Scott uses 6 paperclips. How many paperclips did Scott and Leah use in all? Write an equation. Then tell how many. • Don't do this problem as is, but instead remove the part about students using subtraction to solve and see how many use an adding strategy. 7. **MP.2 Reasoning** There are 7 oranges on a branch. 3 oranges fall off. How many oranges are still on the branch? Write a subtraction equation. Then tell how many.	
8	This lesson could come right after Lesson 4 (optional). Lesson 7: Practice Solving Problems: Add To • Allow students to use concrete materials to act out **and** draw the Step 1 task. • The problems in this lesson are great for partially numberless word problems. This allows for speculation and conversation around word problems. • Focus on reading comprehension of these word problems, as opposed to the operation that could be used.	• Don't force students to have to write addition equations in Step 1. Instead allow subtraction interpretations also. The focus should be justification as they act out problems.	Addend
9	Lesson 8: Solve Problems: Put Together/Take Apart	• Don't confuse the concrete models and the bar	None

	• Reinforce previous "Dos" • Focus on the comprehension of the task in Step 1. • Use the "Sample of Student Work" to compare models. • Actually have the student draw bar models. • The strategies outlined in the "Intervention Activity" could work for many students and we need to  **Intervention Activity 1** **Subtracting Cubes** **Materials** 1 connecting cube (or Teaching Tool 7) per student • Give each student 1 connecting cube. • Have 6 students each put 1 cube in the circle. Ask how many cubes are in the circle. • Invite 2 students to take their cubes out of the circle. Then ask how many cubes are left. • Guide students to write a subtraction equation to show what they have done with the cubes. 	diagrams. Students will need additional workspace to draw the bar models.	
10	Lesson 9: Construct Arguments • For problem #1 in Step 2 use a Convince Me strategy where students have to convince another that their answer makes sense. • Use visual models/diagrams and concrete manipulatives. • In a Guided Math Group you could act out on a number bead string.	• This is an important lesson, but it could be done in centers or at stations and with students working in teams, not as a whole group or independent exercise.	None
11	Review and Topic 1 Test		

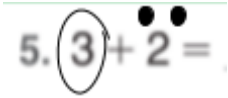
GRADE 1 - TOPIC 2: DEVELOP FLUENCY: ADDITION AND SUBTRACTION FACTS WITHIN 10

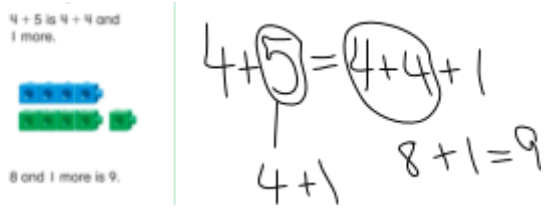
Tools	Models	Strategies	Math in Practice Book Suggested Activities
Ten Frame Number Path/Strip Number Bead String (20) Rekenrek/Number Rack Ruler (inch or cm side) Counters: • Unifix or Snap Cubes • Two-colored counters • Square Tiles • Bear Counters	Diagrams: • Number line • Bar/Tape Diagram • Number Bond Pictorials: • Make drawing of amounts • Make a ten frame sketch	• Count all (Level 1) • Count on (Level 2) • Add 1 or minus 1 strategy to see the next or previous number in the counting sequence • Plus 2, minus 2 • Make a 5 (complements of 5) • Make a 10 (complements of 10) • Double facts • Doubles, plus 1 or minus 1 • Decompose numbers (recognize nested numbers) • Apply the Commutative Property of Addition • Apply the Zero Property	**Equations and word problems need to be made/provided in order for students to engage in the following centers:** **MODULE 2: Connecting Subtraction and Addition to Solve Word Problems** • Modeling a Problem with Counters pg. 38 • Beginning, Middle, and End pg. 38 • Four Ways pg. 38 • Simple Drawings pg. 40 • Adding To on a Number Lines pg. 40 • Representational Drawing pg. 40 • Part-Part-Whole Mats or Number Bonds pg. 40 • Grid paper pg. 41 • What is the Question pg. 31- (note: this is higher level task) • Sorting Problems pg. 51 • Comparing Towers pg. 51 • How Many Fewer? using Double Number Lines pg. 55 • Talk About It/Write About It pg. 58

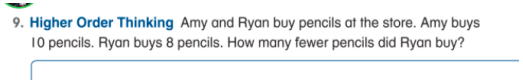
Prior to the start of the unit: Remember that, "Strategies are caught, not taught." - Christina Tondevold. Watch the PD Video for this topic. Assess which of your students are counting all or are counting on or using doubles facts by asking them to do 4 + 5 and explaining their thinking. Ask them how they see the numbers.

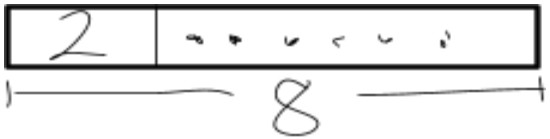
Don't do the Fluency Practice/Assessment Sheets. If you must "drill" / assess in this manner, give Sprints from EngageNY.

Day	Do	Don't	Introduction of New

			Academic Vocabulary
12	Lesson 1: Count on to Add • Do the task and provide students with counters to act out the situation. Know that using counters to represent the carrots is an abstraction that not all students will understand, so try to have some real carrots around to reference. • Use "Stacy's Work" to find out how the students think that Stacy got her answer. She may have counted the pot also. Discuss that we only add like units. • When teaching the strategy of "counting on" have students circle the addend that they are starting from and then place dots to represent the value of that addend above it.  5. 3 + 2 = • Turn this lesson into a game. For example, pick a card and roll a die. The amounts represented become the equation. The dots on the die are the amount counted on. The amount represented is what is shown on the number line.	• Don't do the lesson as is. First, you need to know if students can add one more. This lesson focuses on "1 to 3 more" in most examples, but that might be too rushed for some students. They also show the amounts being added using concrete materials and also a number line. Both can be used but the concrete should be done first then represented on a number line. Students should work in pairs or small groups with each student having a specific role. One person as the "concrete", another as the "number line or diagrammer", and third person as the "checker".	Number line Count on
13	Prior to the start of the lesson find out which of your students know their doubles facts and if so which ones. Lesson 2: Doubles • Have the students write equations starting or end with the sum.  3. 6 = 3 + 3 4. 2 + 2 = 4 •	• Don't do the task in Step 1 as is. Instead tell the students that the two people have the same amount of the same items. Have them build and create a representation and record the list of "doubles facts" equations that they come up with. • Don't do this lesson as is. Students have to recognize if an equation has "doubles facts". Look at Lesson 3-3. This is often taken for granted. Write out several equations on index cards, some with "doubles facts" and some without. Have the students build the addends using connecting cubes or show on the Rekenrek. Ask the students to determine which ones contain "doubles facts" and how do they know. • Don't use the language in the book about "has a partner is the group" to determine if the equation represents a "doubles facts". Later on when students are working with odd and even pairs you are going to need this language and using it here could cause unnecessary confusion. Instead use words like match, matching addends, or same addends. • Don't do the equations as listed in the book. Have students create by writing and building matching addends in partnership. As a scaffold students could roll a die to determine what the addend would be.	Doubles fact

14 - 15	Lesson 3: Near Doubles • For equations like 4 + 5 = ___, ask students, "What is the nested, matching addend, to ____ within the number ____?" • Using a ten-frame with two-colored counters and connecting cubes is a must. • Use number bonds to decompose and rewrite the equations. 	• Don't do the task in Step 1 as is. The focus should not be on writing the equation or even using the counters to represent the situation. The focus should be on seeing the nested numbers within to see the double facts nested within. This can be done by showing Elizabeth's work. Showing the 4 and 4 that both numbers have in common and then showing the 1 more. Connect that understanding to the work on the previous 2 lessons.  • Don't do the lesson as outlined in Step 2. They miss an important step in modeling thinking and they move too quickly to an advanced skill. Students need to see the doubles, plus 1 before they can move on to doubles, plus 2 or more. The examples in this lesson show all of that. Too fast.	Near doubles fact
16	Prior to this lesson ensure that you have been doing routines that involve subitizing on the ten-frame. Students should know that 5 filled in on the top or bottom row of a ten-frame is 5 without counting. Lesson 4: Facts with 5 on a Ten-frame • Do the task in Step 1 and have the students do a Pairs Compare to see the other equations that representations that their fellow students came up with.	• Don't do this lesson as is. Instead look to the Intervention Activity for guidance. Have students use what they know...their hands and fingers. Practice counting on skills while you are at it. Note those students who are counting on. Have students work in partnership to model on their hands, but also to model on the ten-frame. Use 5 as a constant and play a game of flashing an amount on the other hand. For example, hold up five on the left hand and flash 3 on the right hand, then build on the ten-frame.	None
-	Lesson 5: Add in Any Order • Do the task in Guided Math groups between lessons 1 to 4. • Build this concept into centers throughout the topic and onward.	• Don't do this lesson, but rather incorporate the concept of the Commutative Property of Addition in all the lessons in this topic and onward.	None

17	Lesson: Count Back and Subtract • Connect the concept/strategy of "counting back" with "counting on" but in the opposite direction on the number line. • Contextualize and act out situations in this lesson. • In the task in Step 1 focus on having students make text-to-self connections. • Provide students with number lines, then frames, and counters to act out and model these problems. • Use #9 in the Step 2 portion to gather formative assessment data about this type of problem.  9. **Higher Order Thinking** Amy and Ryan buy pencils at the store. Amy buys 10 pencils. Ryan buys 8 pencils. How many fewer pencils did Ryan buy?	• Don't have students just write the equations as calculations in the Step 1 part. The equations are written as calculations, on equations. It is the difference between writing a sentence and making a list. Equations are a mathematical statement, a sentence. When the numbers in an equation are stacked then you have created a calculation and just a way to work out information. Students need to see equations more and they can determine how they will organize that information to work it out. So either present the information as an equation or have the students rewrite them as equations. • Use the equations as presented or even the numbers used. Instead create stations that focus on specific sets of subtraction facts. For example, have a station that focuses on minus 1 examples, minus 0 examples, examples that will result in a difference of 1 or 2.	None
18 or 19	Lesson 7: Think Addition to Subtract • ...	• Don't do the task from Lesson 7, but instead do the task from Lesson 8. Anticipate that students will not know what you mean and you may have to prompt them by saying act out what you know or giving a context. In this case the context might be, "Ray saw 8 coconuts that fell from the tree. Five of the coconuts had cracked open. The rest did not crack open." • Don't do this lesson as is. This lesson focuses on the important concept of inverse relationships, commonly referred to as "fact families" in Grade 1. Combine lessons 7 and 8 and do over the course of 2 days. To introduce this concept look at the Intervention Activity. You want to focus on students understanding that subtraction is an undoing (inverse) of addition. Use connecting cubes and/or two-colored counters on a ten-frame. • Don't use all of the equations given. Some are too simple for students and they won't apply the strategy. For example 5 - 4 many students will know and will not need to think of 4 + 1 = 5. Those kinds of easier subtraction facts can be used in games where students have to write 2 related addition facts for a subtraction fact. • Please note that a part-part-whole model is not a bar model or tape diagram. The bar model/tape diagram shows proportionality. What is shown in the book is a part-part-whole model, similar to a number bond. Counting on can be used in both a part-part-whole model and in a bar model. Below a bar model/tape diagram is shown.	None

		 Student says, “2” then begins to count on as they draw each dot, saying, “3, 4, 5, 6, 7, 8.” Then they can see that they now have 6 dots.	
20	Lesson 8: Continue to Think Addition to Subtract • See previous row. • Ensure that students write 2 subtraction facts for each addition equation.	• Don’t do this lesson as is. See notes from Lesson 7. Using an actual bar model/tape diagram or two-colored counters on a ten frame are ways to support students' thinking and conceptual understanding of using addition to solve subtraction problems. Look at the Intervention Activity in Lesson 8 as a way to adapt the teaching of Lessons 7 and 8.	None
21	Lesson 9: Solve Word Problems with Facts to 10 • Have students work cooperatively in small groups to solve these problems and give them prompts/sentence starters to explain their thinking. Students could have roles like, reader, builder, sketcher (bar model/tape diagram, number line, or part-part-whole relationship).	• Don’t do this lesson as is. Instead have students work cooperatively in small groups to solve these problems and give them prompts/sentence starters to explain their thinking. Students could have roles like, reader, builder, sketcher. Another idea is to have students work in stations - 1 problem per station and have student groups rotate to each problem.	All previous for this topic
22	Lesson 10: Look for and Use Structure • Do the task in Step 1 as is, but extend the table to include all possible complements of 10.	• Don’t do this lesson in the sequence presented. This lesson can be done as in centers and can be done at any point in the topic. Use a Pairs Compare structure so that students can share ideas.	None
23	Review (possibly as a collaborative exam) and Topic 2 Test		

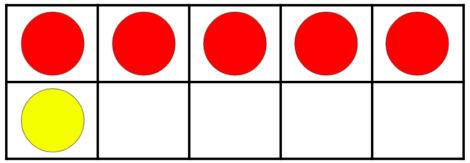
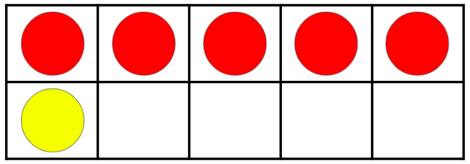
GRADE 1 - TOPIC 3: ADDITION FACTS TO 20: USE STRATEGIES

Tools	Models	Strategies	Math in Practice Book Suggested Activities
Ten Frame/Twenty Frame (https://www.didax.com/apps/ten-frame) Number Grid/Hundreds Charts (could be to 20) Number Path/Strip Number Bead String (20) Rekenrek/Number Rack Ruler (cm side) Counters: • Unifix or Snap Cubes (https://www.didax.com/apps/unifix/) • Two-colored counters • Square Tiles • Bear Counters	Diagrams: • Number line • Bar/Tape Diagram • Number Bond Pictorials: • Make drawing of amounts • Make a double ten frame sketch	• ~~Count all (Level 1)~~ • Count on (Level 2) • Add 1 strategy to see the next number in the counting sequence • Plus 1/Plus 2 Facts • Make a 5 • Make a 10 • Compliments of 20 • Recognition of Double facts • Doubles, plus 1 • Doubles, plus 2 • Decompose numbers (recognize nested numbers) • Apply the Commutative Property of Addition • Apply the Zero Property	**Equations and word problems need to be made/provided in order for students to engage in the following centers:** **MODULE 3: Building Understanding and Fluency with Basic Math Facts: Expanding on +/-1, +/-0** • Ten Frame Equations pg. 76 • Number Line Jumps pg. 76 • Domino Draw pg. 82 • Dot Card Pairs pg. 83 • Domino Mats pg. 85- Write Equations to Match and solve for equations presented on the dominos **MODULE 6: Building Understanding and Fluency with Basic Math Facts: Doubles** • Doubles Problems pg. 132 • Beautiful Double Art pg. 133 • Using Doubles to Solve Other Facts pg. 134 • Doubles Dice pg. 136 • Dominoes Doubles Game pg. 137 • Subtracting Double Images pg. 140 • Talk About It/Write About It pg. 141 (scenarios need to be made for this center- This is a higher level task.)

			• Doubles and Halves Tens Frames pg. 142 • Doubles Concentration pg. 143

Read: https://www.youcubed.org/downloadable/prove-it-to-me-nctm-paper.
Don't focus on keywords, but rather on comprehension by acting out situations and visualization.

Day	Do	Don't	Introduction of New Academic Vocabulary
24	Prior to beginning, have a clear understanding of which students are using what strategies to figure out complements of 10. Review the Dolch Facts of Math by Dr. Nicki Newton. Ensure that you have all of the same tools and math manipulatives ready to expand on for this unit, including the use of a ruler. Lesson 1: Count on to Add • Do the task in Step 1 and sort student work in two categories as modeled by the Student Work Samples. Discuss which one models the actual situation (i.e., Nancy's Work) and why they both arrived at the same sum (i.e., Commutative Property of Addition). Highlight the "counting on" process in both examples. • Provide students with the number lines, twenty frames and other tools to act out and visualize with. Also use rulers or number bead strings as concrete number lines.	• Don't just show the work on a number line, but also so on a twenty frame and using connecting cubes or other counters. • Don't present the equations as is to solve. Have students create stories to go along with the problems. If they have trouble creating stories, then use the same story from the task in Step 1, but have students change the numbers to match the equations given. • Don't have students do problem #12 with having a conversation about it first. Problems like these are where students get the idea that you can just add anything. We only add like units. Notice how they are combining meat, leaves, and berries. Sounds like a salad, but the question asks how much "food…" because we had unlike units so we changed to a common unit. This might sound like a minor point, but it is often overlooked and is vital to understanding of the concepts of addition and subtraction. 12. **Math and Science** Kim works at a zoo. She feeds the big cats 9 pounds of meat. She feeds the tortoises 7 pounds of leaves and berries. How many pounds of food does Kim feed the animals? 16 pounds of food	None
25	Lesson 2: Count on to Add Using an Open Number Line • Use the task in Step 1 and have students compare the Student Work samples. • Model for students how to "count on" on the open number line. This is work in visual estimation. Similar to working on a bar model/tape diagram. The open number line is meant to be somewhat proportional, but	• Don't just show the work on a number line, but also so on a twenty frame and using connecting cubes or other counters. • Don't teach the lesson as is, but instead look at the Intervention Activity. Explain the purpose of the open line, how to set it up, and how to manipulate it. • Don't present the problems as is in Step 2. Have the	Open number line

	it does not have to be perfect. • You may need to scaffold as some students may not be able to approximate on the open number line. The main goal is not mastering using the open number line, but rather developing additive thinking and seeing numbers as sets/groups/chunks that can be decomposed and manipulated.	students contextualize or use the problem from Step 1 as a frame for the new equations.	
26	Prior to the lesson, gather formative assessment data on student recall of "doubles facts" to 10 + 10. Also, the concept of this lesson could be done in Topic 2. Lesson 3: Doubles • Model problems on ten-frames and using connecting cubes. • Use the task in Step 1 and give students a chance to analyze and discuss how each student solved the problem. • Model doubles facts on twenty-frames, so that students can see the nested numbers within and the doubles facts. For example, 6 + 6 = 5 + 5 + 1 + 1 = 10 + 2 = 12.  	• Don't assume that students have a fluent recall of "doubles facts." This lesson focuses on recognition of "doubles facts." Recognition is not understanding or being fluent. Make it into a game to support retention. See the Intervention Activity for an idea. Later make the game into a routine or center when students have to sort identify and recite the doubles facts. • Don't present doubles in solid, linear ways, but rather make a group of 5 and 1 more in a different color, subitizing a group of 5 and doubles of 5 + 5, so that we can see 10 and some more. This could lead to conversations of 6 + 6 = 5 + 5 + 1 + 1 = 10 + 2 = 12 	None
27 - 28	Spend 2 days on this concept. Lesson 4: Doubles Plus 1 • The task as presented supports comparison type word problem situations. Act out the problem using ten frames, number line, counters, etc. The materials should be organized to see 5 groups, so that students can make tens easily. • Use number bonds to support students seeing the nested numbers with amounts and figuring out what the associated doubles facts might be. • For students who are ready also bring up 1 less from a	• As stated before, the previous lesson focused on recognition of "doubles facts." Recognition is not understanding or being fluent. For students who have fluent recall (i.e., with 3 to 5 seconds) of their doubles facts then this lesson is fine. But for students who do not yet know their "doubles facts" then they will either need a reference chart or additional scaffolds for this lesson to promote their growth in this area. • In the previous topic we discussed the difference between an equation and a calculation. Same idea applies. Students need to see the equations and they need to build them out to see the 1 more.	Doubles plus-1 fact

	doubles fact. Calculations:  Equations: 6 + 5 = 11 6 + 6 = 12 6 + 7 = 13		
29	Prior to doing the lesson, gather formative assessment on the fluent recall of Plus 2 facts. Find out how students are figuring out plus 2 facts. Are they seeing 2 more on a number line in their heads? Are they counting on by ones quickly in their heads or on their fingers? Lesson 5: Doubles Plus 2 • Same recommendations as previous lesson. Note the students who are counting 1 by 1 as opposed to knowing what 2 more is. • Make a point to show the Student Work Samples, but also show the 2 more in the equation. For example, write 2 + 5 + 5 = 12 as opposed to just writing 7 + 5 = 12. Write both so that students can see where the "2" more is coming from and how we got to the 7. • Use problem #11 is the Step 2 as Convince Me problem to support reasoning and justification.	• Don't do the equations as is. Have the student contextualized and build using connecting cubes, twenty frames, etc. Also, this is a good time for a Rally Coach/Sage and Scribe structure. • For the Math Practice and Problem Solving Problem in Step 2 don't have the student work on them independently. For cooperative small groups for students to reason through together and combine with a Pairs Compare structure.	Doubles plus-2 fact
30	Lesson 6: Make 10 to Add • For the task in Step 1 monitor students to see what strategy students are using. Are they counting all? Are they counting on? Are they using the number frames (10 or 20)?	• Don't just provide students with ten frames. Provide a template with a twenty frame for the math task in Step 1. • Don't present the lesson in Step 2 as shown. Reminder about equations vs. calculations. Act out and contextualize the equations. **Also, use a twenty frame. This is vital.** • The whole point of this lesson is for students to see how they could make a ten to figure out basic fact problems within 20 like 9 + 6. They need to see that they can use	Make 10

		the idea of nested numbers and decompose numbers to apply the Associative Property of Addition to make a 10. Conceptually a lot is going on. You need to show the 7+ 8 first, not the 10 + 5. We are trying to go from 7 + 8 = 7 + 3 + 5 = 10 + 5 = 15. We model this on the twenty frame and move the counter, either physically or mentally.	
31	Lesson 7: Continue to Make 10 to Add ● Use the task in Step 1 to really focus on student explanations. This task would be great using a Back-to-Back, Face-to-Face structure (Kagan) so they could voice their explanations to others. Please note that the Student Work Sample shows how students might have applied a Make 10 strategy, but they did not explain their thinking per say. It would be interesting for students to discuss what they think the other students did. ● Allow the use of a variety of tools and math manipulatives. ● Use a number bond to decompose numbers to make the ten.	● Don't assume that students can follow the way in which the workbook lays out the way to solve the problem.	None
32	Lesson 8: Explain Addition Strategies ● Use tools and manipulatives to help students act out the strategies that they would apply. ● Focus on student explanation of the strategies that they would use, not just the answers they would arrive at.	● Adjust the task in Step 1 by allowing students to use a twenty frame. Also, a double strategy would not be appropriate, but a near doubles would work, but you would be doing a double plus 3. I have to wonder if they really want students to choose any of these strategies or would onl5g6nuy 1 really fit given this situation? What if you just showed students a problem and let them discuss the possible strategies and why they would use it. Refer to an anchor chart of strategies that you might have in your classroom. ● Don't do the lesson in Step 2 as is. What is My Way?! Any way the child might have can be named and should be named. The independent practice just says, "Find the sum." This lesson is supposed to be about determining a strategy that better fits the calculator or equation. Finding the sum is only part of the process. Have the students sort the equations in #5 - #16 into different strategy groups. Which equations would be better determined using a near doubles or make a 10? Is this a "doubles facts"? ● Doubles are not a strategy per se. They are a foundational fact. They are just the recognition of the repetition of the same addends. A strategy is an application of a process that you use to help you arrive at and answer.	None

