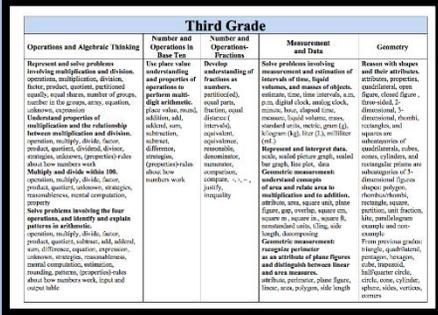


Instructional Resources for K-12 Mathematics

Resource	Description/Sample	Purpose
NC Standard Course of Study for Mathematics (NCSCoS) <i>(Word/PDF)</i>	The <i>NCSCoS</i> for Mathematics contains the standards for mathematical content and practice. The content standards provide a clear focus of content that must be mastered at each grade level, K-8. They are organized by conceptual categories or themes: Number and Quantity, Algebra, Functions, Modeling, Geometry, and Statistics and Data. Equally important, the standards for Mathematical Practice describe the behaviors or ‘habits of mind’ of mathematically proficient students. (here)	The North Carolina Standard Course of Study defines the appropriate content standards for each grade or proficiency level and each high school course to provide a uniform set of learning standards for every public school in North Carolina. These standards define what students should know and be able to do.
Unpacking Documents (Currently under development) <i>(Word/PDF)</i>	This document, organized by standard, includes the standard (with nomenclature), notes on the meaning of the standard and assessment examples.	This document is intended to help teachers understand the meaning of the standard with more detail and specificity than the standard alone. It is to assist in the intended interpretation of the standard.
Standards Comparison (PDF)	This document is a comparison of the previous standards to the new standards. (here)	This document is to assist districts with identifying areas of alignment of the old standards to the new standards and making decisions to discard or revise current resources. It will also help them to see where new resources are needed to meet the revised standards.
Major Revisions (PDF)	This document summarizes the substantive changes in the standards. Substantive changes would include moving standards across grade levels or changing the intent of the standard. (here)	This document is to assist districts to align, discard, or revise current resources to the new standards. It will also help them to see where new resources are needed to meet the revised standards.
Building the Language of Mathematics for Students <i>(Word/PDF)</i>	(here) 	This document provides the terms students should learn to use at each grade level with increasing precision. Mathematically proficient students communicate precisely by engaging in discussions about their reasoning using appropriate mathematical language.



Instructional Resources for K-12 Mathematics

Formative Instructional and Assessment Tasks (PDF)

Formative Instructional and Assessment Tasks											
Ante!											
3.OA.A.1 - Task 4											
Domain	Operations and Algebraic Thinking										
Cluster	Represent and solve problems involving multiplication and division.										
Standard(s)	3.OA.A.1 Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each.										
Materials	Activity sheet, pencils, white boards and dry-erase markers (optional)										
Task	<p>Part 1: Nathan's room has ants in her house. Ants have 6 legs. How many ants could there have been if she saw between 35 and 50 legs?</p> <p>Part 2: Make a model with manipulatives or by drawing to show how you get each solution. Write a sentence explaining your thinking.</p>										
<table border="1"> <thead> <tr> <th colspan="3">Rubric</th> </tr> <tr> <th>Level I</th> <th>Level II</th> <th>Level III</th> </tr> </thead> <tbody> <tr> <td> Limited Performance <ul style="list-style-type: none"> Incorrect answer and work are given. </td> <td> Not Yet Proficient <ul style="list-style-type: none"> Finds the correct answer, but there may be inaccuracies or incomplete justification of solution. OR Uses partially correct work but does not have a correct solution. </td> <td> Proficient in Performance <ul style="list-style-type: none"> Accurately finds the answers (6, 7 or 8 ants) AND Uses an appropriate model to represent and justify the solution AND Writes a clear and accurate sentence explaining their strategies. </td> </tr> </tbody> </table>			Rubric			Level I	Level II	Level III	Limited Performance <ul style="list-style-type: none"> Incorrect answer and work are given. 	Not Yet Proficient <ul style="list-style-type: none"> Finds the correct answer, but there may be inaccuracies or incomplete justification of solution. OR Uses partially correct work but does not have a correct solution. 	Proficient in Performance <ul style="list-style-type: none"> Accurately finds the answers (6, 7 or 8 ants) AND Uses an appropriate model to represent and justify the solution AND Writes a clear and accurate sentence explaining their strategies.
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Standards for Mathematical Practice <ol style="list-style-type: none"> Makes sense and perseveres in solving problems. Reasons abstractly and quantitatively. Constructs viable arguments and critiques the reasoning of others. Models with mathematics. Uses appropriate tools strategically. Attends to precision. Looks for and makes use of structure. Looks for and expresses regularity in repeated reasoning. 											

[\(here\)](#)

These tasks, aligned to the mathematics standards, are designed to be used in a formative manner to guide instruction. When teachers understand what students know and can do, and then use that knowledge to make more effective instructional decisions, the net result is greater learning for students and a greater sense of satisfaction for teachers (Bright & Joyner, 2005).

Lessons 4 Learning (PDF)

Solving Division Problems

Common Core Standard:
Represent and solve problems involving multiplication and division.
3.OA.A.1 Interpret products of whole numbers, e.g., interpret 5×7 as the number of objects in 5 groups of 7 objects each. For example, describe a context in which a number of objects is a number of groups each of a certain size.

Additional Supporting Standard:
3.OA.A.1 Use multiplication and division within 10 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a circle for the unknown number to represent the problem. (Use the following 3.OA.2.)

