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| **Unit 2 Grade 3 Place Value with Whole Numbers** | | | | |
| **Lesson #1** | **Lesson #2** | **Lesson #3** | **Lesson #4** | **Lesson #5** |
| **Teaching Point**  **Basic Fact Rate of Recall**  **Teaching Point**   * **Fluency** – establish a baseline. * Analyze results and set goals.   Mixed fluency assessment  Students analyze own work on “fluency data sheet” ordered either by tables or related facts: check off correct or errors  **Assessment Point**   * Student Fluency Results compared to district norms * Identify areas of need   Questions for students:   * What do you notice about the type of facts you got right? Wrong? * How can you use what you know about the facts you got right to help you learn the ones you didn’t   Reflect on Growth pattern and make predicitions | **Teaching Point**  Equivalent forms of 2- and 3-digit numbers using tens and ones  **Mini-Lesson**: Read *Grandma Eudora’s T-Shirt Factory* and discuss the context.  **APS**: Students work in pairs to find the number of rolls and loose T-shirts and record their findings.  **Assessment Point:** Notice which children are comfortable with early place value concepts. Do students need to count the same group multiple times? Are students skip-counting by tens? Are they using partial sums (e.g. 38 = 30 + 8)? Are they able to use place value concepts to predict the rolls of ten for 2-digit but not 3-digit numbers?  **Focus question:** How many rolls of ten can you make from the number of T-shirts on your cards?  **Lesson reference:** CFLM T-shirt Factory Day 1 | **Teaching Point**  Expanded and regrouped forms of 2-digit numbers  **Mini-Lesson**: Read and discuss the part of yesterday’s story where Nicholas uses a T-Chart to make 10 rolls and 0 loose T-Shirts and then represents this as nine rolls and ten loose T-Shirts.  **APS**: On prepared t-chart, students will work with partners to find different ways to represent the amounts of T-Shirts.  **Assessment Point:** Are any students still counting by ones first? Are they skip-counting?  Are they using a random approach vs. systematic approach? Are they able to mentally unbundle the shirts?  Have they generalized that the number of ways is always one more than the number of tens?  **Focus question:** How many ways can you represent the given numbers and how can you be sure you have found all of the ways?  **Lesson reference:** CFLM T-  t shirt Factory Day 2 | **Teaching Point**  Flexible strategies for adding 2- and 3- digit numbers.  **Mini-Lesson**: Extend the context of the ongoing story by telling the students that they will be part of a group that will establish a T-Shirt factory.  **APS**: Students work in groups of 4 to make posters describing their factory. Each student will be responsible for determining total number of t-shirts for a particular size of t-shirt and how they should be organized in the warehouse..  **Assessment Point:** Are students making the connection between the numbers of rolls and loose and place value? Are students adding using partial sums or strategies using landmark numbers with flexibility?  **Focus question:** What is the total number of t-shirts of each size that your company has in stock? How did you add the amounts to find the total number of each size?  **Lesson reference:** CFLM T-shirt Factory Day 3 | **Teaching Point**  Regrouping with 100  **Mini-Lesson**: Tell students that their T-Shirt companies will be using boxes that hold 10 rolls each to store their shirts. They will work with their groups to figure out how many boxes they will need for each size t-shirt.  **APS**: Students work together in groups of four using their posters and envelopes from yesterday to determine how many boxes they will need for each size of t-shirt.  **Assessment Point**: Observe the kind of regrouping strategies the students are employing. Are students counting out the rolls and regrouping? Are students mentally partitioning numbers into boxes (100s), rolls (10s) and loose (1s)?  **Focus question:** How many boxes did you need for your size? What strategy did you use to determine the number of boxes?  **Lesson reference:** CFLM T-  shirt Factory Day 4 |
| **Lesson #6** | **Lesson #7** | **Lesson #8** | **Lesson #9** | **Lesson #10** |
| **Teaching Point**  Place value equivalences and alternate representations of whole numbers; Use of flexible addition strategies  **Mini-Lesson**: Explain today’s APS.  **APS**: Students work together in their companies to find the total number of T-Shirts in the company and total value of the supply. Each student should also work individually to provide the total number of T-shirts and their value for that specific size he/she was responsible for. Students then make company ledgers.  **Assessment Point:** How are students determining the total inventory? Are they using place value equivalences or are they resorting to counting strategies? What addition strategies are students using to find totals? Are they able to use place value concepts to determine the value of a group of shirts?  **Focus question** What is the total number of shirts your company has in stock? What is the total value of your inventory?  **Lesson reference:** CFLM T-shirt Factory Day 5 | **Teaching Point**  Continuing the exploration of place value, equivalence, including applications to addition and subtraction  **Mini-Lesson**: Discuss student strategies from previous day’s student work based on your review of the student ledgers. Then explain today’s tasks. Model how to complete appendix E.  **APS**: Students work individually to complete Gr3 U2 L7 S1( new order form) for their index card. Then students work in their company groups to complete Gr3 U2 L7 S2 (Company Recording sheet) .  **Assessment Point:** Look for development of place value concepts related to equivalence and regrouping. Note student strategies for addition and subtraction.  .**Focus question:** How many T-shirts of each size does your company now have in stock? How much money was made in the transactions and what is the value of the inventory in the warehouse after the sale of each size?  **Lesson reference:** CFLM T-shirt Factory Day 6 | **Teaching Point**  The relationship between addition and subtraction  **Mini-Lesson**: Discuss ledgers from yesterday. Then explain today’s APS.  **APS**: Students first work independently to determine how many more shirts of their size is needed to make only complete Boxes (10 Rolls of 10 Loose Shirts) and to record this information on the top of Gr3 U2 L8 S1 They then work with their companies to complete the bottom of Gr3 2 L8 S1.  **Assessment Point:** Look to see who is separating the inventory into partial sums and adding up (using addition to solve for a missing addend) and who is using subtraction to find the needed number of t-shirts to make full boxes.  Do a general assessment – where is each student in developing the place value understandings of this unit?  **Focus question:** How many T-shirts of each size will you need to order so that your company only has full boxes?  **Lesson reference:** CFLM Teachers’ Lounge Day 7 | **Teaching Point**  Examine the place value structure of 4-digit numbers;  Subtracting 4-digit numbers using flexible strategies  **Mini-Lesson** This is a guided lesson which continues the theme of the T-shirt factory. This time introducing crates as containers that can hold ten boxes. Outline today’s tasks.  **APS**: Students work in pairs to complete a company inventory sheet before and after a sales.  **Assessment Point:** Who is struggling with finding the totals in the first 2 tables (and thus will have difficulty understanding expanded and regrouped forms of 4-digit numbers? Who is making use of efficient strategies with an understanding of place value vs. who is using a subtraction algorithm to complete the final inventory table vs. who is using counting strategies that are tedious and do not rely on place value understanding?  **Focus questions:** What strategies did you use to complete the inventory recording sheet?  **Lesson reference:** Extension based on CFLM T-Shirt Factory | **Teaching Point**  Comparing and ordering numbers less than 1,000  **Mini-Lesson**: Present data about wingspans of birds and discuss ordering the birds by wingspan. Then model how to play “place it right.  **APS**: Students play the game “place it right” for 3-digit numbers in groups of 4-5. After playing 6 games, they will share strategies for playing the game.  **Assessment Point:**  Check to see if students are labeling number lines using correct value based on the given starting and ending numbers. Look for strategies students are using as they play the game.  Are students attempting to fill the hundreds place slot with larger numbers? Are they using the discard slot when a small number (1 or 2) is drawn? Are they comparing the final numbers with accuracy using place value as the guiding principle?  **Focus questions:** What are some good strategies to help when placing numbers on a given number line? What are some good strategies for playing “place it right”? |
| **Lesson #11** | **Lesson #11A** | **Lesson #11B** | **Lesson #12** | **Lesson #13** |
| **Teaching Point**  Comparing and ordering 4-digit numbers  **Mini-Lesson**: Present data about populations of CT towns and discuss ordering the towns by population.  **APS**: Students work in groups of 4 or 5 to play “place it right”. Students then do GR3 U2 L11 S1individually. When they finish, they should compare answers and resolve discrepancies.  **Assessment Point:** Are students attempting to fill the thousands place slot with larger numbers and using the ones slot when the first small number (1 or 2) is drawn? Are they comparing the final numbers with accuracy using place value as the guiding principle? On the practice sheet, were they able to order numbers correctly? Did they locate the numbers on the number line in a reasonable manner?  **Focus questions:** What are some good strategies for placing numbers on a given number line and for playing “Pace It Right”? | Review of lessons 2-11( a review sheet is provided)  Gr3 U2 L11a Review | Give Skills Assessment 1 | **Teaching Point**  Rounding 2-digit numbers  **Mini-Lesson**: Provide samples where rounded numbers are used in everyday life. Then introduce and model how to use a rounding chart.  **APS**: Students work in pairs on the “Investigating Rounding Numbers” problem sheet.  **Assessment Point:** Look for students who have been able to find a pattern or rule that they think describes the rounding process. You will want them to share in the math congress.  **Focus questions:** What is the basic pattern for rounding 2-digit numbers? | **Teaching Point**  Rounding 3-digit numbers  **Mini-Lesson**: Discuss using a number line to round 3-digit numbers to the nearest 100 and to the nearest 10.  **APS**: Students work in pairs on the “rounding numbers in context” problem sheet.  **Assessment Point:** Are students rounding with the aid of a number line, a rounding chart, or are they using patterns and rules to round?  Are they able to distinguish rounding to the nearest hundred number from rounding to the nearest ten number?    **Focus question:** What is a good strategy for rounding 3-digit numbers? |