33	Lesson 9: Solve Addition Word problems with Facts to 20 • Infuse these problems throughout the topic. Use is centers. • Have students act out the problems.	• Don't do this lesson as a standalone. The problems in this lesson can be infused into collaborative problem solving in small groups, as Guided Math lessons, or as week-long problems where only a small portion is acted out each day.	None
34	Lesson 10: Math Practices and Problem Solving: Critique Reasoning • Same as the previous row. Infuse these problems throughout the topic. Use is centers. • Use a Convince Me/Two Arguments structures.		None
35	Review and Topic 3 Test		

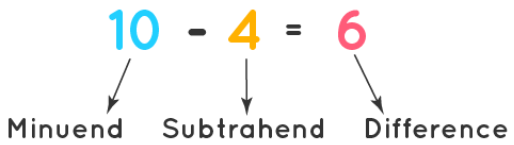
GRADE 1 - TOPIC 4: SUBTRACTION FACTS TO 20: USE STRATEGIES

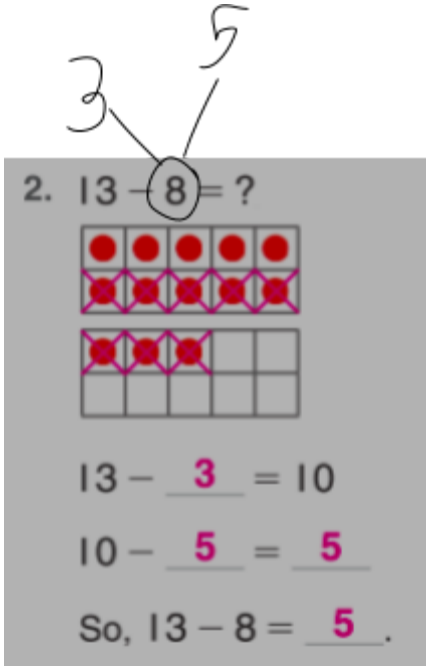
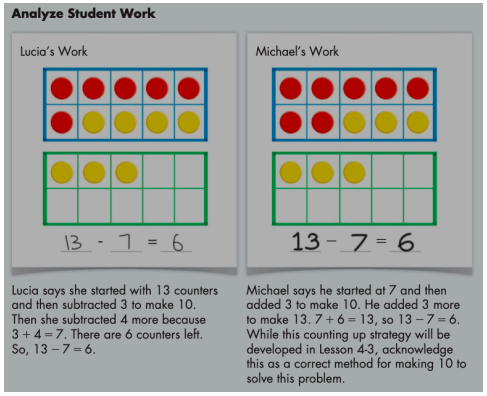
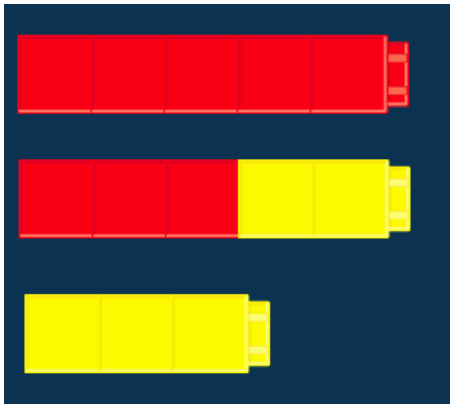
Tools	Models	Strategies	Math in Practice Book Suggested Activities

Ten Frame/Twenty Frame
Number Grid/Hundreds Charts (could be to 20)
Number Path/Strip
Number Bead String (20)
Rekenrek/Number Rack
Counters:
• Unifix or Snap Cubes
• Two-colored counters
• Square Tiles
• Bear Counters
	Diagrams:
	• Number line
	• Bar/Tape Diagram
	• Number Bond
	
	Pictorials:
	• Make drawing of amounts
	• Make a double ten frame sketch
		• ~~Count all (Level 1)~~
		• Count on (Level 2)
		• Count on from the know addend (e.g., 14 - 6 = ?, Think 6 + ? = 14)
		• Fact Families/Inverse Relationships
		• Minus 1 strategy to see the next or previous number in the counting sequence
		• Minus 2
		• Make a 5
		• Make a 10
		• Compliments of 20
		• Double facts
		  ○ Doubles, Minus 1
		  ○ Doubles, Minus 2
		• Decompose numbers (recognize nested numbers)
		• Apply the Zero Property
			Equations and word problems need to be made/provided in order for students to engage in the following centers:
			
			MODULE 3: Building Understanding and Fluency with Basic Math Facts: Expanding on +/-1, +/-0
			
			• Ten Frame Equations pg. 76
			• Number Line Jumps pg. 76
			• Domino Draw pg. 82
			• Dot Card Pairs pg. 83
			• Domino Mats pg. 85- Write Equations to Match and solve for equations presented on the dominos
			• Spin and Subtract pg. 89
			• Subtracting with Dot Cards pg. 89

Preview the entire Topic identifying the tools, models, and strategies recommended. You may want to incorporate various tools, models, and strategies consistently, not just when recommended by the lesson.

Explore counting and progressing to additive thinking.

Day	Do	Don't	Introduction of New Academic Vocabulary
36	Lesson 1: Count to Subtract • Note which students are counting 1 by ones and which students are counting in chunks/groups of nested amounts. • Do encourage an understanding of taking-ways vs. finding the difference between amounts. For example, #7 is an example of a situation that can be modeled using the difference, opposed to taking away.	• Don't assume that children must only count by ones. Rather, look for students who are using additive thinking and counting in chunks, e.g., counting on from 5, then by 3 if finding the difference between 5 and 13. The task in Step 1 does model a take-away situation, but some students might model this as a difference situation. If taking away the student could count back a chuck/group or 3, then a chunk/group of 2 to get to 8. • Don't use the number lines in the workbooks as is. Some students might need more room. • Don't assume that students will understand the practice problems in Step 2. They require scaffolding which could be done by encouraging students to read the equation aloud and contextualize. For example, for #3 students might say, Jamie had 11 balloons and 6 popped, so 11 take-away 6 is some amount. For #4 the situation shifts. We begin with an unknown, so students might need to say, some amount equals 7 minus 7 and ponder what do I have if I have 7 balloons and 7 popped. For #5 a student might say, "If I have 15 balloons and take-away some amount and end up with 7 balloons, how many did I take-away. This is where a difference model would come into place, but students would use a take-away model.	None
37	Lesson 2: Make 10 to Subtract • For the task in Step 1 also model on a number line to reinforce and connect these tools/models. The idea of making a 10 when subtracting is the beginning of developing additive thinking. • Use a number bond to model decomposing the subtrahend. 	• Don't do the practice problems in Step 2 as is. What is the point?! Students will just cross off (take-away) the subtrahend. Instead place students into small groups where one student has to act out the problem using a ten frame structure, but with connecting cubes. By using the connecting cubes students will be able to see the chunks/groups as they decompose the subtrahend. With 2 colored counters that will only count by ones and not advance their additive thinking skills. For example, in the problem featured below we are using a ten-frame structure to model 13 - 5 = 13 - 3 - 2 = 10 - 2 = 8.	None

	 • Do have students examine the Student Work Samples and note/discuss the differences. Luca's Work shows that he took away 7 beginning at 13 and saw that he had 6 left. Whereas Michael's Work added on from 7 until he got to 13. After that discussion use the language "students" in the book to have students act out what was done for each sample: 	 If students are ready they can use other symbolization in the ten frames.  As for the other students in the group - one student can voice the explanation and the other student can show on a number line using chunks/groups as was done using the ten frame structure.	
38	Lesson 3: Continue to Make 10 to Subtract • After the students have completed the task in Step 1 note which students modeled their thinking in	• Don't do the mini lesson in Step 2 as is. Instead find out from your students who wants to count on from 6 and why and who wants to count back from 14 and why.	None

	chunks/groups. It may not have been making a 10, but what did they do other than a one-to-one take-away? The focus is developing additive thinking and seeing chunks of nested numbers. Making a 10 can be useful, but not all students may see the problem that way and still be counting in chunks. For example for the problem 11 - 7, someone could see taking 5 away first by removing the second row. They would be left with 5 on the first row and 1 more for a total of 6, but now they have to take 2 more out. Still working in chunks/groups...additive thinking, but not the make a 10 strategy. Still valid and worthwhile reasoning. • Encourage visualization, then confirmation with the tools. For example, for 13 -9 = ___. Show the equation. Ask students to visualize the amount on a ten frame. Ask them to take off the 9. Give them a moment to visualize this on the number line in their heads. Ask them how they took the 9 off? Did they take off 5 from the top row, then 4 from the next row? Did they take off 3 from the second ten-frame and then take off 6 from the first ten-frame? Ask students to describe what they did, model their thinking or ask them or their classmates to model their thinking.	• Don't assume that students are making the connection between addition and subtraction, muchless the work on chunking/grouping amounts. Rather encourage students to discuss their thinking as they model what they are doing to work out the problems. If using the "Intervention Activity" think about the added scaffold of color coding the parts of the equation. For example, the sum and the minuend would be the same color.	
39	Lesson 4: Fact Families • The task in Step 1 is a good way to gather formative assessment data on what patterns students have begun to notice about inverse operations (i.e., fact families). If possible, question students about what their equations mean to see if they understand the relationships for if they are just writing numbers in different positions. To extend, think about having the students show the 4 equations either using a number line or using a ten frame structure.	• Don't show the Student Work Samples. Instead use the work samples from the students in your classroom. Please note that the Student Work Samples in the book show the addition equations and subtraction equations horizontally with the addition ones in the first row, but these same equations are shown stacked in columns in the student task. This could lead to unnecessary confusion and take away from your focus. • Don't do this lesson as is. Instead use connecting cubes to model thinking around inverse operations. This is such a fundamental understanding that students will use from now all the way to Algebra 2 and beyond. It also lays the foundation of the conceptual understanding of the Commutative Property of Addition (and later Multiplication). Make a point to model that subtraction is not commutative and you can't just put the numbers anywhere. Subtraction is an undoing of addition.	1. Fact family 2. Related facts
40	Lesson 5: Use Addition to Subtract • For the task in Step 1 have the students label the total in the diagram and also what the total is in the subtraction equation (minuend). This makes most sense when the equation is contextualized. Marissa had 12 ribbons and she gave her friend 9 of them.	• Don't do the lesson as is. Instead use the "Intervention Activity" as the mini-lesson and practice. Have students work in partnerships. They could create the problems using the steps in the first 2 bullets, then write the related facts independently. After they have written the	None

	• Use the problem Solving questions (#8 and #9) for students to discuss and solve collaboratively in small groups.	facts independently, then they could compare using a Match Mine (Kagan) strategy. Afterwards they could continue on to bullet 3 to prove their thinking.	
41	Lesson 6: Continue to Use Addition to Subtract • When doing the task in Step 1 student reasoning is key. Have students discuss/record their reasoning as to how they got their answers. We may want students to try out a particular strategy, but they may have their own that they prefer or they may have that particular fact committed to memory. • It would be beneficial to also have students model out the inverse operations using connecting cubes. • Use the True or False (#13, #14) and have students create their own. • Use the "Intervention Activity" in a small-group either as a Guided Math or as a center. Make it a game.	• Don't do the practice problems as is. Not sure why the textbook uses calculations, opposed to equations. Have the students work in groups and let them choose the strategy that they want to work out the problems. Encourage the use of visualization to solve and tools to solve and model thinking. Use a Match Mine structure to have students compare and discuss how they worked the problems out.	None
42	Lesson 7: Explain Subtraction Strategies • Use this "Intervention Activity" to have students who are having challenges with subtraction concepts and strategies. This would be a Guided Math Group.	• Don't do this lesson as is. Instead use this lesson to play games used previously to give students a chance to apply strategies and explain their thinking.	None
43	Lesson 8: Solve Word Problems with Facts to 20 • Anticipate and Monitor how students solve the task in Step 1. Select and Sequence student work possibly using a progression from counting strategies to using more additive thinking or highlight and Connect various models. • Implement various word problem comprehension strategies and **not key words**. For example, making a mathematical sketch of the situation to visualize. Or take off the question and ask students to just act out the situations, then figure out what questions could be answered given the situation. • Incorporate these problems into centers and have students work on the problems together at various points throughout the unit. • Use the image from the "Intervention Activity" to have students come up with the story based on their interpretation of the math sketch. Just show the sketch part and the labels not the equations part.	• Don't just assign the word problems in Step 2 to students. Rather, you have a variety of problem types. For example: ○ #1 is a Add To/Start Unknown problem type ○ #2 is a Add To/Change Unknown problem type ○ #3 is a Compare/Difference Unknown problem type using the "How many fewer?" version ○ #4 is a Compare/Bigger Unknown problem type using the "fewer?" version All of these various problem types will lend to confusion. This is not to say that students cannot solve these problems, but teachers need to focus on comprehension of the situations, not on getting the answer. Have students work collaboratively to act out and solve the problems.	None
44	Lesson 9: Math Practices and Problem Solving: Reasoning • Have students work collaboratively to come up and refine their math stories as asked for in the task from Step 1.	• Don't do this lesson. Rather contextualization should be done during the entire unit. Don't wait until the last lesson in the chapter. Use this time to revisit the games and strategies played in Lesson 7.	

45	Review and Topic 4 Test Interview students to gain a deeper understanding of how they are solving the problems. Are they using counting or additive strategies and reasoning?		

GRADE 1 - TOPIC 5: WORK WITH ADDITION AND SUBTRACTION EQUATIONS

Tools	Models	Strategies	Math in Practice Book Suggested Activities
Number Frames • Ten Frame • Twenty Frame Number Grid/Hundreds Charts Number Path/Strip Number Bead String (20) Rekenrek/Number Rack Counters: • Unifix or Snap Cubes • Two-colored counters • Square Tiles • Bear Counters	Abstract Model: Equations Diagrams • Number line • Bar/Tape Diagram • Number Bond Pictorials: • Make drawing of amounts • Make a double ten frame sketch	• All previous strategies • Apply the Commutative Property of Addition • Apply the Associative Property of Addition • Use derived/known facts, e.g., 4 + 3 + 5 = ?. Students could know that 5 + 4 = 9, then add 3 more.	**Equations and word problems need to be made/provided in order for students to engage in the following centers:** **MODULE 4: Building Understanding and Fluency with Basic Math Facts: +-2** • Counting On or Removing Counters to Count Back pg. 96 • Commutative Property Using Double Number Lines pg. 99 • Commutative Beads pg. 100 • Dot Cards Match pg. 102 • Discard Game pg. 102 • Eliminate It pg. 106 • Building Models pg. 108 • Four Ways pg. 108

This Topic is really about comprehending from a conceptual standpoint mathematical notation the concepts that they convey. It is about making connections and seeing the patterns between addition and subtraction. This Topic is about applying reasoning to addition and subtraction concepts. This Topic is not about having students mimic the teacher's way.

If you have not done so already, include rote counting in your routines in preparation of Topic 7.

Day	Do	Don't	Introduction of New Academic Vocabulary

46	Lesson 1: Find the Unknown Numbers • Use the task in Step 1 to gather formative assessment data about the tools, models, and strategies that students use to solve the problem. Ensure that students have a chance to explain their thinking. • Make all the tools used in previous Topics available for student use. • Let the students use their own strategies and use a Pairs Compare structure to get students comparing ways, evaluating the work of others, and explaining their thinking and the thinking of others. • Work out the word problems (#10, #11) in cooperative groups. • Use the "Intervention Activity" in a Guided Math group or have students work together using the structure in the "Intervention Activity."	• Don't do the mini-lesson as is. Rather build off of the strategies that students showed from the Step 1 task. Students will do one of the following strategies: A. Count/Add on from 3 to get to 12 B. Count back 3 from 12 C. Create a related fact, i.e, 12 - 3 = ___ D. Use an inverse operation, 3 + ___ = 12 They may use tools or use a diagram/math model to act out any of the above strategies. The model in the mini-lesson shows the minuend and the counters are crossed out (taken-away) until they arrive at what was left. They would count how many they crossed out to find the missing amount.	None
47	Lesson 2: True or False Equations • Make various tools available for students to use as they work out this problem. • Ensure that students have time to explain thinking to each other. Use a Face-to-Face, Back-to-Back (Kagan) strategy. • For the Practice Problems teachers articulate why the problems are true or false using mathematical reasons, beyond whether the expressions are equivalent or not. For example, #11 is false because while 4 + 2 does equal 6 the problem is saying that 4 + 2 equals 6 and 1 more, but that would be 7, so 6 does not equal 7. You could then ask, what would you have to do to make the expressions equal? • The "Intervention Activity" would be useful in a Guided Math Group or using a Teacher Tell Me structure.	• Don't just allow students to build out first. Rather give students a chance to think and visualize. For example, #3 in the practice problem is 5 + 5 = 6 + 4 we want students to see the relationship between the two expressions. We want them to reason that both expressions are complements of 10 or that if you take 1 from 6 and give it to the 4 you would have 5 + 5 or 6 + 4 = (5 + 1) + 4 = 5 + (1 + 4). This is an application of the Associative Property of Addition. • Don't show all the information from #12. Instead just show the problem as shown below and ask the students 12. **MP.6 Be Precise** Shawna has 8 paper airplanes. She gives away 1 plane. Frank has 5 paper airplanes and gets 2 more.	None
48	Lesson 3: Make True Equations • Be ready for students saying 7 as the answer in the task in Step 1. This could indicate that they did not "see" or understand the entire equation. Be ready to model 7 + 6 to see if it equals 2 + 5. • Give students a chance to figure out a strategy to solve these kinds of problems before teaching the explicit strategy in the mini-lesson. • For the Practice Problems teachers articulate ways that we could make the expressions equivalent.	• If a student says that 7 is the answer in the task from Step 1 don't tell the students that 7 + 6 does not equal 2 + 5. Rather have them puzzle through with each other and determine what the amounts don't equal. • Don't just use the strategy of figuring out the sum of 1 expression to find the missing addend in the equivalent expression. Also encourage students to reason out problems. For example, in the problem 10 + ___ = 5 + 7 a student might see that in the second expression we have 5 + 7 which is equivalent to 5 + 5 + 2 if you decompose the 7 into 5 and 2. We can then see that if they have 10 on the other side of the equation, which is equivalent to 5 + 5, then 2 more would have both expressions equivalent and the equation true.	None

49	Lesson 4: Word Problem with Three Addends Point out to the students that we are converting units in the task from Step 1. We have oranges, pears, and apples and we are converting them to fruit. The answer of 12 fruits does not tell how many of each type. • Gather formative assessment data as to the type of tools, models, and/or strategies that students use. • You can also use number bonds and part-part-part-whole diagrams to model these problems. You are not limited to 2 parts. • Highlight strategies from students that seek to make a 10 as a computational strategy. • Context is king! Have students do a Pairs Compare or Silent Collaboration structure to work together to workout these problems. • Act and sketch out the situations. • These problems can be extended by taking off the question and having students answer various questions. For example: Pat has cards of his favorite athletes. He has 8 baseball cards, 2 football cards, and 3 basketball cards. We could ask: ○ How many cards in all? ○ How many more baseball cards than football cards? ○ How many fewer football cards than baseball cards? ○ How many more basketball and baseball cards than football cards? • Highlight various ways to group the addends as an application of the Associative Property of Addition. Remember the following bit of advice and show many ways while emphasizing strategies. **Error Intervention: Item 2** **If** students think there is only one correct way to group the addends, **then** emphasize that the sum of 4 + 2 + 6 is the same whether 4 + 2 is added first or whether 2 + 6 is added first. *What is the*	• Don't focus on keywords. • Don't use the "Intervention Activity" without providing structure such as a ten frame.	None
50	Lesson 5: Add Three Addends • Use actual books as these are readily available in many classrooms or in homes. Not all students have to use books. Most of the students could use counters, preferably connecting cubes in a ten frame structure.	• Don't do the task as is. Rather use the "Student Work" samples as worked problems. Without explaining the work samples tell students to analyze the work and allow them to tell the strategies that they notice being used. Ask them why they think the student might have used	None

