**Teacher Directions:**

Digging Deeper assessment for OA standards and a few NBT standards.

Sit one-on-one with students or in a small group while student completes the problems and/or activities. Take notes as to how the student is solving the problems. Ask the student to think aloud about what they are doing and/or ask them questions so you can see where they maybe struggling the most.

Do not give the entire test to the student. Think about what level you think the student is at and give them only that section. Depending on how they do with that section either go up or down. Feel free to edit the document in order to give the student a section at a time.

If you want to focus only on one standard at a time, you can cut and paste that standard to give only that standard to them. Go back a couple grade levels and see where the misconceptions are.

Give the student materials to use. If they have difficulty solving a problem make a note of it and have them try it a different way using a different strategy. This will give you information also if it is that strategy or if you need to dig a little deeper to see where the root cause is.

**Kindergarten** – Operations and Algebraic Thinking

**Teacher:** Give student manipulatives to use to solve the problem as well as the opportunity to show the work with paper and pencil. Read the problem to the student and take notes as to how the student is solving the problems.

**Task 1 – OA.1, OA.2** Student is able to solve and represent addition and subtraction problems.

|  |
| --- |
| **There were 6 butterflies on the flower. 4 more butterflies flew onto the flower. How many butterflies are on the flower?** |

|  |
| --- |
| **Miguel has 8 cars. How many can he put in the red box and how many in the green box?** |

|  |
| --- |
| **There were 9 pencils on the desk. Todd took 4 pencils. How many pencils are on the desk now?** |

**Task 2:** **OA.3** Show partners of a given total

**Directions:**

1. Before beginning, teacher will need to choose whether students are working with ten frame and counters or beans and cup. The teacher will need to have these manipulatives out for students to use.
2. Give student 5 beans/counters. Tell student, “Show me the partners or groups within the number 5.” Student should then be prompted to show the partners or groups within 5 another way by saying “Is there another way to show 5?”
3. Give student 10 beans/counters. Tell student, “Show me the partners or groups within the number 10.” Student should then be prompted to show the partners or groups within 10 another way by saying “Is there another way to show 10?”

**Task 3: OA.4** Students will identify how many more are needed to get to 10 when given an amount.

**Directions: (Give Students a ten frame to use)**

1. Give student 4 counters to use. Ask: *How many more counters are needed to make 10?* After the student provides a solution, ask: *How do you know?* Prompt if needed: *What did you do to figure that out?*
2. Give student 7 counters to use. Ask: *How many more counters are needed to make 10?* After the student provides a solution, ask: *How do you know?* Prompt if needed: *What did you do to figure that out?*
3. Give student 2 counters to use. Ask: *How many more counters are needed to make 10?* After the student provides a solution, ask: *How do you know?* Prompt if needed: *What did you do to figure that out?*

**Task: OA.5** Students will be able to provide an answer (total or difference) within three to five seconds **without** using manipulatives, fingers, or counting.

**Directions:**

1. Say, “I’m going to tell you some problems. See if you can solve each one as quickly as you can. Ready?”
   1. There were 4 baseballs. 1 rolled away. How many baseballs are there now?
   2. There were 3 flowers. 2 were picked. How many flowers are left?
   3. There were 3 kittens playing outside. 1 more came. How many kittens are there?
   4. There were 5 cars in the parking lot. 0 more came. How many cars are there now?
   5. There was 1 apple. I ate 1 apple. How many apples are left?
   6. There were 5 birds. 2 flew away. How many birds are there now?

\*Student should be able to orally answer above questions without using manipulatives, fingers or counting.

**First Grade** – Operations and Algebraic Thinking

**Teacher:** Give student manipulatives to use to solve the problem as well as the opportunity to show the work with paper and pencil. Read the problem to the student and take notes as to how the student is solving the problems.

**1.OA.1**

|  |  |
| --- | --- |
| **2 birds were sitting in a tree. 6 more birds came to join them. How many birds are in the tree now?** | Write a number sentence that matches this story. Use a symbol for the unknown number. |
| Solve the problem. Show your thinking with pictures, numbers, or words | |

**1.OA.1**

|  |  |
| --- | --- |
| **Dan had 12 cookies in a box. He gave away 6 cookies. How many cookies are left in the box?** | Write a number sentence that matches this story. Use a symbol for the unknown number. |
| Solve the problem. Show your thinking with pictures, numbers, or words | |

**1.OA.2**

|  |  |
| --- | --- |
| **I found 4 roses, 2 daisies, and 3 tulips. How many flowers did I find?** | Write a number sentence that matches this story. Use a symbol for the unknown number. |
| Solve the problem. Show your thinking with pictures, numbers, or words | |