Standards for Mathematical Practice:
1. Makes sense and perseveres in solving problems.
2. Reason abstractly and quantitatively.
3. Constructs viable arguments and critiques the reasoning of others.
4. Models with mathematics.
5. Uses appropriate tools strategically.
6. Attends to precision.

Student Outcomes:
1. Can solve division word problems and explain how I solved them.
2. Can model a division word problem and use a tape diagram.
3. Can use a multiplication equation to solve a division word problem.
4. Can write an equation to represent a division word problem.

Materials:
1. Materials such as cubes, tiles, counters to put into groups.
2. Activities for students. There are three different division problem scenarios.

Assessment Preparation:
1. Divide into 3-4 students to work together.
2. Present the story problems on the board, discuss quietly, write board.
3. This lesson is designed so that division problems are shared with the whole class. Partners work on the problems and then discuss strategies and share. After sharing strategies, students work on the problems on their own. The context of the scenarios are repeated using story using different division problems to provide clear discussion and sharing of strategies. There are three different division problem scenarios are provided and can be completed over the course of several lessons.

Solving Division Problems

Name _____

Solve each problem and show your solution strategy.

- There are 21 desks in the classroom. The teacher pairs them in groups of 3. How many groups of desks are in the classroom?
- Four friends are given a pack of trading cards to share equally. The pack contains 32 cards. How many cards should each person get?
- Maria has 48 flowers. She wants to put them in bouquets of 7 flowers each. How many bouquets will Maria be able to make?

[\(here\)](#)

These lessons highly align to the mathematics content standards and incorporate the standards for mathematical practices. The intent of this document is to enhance teachers' current resources not to supplant their current resources.

Instructional Frameworks (PDF)

The Instructional Framework documents provide guidance on how teachers may organize the standards by clusters to facilitate designing units of instruction. Each cluster includes a list of related content standards, a suggested range of duration, "What is the mathematics?" and "Important Considerations".

[\(here\)](#)

The purpose of this document is to connect and sequence mathematical ideas to enable teachers to plan learning opportunities for students to develop a coherent understanding of mathematics. "What is the mathematics?" describes the significant concepts and connections within the standards necessary for students to make sense of and use the mathematics. "Important Considerations" provides guidance based on student learning progressions as well as ideas and models for teaching within problem-solving situations.

Games (PDF)

Fluency Builder

Conceptual Builder

[\(here\)](#)

These games are aligned to the standards and provide students with opportunities to develop conceptual understanding and computational proficiency.



Instructional Resources for K-12 Mathematics

Internet Resources (PDF)

Grade	Website Description	Link
K-12	Arvenberg Learner Math resources and professional development	http://www.arvenberg.com/resources/math.html
K-12	Activate the Core This website is designed to help educators understand and implement the Common Core State Standards. It includes links, lessons, assignments, videos, and more.	http://activatecore.com/activatecore300content300/
K-5	Balanced Assessment Elementary School Balanced Packet is a collection of mathematics assessment tasks.	http://balancedassessment.concord.org/balanced/
K-12	Common Core Math	http://www.commoncoremath.com/
K-5	K-5 Math Teaching Resources This site provides an extensive collection of free resources, math games, and hands-on math activities aligned with the Common Core State Standards for Mathematics. Printables are available for use in both centers and small group or whole class settings.	http://www.k5math.com/
K-5	Mathematics Resource Masters These sites provide 3rd-grade resource masters for areas: bar graphs, grids and math, math word problems, multiplication, and more.	http://www.mathworksheetsland.com/math3rd/ http://www.mathworksheetsland.com/math3rd/
K-5	Number line created to your specifications This site creates number lines.	http://www.numberline.com/
3-8	Calculation Nation This site is part of the NCTM Illumination Project. Students play online math strategy games that allow them to learn about fractions, factors, multiples, symmetry and more, as well as practice improving skills like basic multiplication and calculating area—all while having fun.	http://www.calculation.com/

[\(here\)](#)

Annotated list of resources available on the internet

This document is a compilation of resources that may be useful in lesson planning and instruction.

Academically and/or Intellectually Gifted Instructional Resources (PDF)

AIG ~ IRP		Academically and/or Intellectually Gifted Instructional Resources Project
NCDPI – AIG Instructional Resource: Background Information		
Resource Title: Party Planning		
Subject Area/Grade Level (s): Math/3	Time Frame: 1-2 class periods	
Common Core/Essential Standard Addressed: Number and Operations in Base Ten 3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100. 3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.		
Mathematical Practices 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 6. Attend to precision.		
Additional Standards Addressed: NA		
Brief Description of Lesson/Task/Activity: In this activity, students are given the task of planning a birthday party for six guests with a budget of \$100. Through the party planning process, students will further develop their understanding of estimating appropriately in a real-life situation.		
Type of Differentiation for AIGs (include all that apply): x Enrichment Extension Acceleration		
Adaptations for AIGs: Content x Process x Product		
Explanation of How Resource is Appropriate for AIGs: This task provides the students with the opportunity to solve a real-life problem of working within the constraints of a budget. It promotes higher-level thinking while encouraging the students to solve the task with multiple approaches and responses. Planning a party within a budget provides the students with a real-world situation that the students can relate to, analyze, and define.		

[\(here\)](#)

These documents provide teachers with instructional resources to challenge their advanced learners in grades K-12. These resources together gifted education best practices and content standards in Mathematics.