	• Have students work in partnership using a Match Mine. After they see if they have matched or not, they could discuss/name the strategy used. The main ones highlighted are recognizing "doubles facts" or "make a 10." • #9 is an adaptation of Magic Squares. Magic Squares would be great practice and fun for students. • Do the "Intervention Activity" as a small-group center. • Do the "On-Level and Advanced" as a small-group center.	those strategies. • Don't do problem #10 as is. Rather make it an open problem by adjusting the problem to: Maya puts some books on a shelf and some more books on another shelf. Then she puts some books on the last shelf. If Mays placed 15 books on all three shelves, how many books could be on each shelf? How many possibilities can you figure out?	
51	Lesson 6: Solve Addition and Subtraction Word Problems • Do the task from Step 1 in a Guided Math group so that you can watch what students are doing and interview them about their work. These groups should be homogeneous and leveled so that students with similar abilities are working together. Note how they solve the problems and note their different strategies and understandings. Be ready to model or extend on their thinking. • Have the students work on the word problems collaboratively in small-groups. In the small groups have a reader for the problems and ensure that all students act out and/or sketch out the problem situations. Provide students with whiteboard space to work out the problems. Encourage students to label the numbers with units. For example, in problem #2 the 3 is for 3 toys.	• Don't do this lesson as is. Rather combine with Lesson 7 and do Guided Math Groups and small group centers over 2-days. This is an opportunity to target instruction and review strategies.	None
52	Lesson 7: Problem Solving: Precision • Do the practice problems in small-group centers using a Convince Me structure where the students have to justify and prove their thinking to each other. • Do the Performance Task in small-groups, but rewrite the problem in a large chart paper, color coding each sentence or placing each sentence on a sentence strip so that students can isolate each bit of information as opposed to taking it all in at once. This problem will need to be acted out and may need some guidance from an adult to clarify what is taking place.	• Don't do the task. Continue to do Guided Math groups with the task from Lesson 6 Step 1. • Don't do this lesson as is. Rather combine with Lesson 6 and do Guided Math Groups and small group centers over 2-days. This is an opportunity to target instruction and review strategies.	None
53	Review and Topic 5 Test		

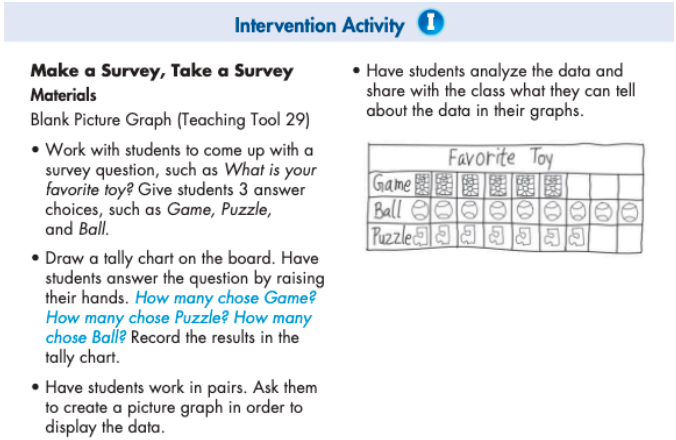
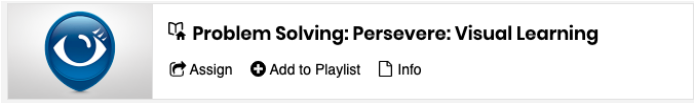
GRADE 1 - TOPIC 6: REPRESENT AND INTERPRET DATA

Tools	Models	Strategies	Math in Practice Book Suggested Activities
Graph Paper: • 1-inch Graph paper • 2 cm Grid Paper Ruler/Straight Edge Square Tiles with1-in. graph paper Unifix or Snap Cubes with 2 cm grid paper	Tally Marks/Charts Picto-graphs Bar graphs Bar/Tape Diagrams Number Lines Equations in combination diagrams	• Counting all the data points • Comparing by matching	**MODULE 13: Representing and Interpreting Data** • Sorting Attribute Blocks Pg. 285 • Sorting Pattern Blocks pg. 286 • Predict and Sort pg. 289 • Spin, Sort, and Compare pg. 290 • Favorite Colors pg. 294 • Talk About It/ Write About It pg. 295 (problems need to be made for this center) • You Write the Question pg. 299 (this is a higher level tasks and pictures of different graphs need to be made for this center) • Four Different Ways pg. 302 (this is a higher level tasks and pictures of different graphs need to be made for this center)

Please note that tally marks are written the way in which they are because of human ability to perceptually subitize. See article.

Day	Do	Don't	Introduction of New Academic Vocabulary
54	Use the "Interactive Math Story" to launch the unit. Use the digital version of the story to segment the introduction of this topic. Lesson 1: Organize Data Into Three Categories • The task in Step 1 is a good way to gather formative assessment data around how students	• Don't just show the task, but rather use authentic materials (i.e., crayons) to model acting the task out. • Don't do the mini-lesson and practice as is. Instead use the "Intervention Activity" as the lesson:	1. Tally marks 2. Data 3. Tally chart

	structure their thinking. Do they make lists? Do they form a table/chart? Do they write numbers, make tally marks, make dots, or try to draw the crayons? Do they label numbers or tally marks written? Do they use a letter to represent the colors? •	**Intervention Activity** **Book Tally** **Materials** Library books • Have students work in groups of 3. • Display a mixed pile of books: 5 books about animals, 3 books about plants, and 6 books about sports. • On the board, draw a tally chart like the one shown. • Pick up 1 book at a time and have students identify to which category the book belongs. Then draw a tally mark in the appropriate row in the chart. Continue until all of the books have been counted. • Have groups count the total number of tally marks for each type of book. Draw students' attention to the sets of tally marks for 5 and emphasize skip counting by 5s. Favorite Book Subjects / Totals Plant | 3 Animal 𝍸 5 Sports 𝍸 | 6	
55	Lesson 2: Collect And Represent Data • Do the task in Step 1 as a whole group activity. Record the student data. If other classes are on the same grade level, make a chart with the data and post for all classes to see and compare. • Use the "Student Work Samples" to have students Notice and Wonder about the work. • Use a Notice and Wonder strategy for the mini-lesson in Step 2. Have students compare the chart with the tally marks to the picto-graph. • Give students a chance to do the "Intervention Activity" as a follow-up activity. **Intervention Activity** **Our Favorite Pets** **Materials** Index cards, crayons, tape • Take a survey of the group by asking students to vote for their favorite pets. Make a tally chart of their responses. • Ask each student to draw a picture of his or her favorite pet on an index card. Help them tape their pictures on the board to form a horizontal picture graph. • Encourage students to use the lengths of the rows in the picture graph to tell which pet is the favorite of most students and which pet is the favorite of the fewest number of students. Favorite Pets Dog Cat Goldfish	• Don't assume that students know what these activities are and you may need to model. • Don't have students work on the practice independently, but rather have them work in pairs and then do a Pairs Compare (Kagan).	1. Picture graph (picto-graph) 2. Survey 3. Least 4. Most
56	Lesson 3: Interpret Data	• Don't do the task in Step 1 as is. Instead take the	None

	• During Step 2, use connecting cubes to represent the items in the picto-graph. Each child should either have their own tools to act out the information in the graph or students could work in pairs. • Use the "Intervention Activity" with a small group as students work in pairs on the independent practice.  **Intervention Activity** **Make a Survey, Take a Survey** **Materials** Blank Picture Graph (Teaching Tool 29) • Work with students to come up with a survey question, such as *What is your favorite toy?* Give students 3 answer choices, such as *Game, Puzzle,* and *Ball.* • Draw a tally chart on the board. Have students answer the question by raising their hands. *How many chose Game? How many chose Puzzle? How many chose Ball?* Record the results in the tally chart. • Have students work in pairs. Ask them to create a picture graph in order to display the data. • Have students analyze the data and share with the class what they can tell about the data in their graphs. Favorite Toy Game Ball Puzzle	poll of the students in your classroom. • Don't assume that students remember the term "fewer" and you may have to remind them of the term.	
57	Lesson 4: Continue To Interpret Data • The task in Step 1 is a great opportunity to gather formative assessment data about what students remember about this problem type (change unknown). You could also ask the students to work in small groups to make a graph to represent the information and then do a Pairs Compare (Kagan).	• Don't implement the mini-lesson as is. Instead use the video to segment information. Emphasis a counting-on strategy for part 2 of the video. That means that we should model 6 + ___ = 15 first, then make the connection to 15 - 6 = ___. • For the last part of the video, have students build using connecting cubes and have them compare. Ask both of the questions: ○ How many more students chose carrots than broccoli? ○ How many fewer students chose broccoli than carrots?	None
58	Lesson 5: Math Practices And Problem Solving: Make Sense And Persevere • Use the task in Step 1, but present the questions 1 at a time. • Use scaffolded questions, such as, but not limited to:	• Don't do the mini-lesson as is. Use the video part of the lesson to segment and pause for questioning:  **Problem Solving: Persevere: Visual Learning** Assign Add to Playlist Info	None

	○ How many students like _____? ○ How many more students would we need for _____ to have the most votes? ● Use concrete materials to support student understanding.		
59	Topic 6 Review and Test		

GRADE 1 - TOPIC 7: EXTEND THE COUNTING SEQUENCE

Tools	Models	Strategies	Math in Practice Book Suggested Activities
Number Grid to 200 Unifix/Snap Cubes (sets of 10) Ten Frames (to 100) Number Bead String (100) Rekenrek/Number Rack (100) Number Path (100) Money ($1, $10) Dimes and pennies (use real coins)	Number Line	Rote Count using chant/song Counting Circles (with manipulatives) Add 10 from multiple of 10 (Level 1) Add 10 from any number (Level 2)	**MODULE 8: Counting and Understanding Place Value** ● Missing Numbers pg. 170 ● Make Decades Pop pg. 171 ● Hundred Chart Puzzles pg. 173 ● Agree or Disagree? pg. 173 (scenarios need to be made for this center) ● Connecting Cubes pg. 173 ● Bundling with Other Materials pg. 174 ● Bundling Stations pg. 177 ● Quick Images pg. 178 ● Predict and Check pg. 178 ● Build a Number pg. 179 ● Place Value Pictures pgs. 182-183 ● Make It True pg. 184 ● More Ways Than 1 pg. 186 ● Eliminate It pg. 187 (problems will need to be made for this center)

			• Talk About It/Write About It pg. 188 (scenarios will need to be made for this center) • Number Riddles pg. 188 (scenarios will need to be made for this center) • Base-Ten Pieces Puzzles pg. 188 (scenarios will need to be made for this center) • Build, Predict, Compare pg. 189 (2-digit numbers will have to be placed on cards for this center) • Numbers Between pg. 190 (scenarios will need to be made for this center) • Symbols for Comparing Numbers pg. 191 • Ten-Frame Compare pg. 192 • Talk About It/Write About It pg. 193 (scenarios will need to be made for this center) • Spin and Compare pg. 194 • Place Value Target pg. 195

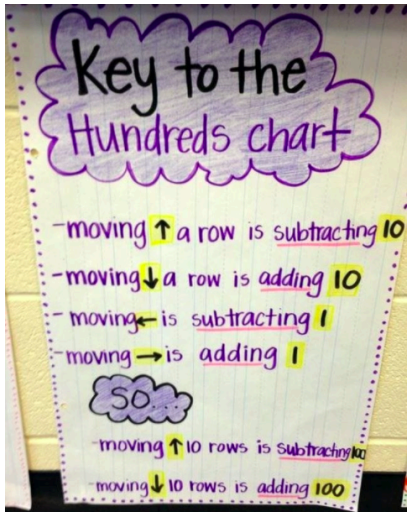
Watch the professional development video. Review the Learning Trajectories on Counting.

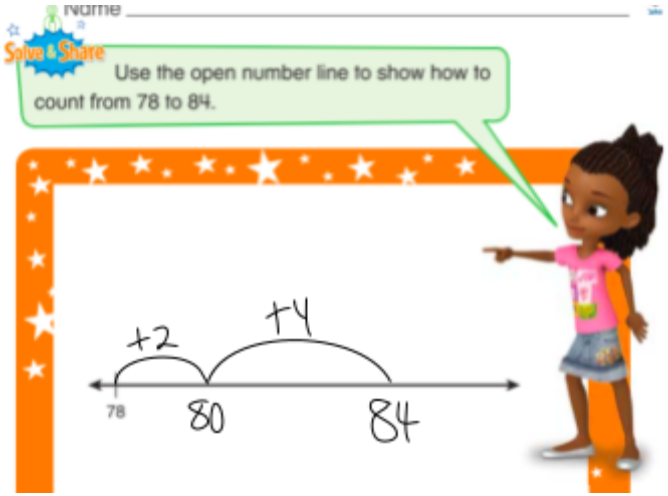
Day	Do	Don't	Introduction of New Academic Vocabulary
60	As you launch the unit watch the Animated Math Story video and gather formative assessment data about what your students already know. See what students gravitate towards. Do they use their fingers? If so, how. Do they move towards the ten frames? Lesson 1: Count by 10s to 120 • Do this task and give students a chance to voice their thinking and reasoning. This is a good opportunity for a Back-to-back, Face-to-Face	• Don't do this lesson as is. Instead play a game with ten-frame cards. If online, use Math Learning Center App - Number Frame. You could have students play in groups of 3 and switch roles. One person could say and write a multiple of 10. Another person could lay out the amount said with the ten-frame cards. They could work together to come to consensus that the amount said and written is the amount represented by the ten-frame cards. The third person in the group	None

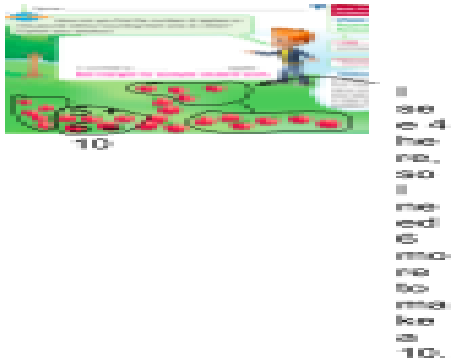
	structure. This is also a great opportunity to gather formative assessment data. Who already knows how to count by 10s and if so, how high? • Aaron's Work Sample from Step 1 can make for a good discussion and exploration of what each numeral labeling each ten-frame means. For example, the numeral 2 in this context means 2 groups of tens have been counted. The 2-label includes the nested amount of the 1 group of ten. • The "Intervention Activity" is a useful game to play throughout the topic and beyond. It can be later adjusted to skip count by 5s instead of counting by 1s only. • The "On-Level…" ideas are good ideas for centers that can be played throughout the topic and beyond.	could say: ____ tens is ___. The other students would repeat what was said. • Don't do the Problem Solving in Step 2 until you have developed an anchor chart with students that show the different ways to represent multiples of ten in terms of unit form, standard form, in words, and as a visual representation using ten frames and also on a number line.	

61	Lesson 2: Count by 1s to 120
	• Use the task in Step 1 to gather formative assessment data as to how high students can count. From where they can count from. Do they need to begin at 1 or can they begin counting from any number? What happens when they approach or cross over a decade-number? What happens when they cross over 99?
	• Use Student Work Samples to have a discussion with the students about what Ehrin does versus what Pedro does.
	• Make a big deal about recognizing the numerical patterns of numbers.
	• Play a partner or tirad game where each student has to continue the numeric sequence of the previous students. For example, if Student A writes a 45, then Student B has to write 46. They do this for about 5 rotations, then they check their sequence by referring to a number line or a number grid.
	• Turn the "spill" idea from #13 into a game or center. Let kids make the "spill" and other students figure out what is missing.
	• #16 can be used as an Exit Ticket.
		• Don't use Base-ten blocks here as shown in the mini-lesson of Step 2. And if you do decide to use the Base-ten Blocks call then hundreds, tens, and ones, not flats, longs, and cubes.
		• Don't implement this lesson as is. The point of this lesson and the main concept is to give students a chance to see and use patterns in the number sequence. To that end you are dealing with dual skills:
		  ○ rote counting and recognition of the oral pattern
		  ○ Writing numerals based on the pattern noted
		These are two distinct skills. I can say the number 109, but I may not know how to write that amount. I might write 1009 (read as: one hundred nine).
		
		Scaffolds need to be provided so that students can connect the oral count and the numeral representation (and visual/concrete representation).
			None

62	Lesson 3: Count on a Number Chart to 120	• Don't do this lesson as is. Rather use this day for Math Centers and Guided Math Groups. Combine	1. Hundreds chart 2. Tens digit

	• Play number grids games. For example, hide a number on the number grid and ask the student to say what the hidden number is. See the "Intervention Activity" as a scaffold. • If using the workbook in a center, have students work with a partner to do problems 5 to 12, but tell them that they must do 3 problems wrong. The rest could be correct. Then the partners would switch their workbooks with another partner and then other partners would have to find and fix the errors.	this lesson with Lesson 4. • Don't do the Step 1 task for Lesson 3. It is unnecessary. • Don't use the number grid if you are going to do problem #18 in the Problem Solving. This problem would be useful to show a student and ask them about their reasoning as to why they would pick a specific number to complete the sequence.	3. Row 4. Ones digit 5. Column
63	Lesson 4: Count by 1s or 10s to 120 • Combine with Lesson 3 and do over 2 days. • Do the task in Step 1 either as a whole group or in guided groups on Day 1 of the combined Lessons 3 and 4. Note students who are counting by 10s to get 10 more from any position. Encourage them to share what they are noticing with the class. • Ensure that students have number grids to work on and view. The workbook might be confusing for students in that on the number grid when counting by 1s we move horizontally and vertically when counting by 10s. However, everything is the workbook where students need to record their answers are horizontally written. 2. Count by 10s. 22, 32, 42, 52 , 62 , 72 , 82 , 92 , 102 This may leave students uncertain about moving on the number grid. Have students work with a partner who can look at the number grid and tell the other students what to write down. The partner that is telling should also check to see that the correct numeral was written down. The partners should constantly ask the question, "What patterns do you notice?" And they should answer the questions to each other.	• Don't tell students the patterns of adding and subtracting on the number grid. Let them "discover" the pattern through the use of games in centers and via conversation with probing questions. After the patterns are "discovered" then an anchor chart can be created collaboratively with the students. 	None
64	Lesson 5: Count on an Open Number Line • Do the task in Step 1, but it is vital that you apply the 5 Practices for Orchestrating Discussion.	• Don't implement the workbooks pages as is. Make these problems more interactive. Have students hop across tiles to act out moving across the	None

	Anticipate and Monitor who is counting by ones and who is engaging in additive thinking. You want to Select and Sequence work to move from counting by 1s to moving more into additive thinking and chunking/grouping sets of numbers. For example, which of your students count by ones? Which of your students will chunk/group amounts? 	number line. Have students act out the problems on a number bead string. All the while focus on the patterns with the place values. What is increasing if we are counting by tens?	
65	Lesson 6: Count and Write Numerals • Combine Lessons 6 and 7 into 2 days of instruction. You will still do both lessons, but combine the ideas • Use the practice problem in this lesson in centers. Have students work collaboratively to determine ways to count the amounts that would be both accurate and faster than counting by ones. This should be a collaborative decision amongst the students in their respective groups. They can then compare and contrast why it was easier to count the configurations in Lesson 6 as opposed to Lesson 7.	• Don't do the tasks in Step 1 for Lessons 6 and 7 as is. Instead have students work in small groups on the task from Step 1 in Lesson 6. Listen to the conversations and note how students are deciding/negotiating how to count the amounts. Which groups are counting all? Which groups are grouping by 10s?	None
66	Lesson 7: Problem Solving: Repeated Reasoning • Do the task in Step 1 in a Guided Math Group where students have to justify their strategies and select strategies that are going to be more efficient for counting the entire collection. **Try to**	• Don't teach this lesson as is. Make into centers and combine with Lesson 6 and do over 2 days.	None

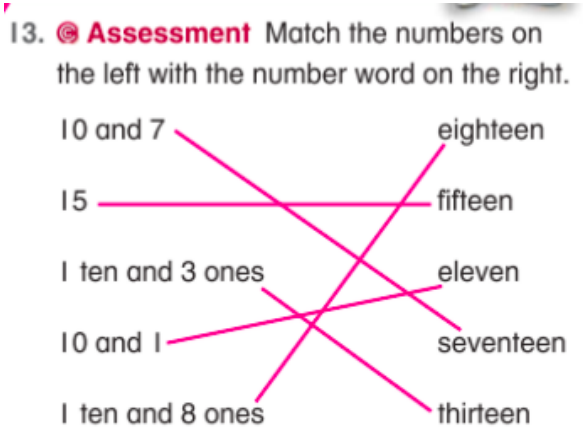
	encourage students to subitize opposed to counting all 1 by 1, but instead make a ten.  Also, use this task in a Guided Math Group to show other ways of counting, e.g., by 2s. Please note that the **2.NBT.2** is as follows: --- 2. Count within 1000; skip-count by 5s, 10s, and 100s. The first grade standard focuses on skip counting by 10s within 120. Lesson 7 brings the concept of counting on by other groupings. Focus on that aspect. Not skip counting, but rather additive thinking by groups other than 1s.		
67	Topic 7 Review and Test		

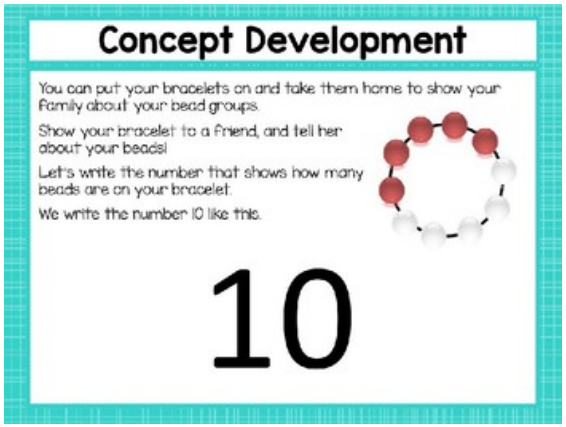
GRADE 1 - TOPIC 8: UNDERSTAND PLACE VALUE

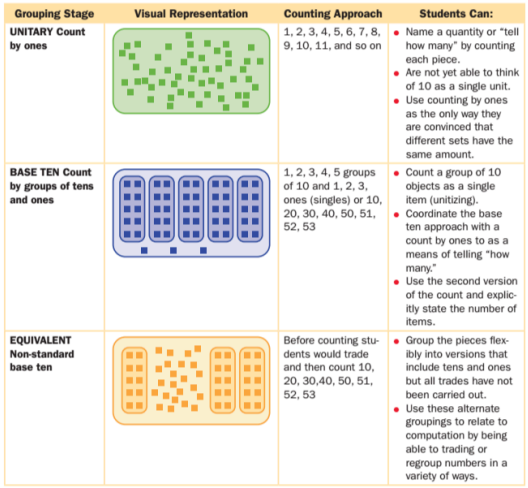
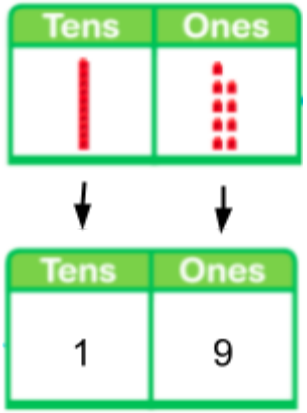
Tools	Models	Strategies	Math in Practice Book Suggested Activities
Number Grid to 200 Unifix/Snap Cubes (sets of 10) Ten Frames (to 100) Number Bead String (100) Rekenrek/Number Rack (100) Place Value Chart/Mat (tens, ones) Money ($1, $10) Dimes and pennies (use real coins)	Pictorial Base Ten Pictorial Money Open Number Line Number Bond	Add 10 from multiple of 10 (Level 1) Add 10 from any number (Level 2) Decompose number by place value	**MODULE 8: Counting and Understanding Place Value** • Predict and Check pg. 178 • Quick Images pg. 178 • Predict and Check pg. 178 • Build a Number pg. 179 • Place Value Pictures pgs. 182-183 • Make It True pg. 184 • More Ways Than 1 pg. 186 • Eliminate It pg. 187 (problems will need to be made for this center) • Talk About It/Write About It pg. 188 (scenarios will need to be made for this center) • Number Riddles pg. 188 (scenarios will need to be made for this center) • Base-Ten Pieces Puzzles pg. 188 (scenarios will need to be made for this center) • Build, Predict, Compare pg. 189 (2-digit numbers will have to be placed on cards for this center) • Numbers Between pg. 190 (scenarios will need to be made for this center) • Symbols for Comparing Numbers pg. 191 • Ten-Frame Compare pg. 192

			• Talk About It/Write About It pg. 193 (scenarios will need to be made for this center) • Spin and Compare pg. 194 • Place Value Target pg. 195

Watch the professional development video.
Don't do the Review what you know. It does not actually test what students know and they might just guess. Rather interview students and have them build amounts as they explain what they know about a number.