**1.OA.1, 1.OA.4**

|  |  |
| --- | --- |
| **There were 11 pancakes on a plate. I ate some pancakes. Now there are 8 pancakes on the plate. How many pancakes did I eat?** | Write a number sentence that matches this story. Use a symbol for the unknown number. |
| Solve the problem. Show your thinking with pictures, numbers, or words | |

**1.OA.4 Fill in the unknown partners. Complete the addition and subtraction sentences to match the math mountains.**

12

+ =

4

- =

**1.OA.3 Use the blocks to write two related addition sentences.**

**\_\_\_\_\_ + \_\_\_\_\_\_ = \_\_\_\_\_\_ AND \_\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_**

**1.OA.8 Read the number sentence. What is the unknown number that makes the number sentence true?**

|  |  |
| --- | --- |
| 2 + \_\_\_\_ = 12 | **Write the number on the line. Explain how you know using pictures, words, or numbers.** |
| 15 = 8 + \_\_\_\_ |  |

**1.OA.6**

|  |  |
| --- | --- |
| **India has 9 more cookies than Tyron. Tyron has 4 cookies. How many cookies does India have?** | Write a number sentence that matches this story. Use a symbol for the unknown number. |
| Solve the problem. Show your thinking with pictures, numbers, or words | |

**1.OA.6**

|  |  |
| --- | --- |
| **Blake has 12 cubes 5 are green and the rest are blue. How many cubes are blue?** | Write a number sentence that matches this story. Use a symbol for the unknown number. |
| Solve the problem. Show your thinking with pictures, numbers, or words | |

**1.OA.7 The following equations are TRUE. Explain with pictures, words or numbers why they are true.**

|  |  |
| --- | --- |
| **3 = 3** |  |
| **5 + 2 = 2 + 5** |  |
| **9 = 10 – 1** |  |

**Second Grade** – Operations and Algebraic Thinking

**2.OA.2:** Use manipulatives, numbers, number lines, pictures, and/or words to show your thinking.

|  |  |  |
| --- | --- | --- |
| 7+ 5 = \_\_\_\_\_ | \_\_\_\_\_ = 13 + 6 | 8 + \_\_\_\_\_ = 15 |

**2.OA.2:** **Explain the math mountain below. What do you know? What is missing? What strategy would you use to solve?**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9

**2.OA.1**

|  |  |
| --- | --- |
| **Henry built a block tower that was 9 blocks tall. Ryan built a block tower that was 13 blocks tall. How much shorter is Henry’s tower than Ryan’s tower.** | Write a number sentence that matches this story. Use a symbol for the unknown number. |
| Solve the problem. Show your thinking with pictures, numbers, or words | |

**2.OA.1**

|  |  |
| --- | --- |
| **Mr. Carter was putting books away on the shelf in his classroom. Before lunch, he put away some of his books. After lunch, he put away 7 more. When he was done, he had put 20 books on his shelf. How many books did he put away before lunch?** | Write a number sentence that matches this story. Use a symbol for the unknown number. |
| Solve the problem. Show your thinking with pictures, numbers, or words | |

**2.OA.1 - Which equation would you use to solve each problem? Circle the correct answer.**

|  |  |
| --- | --- |
| Diya walked 13 laps for her school’s fundraiser. Gabby walked 6 laps for her school fundraiser. How many more laps did Diya walk than Gabby?  a) 13 + 6 = ?  b) 13 – 6 = ?  c) 13 + 6 – 6 = ? | Rishi has 7 red cars and 9 blue cars in a basket. While playing with his cars, he lost 5 of them. How many cars will he put back in his basket?  a) 7 + 9 + 5 = ?  b) 7 + 9 = ?  c) 7 + 9 – 5 = ? |

**2.OA.3**

|  |  |
| --- | --- |
| There are 5 students in Mrs. Smith’s reading group. Mrs. Smith wants to sharpen 2 pencils for each student. Will she need an odd or even number of pencils? How do you know? Prove your answer with numbers, words or pictures.    **Circle: Even or Odd** | 17 Odd or Even?  Show how you know. |