| **Lesson #14** | **Lesson #15** | **Lesson #16** | **Lesson #17** | **Lesson #18** |
| **Teaching Point**  Estimating sums  **Mini-Lesson**: Pose a problem about attendance figures for the 3 nights of a school play and use this context for a discussion of strategies for estimating sums.  **APS**: Students work in pairs on the “estimating sums in context” problem sheet.  **Assessment Point:** Are students adding the numbers first to get an exact answer and then rounding (and thus do not understand the concept of estimating a sum) or are they attempting to estimate the sum? What estimation strategies are the students using (see mini-lesson above)?  **Focus question:** What is a good strategy for estimating sums? | **Teaching Point**  Estimating sums and differences, strategies that provide “better” estimates  **Mini-Lesson**: Use a problem situation in which an estimate is needed for the number of people attending a birthday party for exploring the concepts of overestimate and underestimate.  **APS**: Students work in pairs on the “estimation strategies” problem sheet.  **Assessment Point:** Are students subtracting (or adding) the numbers first to get an exact answer and then rounding (and thus do not understand the concept of estimating a difference/sum) or are they attempting to estimate the difference/sum?  What estimation strategies are the students using?  **Focus questions:** What is a good strategy for estimating differences? | **Teaching Point**  Decide when an estimate is an over- or an underestimate  **Mini-Lesson**: Discuss the concepts of overestimate and underestimate in the context of planning a birthday party. Lead class through exercises designed to develop thinking about whether or not a strategy produces an over- or an underestimate.  **APS**: Students work in pairs on the “estimation strategies II” problem sheet.  **Assessment Point:** Do students understand the concepts of an overestimate and an underestimate? Are students using rounding correctly to find their estimates? Are students able to work with 2-digit addends but not 3-digit addends?  **Focus questions:** How can we tell if a strategy for estimating a sum will produce an overestimate or an underestimate? | **Teaching Point**  Adding 3-digit numbers using an algorithm  **Mini-Lesson**: Model the solution of an addition problem using base ten blocks to assist with the thinking and recording the thinking with an algorithm for addition.  **APS**: Students work individually for 15-20 minutes GR3 U2 L17 S1. Have students first **estimate** the sums, then do the additions, and finally check to see if the actual sum is reasonable based on the estimate. Then have students meet in groups of 3 to compare their answers to the 8 problems from the APS and resolve any differences.  **Assessment Point:** Do students understand the addition algorithm? Are students using rounding correctly to find their estimates? Are students regrouping correctly?  Are students accurate in finding the actual sums?  **Focus questions:** How can we use a paper and pencil strategy to add 3-digit numbers? | **Teaching Point**  Adding 3-digit numbers using an algorithm  **Mini-Lesson**: Model the addition version of the “place it right” game.  **APS**: Divide the class into 4 groups and have students play the “Place it Right: Addition Version”. When they finished playing 3 games, groups should make a list of strategies they think are good for playing this game.  **Assessment Point:**  Do students understand the concepts of an overestimate and an underestimate? Are students using rounding correctly to find their estimates? Are students able to work with 2-digit addends but not 3-digit addends?    **Focus question:**  What are some good strategies for playing the “Place it Right: Addition Version”? |

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| **Lesson #19** | **Lesson #20** | **Lesson #21** | **Lesson #22** | **Lesson #23** |
| **Teaching Point**  Adding three or more numbers  **Mini-Lesson**: Use a problem situation in which 3 numbers have to be added and use it to discuss strategies for adding 3 or more numbers.  **APS**: Today’s APS will be differentiated by task. Students who have seemingly mastered the traditional addition algorithm for 2- and 3-digit numbers will work individually on GR3 U2 L19 S1. Pull struggling students and show them an alternative algorithm (see document accompanying this lesson) and have them work on GR3 U2 L19 S1.  **Assessment Point:**  Do the students in the group who are struggling with addition understand how to use the alternative algorithm?  Which students can add three or more multi-digit numbers?  **Focus questions:**  What are some strategies for adding 3 or more numbers? | Subtracting 2- and 3-digit numbers by thinking addition or counting up  **Mini-Lesson**: Solve a problem in which the context promotes finding a missing addend by using a counting up strategy. Use an open number line to facilitate student thinking.  **APS**: Students work in pairs on the problem sheet “subtracting 2- and 3-digit numbers in context”.  **Assessment Point:**  Which students are using base ten blocks and which students are using number lines as aids to solve the problems? Do students understand how addition can be used to solve subtraction problems? How efficient are their addition strategies?  **Focus questions:** How can you use addition to subtract 2- and 3-digit numbers? | **Teaching Point**  Subtracting 2-digit numbers using an algorithm  **Mini-Lesson**: Model the solution of a subtraction problem using dimes and pennies to assist with the thinking and recording the thinking with an algorithm for subtraction.  **APS**: Students work in individually on GR3 U2 L21 S1. Have them check each answer using addition.  **Assessment Point:**  Do students understand the use of the algorithm? Are students regrouping correctly in problems 8, 12, 18, and 20?  Are students able to use addition to check their subtraction? Which students are able to use alternate strategies to subtract?  **Focus questions:** How can you use an algorithm to subtract 2-digit numbers? | **Teaching Point**  Subtracting 3-digit numbers using an algorithm  **Mini-Lesson**: Model the solution of a subtraction problem using base ten blocks to assist with the thinking and recording the thinking with an algorithm for subtraction.  **APS**: Students work in individually on the problem-solving sheet GR3 U2 L22 S2. Have them first attempt to solve using a subtraction algorithm, then have them try to solve the same problems using a “counting up” strategy.  **Assessment Point:**  Do students understand the use of the algorithm? Are students regrouping correctly?  Which students are better at using a “counting up” strategy than using the algorithm?    **Focus question:**  How can you use an algorithm to subtract 3-digit numbers? | **Teaching Point**  Subtracting 3-digit numbers (including subtracting across zero) using an algorithm  **Mini-Lesson**: Solve a story problem in which you need to find what number needs to be added to 247 to make 603 using both an adding on strategy and a subtraction algorithm.  **APS**: Students work in pairs on the problems on GR3 U2.L23 S2. Have the students attempt to solve them both using a subtraction algorithm and by using a “counting up” strategy. Then have student pairs who have completed today’s problems play the subtraction version of “place it right”.  **Assessment Point:**  Do students understand the use of the algorithm? Are students regrouping correctly?  Which students are better at using a “counting up” strategy than using the algorithm?    **Focus question:**  What is a good strategy for subtracting 3-digit numbers when there are zeros in the first number? |

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| **Lesson #24** | **Lesson #25** | **Lesson #26** | **Lesson #27** | **Lesson # 28** |  |
| **Teaching Point**  Determine whether or not an estimate or an exact answer is needed  **Mini-Lesson**: Use a problem situation in which you need to determine whether or not a class has reached its goal to generate a discussion about whether or not an exact answer or only an estimate is needed.  **APS**: Students work in pairs on the problem sheet “Estimate or exact answer”.  **Assessment Point:**  Do students understand that they should first try to estimate to solve the problems? Are students correctly using rounding strategies to estimate the solutions? Which students are able to solve problem #2 or problem #3 using estimation?  **Focus questions:**  When can an estimate be used to solve a problem and when is an exact answer needed? | **Teaching Point**  Adding and subtracting money  **Mini-Lesson**: Present a problem situation in a student is buying lunch to pose several problems in which money amounts need to be added or subtracted.  **APS**: Students work in pairs on the problem sheet “Adding and subtracting money” (GR3 U2 L25 S1)  **Assessment Point:**  Do students understand how to treat dollars and cents when they add or subtract money amounts? Which students are using an algorithm to solve all of the problems and which students are varying their method of computation from problem to problem?  **Focus questions:** What different strategies can we use to add and subtract money amounts with dollars and cents? | **Teaching Point**  Deciding which mental math is a suitable method of computation.  **Mini-Lesson**: Model the game “Count down to zero” Play the game twice with the class  **APS**: Students work individually on the problem sheet Addition and subtraction practice #1.  **Assessment Point:**  Which problems did students use mental math correctly and which problems did they use paper-pencil math? When using an algorithm, which students are using an algorithm correctly?  **Focus questions:** Which problems were you able to solve correctly using mental math? | Follow up with a unit review (a review sheet is provided).  *As a teacher reflect upon this unit. What worked/ what didn’t? Did you incorporate literature into any of your lessons?* | Give the unit assessment |  |