Day	Do	Don't	Introduction of New Academic Vocabulary
68	Lesson 1: Make Numbers 11 - 19 • Do the task in Step 1 as is. Focus on student reasoning. Encourage conversations on ways to make a 10 to get to 20 if they arise. • Assume that understanding teen numbers is not automatic in terms of how to write the numbers. Most students will have an easier time knowing that 16 is a 10 and 6 more, but may not know how to write the 16 down. Provide anchor charts and reference materials **with visuals** that are co-created with students.  • Use the sentence frames in the Guided Practice to support student use of language throughout the topic and beyond. • Students could work in partnership to build and also verbalize as they work.	• Don't just have the students complete the independent practice. Instead have them build the amounts using connecting cubes on ten frames or even on a number grid. • Don't just have students complete the assessment task. Instead use this as a game idea or have students create their own matching items for other students to play in centers.  	1. Tens 2. Ones

	• The "Intervention Activity" works well to differentiate the lesson for students.		
69	Lesson 2: Numbers Made with Tens • The task in Step 1 is a great conversation starter to engage students in the concept of equivalence. Have students use a Convince Me structure. Extend this conversation to other multiples of 10 to then form a generalization of 30 means 3 tens, 40 means 4 tens, etc. • Use a variety of tools/manipulatives to support and extend student understanding. • Have students alternate when counting by 10s. One student could say, "ten, twenty, thirty, etc." Another student could say, "1 ten is ten, 2 tens is twenty, 3 tens is thirty, etc." • Use the Problem Solving in centers. • Make 10 bead bracelets with students for them to wear or number bead strings for students to use in class.  	• Don't have the students work independently on the practice problems. Rather have them build amounts using connecting cubes. Watch out for students who build every amount 1 by 1 as opposed to making a 10 and matching to form another group of 10. Also, for the independent practice use a Match Mine structure to get students comparing and talking about what they have built. (Apply this to Lesson 3 also) • Don't do the "Intervention Activity" as is. The baggie idea is fine, but we need students to see ten as 1 unit...as a group. Having the items as discrete objects will encourage 1 to 1 counting as opposed to skip counting by 10s and the development of additive thinking. Alternatives might be to place a play $10 bill in each baggie or a dime. You could also sacrifice some connecting cubes and glue them together. Also, bundles of 10 using popsicle sticks or coffee stirrers could be an option.	None
70	Major concept. Lesson 3: Count with Groups of Tens and Leftovers • The task in Step 1 is a very important assessment opportunity. It is also a question better done 1 on 1 with a teacher watching. It would not take more than 1 minute per student, but when done as a whole group the teacher would not be able to get a clear understanding of what students	• Don't do this lesson as is. Instead, have students select digits (using playing cards) to construct a number that they then build using connecting cubes or on number bead strings. This is a process best done in partnerships. For example, if a group selected the digits 2 and 3, they could build 23 or 32. This activity lends itself to the work of Topic 9 and can be revisited in centers again in that topic.	None

	understand about place value. It would be important to note student reasoning and how they prove their thinking. • Use the Samples of Student Work during a Guided Math Group to have students compare and make sense of the work samples. For example, what does the "1" in the first column mean? How did this student choose to count? • Adapt the "Intervention Activity" as a to use a variety of easily bundle-able objects like coffee stirrers, markers, pencils, straws, popsicle sticks, etc.		
71	Please note that when we say 30 we are actually saying 30 ones, but the unit of ones is a default that we do not mention explicitly. Lesson 4: Tens and Ones • When doing the task in Step 1 use clear baggies. Also note that using all one color of items might make it harder for some students as the colors might blend together and make it harder for them to see. • Select and sequence student work so that they move from less efficient to more efficient strategies or equivalent forms of representation.  FIGURE 11.1 Three stages of the grouping of 53 objects.	• When doing the task in Step 1, don't give all of the students the same amount of items in their baggies. • Don't allow the students to count the items 1 by 1. Rather, remind them that they are trying to extend their thinking and they should take a guess. As a scaffold you might want to discuss some unreasonable amounts. For example, having 1 million or even 100 objects in the baggie would be not practical. • Don't assume that students understand the place value chart as presented. Most students will make the connection, but some might find it challenging. It is important to use the visuals in addition to the digits in the place value chart. Also, think about stacking the place value chart with the visuals on top and the numerical representation underneath. 	None

Grouping Stage	Visual Representation	Counting Approach	Students Can:
UNITARY Count by ones		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and so on	• Name a quantity or "tell how many" by counting each piece. • Are not yet able to think of 10 as a single unit. • Use counting by ones as the only way they are convinced that different sets have the same amount.
BASE TEN Count by groups of tens and ones		1, 2, 3, 4, 5 groups of 10 and 1, 2, 3, ones (singles) or 10, 20, 30, 40, 50, 51, 52, 53	• Count a group of 10 objects as a single item (unitizing). • Coordinate the base ten approach with a count by ones to as a means of telling "how many." • Use the second version of the count and explicitly state the number of items.
EQUIVALENT Non-standard base ten		Before counting students would trade and then count 10, 20, 30,40, 50, 51, 52, 53	• Group the pieces flexibly into versions that include tens and ones but all trades have not been carried out. • Use these alternate groupings to relate to computation by being able to trading or regroup numbers in a variety of ways.

	• In the mini-lesson turn the sentences in the video into a sentence frame for students to use during their practice time. For example, ○ "The ___ in ___ is the tens digit. It is worth ___ tens or ___." ○ "The ___ in ___ is the ones digit. It is worth ___ ones or ___."  		
72	Lesson 5: Continue with Tens and Ones • Do the task in Step 1 as is. It is important to see and highlight the drawings that students are using as visual representations of place value. Note that if all the students are doing the same thing, it may mean that they are just replicating the teacher's thinking and not cultivating their own insights. It might also mean that they are not seeing enough diverse representations. • Do the "Intervention Activity" as a center.	• Don't do the mini-lesson as is. Instead, turn this lesson into a game. Revisit the game played in Lesson 2 and have students work in groups to build and represent amounts in various ways. One student could build, another could make pictorial representations, another could show the amounts on a place value chart, another could extend and show on an open number line.	None
73	Lesson 6: Problem Solving: Look For and Use Structure • For the task in Step 1 provide students with tools to use to come up with different ways. Have the students use tools to test out and justify their thinking. Use a variety of tools, including, but not limited to ten frames, connecting cubes, number bead strings, etc. • Do have students build out the amounts that they came up with in groups. Share with the whole group. Make a list using drawn visual representations. Have students build out and	• Don't have students do the task in Step 1 independently. Instead, have students work collaboratively on solutions. • Don't ask the following questions: Small Group **DURING** **3. Ask Guiding Questions As Needed** *What size groups are you allowed to use?* [Tens and ones] *How many ones are in a ten?* [10] *Could you show 42 with just 1 ten? Explain.* [Yes; because there are 42 ones in 42 and I could show 10 ones as 1 ten.] *If you list 1 ten in the table, how many ones would you write?* [32]	None

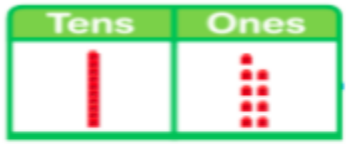
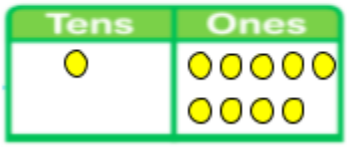
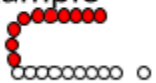
	work to explain the pattern that they notice. A student might say, "We can make 42 with 4 tens and 2 ones, but if we take a ten from the 4 tens and make it into one, then we will have 3 tens and 12 ones, which is still 42." ● Use this lesson as a way to review the concepts in this topic in small-group centers.	Allowing students to work together to come up with combinations so that we can see their reasoning is what we want. If students understand the place value chart and structure then they know that you would group amounts into groups of 10s or 1s. But additionally, when you look at the Sample Student Work you can see that the list for Gemma's Work is focusing on equivalent amounts. For example, 3 tens and 12 ones is 42, but I could see the 12 ones as 2 fives and 2 ones or 2 sets of 6. Students will see the amounts in different ways and still be correct. ● Don't assume that students believe that 4 tens and 2 ones is the same as 3 tens and 12 ones or 2 tens and 22 ones. They will need to prove it to each other. For students this is about cardinality. Students might not believe that you have the same amount every time that you make an adjustment. ● Don't do the mini-lesson as is. Instead, do this lesson as a Guided Math Group over the course of 2 days.	
74	Topic 8 Test		

GRADE 1 - TOPIC 9: COMPARE TWO-DIGIT NUMBERS

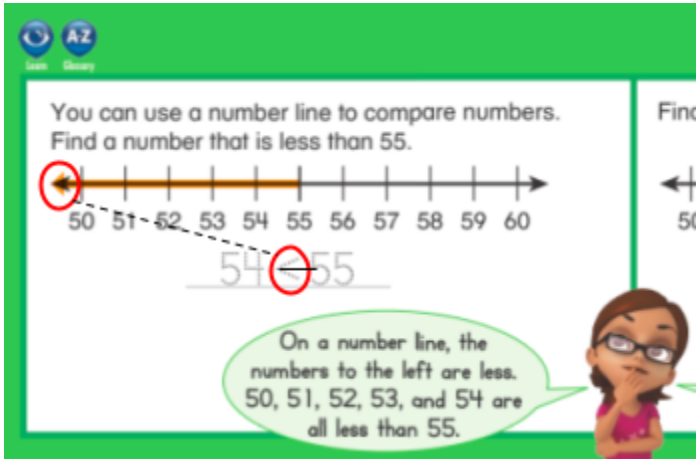
Tools	Models	Strategies	Math in Practice Book Suggested Activities
Number Grid to 200 Unifix/Snap Cubes (sets of 10) Ten Frames (to 100) Number Bead String (100) Rekenrek/Number Rack (100) Place Value Chart/Mat (tens, ones) Money ($1, $10)	Pictorial Base Ten Pictorial Money Open Number Line	• Stacking vertically and comparing by place value • Expanded Form • Unit Form • Read inequalities (comparisons) from left to right and from right to left • Connect the directional arrows on the number line to the inequality symbols (>, <)  See blog entry.	**Equations and word problems need to be made/provided in order for students to engage in the some of the following centers:** **MODULE 3: Building Understanding and Fluency with Basic Math Facts: Expanding on +/-1, +/-0** • Ten Frame Equations pg. 76 (add 1 or 10 more to the amount shown on the ten frame card) • 1 More Scoop pg. 76 (add 1 or 10 more to the amount scooped from the bowl) • Number Line Jumps pg. 76 (for 1 more or 10 more) • 1 Less Scoop pg. 81 • Domino Draw pg. 82 • Dot Card Pairs pg. 83 • Domino Mats pg. 85- Write Equations to Match and solve for equations presented on the dominos • Talk About It/Write About It pg. 85 (scenarios need to be created for this center) • Spin and Subtract pg. 89 • Subtracting with Dot Cards pg. 89 • Adding and Subtracting Zero with Dot Cards pg. 89 **MODULE 5:**

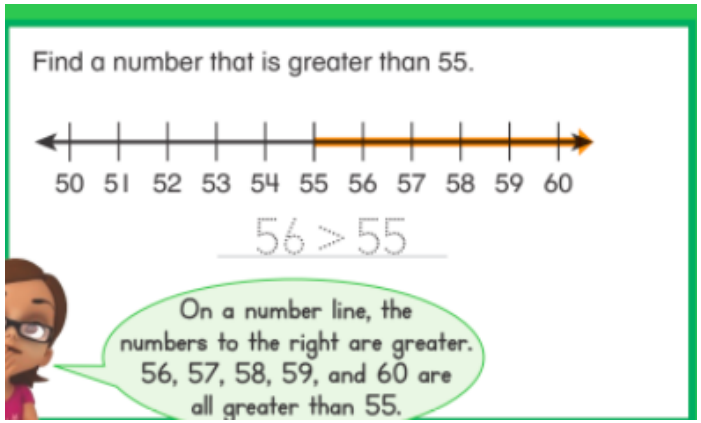
			Building Understanding and Fluency with Basic Math Facts +/-10 • Adding 10 Using a Math Rack (rekenrek) pg. 116- equation cards will need to be made for this center • Adding 10 Using a 20 Chart pg. 118 • 10 and Some More pg. 121 • 10 Fact Concentration pg. 122 • +10 Fact Match pg. 122 • Subtracting 10 Using a Double Ten Frame pg. 124 • Subtracting 10 Using a Math Rack (rekenrek) pg. 125-equation cards will need to be made for this center • Talk About It/Write About It pg. 126 (scenarios need to be created for this center) • Number Trains pg. 127 • Add/Subtract 10 Concentration pg. 128

Day	Do	Don't	Introduction of New Academic Vocabulary
75	Gather formative assessment data at the start of this topic by asking students which amount is greater: 12 or 21. Allow students to use tools as they desire. Separate their responses into groups. (The assumption is that students can read the numbers and recognize that 12 and 21 are different numbers.) Does not know, nor do they have a strategy to figure it out. They do not reach for tools. Uses concrete materials to figure out which number is	• Don't do the lesson as is, but use the sentence frames. Instead, students should work in groups to generate numbers which can be placed on a place value chart using digits and also using drawn representations, **number bead strings**, even place value discs. Don't use place value blocks.	Less

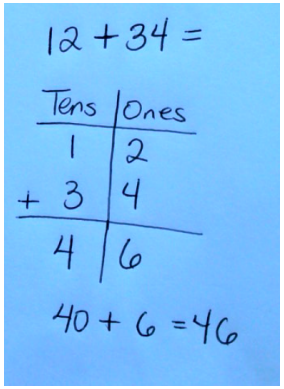
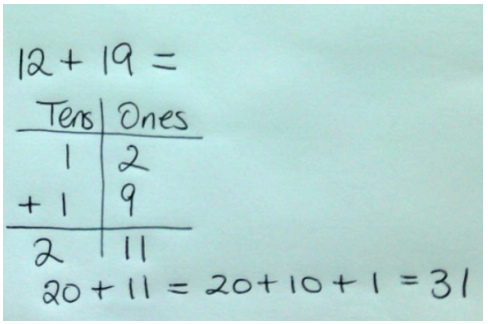
	larger.
	Knows that 21 is larger than 12 , but does not know how to explain their thinking.
	Knows that 21 is larger automatically and mentions that 21 is higher on the number line or in the number grid.
	
	Lesson 1: 1 More, 1 Less, 10 More, 10 Less
	• Do the task in Step 1. Listen out for your students' use of the words more, less, bigger, or smaller. This indicates that they are already developing an understanding of these concepts.
	• For the task in Step 1 ask students to tell you the answer first, then prove their thinking using a tool such as connecting cubes, number lines, or number bead strings.
	• Provide students with tools so that they can act out the problems. Follow a process of Think, Visualize, Build to Confirm:
	  ○ Phase 1: Thinking first, acting out to prove, and recording the amount.
	  ○ Phase 2: Thinking first, visualizing, stating the answer, acting to confirm visualization and answer.
	• Turn #11 into a game or class routine. Look out for students making the connections to the number grid.
		
		 
		 
		Number Bead String. 1 more example
		 	

76	Lesson 2: Make Numbers on a Hundred Chart
	• Focus on the patterns in the ones and tens places. Encourage students to Think, Visualize, Build to Confirm. Incorporate the lesson ideas in the "Intervention Activity."
	• Have some students work in small-groups on number grid puzzles.
	• Encourage students to build the amounts and model linearly on an open number line. For example, if building with connecting cubes, then lay the cubes (in sets of tens and ones) end-to-end like a connecting train. They can then add 1 more. Take away 1 to show 1 less. When adding 10 more or 10 less go to the beginning of
		• Don't do the task in Step 1 as is. In Topic 7 this concept was explored. What we need students to do is reason about how the number grid can help us find 1 more/less, 10 more/less. Adapt the number grid presented by hiding all the numbers except 36. Ask the students to how they could use what they know about how the number grid works to find:
		  ○ 1 more
		  ○ 1 less
		  ○ 10 more
		  ○ 10 less
		Now reveal all the numbers on the number grid. Use this number grid.
		• Don't do the practice problems as is. Instead, turn
			None

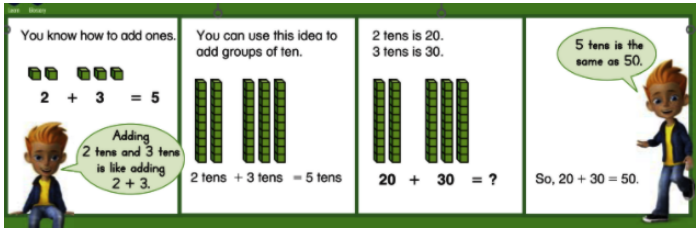
	the train. The beginning of the train is where students would have placed the sets of tens. • Turn #9 into a game/riddle at a center. • After this lesson use problem like #10 as brain teasers for students in centers or week-long class riddles.	the language in the independent practice into sentence frames that students use as they select numbers to find 1 more/less, 10 more/less.	
77	Lesson 3: Compare Numbers • Use a place value chart. • As mentioned in Lesson 2, line up the tools used to compare amounts. • Place the numbers on an open number line based on the visual approximations students can make from the concrete models. • Turn this lesson into a game where partners or small-groups have to select 2 numbers, build them, compare them, and finally show on an open number line.	• Don't do this lesson as is. Rather explore this concept, but not with base ten blocks. If you insist on using base ten blocks, only then with students who see a 10 rod as 10 things or 1 group of 10. If they see a ten rod as a one, not 1 group of 10, then they are not ready for this abstraction. They need to continue to work with bundled items, connecting cubes, and/ or number bead strings.	1. Compare 2. Greater than > 3. Less than <
78 - 79	***This is not a typo. Do Lesson 5 before Lesson 4 or simply combine. Read this blog entry.*** Lesson 5: Compare Numbers on Number Line • Do the task in Step 1 as is. • Look out for students who are unsure of the terms greater than or less than. They might be more familiar with smaller than or bigger than. • Use a ruler (cm) or a meter stick to support visualization of number lines. Draw arrows at either end of these tools. • Use a number bad string to support concrete comparisons. • Place numbers on an open number line to support additional strategies for comparison. • Create index cards that combine the inequality symbols and a number line.	• Don't teach "Pac Man" or "alligators" when comparing numbers. Look at and focus on the number line. Bring students' attention to the directional arrows on ends of the number line. 54 is towards the left (or going down) the number line when compared to 55. The arrow used or the less than sign shows that 54 is less than or down from 55 on the number line. 	None