**NBT.5 - Solve for the missing number. (oa.5, nbt.9, nbt.5 – Word Problems)**

|  |  |  |
| --- | --- | --- |
| **34 + 29 = \_\_\_\_** | **45 + \_\_\_\_ = 78** | **\_\_\_ = 55 + 28** |
| **Mrs. Fairchild and Mr. Yancy are taking their classes on a field trip to the museum. Mrs. Fairchild has 25 students in her class and Mr. Yancy has 26 students in his class. How many children will be going on the field trip?** | | Solve the problem. Show your thinking with pictures, numbers, or words |
| **Maya is cleaning out her closet. She finds a pile of short-sleeved t-shirts and 12 long-sleeved t-shirts. All together she has 41 t-shirts. How many short-sleeved t-shirts does Maya have?** | | Solve the problem. Show your thinking with pictures, numbers, or words |

**Third Grade** – Operations and Algebraic Thinking

**3.NBT.2 - Solve the following problems.**

|  |  |  |
| --- | --- | --- |
| **364 + 532 = S** | **453 + 248=S** | **458 + S = 792** |
| **874 – 352 = S** | **705 – 395 = S** | **836 - S =582** |
| Jacoby has 321 Pokémon cards. Max has 196 Pokémon cards. How many more does Jacoby have than Max? | | |
| The Smith family decided to take a road trip to Disney World in Orlando, Florida. They drove 382 miles on Friday, and 213 miles on Saturday. How many miles did the Smith family drive altogether? | | |

**3.OA.1 - Write an multiplication equation for each model below.**

|  |  |
| --- | --- |
|  |  |
| Jenna was making goody bags for her birthday party. She made 9 bags and put 4 pieces of candy in each bag. How many pieces of candy did she use in all to make the goody bags? | Solve the word problem here. |

**OA.7**

|  |  |
| --- | --- |
| Juliette is trying to find the answer to 8 X \_\_\_\_= 16. Explain how Juliette can use division to help her determine the answer. Include the division equation that Juliette would use. |  |
| David had 20 chips. He divided them equally between himself and 4 friends. How many chips did  each person get? |  |

**OA.5**

|  |  |
| --- | --- |
| Mike doesn’t know the product to 4 x 9. How might he break apart numbers (decompose numbers) to find this product? |  |
| Kevin’s math group has a total of 4 members. Each group member has 7 toothpicks for a project. Kevin is unsure how many toothpicks they have. However, he knows that 7 x 2 = 14. How can he use this fact to solve 7 x 4? |  |

**OA.6**

|  |  |
| --- | --- |
| Suzy counted 28 legs on cows in the barn. How many cows are there? Write a multiplication equation that you could use to solve this problem. |  |
| You are helping Renee study her division facts. She gets stuck on the fact 56÷8. Explain how you can use multiplication to help her remember that math fact. |  |

**OA.8**

|  |  |
| --- | --- |
| Elizabeth has $200 to spend at the mall. She spent $47 on a dress and $14 on shoes.  How much money does Elizabeth have left? |  |
| Lily Mae decided to drive to Alpharetta, GA.  She drove 78 miles on Saturday and 30 miles per day from Sunday-Tuesday.  How many miles did Lily Mae drive? |  |

**Fourth Grade** – Operations and Algebraic Thinking

**OA.3**

|  |  |  |  |
| --- | --- | --- | --- |
| **How Many Teams?**  In eastern North Carolina there are 3,277 fourth graders signed up for basketball. In western North Carolina there are 2,981 fourth graders signed up for basketball. In the Piedmont region there are 1,512 players signed up. Every player will get placed on a team in their region of the state. | **Part 1:**  The league needs to determine the total number of players sign up throughout the state. Determine how many 4th graders are currently signed up to play. | | **Part 2:**  179 players from the eastern region and 102 players from the western region have decided not to play, however, 71 additional players from the Piedmont region were added. How many players are now signed up to play? |
| At the Cary dog park there are 37 dogs and 45 people. How many legs are in the dog park? | | The Seafarer Restaurant has tables that seat different size groups. Some tables seat 4 people and other tables seat 6 people. If there are 26 tables that seat 4 people and 32 tables that seat 6 people, how many more people can sit at the 6-person tables than the 4-person tables? | |

**OA.1, OA.2**

|  |  |
| --- | --- |
| Thomas and Kaitlyn each ran last week. Kaitlyn ran three times as many hours as Thomas. Thomas ran for 5 hours. How many hours did Kaitlyn run?  Isaiah and Chloe are both reading the same book. Isaiah read 129 pages last night. He read three times as many pages as Chloe. Write and solve an equation to solve for how many pages Chloe read. | Sally’s brother is ten. Sally is half his age. Sally’s mom is eight times older than Sally. How old is Sally’s mom? Explain your answer. |

