Grade 3 Mathematics Item Specification C1 TA

Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
Content Domain: **Operations and Algebraic Thinking**
Target A [m]: Represent and solve problems involving multiplication and division. (DOK 1) Tasks for this target require students to use multiplication and division **within** 100 using single-digit factors to solve straightforward, **one-step** contextual word problems in situations involving equal groups, arrays, and measurement quantities such as liquid volume and masses of objects. The majority of these problems should be of the equal groups and arrays situation types, with the more difficult measurement quantity situations in the minority. All of these tasks will code straightforwardly to standard 3.OA.3. Few of the tasks coding to this standard will make the method of solution a separate target of assessment. Non-contextual tasks that explicitly ask the student to determine the unknown number in a multiplication or division equation relating three whole numbers (3.OA.4) will support the development of items that provide a range of difficulty necessary for populating an adaptive item bank. The tasks coding to standards 3.OA.1 and 3.OA.2, which probe student understanding of the meanings of multiplication and division, will be assessed through Claim 4.

Standards: 3.OA.A, 3.OA.3, 3.OA.4	**3.OA.A Represent and solve problems involving multiplication and division.** **3.OA.1:** Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5×7. **3.OA.2:** Interpret whole-number quotients of whole numbers, e.g., interpret 56÷8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56÷8. **3.OA.3:** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. **3.OA.4:** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = □ ÷ 3, and 6 × 6 = ?.*
Related Below-Grade and Above-Grade	**Related Grade 2 standards**

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Standards for Purposes of Planning for Vertical Scaling: 2.OA.A, 2.OA.1 2.OA.C, 2.OA.4 4.OA.A, 4.OA.3 4.NBT.B, 4.NBT.5 4.NBT.6	**2.OA.A Represent and solve problems involving addition and subtraction.** **2.OA.1:** Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions*,* e.g., by using drawings and equations with a symbol for the unknown number to represent the problem*.* **2.OA.C Work with equal groups of objects to gain foundations for multiplication.** **2.OA.4:** Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends. **Related Grade 4 Standards** **4.OA.A Use the four operations with whole numbers to solve problems.** **4.OA.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **4.NBT.C Use place value understanding and properties of operations to perform multi-digit arithmetic.** **4.NBT.5:** Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **4.NBT.6:** Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Grades 3-5

Claim 2, 3 and 4 Item Specifications Developmental Notes Summary

Grades 3-5, Claim 2

Grade 3	Grade 4	Grade 5
3.OA.A	4.OA.A	5.NBT.B
3.OA.D	4.NBT.B	5.NF.A
3.NBT.A*	4.NF.A	5.NF.B
3.MD.A	4.NF.B	5.MD.A*
3.MD.B*	4.NF.C	5.MD.C
3.MD.C	4.MD.A*	5.G.A*
3.MD.D*	4.MD.C*	

* Denotes additional and supporting clusters

Grades 3-5, Claim 3

Grade 3	Grade 4	Grade 5
3.OA.B	4.OA.3	5.NBT.2
3.NF.A	4.NBT.A	5.NBT.6
3.NF.1	4.NBT.5	5.NBT.7
3.NF.2	4.NBT.6	5.NF.1
3.NF.3	4.NF.A	5.NF.2
3.MD.A	4.NF.1	5.NF.B
3.MD.7	4.NF.2	5.NF.3
	4.NF.3a	5.NF.4
	4.NF.3b	5.NF.7a
	4.NF.3c	5.NF.7b
	4.NF.4a	5.MD.C
	4.NF.4b	5.MD.5a
	4.NF.C	5.MD.5b
	4.NF.7	5.G.B*
		5.G.4*

*Denotes additional and supporting clusters

Grades 3–5, Claim 4

Grade 3	Grade 4	Grade 5
3.OA.A	4.OA.A	5.NBT.B
3.OA.D	4.NF.B	5.NF.A
3.MD.A	4.MD.A*	5.NF.B
3.MD.C	4.MD.B*	5.MD.A*
3.MD.D*	4.MD.C*	5.MD.B*
		5.MD.C
		5.G.A*

* Denotes additional and supporting clusters