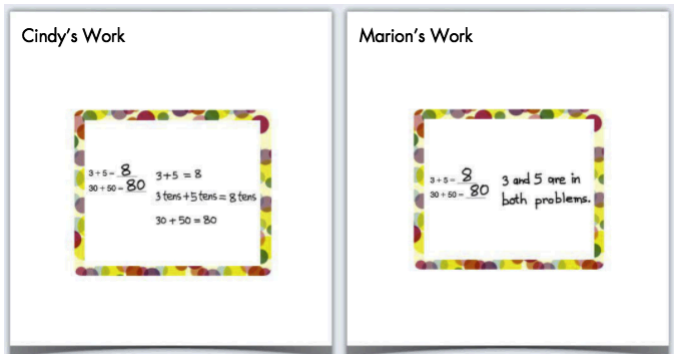
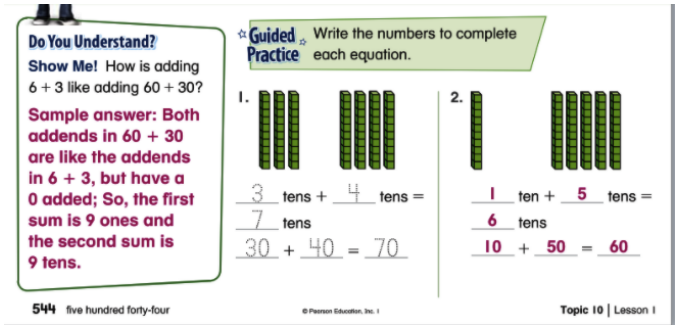
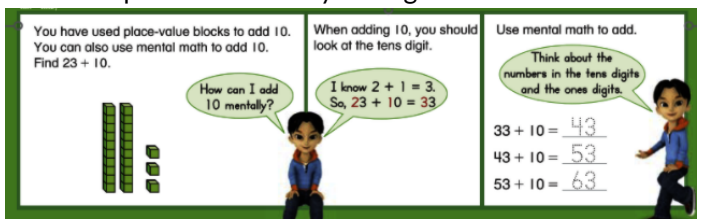
		56 is towards the right (or going up) the number line when compared to 55. The arrow used or the greater than sign shows that 56 is greater than or up from 55 on the number line. 	
-	Lesson 4: Compare Numbers with Symbols • Use the practice problem example, but only show on the number line. • Do Guided Math and centers to target this topic in this topic and previous topics.	• Don't teach this lesson. Instead focus on the conceptual understanding of the symbols as related to the number line as outlined in the previous lesson. • Don't assume that understanding the inequality symbols are easy and just have to be memorized. This is something that people struggle with even into adulthood.	None
80	Lesson 6: Math Practices and Problem Solving: Make Sense and Persevere • Do the task in Step 1 as is. Listen for student reasoning. Use structures for Two Arguments or Convince Me to support discourse and student reasoning. Ensure that students justify why they eliminated some of the choices. • Use the activity idea from the "Intervention Activity" to create a riddle routine where students have to guess the number based on clues given. Later have students choose a mystery number that they give other students clues about.	• This could be a fun lesson, but don't do it from the textbook. Instead, set students up into groups. Give each group a problem to solve. The groups then have to explain and prove their thinking to each of the other groups. • Don't assume that students will be able to process all of the numbers presented even if their group is just working on 1 problem. The page has too much information on it. As a scaffold we might place all 10 books with post-it notes and the numbers written on them to match the text book. Place these on students desks and allow them to sort the books based on the clues.	None
81	Topic 9 Review and Test		

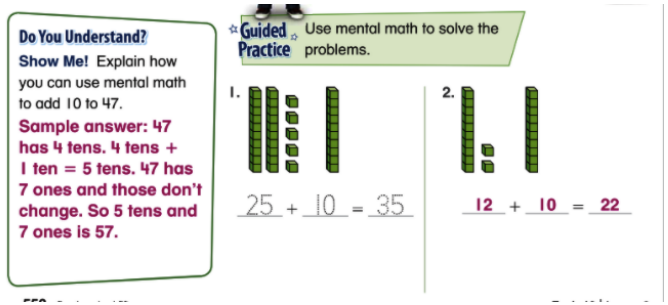
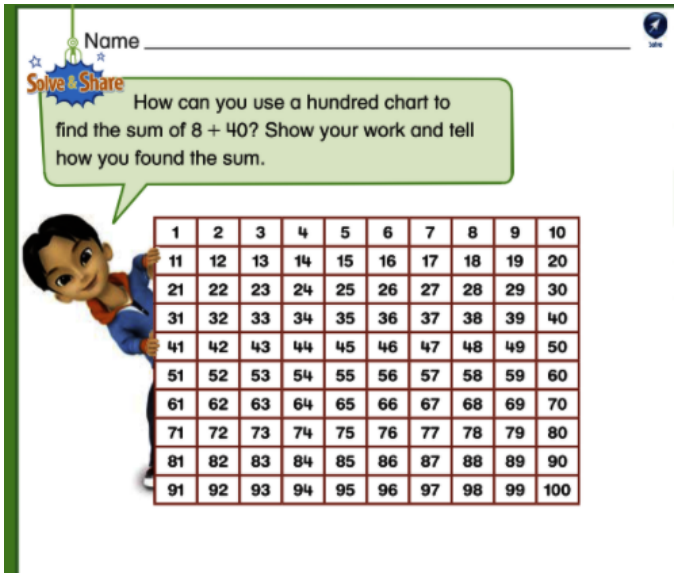
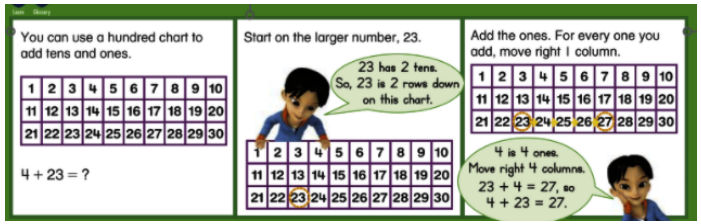
GRADE 1 - TOPIC 10: USE MODELS AND STRATEGIES TO ADD WITH TENS AND ONES

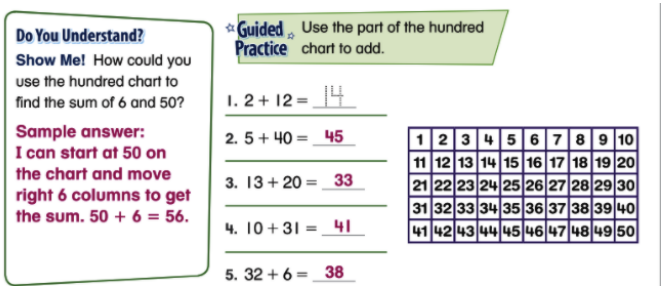
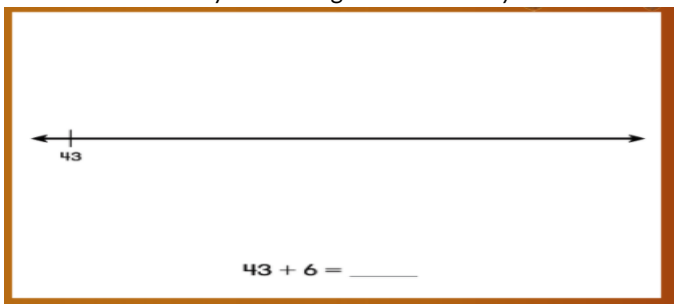
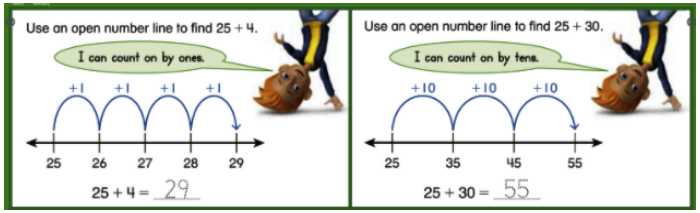
Tools	Models	Strategies	Math in Practice Book Suggested Activities
Number Grid to 200 Unifix/Snap Cubes (sets of 10) Ten Frames (to 100) Ten Frame Tiles Number Bead String (100) Rekenrek/Number Rack (100) Place Value Chart/Mat (tens, ones) Money ($1, $10) Virtual manipulatives	Pictorial Base Ten Pictorial Money Open Number Line Bar/Tape Diagram combine with Pictorial Base 10 Number Bond	Count like units, then regroup   Count in unit form (e.g., 1 ten plus 3 tens is 4 tens) Stack by place value	**MODULE 8: Counting and Understanding Place Value** • Missing Numbers pg. 170 • Make Decades Pop pg. 171 • Hundred Chart Puzzles pg. 173 • Agree or Disagree? pg. 173 (scenarios need to be made for this center) • Connecting Cubes pg. 173 • Bundling with Other Materials pg. 174 • Bundling Stations pg. 177 • Predict and Check pg. 178 • Quick Images pg. 178 • Predict and Check pg. 178 • Build a Number pg. 179 • Place Value Pictures pgs. 182-183 • Make It True pg. 184 • More Ways Than 1 pg. 186 • Eliminate It pg. 187 (problems will need to be made for this center) • Talk About It/Write About It pg. 188 (scenarios will need to be made for this center) • Number Riddles pg. 188 (scenarios will need to be made for this center)

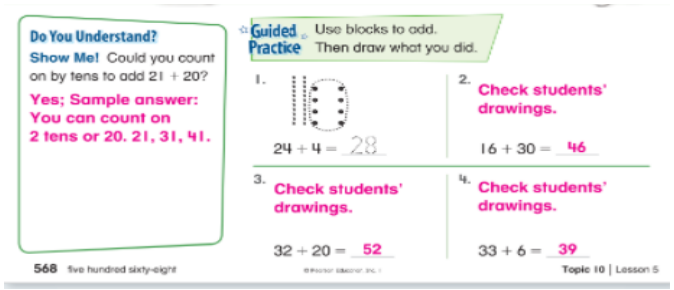
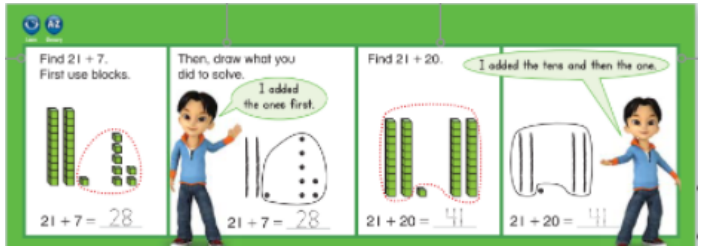
			• Base-Ten Pieces Puzzles pg. 188 (scenarios will need to be made for this center) • Build, Predict, Compare pg. 189 (2-digit numbers will have to be placed on cards for this center) • Numbers Between pg. 190 (scenarios will need to be made for this center) • Symbols for Comparing Numbers pg. 191 • Ten-Frame Compare pg. 192 • Talk About It/Write About It pg. 193 (scenarios will need to be made for this center) • Spin and Compare pg. 194 • Place Value Target pg. 195

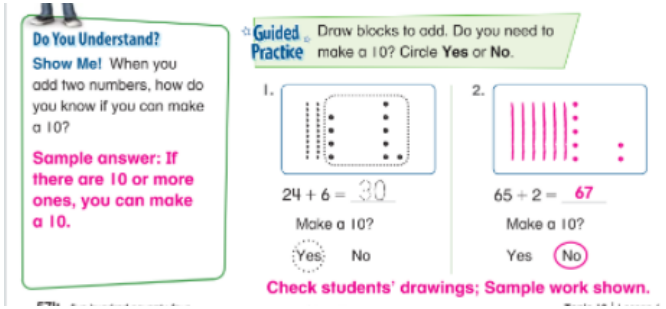
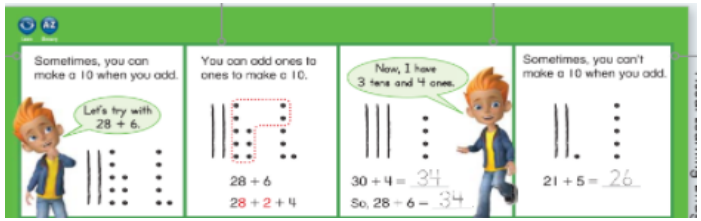
Day	Do	Don't	Introduction of New Academic Vocabulary
82	Lesson 1: Add Tens Using Models • Do the task in Step 1 as is. Be sure to provide students with some individual think and work time. Focus on student reasoning. Have students explain how they can use the sum of 2- 1 digit numbers to find the sum of two multiples of 10. • Ask students the following guiding questions as needed: What is alike about the two addition problems? What is different about the two addition problems? What is the sum of 3 + 5? How can you use that sum to figure out 30 + 50? • Identify 2 - 3 students to share their solutions or you can discuss the solutions provided. Be sure to start with Marlon's solution, if using the solutions provided.	• Don't provide all students with the Visual Learning Bridge portion of the PDF. This can be used to provide small group instruction for students who do not make the connection between adding the sum of 2 - 1 digit numbers to find the sum of 2 multiples of 10. 	None

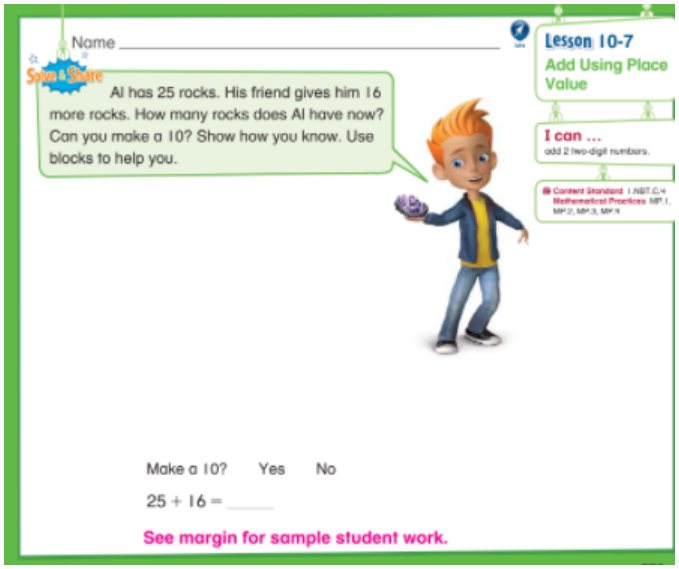
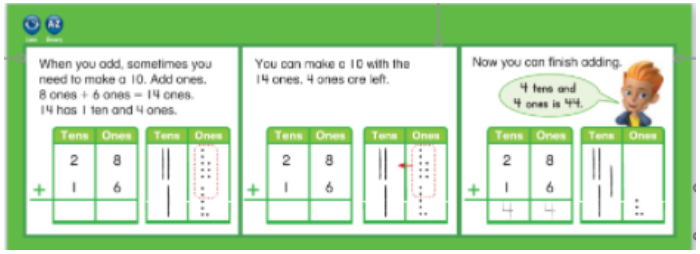
	 • Provide students with base ten blocks or virtual manipulatives to model the visual learning task.  • For students who need additional practice they can be assigned the Gobbling Gobs Math Game		
83	Lesson 2: Mental Math 10 more than a number • Engage students in a Notice and Wonder Routine prior to having them solve the task. Select a few students to share what they notice and wonder about the 3 equations. • Provide students with Base ten blocks or use the virtual manipulatives. Give students a few moments of individual think and work time. • Consider having the students answer the following guided practice question in their small groups: What is alike about the three problems? What is different about the three problems? What patterns do you notice in the totals? • Select and sequence student group work so that they move from less efficient to more efficient	• Don't provide all students with the Visual Learning Bridge portion of the PDF. This can be used to provide small group instruction for students who experience difficulty adding the tens. 	None

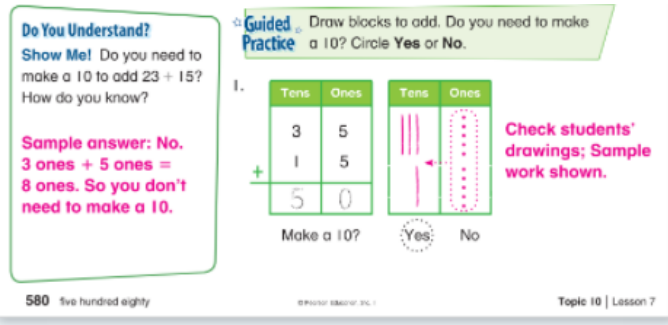
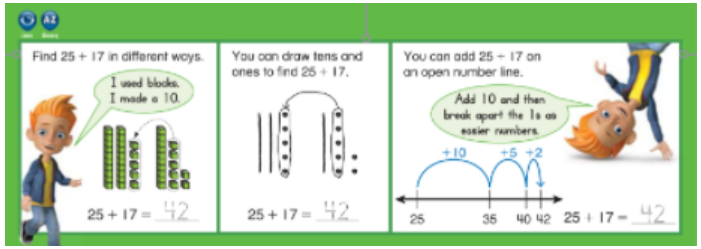
	strategies. • Prompt students to use mental math to complete the guided practice.  • Assign students the independent practice questions 8, 12, 15 & 16. Use student responses as formative assessments to identify students who may be in need of intervention.		
84	Lesson 3: Adding Tens and Ones Using a Hundreds Chart • Provide students with the Solve & Share task.  • Have students engage in a Notice and Wonder about the Hundreds chart. Provide the students with individual think time. Then ask students to share their	• Don't provide all students with the Visual Learning Bridge portion of the PDF. This can be used to provide small group instruction for students who experience difficulty utilizing the hundreds chart to add single digit numbers with a multiple of 10.  	None

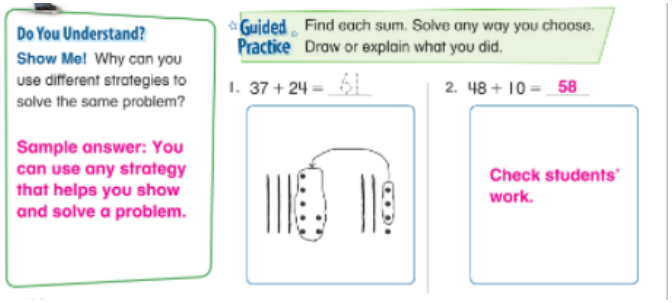
	notice and wonderings. This can be charted for all to see. The chart will serve as a reference for students to utilize when using the hundreds chart to solve addition problems. • Share and discuss student solutions for adding a 1 digit number and multiples of 10. • Project student work provided and ask students to consider the similarities and differences of each strategy. After students have a few moments for individual think time, select 3 or more students to share the similarities and differences they discovered. • Have students complete the guided practice questions independently. Then in small groups have students share their responses and discuss the following questions: How do you use a hundreds chart to add a two digit number to a one digit number and a two digit and a multiple of ten? Where is 23 on the chart? Why is 23 two rows below 3?  **Do You Understand?** **Show Me!** How could you use the hundred chart to find the sum of 6 and 50? **Sample answer:** **I can start at 50 on the chart and move right 6 columns to get the sum. 50 + 6 = 56.** **Guided Practice** Use the part of the hundred chart to add. 1. 2 + 12 = 14 2. 5 + 40 = 45 3. 13 + 20 = 33 4. 10 + 31 = 41 5. 32 + 6 = 38 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 • Assign students the independent practice questions. Then use the results as a formative assessment to identify students in need of intervention/reteaching.		
85	Lesson 4: Add Tens and Ones Using an Open Number Line • Display the following image and give students a minute or two analyze the image and *tell me all you can*  43 43 + 6 = _____	• Don't provide all students with the Visual Learning Bridge portion of the PDF. This can be used to provide small group instruction for students who experience difficulty utilizing the open number line to add single digit numbers with a multiple of 10.  Use an open number line to find 25 + 4. I can count on by ones. +1 +1 +1 +1 25 26 27 28 29 25 + 4 = 29 Use an open number line to find 25 + 30. I can count on by tens. +10 +10 +10 25 35 45 55 25 + 30 = 55	None

	• Provide students with the Solve & Share Problem. In this problem students add a 1 digit number to a two digit number using an open number line. Encourage students to use the open number line in any way that makes sense to them. • Share and discuss student strategies. **If needed,** project Shonda's work sample and have students analyze how she used the open number line. • Have students complete the guided practice questions independently. Then in small groups have students share their responses and discuss the following question: How do you use an open number line to add a two digit number to a one digit number and a two digit number to a multiple of 10? • Have students complete the independent practice using open number lines. Pay attention to ensure that students are using efficient hops when adding the second addend. • Have students complete the Math Practices and Problem Solving tasks. Use their solutions to questions 10 & 11 to determine if students will benefit from an intervention or reteach activity.		
86	Lesson 5: Add Tens and Ones Using Models • Provide students with the Solve & Share Problem. Give them the opportunity to solve that problem in any way they see fit.. Tell them they must include a visual along with the solution. • After students have had a few moments to solve the problem. Ask for volunteers to share their solution and the visual they came up with. • Have students complete the guided practice questions independently. Then in small groups have students share their responses and discuss the following question: How do you use blocks to add a two - digit number to a one - digit number and a two - digit number to a multiple of 10?  **Do You Understand?** **Show Me!** Could you count on by tens to add 21 + 20? **Yes; Sample answer: You can count on 2 tens or 20. 21, 31, 41.** **Guided Practice** Use blocks to add. Then draw what you did. 1. 24 + 4 = 28 2. Check students' drawings. 16 + 30 = 46 3. Check students' drawings. 32 + 20 = 52 4. Check students' drawings. 33 + 6 = 39 568 five hundred sixty-eight Topic 10 | Lesson 5	• Don't facilitate the Solve and Share as it is written. Instead provide students with a variety of tools and allow them to decide which one, if any they would like to utilize. This will provide you with an opportunity to observe which strategies students utilize. • Don't provide all students with the Visual Learning Bridge portion of the PDF. This can be used to provide small group instruction for students who experience difficulty utilizing models to add single digit numbers with a multiple of 10.  Find 21 + 7. First use blocks. 21 + 7 = 28 Then, draw what you did to solve. I added the ones first. 21 + 7 = 28 Find 21 + 20. 21 + 20 = 41 I added the tens and then the one. 21 + 20 = 41	None