**OA.4**

|  |  |  |
| --- | --- | --- |
| **Arranging Chairs**  **Part 1:**  There are 24 chairs in the art room. What are the different ways that the chairs can be arranged into equal groups if you want at least 2 groups and want at least 2 chairs in each group? How do you know that you have found every arrangement? | **Part 2:**  There are 48 chairs in the multi-purpose room. What are the different ways that the chairs can be arranged into equal groups if you want at least 2 groups and want at least 2 chairs in each group? How do you know that you have found every arrangement? | **Part 3:**  What relationship do you notice about the size of the groups if the chairs were arranged in 4 groups in both Part 1 and Part 2? What about if the chairs were arranged in 8 groups? Explain why you think this relationship exists. |

NBT.1

|  |  |
| --- | --- |
| How is the 3 in the number 753 similar to and different from the 3 in the number 735 | Use the number 333 to explain the relationship between the ones, the tens, and the hundreds places. |

NBT.2

|  |  |
| --- | --- |
| Which is greater: 15 thousands or 3 ten thousands? How do you know? | Compare 3,547,829 and 3,573,942 using >, <, or =. Justify your thinking. |

NBT.4

|  |  |
| --- | --- |
| **4,929 + 2,678 =** | **2,545 – 839 =** |

**NBT.3**

|  |  |
| --- | --- |
| Bradley brought 124 pencils to Ms. Kramer. Aiden brought 135 pencils and Bella brought 89 pencils. How many pencils did Ms. Kramer receive from the 3 students? | Find the difference between 429 and 216. |

**Mix of 3rd and 4thGrade Skills**

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**1.** Write the missing number:

|  |  |  |
| --- | --- | --- |
| 406 + **?** = 104 + 406 | 1234 = 0 + **?** | (25 + 28) + 105 = 25 + (28 + **?**) |

**2.** Add the following:

|  |  |  |
| --- | --- | --- |
| 48 + 32 = **?** | 318 + 682 = **?** | 3142 + 2314 = **?** |

**3.** Subtract the following:

|  |  |  |
| --- | --- | --- |
| 845 - 623 = **?** | 546 - 178 = **?** | 7083 - 5063 = **?** |

**4.** Add 4765 and 3486 and subtract 5362 from the sum.

**5.** Multiply the following:

|  |  |  |  |
| --- | --- | --- | --- |
| 2 x 8 = **?** | 7 x 9 = **?** | 73 × 8 = **?** | 54 × 45 = **?** |
| 317 × 6 = **?** | 308 × 24= **?** | 1023 × 9 = **?** | 276 × 35 = **?** |

**6.** Solve the following:

|  |  |  |  |
| --- | --- | --- | --- |
| 507 × 1 = **?** | 705 × 0 = **?** | 75 × 55 × 0 = **?** | 603 × 72 × 18 = 18 × 603 × **?** |

**7.** Find the value of:

|  |  |  |  |
| --- | --- | --- | --- |
| 501 × 10 = **?** | 6 × 1000 = **?** | (5 × 15) × 100 = **?** | 4 + 4 + 4 + 4 + 4 = 4 × **?** |

**8.** The cost of a pen is $15. Find the cost of 162 such pens.

**9.** Express the following repeated subtraction as division fact: 36 - 12 - 12 - 12 = 0

**10.** Write two division facts for 56 × 10 = 560.

**11.** Write two multiplication facts for the following division fact: 115 ÷ 5 = 23

**12.** Solve the following:

|  |  |  |  |
| --- | --- | --- | --- |
| 107 ÷ 1 = **?** | 0 ÷ 1038 = **?** | 3102 ÷ 3102 = **?** | 105 ÷ 5 ÷ 7 ÷ 3 = 105 ÷ (**?** × **?** × **?**) |

**13.** Divide and find the quotient and remainder:

|  |  |  |  |
| --- | --- | --- | --- |
| 57 ÷ 10 | 68 ÷ 9 | 85 ÷ 23 | 664 ÷ 8 |
| 815 ÷ 40 | 193 ÷ 17 | 3091 ÷ 7 | 6094 ÷ 19 |

**14.** Divide the product of 60 and 27 by 17.

**15.** Add the product of 15 and 27 to the quotient of 1440 ÷ 60.

**16.** Divide the difference of 6012 and 1849 by 23.

**17.** 1350 toffees are distributed equally among 9 groups of children. How many toffees does each group set?

**18.** How many days are there in 157 weeks?

**19.** Weight of 1 bag of rice is 95 kg. What is the weight of 103 bags?

**20.** A man walks at the speed of 8 km per hour. How much time does he take to cover 96 km?