	• If no students use the hundreds chart or place value blocks, ask for volunteers to try out each of these strategies. Then ask students to identify what is similar and different about each strategy. Have students make connections between each of the representations used. • Have students complete the independent practice using any strategy they would like. Pay attention to ensure that students are using the strategies efficiently when determining the missing addend or counting up. Additionally, use the results from the independent practice to assess if students need reteaching/intervention before moving on.		
87	Lesson 6: Make a 10 to Add • Provide students with the Solve & Share Problem. Give them the opportunity to solve that problem in any way they see fit. Tell them they must include a visual along with the solution. • After students have had a few moments to solve the problem. Ask for volunteers to share their solution and the visual they came up with. • Share and Discuss solutions, Start with students' solutions. Have them share the strategies they chose for using groups of 10 to add a one digit number to a two digit number. Give students a moment to view the solution paths. Ask students to identify the similarities and differences between the solutions and models. • Have students complete the guided practice questions independently. Then in small groups have students share their responses and discuss the following question: How does making a 10 help you add?  Do You Understand? Show Me! When you add two numbers, how do you know if you can make a 10? Sample answer: If there are 10 or more ones, you can make a 10. Guided Practice Draw blocks to add. Do you need to make a 10? Circle Yes or No. 1. 24 + 6 = 30 Make a 10? Yes No 2. 65 + 2 = 67 Make a 10? Yes No Check students' drawings; Sample work shown.	• Don't facilitate the Solve and Share as it is written. Instead provide students with a variety of tools and allow them to decide which one, if any they would like to utilize. This will provide you with an opportunity to observe which strategies students utilize. • Don't provide all students with the Visual Learning Bridge portion of the PDF. This can be used to provide small group instruction for students who experience difficulty utilizing models to add single digit numbers with a multiple of 10.  Sometimes, you can make a 10 when you add. Let's try with 28 + 6. You can add ones to ones to make a 10. 28 + 6 28 + 2 + 4 Now, I have 3 tens and 4 ones. 30 + 4 = 34 So, 28 + 6 = 34 Sometimes, you can't make a 10 when you add. 21 + 5 = 26	None

	• Have students complete the independent practice using any strategy they would like. Pay attention to ensure that students are using the strategies efficiently when determining if they can make a ten with the two addends. Additionally, use the results from the independent practice to assess if students need reteaching/intervention before moving on. • Use the intervention activity and the on-level and advanced activity to create centers and have students rotate through the centers based on the results from the independent practice.		
88	Lesson 7 : Add Using Place Value • Provide students with the Solve and Share Problem. Make sure that students have access to a variety of tools (blank open number lines, tens frames, counters etc.) Students should choose the tool that is most useful to them.  • Share and Discuss students' strategies. Have them share the strategies they used to solve the problem . Then project Gary's work and ask students to determine where his error was. Students should be given individual think time before asking for volunteers to share their reasoning. • Have students complete the guided practice questions. Then in small groups have students share their responses and discuss: How did they know if they could make a ten?	• Don't provide all students with the Visual Learning Bridge portion of the PDF. This can be used to provide small group instruction for students who experience difficulty utilizing models to add single digit numbers with a multiple of 10.  • Don't tell students which strategies to use. Allow students to use the strategy/model that best supports them. Support students to see that the representations are connected. Consider displaying the different strategies and give students the opportunity to analyze the models and look for connections between the strate4gies.	None

	 • Ask students the following question: How can you use any of the strategies that we have been using throughout this topic to help you to add 2 two digit numbers ? • Ask students to complete the independent Practice. Use the results for questions 5, 10 & 11 to determine if students need additional practice. If so, use the intervention activity and the on-level and advanced activity to create centers and have students rotate through the centers based on the results from the independent practice.		
89	Lesson 8: Practice Adding Using Strategies • Provide students with the Solve & Share Problem. Give them the opportunity to solve that problem in any way they see fit. Tell them they must include a visual along with the solution. • Have a variety of tools available for student use. After students have had a few moments to solve the problem, ask them to use a different strategy to check if their solution is correct. Give students a few more moments to work the task. Have cooperative groups or partners share their solutions with one another and discuss how two of their strategies are similar and different. • Have students share and discuss their solutions with	• Don't provide all students with the Visual Learning Bridge portion of the PDF. This can be used to provide small group instruction for students who experience difficulty utilizing models to add 2 two- digit numbers by making tens. 	None

	the whole group. If none of the strategies match that of Debbie's, project or display Debbie's work. Give students a moment to analyze Debbie's work and compare and contrast to one of their strategies. Please note that we want students to understand that each of the strategies is another way of making a ten. • Have students complete the guided practice questions. Then in small groups have students share their responses and discuss:What are some different tools or strategies that you could use to solve an addition problem?  **Do You Understand?** **Show Me!** Why can you use different strategies to solve the same problem? **Sample answer: You can use any strategy that helps you show and solve a problem.** **Guided Practice** Find each sum. Solve any way you choose. Draw or explain what you did. 1. 37 + 24 = 61 2. 48 + 10 = 58 **Check students' work.** • Ask students to complete the independent Practice. Use the results for questions 5, 9 & 10 to determine if students need additional practice. If so, use the intervention activity and the on-level and advanced activity to create centers and have students rotate through the centers based on the results from the independent practice.		
90	Lesson 9: Math Practices and Problem Solving: Model with Math • The task in Step 1 is a great way to gather formative assessment data on what strategies students are actually using. Have a checklist on hand to note the strategies that have been "caught" by students. •	• Do not do this lesson as is. Instead, set up problem solving stations where students can work in teams to resolve problems and present their findings to other groups. Set up some "ringers". These are students who are going to say that the group got the problem wrong or that they don't understand. You will use your "ringers" to promote healthy mathematical arguments. • Do not have students use place value blocks if they cannot see and explain that the 10 rod represents 1 ten, not just 1 ones. Use other tools like the number bead string, ten frames, etc.	None
91	Topic 10 Review and Test		

GRADE 1 - TOPIC 11: USE MODELS AND STRATEGIES TO SUBTRACT TENS

Tools	Models	Strategies	Math in Practice Book Suggested Activities
Number Grid to 200 Unifix/Snap Cubes (sets of 10) Ten Frames (to 100) Ten Frame Tiles Number Bead String (100) Rekenrek/Number Rack (100) Place Value Chart/Mat (tens, ones) Base Ten Blocks (tens, ones) Money ($1, $10)	Pictorial Base Ten Pictorial Money Open Number Line Bar/Tape Diagram combine with Pictorial Base 10 Number Bond	• Using the inverse operation to count on from the known addend, e.g., 65 - 30 = 30 + ___ = 65 and show on a number line or using concrete materials • Counting on or back on a number grid • Counting Circle using base-ten blocks (or money)	****These centers differ from the ones in Topic 9 as they will need to be changed so that multiple 10's are subtracted versus only one 10 being subtracted.**** **MODULE 5: Building Understanding and Fluency with Basic Math Facts: +/-10** • Subtracting 10 Using a Double Ten Frame pg. 124 • Subtracting 10 Using a Math Rack (rekenrek) pg. 125-equation cards will need to be made for this center • Talk About It/Write About It pg. 126 (scenarios need to be created for this center) • Number Trains pg. 127 • Add/Subtract 10 Concentration pg. 128

This topic is an opportunity to solidify some subtraction concepts and use a variety of tools and models to demonstrate subtraction concepts. Do not feel limited to just represent subtraction with just the tools, models, or strategies shown in specific lessons. Make cross-connections amongst different tools, model, and strategies.

Day	Do	Don't	Introduction of New Academic Vocabulary
92	Lesson 1: Subtract Ten Using Models • Present the task in Step 1 as is, but when it comes to unpacking the task focus on the concept of 4 tens take-away 1 ten, not simply 4 ones take-away 1 ones. Focus on the units and having students make generalizations by noticing patterns. For example, if students notice the	• Don't show/use the Student Work Samples. Instead use the work samples of students within the classroom. • Don't do this lesson as is. Base ten blocks may not be appropriate for all learners. Use a variety of tools, especially number bead strings. • Don't have students work on the independent	None

	pattern and can make sense of the pattern, they will be able to figure out 4 hundreds - 1 hundred, 4 thousands - 1 thousand, etc. •	practice alone. This is an opportunity for a Rally Coach/Sage and Scribe structure where students have to verbalize their thinking so that another person can understand what needs to be done.	
93	Lesson 2: Subtract Tens USing a Hundreds Chart • Do the task in Step 1 as is, but adding a scaffold on a number grid that can hold connecting cubes or base ten blocks for those that are ready would support learners. Be careful • Use this number grid to just show the minuend and ask students to reason as to where they would end up on the number grid if they took off the subtrahend. •	• Don't turn this process of using the number grid into a procedure. You want students to reason through as to why 50 - 30 = 20. You want to make connections to the previous lesson where we have 5 tens and take-away 2 of those units. • Don't do this lesson as is. Use the recommended number grid and have students work in partnerships to display, discuss, and solve equations. • Don't do the practice problems as is. Instead, look at the examples on the right.  50 - 10 = ___ 50 - 20 = ___ 50 - 30 = ___ 50 - 40 = ___ What patterns might students notice and be able to use?	None
94	Lesson 3: Subtract Tens Using an Open Number Line • Use both horizontal and vertical open number lines. • Allow students to solve the problem any way they want. Connect the models of the open number line to other models or strategies used. • Allow students to see the differences and similarities between different models or strategies. For example, when subtracting by 10s on the number grid students have the count up. Whereas when we count on a number line to subtract we count horizontally or vertically. This can be confusing for students and we need to apply scaffolds. • Use the Student Work Samples to highlight how we can count on or count back on the number	• Don't have students working independently on the practice problems. Use a collaborative learning structure to support discourse and justification of reasoning such as a Match Mine structure.	None

	line. Make the connection to inverse operations (i.e., fact families). ● Still continue to have Think, Visualize, Build when working out practice problems. ● Provide students with more space to work, possibly using a whiteboard and dry erase markers. ● Use the ideas from the "Intervention Activity" as a scaffold to support learning who are challenged with using the open number line. Also, use a ruler (cm) or a meter stick to support students more concretely. Both of these tools work well with base ten 10s rod and also the orange Cuisenaire Rods (10 cm). Students could place out 5 orange Cuisenaire Rods lined up against the meter stick and predict what the measure would be after 20 cm (2 orange rods) were removed.		
95	Lesson 4: Use Addition to Subtract Tens ● The task is Step 1 is a good opportunity to gather formative assessment data about the strategies that students have "caught." Select and sequence this work from Level 1 strategies to Level 3 strategies. Note the differences in what children say they may have done and what they actually put on their paper. Make connections across strategies. ● Use a variety of tools, especially number bead strings.	● Don't use the Student Work Samples in Step 1. They only show 1 model and 2 ways (counting on or backwards). Your students may decide on many more and feel as if they were wrong if they did not do the way in the model. ● Don't do this lesson as is. Use the "Intervention Activity" as a guide. Look out for and highlight students who make connections to inverse operations, i.e., fact families. ● Don't do all the problems in the practice as is. Consider creating a problem string such as: ○ 20 + ___ = 60 ○ 20 + ___ = 70 ○ 20 + ___ = 80 ○ 30 + ___ = 80 (How can they use the previous problem to see the relationships between the equations?)	None
96	Infuse a routine of subitizing sets that are multiples of 10 using ten frames. Some resources are available here: https://www.ckinged.com/subitizing Lesson 5: Mental Math : Ten Less Than a Number ● Have students work with partners or small groups using structures that promote discourse. ● Contextualize as much as possible to make the	● Don't just ask students, "How did you mentally add…" Instead, as students about what models they visualized in their brains? Did they see a number line, a ten frame, etc.? ● Don't just show the task in Step 1 right away. Instead show the equation 89 - 10 **use the Think, Visualize, Build** process. Let students develop their own way, then say, "What would you do if you were	None

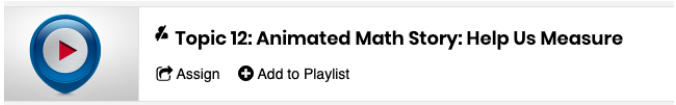
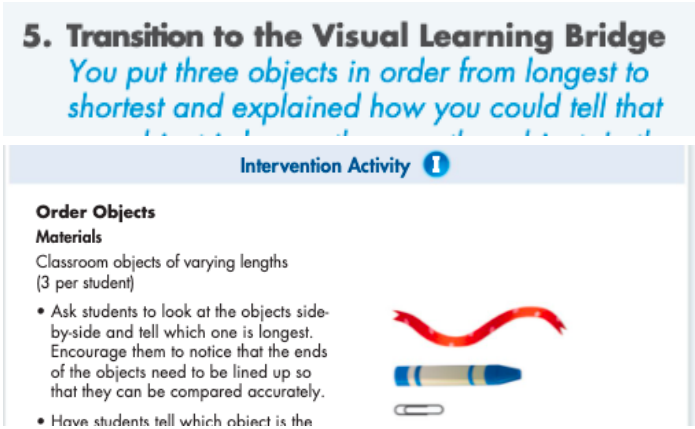
	situations real and applicable for students. • Use the to model thinking and make models: https://apps.mathlearningcenter.org/number-frames	shown these ten frames to solve the problem?" Continue this process during the mini-lesson. • Don't do the problems as sequenced in text. Instead consider doing a number string or have students make up problems for each other as they apply the Think, Visualize, Build process.	
97 - 98	Lesson 6: Use Strategies to Practice Subtraction • Focus on using a variety of tools, models, and strategies. Encourage students to name their strategies and explain to each other why they like these strategies. • Have students compare which strategies they would use given a particular problem.	• Don't do the task in Step 1 for this lesson. • Do not do this lesson as is. Instead take 2 days and in Guided Math and in small-group centers focus on student ownership of the addition and subtraction strategies in this unit and previous units. Math in Practice will have many ideas for centers, plus revisit centers previously explored.	None
99	Lesson 7: Math Practices and Problem Solving: Model with Math • Look out for students who recognize a "doubles fact" in the task for Step 1. • Have students extend the word problems and make them multistep. For example, #1 says, "A store had 60 muffins. It sells 30 of the muffins. Then they sold another 10 muffins. How many muffins does the store have now?" or "A store had 60 muffins. It sells 30 of the muffins. Then they baked another 12 muffins. How many muffins does the store have now? Let students solve using any tools, models, or strategies that they want, but support students in naming the strategies and in explaining their thinking.	• Don't do the lesson as is. Instead, take off the questions and have students model the situations and determine what the question was given the hw they modeled the situation.	None
100	Topic 11 Review and Test		

GRADE 1 - TOPIC 12: MEASURE LENGTHS

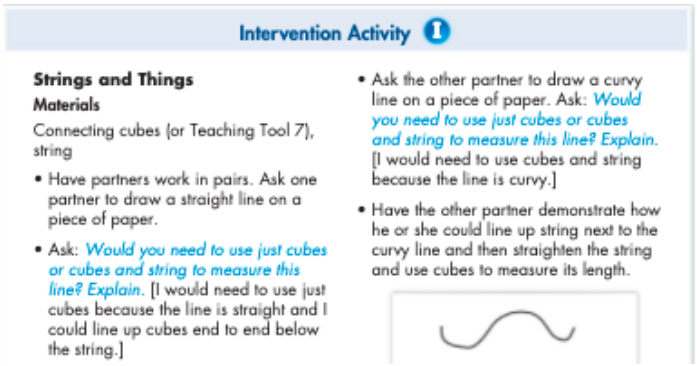
Tools	Models	Strategies	Math in Practice Book Suggested Activities

• Unit Cubes (1 cm)
• Square Tiles (1 inch)
• Rulers (1 inch colored coded)
• Cuisenaire Rods
• Objects to measure:
  ○ Glue sticks
  ○ Markers
  ○ Crayons
  ○ Pencils
  ○ Eraser
	• Number line
	• Bar Model/Tape Diagram
	• Number Bond
		• Visual inspection
		• Line up objects using non-standard counters, ensuring that no gaps or overlaps are present and count the number of units from one end point to the other.
		• Line objects up to compare measurements (shorter than/longer than)
		• Measure from the zero on the ruler
		• Apply the Transitivity Property of measurement
			MODULE 10: Measure Lengths with Indirect Objects
			• Shorter and Longer pg. 234
			• Scooping Cubes pg. 235
			• Cuisenaire Rods pg. 235
			• Measurement Vocabulary Stories pg. 237
			• A Focus on Words pg. 237
			• Short to Long pg. 237
			• Measurement Gradient pg. 237
			• Comparing Measurement with String pg. 239
			• Length Hunt pg. 241
			• Talk About It/Write About It pg. 241 (scenarios need to be created for this center)
			• Measuring with Colored Square Tiles pg. 241
			• Measuring with Centimeter Cubes pg. 243
			• End-to-End Measurement pg. 245

Day	Do	Don't	Introduction of New Academic Vocabulary
101	Launch the Topic by playing and discussing the story. At each segment of the video ask questions, such as: How would you go about measuring the cat? Give the students something to measure and ask them what they might do.	• Implement the task in Step 1 as is. Instead give students actual objects and see if they can order the objects. Have them represent (draw) the objects on a paper and see if they can order those objects. Listen to the terminology used. So they say the words, "longer" or "shorter" or do they say,	1. Length 2. Longer 3. Longest 4. Shorter 5. Shortest

	 Lesson 1: Compare And Order By Length • Provide the students with the written names of the objects. • Revisit the "Student Work Samples" for the task in Step 1 after students have worked out the problem using real objects. Ask students to look at and discuss the work samples. Do a Notice and Wondering. • A Pairs Compare when students are working so that they can evaluate the work of the other students. • Use the video for Step 2 so that students have a slower reveal. Provide students with Connecting Link that match the story colors to build with. Unifix or Snap Cubes could be used if links are not available.	"bigger" and "smaller"? The text calls this the 'Visual Learning Bridge' and 'Intervention Activity', but I would do this first.  • Don't do the independent practice in Step 2 as is. Instead provide students with objects and have them compare the objects using a Quiz, Quiz, Trade (Kagan) kind of strategy. While students are moving about the teacher could do quick (3 - 5 minutes) small-groups to ask students problems #3 and #4 from the independent practice problems in Step 2.	
102	Lesson 2: Indirect Measurement • Use the Cuisenaire Rods and have students compare the objects.	• Don't implement this problem as is. The challenge is that this is a realistic situation. Unless that is a toy shoe for a doll or action figure, then it would be generally longer than a pencil, as it looks like an adult male shoe. Not realistic and causes students to doubt their instincts. You could instead make some children or adult shoes and place them next to various sized pencils and allow students to make comparisons. You could also just recreate this situation, but with other linear objects like crayons and markers or pencils. • Don't do this lesson as it. Do the "Intervention Activity" instead as the lesson and use real objects.	None Phrase: "line up the objects"

		Intervention Activity **Length Around the Classroom** **Materials** yarn cut into 4 pieces, classroom objects, construction paper, glue, crayons • Have students work in pairs. Give each pair a piece of yarn. • Have partners walk around the room and compare the piece of yarn to Below the piece of yarn, have the other partner draw the object they found that was longer. • Then have partners share their work. 	
103	Lesson 3: Use Units To Measure Length • Look at the suggestions for ELLs for support ideas, especially the pantomime. • Do the task in Step 1. Before students actually do, have them verbalize what they would do. • Show the "Student Work Samples" and ask the students to compare the works by doing a Notice and Wondering. Have the students explain why the students got different answers. • Use the questions from the Teacher's Resource Guide in Step 2, especially the ones from MP5. To bring home the point, measure the height of two objects where one is clearly shorter than the other. Measure one object incorrectly to ensure that the shorter object comes out "longer." You want the students to correct you and tell you why you are wrong.	• Don't do the lesson as is for Step 2. Use actual objects from around the classroom and make a poster/anchor chart. You can also have students sort objects that are about the same length when measured with connecting cubes. Look to the "Intervention Activity" to get some ideas. **Intervention Activity** **Measure It!** **Materials** 20 connecting cubes (or Teaching Tool 7), classroom objects • Arrange students in pairs. Give each pair at least 4 objects, such as a marker, a notebook, an eraser, and a piece of chalk. • Have one partner line up connecting cubes end to end along the length of the object. 	1. Measure 2. Length 3. Unit
-	**This lesson could be combined with the previous lesson.** Height is a vertical measure and generally only applies when we are dealing on 3D planes. Length can describe horizontal or vertical measures. This can be confusing for students. In this task they use the word "longer" to describe the horizontal length or the width in this case. Lesson 4: Continue To Measure Length	• Don't use the sentence frame provided. Do introduce the term width. You could use an actual frames poster or easel and ask the students which side is longer. You could then talk about the height and the width or the height and the length. The poster is _____ than it is _____.	width
104	Lesson 5: Use Appropriate Tools • Do the task in Step 1 as is. Ensure that students verbalize their thinking. After they have verbalized their thinking, then have them actually	• Don't do the mini-lesson and independent practice as is. Instead do the "intervention Activity" for the mini-lesson and have students work in partnerships to choose tools to try out.	None

	try to use different tools to measure an object.		
105 - 106	Additional Lesson needed (possibly to replace Lesson 4). At no point does Topic 12 address the standard: NY-1.MD.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object. The goal of this standard is to apply the Transitivity Property. You can do some riddles by showing students 3 objects. See a quick example below.  **The pink pencil is longer than the green pencil.** **The green pencil is longer than the blue pencil.** **So the pink pencil is _____ than the blue pencil.**		
107	Topic 12 Review and Test		

GRADE 1 - TOPIC 13: TIME

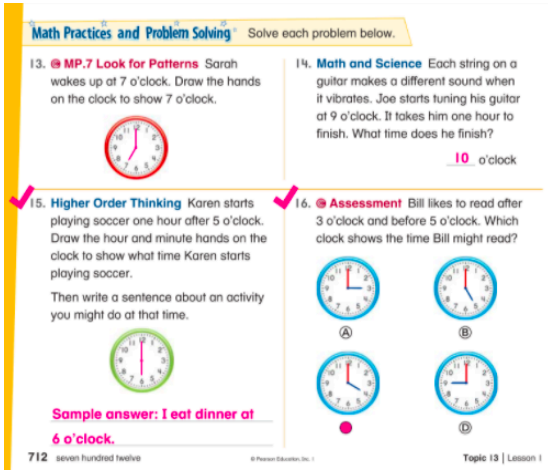
Tools	Models	Strategies	Math in Practice Book Suggested Activities

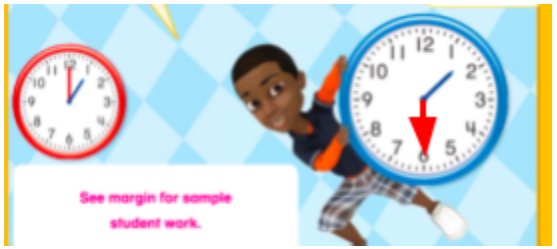
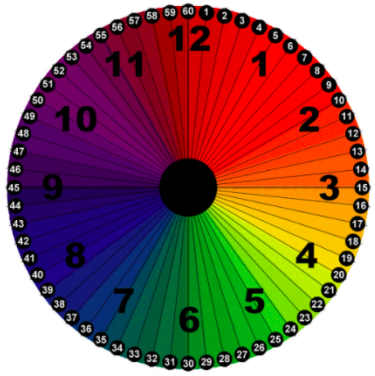
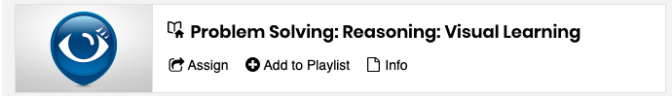
• Judy Clocks
• Rulers
• Labeled analogue clocks hands
	• Number line
	• Pictorial of analogue clock drawn and partitioned into halves
		• Identify by circling the hour hand and the minute hands.
		  ○ Writing "H" for the hour-hand and "m" for the minute-hand
		  ○ The word hour is shorter and represents the shorter hand. The word minute is longer and represents the longer hand.
		• Understanding the numbers on a clock represent both minutes and hours.
		• The hour skips counts by units of 1 and the minutes count by 5's
			MODULE 11: Telling Time to the Hour and Half Hour
			• Fill the Face pg. 255
			• Flower Time pg. 256
			• Match Time pg. 257
			• Hidden Time Game pg. 258
			• Cross Off Your Faces First pg. 258
			• Talk About It/Write About It pg. 258 (scenarios need to be created for this center)
			• Digital and Analogue Predict and Check pg. 259
			• Time Scavenger Hunt pg. 262
			• Time Tic-Tac-Toe pg. 263
			• Match the Clocks pg. 263

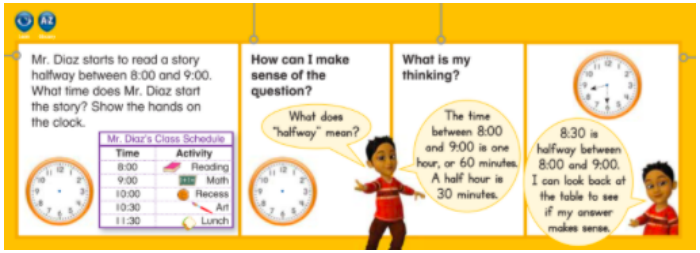
Watch:

Day	Do	Don't	Introduction of New Academic Vocabulary

108	Lesson 1: UNDERSTAND THE HOUR AND MINUTE HAND
	• The "Solve and Share" - use prompts as needed:
	  ○ Prompt: Think about how our ancestors (people in the past) might have told time without a clock
	  ○ Prompt: Using a Tik Toc theme: "Tell me is the bedtime (or any other time) without using a clock."
	  ○ Prompt: Use pictures of different times of the day
	• Use the Animated Math Story as part of the discussion after the" Solve and Share."
	• Show the samples of student work and use in discussion.
		• In the Part 1 do not ask the questions as presented
		2. Build Understanding
		What are you asked to draw? [A picture of how to tell time without a clock] *Why do you think clocks are important?* [Sample answer: Time tells us when to do things.]
		Ask instead:
		  • Why is time important?
		  • How do you use time in your day?
		  • How do clocks help you with time?
		• Don't just label the hands of the clock without first giving
			1. Hour
			2. Hour hand
			3. Minute
			4. Minute hand
			5. O'clock

	• During Develop: Visual Learning give the students a Judy Clock to play with and ask them what they notice. This is a great opportunity to gather formative assessment data about what students know about analogue clocks. • Teach the strategy of identifying and labeling the hour and minute hands. • Focus on noticing patterns about when you are telling time to the hour that the minute hand is always on the numeral 12, which will indicate the start/end of the hour. • Ensure that students build the times as they go through the exercises. • Use a pedagogical strategy like Sage and Scribe (Kagan) to support discourse and engagement.	students a chance to play with the clocks and see what they know. Build on what they know. • #13 is not needed and context should be given to all previous problems, so in problems 4 - 11 use the context from #13, so #13 will not be needed • #14 & #15 are elapsed time and not required by the grade level...may be good for small group conversation or connection to classroom activities...like gym is in 1 hour, but not needed. #16 could be done at teacher discretion  Math Practices and Problem Solving Solve each problem below. 13. MP.7 Look for Patterns Sarah wakes up at 7 o'clock. Draw the hands on the clock to show 7 o'clock. 14. Math and Science Each string on a guitar makes a different sound when it vibrates. Joe starts tuning his guitar at 9 o'clock. It takes him one hour to finish. What time does he finish? 10 o'clock 15. Higher Order Thinking Karen starts playing soccer one hour after 5 o'clock. Draw the hour and minute hands on the clock to show what time Karen starts playing soccer. Then write a sentence about an activity you might do at that time. Sample answer: I eat dinner at 6 o'clock. 16. Assessment Bill likes to read after 3 o'clock and before 5 o'clock. Which clock shows the time Bill might read? 712 seven hundred twelve Topic 13 | Lesson 1	
109	Lesson 2: TELL AND WRITE TIME TO THE HOUR • Allow students to verbalize for the "Solve and Share" by using a Think, Pair, and Share kind of strategy. • Gather formative assessment data about who can read a digital clock. • During the discussion of the part of the "Solve and Share" , make the connection between the "12" on the analogue clock and the "00" on the digital clock. • Ensure that students are still labeling the hour and minute hands. • For the Part 2: Have students build on the Judy Clock. • Have small, homogeneous groups come to consensus via discussion around problems in Part 2.	• Assume that students can identify the hour and minute hands. • Present the Part 2 as is. Instead show examples of analogue clocks on the hour and do a Notice and Wondering. • For some more advanced students do not do the practice in Part 2 as is, instead practice practice elapsed time ○ Ex. Show me 7:00 AM on an analog/digital clock. ○ What is happening at this time in your world? ○ What time will it be in 1 hour? ○ How do you know? /Prove it!	None
110	Watch the "Look Fors" video Lesson 3: TELL AND WRITE TIME TO THE HALF HOUR • Ensure that students use the Judy Clock to act out the "Solve and Share" - see the Intervention Activity	• Don't do the "Solve and Share" as is, instead...show students an analog clock to the hour and another analog to the half hour. (Show adapted image below)	Half hour

	Intervention Activity **Half Past** **Materials** Geared demonstration clock, analog clock (or Teaching Tool 30) • Provide students with an analog clock. • Show 1:30 on a geared demonstration clock. *This is 1:30. It is 30 minutes after 1 o'clock.* Move the minute hand back and forth between 1:00 and 1:30 while naming the times shown. *This is 1 o'clock. This is 1:30.* Show 1:30 on your clock. • Show 2:00 on the demonstration clock. Write "2:00" on the board. *30 minutes after 2:00 is 2:30.* Write "2:30" on the board. *Show 2:30 on your clock.* Then invite a volunteer to show 2:30 on the demonstration clock. *What time does the clock show?* [2:30] • Repeat for each hour and half hour.  • Be prepared to gather formative assessment data about what students might know about the positioning of the minute hand and also about the position of the hour-hand when • Show "Katie's Work" as a student sample and discuss the shading in half of the full hour. • Ensure that focus is equally shared on the position of the minute-hand and also on the position of the hour-hand between the 2 hours. • Counting Circles - Skip count by half hours - look at #6 & #7 • Use sentence starters to support verbalization. The hour hand is between 7 and 8. The minute hand is on 6. 	 What do you Notice/ Wonder about both clocks? • What time does the red clock show? • How do you know? Prove it! • What time do you think the blue clock shows? • What makes you think that? • Expect students to be able to just figure out that the "6" on the analogue clock also means 30 minutes. Use clocks like the following: 	
111	Lesson 4: REASONING • Do a 3-Reads or a "Line at a Time" strategy. • Do engage in a Two Arguments using the student work samples. Which schedule is "correct" and why? • Use the video from Envisions 13-4. The textbook gives too much information to the students.  • Use the questions from Part 2 as you play/pause the video. • Use consensus building for the problem in Part 2.	• Don't introduce the "Solve and Share" as is, instead either review the class schedule or use the items in the problem and ask the students to put that into a schedule. Now students would be better prepared to address the "Solve and Share. Use the Intervention Activity to introduce the Solve and Share:	None

		Intervention Activity 1 **Our Class Schedule** **Materials** Chart paper, markers • On the board write "Schedule." Ask students to discuss what a schedule is and how people use them. • Invite students to create an actual class schedule with you. List the lesson times and activities on it. Have students illustrate the schedule. • If you already have a class schedule posted, create a different schedule for a special activity or day.  • Do not have kids look at this - use the video instead.  	
112	Topic 13 Review and Test		

GRADE 1 - TOPIC 14: REASON WITH SHAPES AND THEIR ATTRIBUTES

Tools	Models	Strategies	Math in Practice Book Suggested Activities
• Pattern Blocks • Attribute Blocks • Geo Boards • 3D shapes • Non-sticky Post-its (useful for squares and partitioning shapes) • Tangrams • Shape Templates	• Pictorial sketch of shapes • Chart of Attributes	• Gather information (attributes: length of sides/number of sides and vertices) about shapes. • Use anchor charts to identify shapes based on their attributes. • Composing shapes into other shapes. • Decompose shapes into other shapes by cutting.	**MODULE 14: Understanding and Describing Shapes and Defining Attributes** • Vocabulary Sort pg. 310 • Comparing Shapes Using a Double Bubble Map • Eliminate It pg. 311 • Shape Conjectures- Always, Sometimes, Never pg. 312 (scenarios need to be made for this center) • Mystery Shape pg. 312 • Shape Riddles pg. 312 (scenarios need to be made for this center) • Same But Different pg. 313 • Pattern Block Puzzle pg. 314 • Square It pg. 314 • Putting Shapes Together pg. 315 • Pattern Block Numbers pg. 315 • Pattern Block Shapes pg. 316 • Secret Solid Sort pg. 317 • Search the Faces pg. 319 • Vocabulary Sort pg. 320 • Comparing Three-Dimensional Shapes Using a Venn-Diagram or T-chart • Eliminate It pg. 320 • Talk About It/Write About It pg. 321 • Shape Conjectures- Always, Sometimes, Never pg. 321 (scenarios need to be created for this center)

			• Mystery Shape pg. 321 • Builders pg. 321 • Building with Solid Shapes pg. 322 • Cube It Up pg. 323

Read article: Young Children's Ideas about Geometric Shapes
Food for Thought:

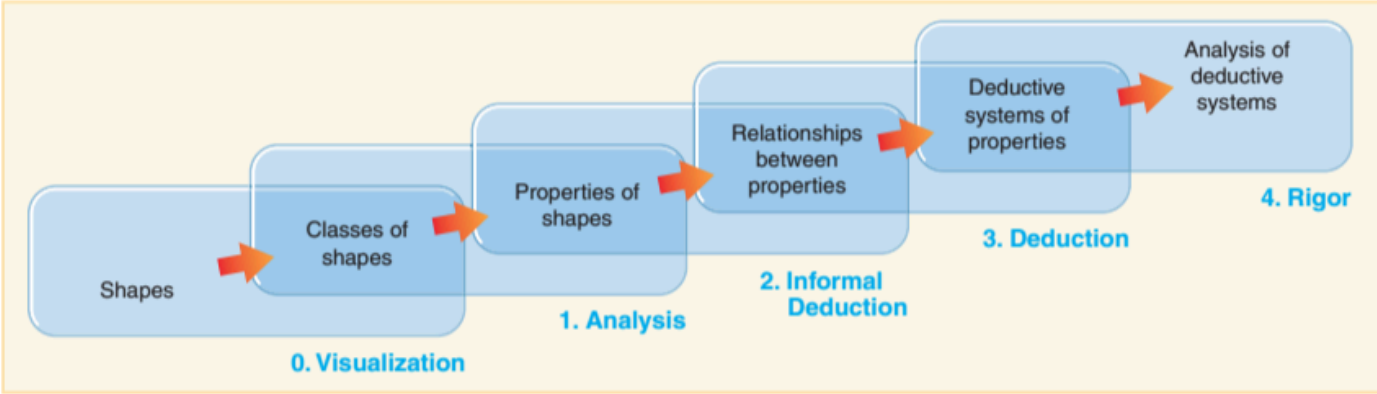
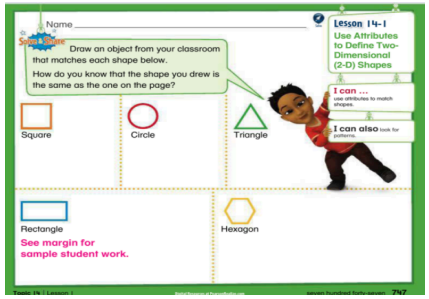


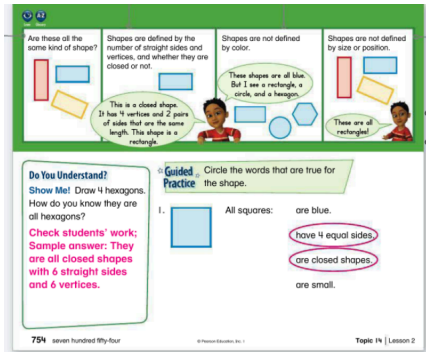
FIGURE 20.1 The van Hiele theory of geometric thought.

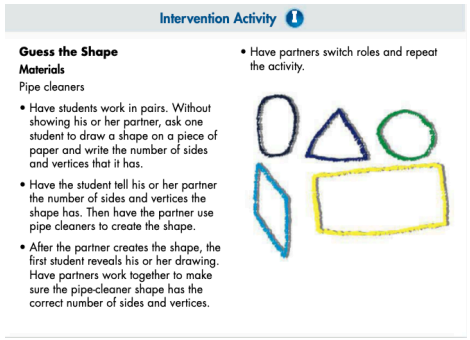
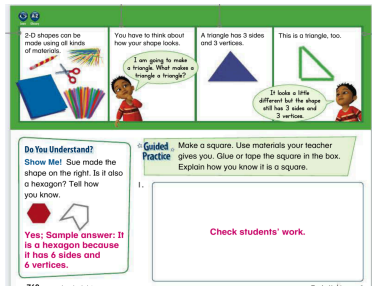
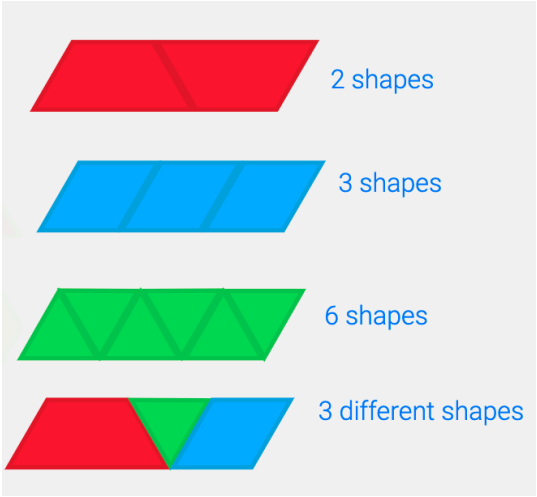
TABLE 20.1 CHARACTERICS OF THE VAN HIELE LEVELS

Characteristic	Implication
1. Sequential	To arrive at any level above 0, students must move through all prior levels. The products of thought at each level are the same as the objects of thought at the next level, as illustrated in Figure 20.1. The objects (ideas) must be created at one level so that relationships between these objects of thought can become the focus of the next level.
2. Developmental	When instruction or language is at a level higher than that of the students, students will be challenged to understand the concept being developed. A student can, for example, memorize a fact (such as all squares are rectangles) but not mentally construct the actual relationship of how the properties of a square and rectangle are related.
3. Age independent	A third grader or a high school student could be at level 0.
4. Experience dependent	Advancement through the levels requires geometric *experiences*. Students should explore, talk about, and interact with content at the next level while increasing experiences at their current level.

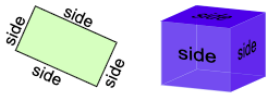
Source: de Walle, John A. Van; Karp, Karen S.; Bay-Williams, Jennifer M.. Elementary and Middle School Mathematics. Pearson Education. Kindle Edition.

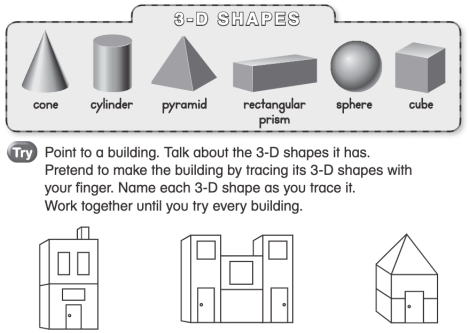
Day	Do	Don't	Introduction of New Academic Vocabulary
113	Lesson 1: Use Attributes to Define Two-Dimensional (2-D) Shapes • Explain to students that shapes are all around us. We use different shapes to make all kinds of objects. Introduce the unit by asking students to name some of the shapes they see in the classroom. Play a game of "I Spy Shapes." Review straight lines, vertices, and closed figures. • Model the Pose the Problem and Match My Shape in partnerships scholars can take turns to explain how the object matches the shape in their notebook. • Have students use their fingers to trace the sides of various shapes to include; a triangle, square, rectangle, and circle?  Ask: How would you describe the sides of a _____? ○ Which 2-D shapes have 4 sides? ○ What is the name for a 2-D shape that has no sides? ○ How are _____ and _____ different? ○ My shape has ____ sides and my shape has _____ corners. • Create an anchor chart with the attributes of 2-D Shapes. • Play " Make and Guess My Shape" in partnerships using a pedagogical structure.	• Don't show students a visual of a school bus: its wheels have a circular shape and its body is a rectangular prism. Ensure that the figures shown look 2-D. The reality is that nothing is really 2-D because all things, even a sheet of paper, have depth. We must remind students that when discussing 2-D objects, we are just talking about the surface of an object...just to top, a side, or a bottom. • Don't tell students the attributes of shapes without allowing them to explore and describe the shapes. • Don't do #7 as is. This is a good opportunity for a Jamboard-styled sort activity or make cutouts of the shapes physically available for students to sort.	1. 2-D shapes 2. Sides 3. Vertices

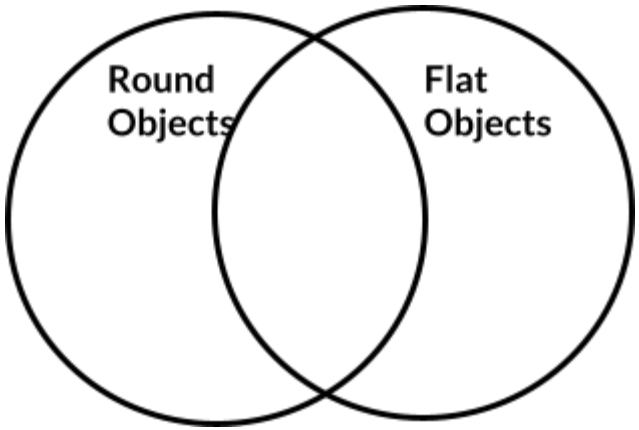
114	Lesson 2: Defining and Non-Defining Attributes of 2-D Shapes • Being the task in Step 1 as a “Which Doesn’t Belong Routine” using shapes. This will allow you to assess understanding and reinforce vocabulary. • Show students the image of various triangles from the “Pose the Problem.”  Ask: Are these all the same kind of shape? If not, how are these shapes same/different? • In partnerships/groups allow students to sort out various shapes into cups and explain why that shape belongs.	• Don’t expect one response from a ”Which Doesn’t Belong Routine.” This routine should have more than one possible correct response as long as a student can justify and explain their thinking then the response should be acceptable. • Don’t do the independent practice as is. These practice problems present a good opportunity to use a Two Arguments or a Convince Me strategy. • Don’t have the students work on #6 independently. Have students use a Two Arguments or a Convince Me strategy. Listen to the reasons that students have. Some students might say things like, “Well the shape on the right is not a hexagon, because it does not look regular.” This is an opportunity to define “regular shapes” from a mathematical context as opposed to an everyday use context. **Regular** A "Regular Polygon" has: • all **sides** equal and • all **angles** equal. Otherwise it is **irregular**.  Regular Pentagon Irregular Pentagon	None
115	Lesson 3: Build and Draw 2-D Shapes by Attributes • Do a “Guess My Shape” activity using a Match Mine structure.	• Don’t do this lesson as is. Instead use the day to have students work in centers/stations to create a variety of shapes using a variety of materials. Students may use straws, string, popsicle sticks, etc…	None

	 • Have students create matching games in centers similar to #7.		
116	Lesson 4: Compose 2-D Shapes • Ensure that students have concrete materials (Pattern Blocks) to use. They should not draw or trace these shapes. They need to physically manipulate the shapes. Virtual tools (https://apps.mathlearningcenter.org/pattern-shapes) can be used if physical tools are not available. • Support the generalization that if we have smaller shapes (or units) we will need more of them to create a larger shape. For example, we need more inches to make a yard, then we would need feet to make a yard. We would need more equilateral triangles to make a parallelogram, than we would need rhombi to make the same sized parallelogram. If a pizza were sliced into fourths, we would have more slices then if the same sized pizza were sliced into halves. • Use Tangrams. • Listen out for language related to halves (or even fourths) in this topic in order to gather formative assessment data for the upcoming topic.	• Don't limit students to 3 solutions. See if they can come up with several. Note the relationships of # of each shape. For example when using the equilateral triangles we will use 6 shapes, but when using the rhombi we will use 3. Why? Connect to the point of this lesson which is about composing smaller shapes into larger shapes.  • Don't do this lesson as is. Instead create centers where students have to compose larger shapes made from different configurations of pattern blocks. See an example here.	None
117	Lesson 5: Compose New 2-D Shapes from 2-D Shapes	• Don't assume that students know what some of the	None

	• Do this lesson as centers.
	• Take pictures of the figure that the students create and make a digital flipbook of their work. Share with families.
		things they are asked to build looks like. For example, if asked to build a house with pattern blocks some student will build in 3-D. Some might not know what to build if they have only lived in apartments in a city. It might be easier and more creative to have students build a figure and then have them or even others in the classroom associate the figure with a real-life object.
		• Don't do this lesson as is. Instead, adjust to do a Match Mine structure. Option 1:
		  ○ Option 1: Give students in partnership the same shapes and ask them to compose a new shape. Once completed they compare and discuss the figures.
		  ○ Option 2: Partner A builds a shape and then tells Partner B shapes used. Partner A has to use descriptive language to tell Partner B what to build. Partner B cannot look at Partner A's work until they are finished. Once completed they compare and discuss the similarities and differences in the figures created.	

118	Lesson 6: Use Attributes to Define Three-Dimensional (3-D) Shapes • Practice saying the names for the 3-D shape with students. For many they have only used informal names for many of these objects. For example, they might say ball, but not know that a ball is a sphere. Also, some of the terms like sphere are linguistically challenging. The "shp" part of sphere is not easy for some to say. The term rhymes with here and may be confused as a spear. • Co-create an anchor chart of these terms, visual representations, and their informal names as reference for students. • Could also make a picture flip book of these 3-D objects as they show up in our everyday lives. • Have students note the patterns that they see. If a 3-D shape has 6 faces, does it have 6 vertice? • Have students create number riddles. Adapt from the "Intervention Activity".	• Don't do the task in Step 1 as is. Instead, play "I Spy" and identify these types of objects in the classroom. • Don't assume that students fully understand the term side vs. edge vs. face. Sides "Side" is not a very accurate word, because it can mean: • An **edge** of a polygon, **or** • A **face** of a polyhedron 	1. Edges 2. Face 3. Flat surface 4. Rectangular prism 5. 3-dimensional (3-D) shapes 6. Vertex (vertices)
119	Lesson 7: Defining and Non-Defining Attributes of 3-D	• Don't just do workbook pages. Instead, use real	None

	Shapes • Do the task in Step 1 as is. The major focus should be on student reasoning. A Face-to-Face, Back-to-Back structure should be used to get all students sharing their thinking. • Make a center where students have to discuss the attributes of specific shapes. For example, in the Step 1 task all cylinders were shown. After the task is done tell students that if these are all cylinders then make a list of what they all have in common to make them fit into the category of cylinders. This process can be repeated with rectangular prisms, spheres, etc. Let them determine the attributes. • Have students create number riddles. Adapt the practice problems.	objects and have students manipulate. They can use manufactured manipulatives/tools and they can use real-world authentic objects.	
120	Lesson 8: Compose with 3-D Shapes • Provide the students with Unifx Cubes, but different students can use different amounts. It should be up to the student. • An exploration could be to give students a specific amount of Unifix Cubes and ask them if they could create a rectangular prism. For example, if you have 9 cubes, how many rectangular prisms could be made? But if you have 8 cubes how many rectangular prisms can be made? See #6. • Look at the "On-Level" assignment and use this as a possible lesson. 	• The text gives the impression that the cubes should have flat facts. Please note that using Unifx Cubes (not Snap Cubes) would be better. And using the exact same color is not a must. • Don't do the problems in the workbook as is. Instead, think about having students select images from magazines and having them name the 3-D figures involved. • Don't assume students can "see" the 3-D objects on the workbook page...which is a 2-D plane. For many students these are just flat objects.	None

<table>
<tr>
<td>121</td>
<td>Lesson 9: Problem Solving: Make Sense and Persevere
• In a center have a container of items to sort based on geometric attributes on a Venn diagram. You might use labels to scaffold student thinking. For example, round objects, flat objects.
 
</td>
<td>• Don't do the task as is. Instead of the task play an "I Spy" game or have students find objects that fit specific criteria.
• Don't do the mini-lesson as is. Instead focus on the reasoning related to attributes. For example, #1 deals with a fundamental question that confuses many students and adults alike.
1. All of these shapes are squares.
 

Many students (and adults) think that the shape labeled "D" is not a square and will say that it is a rhombus. They are partially correct, because the shape labeled "D" is a rhombus, but it is also a square, because a square is a rhombus and a square is also a rectangle.

With students make a similar chart for squares and rhombi:

Properties of Square and Rectangle
cuemath THE MATH EXPERT

<table>
<tr><th colspan="2">Property</th><th>Rectangle</th><th>Square</th></tr>
<tr><td rowspan="3">Sides</td><td>All Sides are equal</td><td>✗</td><td>✓</td></tr>
<tr><td>Opposite Sides are equal</td><td>✓</td><td>✓</td></tr>
<tr><td>Opposite Sides are parallel</td><td>✓</td><td>✓</td></tr>
<tr><td rowspan="3">Angles</td><td>All angles are equal</td><td>✓</td><td>✓</td></tr>
<tr><td>Opposite angles are equal</td><td>✓</td><td>✓</td></tr>
<tr><td>Sum of two adjacent angles is 180</td><td>✓</td><td>✓</td></tr>
<tr><td rowspan="2">Diagonals</td><td>Bisect each other</td><td>✓</td><td>✓</td></tr>
<tr><td>Bisect perpendicularly</td><td>✗</td><td>✓</td></tr>
</table>
</td>
<td>None</td>
</tr>
<tr>
<td>122</td>
<td>Topic 14 Review and Test</td>
<td></td>
<td></td>
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</table>

GRADE 1 - TOPIC 15: EQUAL SHARES OF CIRCLES AND RECTANGLES

Tools	Models	Strategies	Math in Practice Book Suggested Activities
• Scissors • Partitioned shapes templates • Ruler/Straight Edge • Pattern Blocks • Attribute Blocks • Geo Boards • 3D shapes • Non-sticky Post-its (useful for squares and partitioning shapes) • Paper (origami and copy paper) for folding • Coffee stirrers to use as partitioning tools	• Pictorial sketch of shapes	• Partition shapes (halves/fourths) by cutting and then to see if both are congruent (the same) • Counting the number of equal parts to determine if you have halves or fourths	**MODULE 15: Partitioning Shapes into Halves and Fourths** • Make a Family Flag pg. 331 • Craft Time pg. 332 • Pattern Block Halves pg. 332 • Attribute Block Fourths pg. 338 • Talk About It/Write About It pg. 338 (scenarios need to be created for this center) • Problems with Crazy Cakes pg. 339 (problems need to be created for this center) • Craft Time pg. 339 • Match "Em Up pg. 339 • Great Grid pg. 340 • Which Would You Want pg. 341 (scenarios need to be created for this center) • Making Pizza pg. 342 (scenarios need to be created for this center) • Talk About It/Write About It pg. 343 (scenarios need to be created for this center)

Watch the professional development video with the Topic. Watch the GFletchy Progression video.

Day	Do	Don't	Introduction of New Academic Vocabulary
123	Lesson 1: Make Equal Parts • The task in Step 1 is a good opportunity to gather formative assessment data about what students	• Don't make this a boring workbook task for the practice problems. Instead make this lesson interactive by possibly photocopying the problem	Equal shares

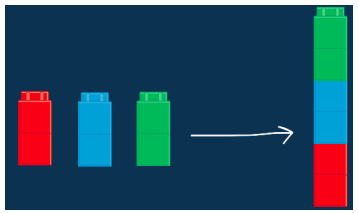
	understand about equal portions. Listen out for the word "half." Listen out for the words "share or equal share, sharing, or fair share." • Use the Sample of Student Work to question the students about which one shows the same amounts. You could extend the samples to be a Which One Does Not Belong? • Do #16 using a Two Arguments or Convince Me structure. This is a good way to get students engaging in more descriptive mathematical language. You could provide sentence frames to encourage student language.	example figures and having the students work in partnerships or small-groups to sort the shapes in groups. See this Jamboard Example.	
124	Lesson 2: Make Halves and Fourths of Rectangles and Circles • Contextualize the task in Step 1 for the students. Maybe make the circle a cake or pizza pie that is being shared. • Provide students with tools (e.g., coffee stirrers) to help with partitioning of the shapes. • Listen out for the terms halves and fourths from the students. Some may use these terms before they are formally introduced. • Contextualize during the mini-lesson. Make the shapes something that students can relate to and often share. • Have students reason out the Guided Practice and independent Practice sections of Step 2. Use a Convince Me structure. • Use the problems in the Problem Solving in centers or have student groups compare ideas once they have talked them out within their groups.	• Don't assume that the students will understand the term "divided." Use the word when teaching, but simultaneously use the phrases shared equally or split equally. • Don't give #7 to the students to work on independently. Instead place them into groups with tools to support them proving their thinking. Give the group wrapped bars to experiment with. Focus on their reasoning and do not tell the answer to the students.	1. Halves 2. Fourths 3. Quarters
125	Lesson 3: Understand Halves and Fourths • The task in Step 1 provides time for students to actively partition shapes. Note how they partition. Provide tools to support equal partitioning. Thank students who do not equally partition for giving us some non-examples similar to the one from Jane's Work sample. • Focus on the reasoning. Let the students reason. Be careful not to give them your words . Use real-life objects. Use greed for food to your	• Don't assume that students will understand that halving on a diagonal will be half just like halving vertically or horizontally. • Don't do the problems for the Problem Solving as is. These problems (#9, #10) are good hand-on, minds-on activities that students could work on in small groups. Let them puzzle these through. • Would not do the "Intervention Activity" as is. By labeling the shares as whole numbers we are setting students up for misconceptions with	None

	advantage to emphasize portion sizes. • #8 is a good activity to do to gather formative assessment data from students. Can be done in a guided group. • Emphasis the idea that we can only compare objects partitioned from the same sized wholes. I would not directly compare a half of a post-it to half of a sheet of construction paper. I can directly compare ½ of post-it to ¼ of the same sized post-it.	fractions later on. We can instead label the portions as letters and have conversations about the sections. For example, using the model below we can say that sections A and B are equal in size and sections A and B are both halves of the whole sheet of paper. We can say that section C, D, E, and F represent fourths. 	
126	Lesson 4: Problem Solving: Model with Math • Encourage students to act out the task in Step 1 using Geo Boards or grid paper. • Have a real blanket available for students to reference for the task in Step 1. • Consider having a word bank for students to access or reference for the sentence frame in Step 1. • Use the Performance Assessment to see how students are applying their partitioning skills. As a scaffold, ask students to use rectangles or provide students with pre-cut circles.	• Don't have the students work on the problems in Step 2 independently. Istead, use this day as a review of the major concepts in this topic by having students apply Pairs Compare and Convince Me structures to reason through the tasks in small-groups or even in Quadrant Discussions.	None
127	Topic 15 Review and Test		

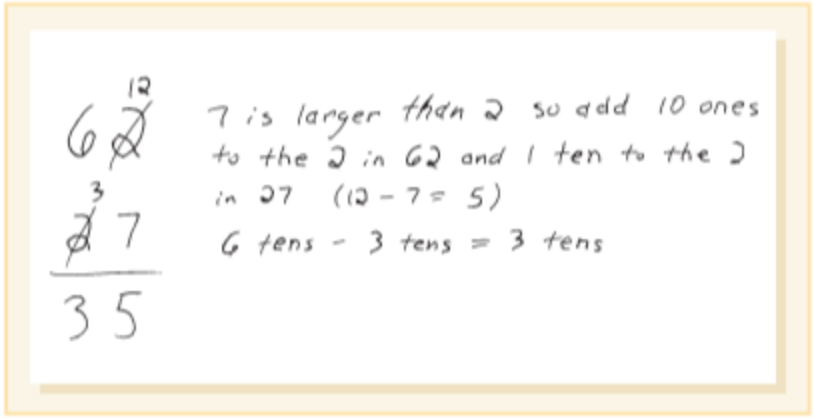
GRADE 1 - TOPIC 16: STEP UP TO GRADE 2

Tools	Models	Strategies	Centers/Games
• Number Grid to 200 • Unifix/Snap Cubes (sets of 10) • Ten Frames (to 100) • Ten Frame Tiles • Number Bead String (100) • Rekenrek/Number Rack (100) • Place Value Chart/Mat (tens, ones) • Money ($1, $10)	Diagrams: • Number line • Bar/Tape Diagram • Number Bond Pictorials: • Make drawing of amounts	• Apply all previous strategies relating the place value and addition and subtraction	**Teachers are to create their own for this topic.**

This is the last unit and a prep for 2nd grade. This is time to try out something new. You could follow the lessons as is, but focus more on student engagement and discourse. Focus on reasoning and justification. Alot is packed into each lesson and you will not have time for all of it unless you spend 2 days on each lesson. But this topic is meant to be an exposure to concepts. Ensure that students understand the major concepts of each lesson, but not all of the concepts.

Day	Do	Don't	Introduction of New Academic Vocabulary
128	Lesson 1: Even and Odd Numbers • Focus on the major concept of what does it mean to be an odd or an even number? • Do the task in Step 1 as is, but consider adjusting how it is presented. The phrase, "...as two qual groups..." might be confusing. What if you said, "Make groups of 2 with your connecting cubes. Make sure that the groups of 2 that you make are the same colors. Use these groups of 2 to make larger amounts."  The example above shows that a student made	• Don't tell students which numbers are odd and which ones are even. Let them discover it. List the properties of odd and even numbers. Check out: Is zero odd or even? Or check out this short video. • Do not do the practice, unless you have time to spend 2 days on this lesson. This less jumps from determining if a number is odd or even...first concept, then to determining a generalization about adding amounts that have either or odd or even amounts or both to see if the sum will be off or even. If time permits, play a game to have students explore this idea. Do not do the practice from the book.	1. Even 2. Odd

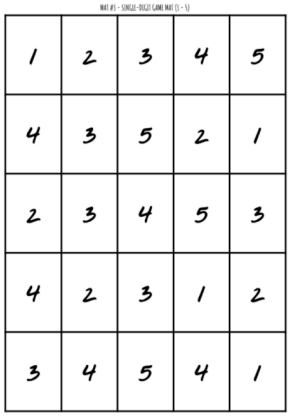
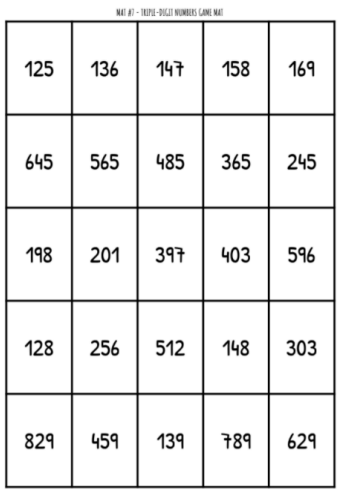
	groups of 2 and then combined those groups of 2 to make a group of 6. Students could work in groups to make as many different groupings as they can. A 5-minute exploration should be sufficient. Now students could go to the task and shade in the amount made and do a Notice and Wondering. This can now lead into your mini-lesson, but let the students discover by showing examples and non-examples. Let them sort out amounts that belong in a group. You could assign each student an amount and let the class sort themselves. This is when you introduce the terms odd and even.		
129	Lesson 2: Use Arrays and Find Totals • Focus on the major concept of what is an array? • Focus on using subitizable arrays. • Build concretely with square tiles or two colored counters. • Use a ten-frame as it is an array that students are very familiar with. • Use a rekenrek: https://apps.mathlearningcenter.org/number-rack • Use the language of 2 rows of 2 things in each or 2 + 2 or 2 groups of 2 things. • If time permits you can incorporate the concept of odd or even sums from the previous lesson by looking at and representing what sum you get when you: ○ Add 2 sets of even numbers, e.g., 4 + 4 ○ Add 3 sets of even numbers, e.g., 2 + 2 + 2 ○ Add 2 sets of odd numbers, e.g., 3 + 3 ○ Add 3 sets of odd numbers, e.g., 5 + 5 + 5 • #8 is a worthy exploration in a Guided Group.	• Do not present the task as is. Many students may just count 1 by 1. But if you flashed an amount that students would not have time to count you might get some more varied answers. Please note that even if students are seeing the amounts quickly, they may still 1 by 1 count in their heads as the flash may leave a visual image in their brains.	1. Arrays 2. Rows 3. Columns
130	Explore Pam Harris and focus on the additive thinking section. https://www.mathisfigureoutable.com/blog/development Explore and try out:	• Don't do this lesson as is. Allow students to select the ways that they want to solve this problem using a variety of tools. **Use the next 4 days to have students work in small groups and Guided Groups to explore different tools and ways learned**	None

	https://numberstrings.com/category/addition-strings Lesson 3: Add on a Hundred Chart • Focus on the major concept reasoning about addition using additive thinking. • Use a Rally Coach/Sage and Scribe structure to give students a chance to articulate their thinking to others while working in a partnership.	throughout the year. They could show you their thinking on a number bead string and you could help them make the connection to an open number line. They could show you their thinking using ten frames and you could make a connection to a place value chart using place value discs. • Don't use the problems in practice. Have students generate their own and work in small groups to solve the problem in different ways. Each person in the group could have a different way.	
131	Lesson 4: Models to Add 2-Digit Numbers • Same as the lesson above. • Use activities from Math in Practice.	• **DO NOT DO THIS LESSON AS IT IS.** This lesson is promoting an algorithm that they will not need to learn until 4th grade! Focus on reasoning and additive thinking.	None
-	 **FIGURE 12.10** The "equal addition" algorithm. **Delay! Delay! Delay!** Students are unlikely to invent the standard algorithms. You will need to introduce and explain each algorithm to them and help them understand how and why it works. No matter how carefully you introduce these algorithms into your classroom as simply another alternative, students are likely to sense that this is the "one right way." So spend a significant amount of time with invented strategies—months, not weeks. Again, note that the Common Core State Standards (CCSSO, 2010) require that students learn a variety of strategies based on place value and properties of the operations one or two years before the standard algorithms are expected to be mastered. The understandings students gain from working with invented strategies will make it easier for you to meaningfully teach the standard algorithms. If you think you are wasting precious time by delaying, just be reminded of how many years you and others teach the same standard algorithms over and over to students who still make errors with them and are still unable to explain them. Here is a video clip of Gretchen who uses the standard algorithm incorrectly but still thinks that answer is correct—even when other approaches lead to a different answer. Source: de Walle, John A. Van; Karp, Karen S.; Bay-Williams, Jennifer M.. Elementary and Middle School Mathematics (p. 258). Pearson Education. Kindle Edition.		
132	Explore and try out:	• Don't do this lesson as is. See notes on Lesson 3.	Difference

	https://numberstrings.com/category/subtraction-strings Lesson 5: Subtract on a Hundred Chart • Focus on the major concept reasoning about addition using additive thinking. • Use ideas from the Math in Practice book. • Use number strings.		
133	Lesson 6: Models to Subtract 2-Digit Numbers • Same as the lesson above. • Use activities from Math in Practice.	• **DO NOT DO THIS LESSON AS IT IS.** This lesson is promoting an algorithm that they will not need to learn until 4th grade! Focus on reasoning and additive thinking.	None

134	Lesson 7: Tell Time to Five Minutes
	• Focus on the major concept of reading a scale. The scale being the clock.
	• Use linear and circular number lines, which is what the clock is.
	• Label the classroom clock by 5s. Teach students how to label analogue clocks by 5s.
	• Do the task as is. Focus on student reasoning.
	• Resources:
	  ○ https://www.visnos.com/demos/clock
	  ○ https://www.teacherled.com/iresources/numeracybasics/?resource=clock
		• Don't assume that students know how to skip count by 5s yet. Use this lesson to help prepare them for Lesson 10 by making skip counting by 5s on the clock a routine.
		• Don't do this lesson as is. Make this into a game, e.g., Concentration of reading and matching the analogue clock with digital clock amounts. If doing the pages in the workbook then use a Rally Coach/Sage and Scribe structure.
			None

135	Lesson 8: Understand Hundreds
	• Focus on the major concept of the place value system and creating a new unit (hundreds).
	• Use number bead strings so that students can see a group of 100. String them together so that students can count on by hundreds and see the amounts.
	• Use the sentence frames from the Guided Practice part of the lesson to support student discourse.
	• Use play money ($100, $10, $1) to support understanding.
	• Bundle tens to make 100.
	• Resources:
	  ○ Number grid that goes into the hundreds.
	  ○ https://apps.mathlearningcenter.org/money-pieces
		• Don't just show students the base ten blocks. Let them build tens and/or ones to get to the 100 block. Call the block a hundred, not a flat.
		• Use the Grid Game Mat below to have students try to get 4 is a row by selecting a digit and then saying the amount in unit form. For example, by selecting a 4 you would have 4 hundreds. Players would have to build 4 hundreds using various tools and also show on a place value chart,
			1. Hundred
			2. Thousand

			
136	Lesson 9: Counting Hundreds, Tens, and Ones ● Focus on the major concept reading and understanding place value with 3-digit numbers. ● Have students build and represent these amounts using place value blocks and other tools such as number bead strings, rekenreks, connecting cubes, etc.	● Don't do this lesson as is. Instead make this lesson into a game such as the following Grid Game. The goal of the game is for each player to build an amount using a tool and if the other player can identify the number then they both get a point and the place on the mat. The goal is to cover as much area as possible before the players get 2 in a row wrong. 	1. Hundred 2. Digit
137	Lesson 10: Skip Count by 5, 10, and 100, and 1000 ● Focus on the major concept of skip counting and recognizing the patterns. ● Use the task in Step 1 to gather formative	● Don't do the practice problems as is. Tell students that instead of trying to get all of the problems correct that they should instead try to get 1 part wrong in each problem. Other students have to find	None

	assessment data. ● Spend time on students alternating between counting by 5s, 10s, and hundred by playing a game I call Switch the Unit. This activity can be done whole group or in teams. Let's say that a student is counting 10s. ○ Student: 0, 10, 20, 30, 40, 50, 60 ○ Teacher: Switch! Count by 5s ○ Student: 60, 65, 70, 75, 80, 85, 90, 100 ○ Teacher: Switch! Count by 100s ○ Student: 100, 200, 300, 400 ○ Teacher: Switch! Count by 10s	and fix their errors. A Match Mine strategy works very well here as well.	