

Welcome to the National Center State Collaborative (NCSC) Math Activities with Scripted Systematic Instruction (MASSI) module. This module is presented by the University of Kentucky in partnership with NCSC.



This printable PDF version of a NCSC module has been provided for your convenience. The PDF version of the module will be very similar to the online module, with a few revisions to eliminate features that are only necessary in the online learning environment. Because the PDF presentations are the content of the online courses and retain the formatting and some of the features of the modules, we have included the following description.

The NCSC professional development courses each consist of one or more modules. To help the learner navigate in the courses, the modules have a uniform design and format. All learning modules follow four themes: plot the course, explore the terrain, check the map, and expand your horizons. In plot the course learners discover what is covered in the module, including their learning objectives and other steps they will follow while viewing the module. In explore the terrain, the learner will engage with the content and learn about the topic covered in the module. In check the map the learner has the opportunity to review and self-assess their understanding. Some of the PDF presentations (printable versions of the modules) will not contain Check the Map sections as there are no self-assessments in the printable PDFs. Finally, expand your horizons offers ways in which the learner can explore the content further, or apply what they have learned. Theme Indicators appear on most slides to tell the user what type of content is contained in the slide.

## MODULE GOALS



Increase understanding of the purpose and use of the MASSIs

Increase knowledge of the MASSI contents and learn how to navigate through the MASSI document



In this module you will increase your understanding of when and how to use the MASSIs and learn how to increase your students' access to grade level standards using this tool. You will also learn how to navigate through the MASSI documents.

## RELATED CONCEPTS



In this module reference is made to the following concepts:

- CCC – Core Content Connectors
- Graduated Understanding
  - Instructional Families
    - LPF - Learning Progressions Frameworks
  - Element Cards



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- Core content Connectors
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    - Element Cards

## RELATED CONCEPTS - CCC CORE CONTENT CONNECTORS



The Core Content Connectors (CCC's) identify - the most salient grade-level, core academic content in ELA and Mathematics found in both the Common Core State Standards and the Learning Progression Frameworks.

CCCs have been formatted into 2 subgroupings under an umbrella term Graduated Understandings. They are the Instructional Families and Element Cards.



The Core Content Connectors (CCC's) identify the most salient grade-level, core academic content in English Language Arts and Mathematics found in both the Common Core State Standards and the Learning Progression Frameworks (LPF) . Similar content can be found in your state standards.

Using the LPF, NCSC identified the “big ideas” from Common Core State Standards needed to make progress through the grades. The same process can be duplicated with any state’s grade level content standards.

These “big ideas” were then broken down into more frequent benchmarks called CCCs that provide a pathway to the grade level standards-not extended standards. CCCs are the basis for the assessment, but not the starting point for instruction. The format for the CCCs is a list by grade and content multiple pages long. It was reformatted into Instructional Families for a condensed and visual presentation of these relationships.

## RELATED CONCEPTS – GU's GRADUATED UNDERSTANDINGS



The [Graduated Understandings](#) are comprised of two resources:  
[Instructional Families](#) and [Element Cards](#).

The Instructional Families and Element Cards present:

- areas of curricular emphasis
- the progression of learning within domains of the Common Core State Standards.



The Graduated Understandings are comprised of two resources: The Instructional Families and the Element Cards. These resources can be found on the NCSC wiki.

The Instructional Families and Element Cards present the areas of curricular emphasis within and across grades and the progression of learning within domains of the Common Core State Standards. Similar curricular emphasis can be identified in state standards.

## RELATED CONCEPTS – INSTRUCTIONAL FAMILIES



The [Instructional Families](#) are a series of tables depicting relationships among the CCSS, the CCC's, and the LPF's. They present the curriculum visually within and across grade levels.

The Instructional Families are presented in **three different views**:

1. By grade band and Learning Progression Strands
2. By grade and CCCs
3. By Instructional Family and CCCs




The [Instructional Families](#) are a series of tables depicting relationships among the CCSS, the CCC's, and the LPF's. They present the curriculum visually within and across grade levels.

The Instructional Families are presented in **three different views**:


1. By grade band and Learning Progression Strands: This is a table of Learning Progression Framework targets for specific strands (or domains) and grade bands. Instructional families color-code the LPF Strands across the grade bands
2. By grade and CCCs: This is a columnar presentation of CCCs by LPF learning targets, broken out into grade levels, CCCs are cross-referenced to related CCSS.
3. By Instructional Family and CCCs: This is a columnar presentation of instructional families with references to the related CCSS domain. The CCCs are arranged within each Instructional Family in a vertical ascending progression across grades.

## RELATED CONCEPTS – LPF's LEARNING PROGRESSIONS FRAMEWORKS



The Learning Progressions Frameworks:

- describe pathways for learning that focus on the big ideas of a discipline
- help educators design instruction and assessments that move students toward deeper and broader understanding of the content
- include progress indicators; descriptions of observable learning along the learning continuum in each strand



- The Learning Progressions Frameworks, or LPF, present a broad description of the essential content and general sequencing for student learning and skill development (Hess, 2010).
- The LPF is a hypothesized pathway that typical peers may take, and is meant to inform what typical peers will be working on grade by grade. In the past, we have struggled to understand how to choose content grade by grade to ensure inclusion of students with the most significant cognitive disabilities in grade AND age appropriate content, even though they may not have built all the skills in a previous grade. The pathways focus on the big ideas of a discipline.
- The LPFs give us the educational logic to help move these students along with their peers in a logical, educationally sound way.
- The LPF contain learning targets and progress indicators that are referenced in the NCSC Curriculum and Instruction materials.
  - Learning targets (general/broad performance descriptors) are defined by grade spans, K-4, 5-8 and high school.
  - The related specific skills and concepts are called the progress indicators (PIs).



## RELATED CONCEPTS – ELEMENT CARDS



Element help teachers instruct students at various levels as they move toward full understanding of content standards.

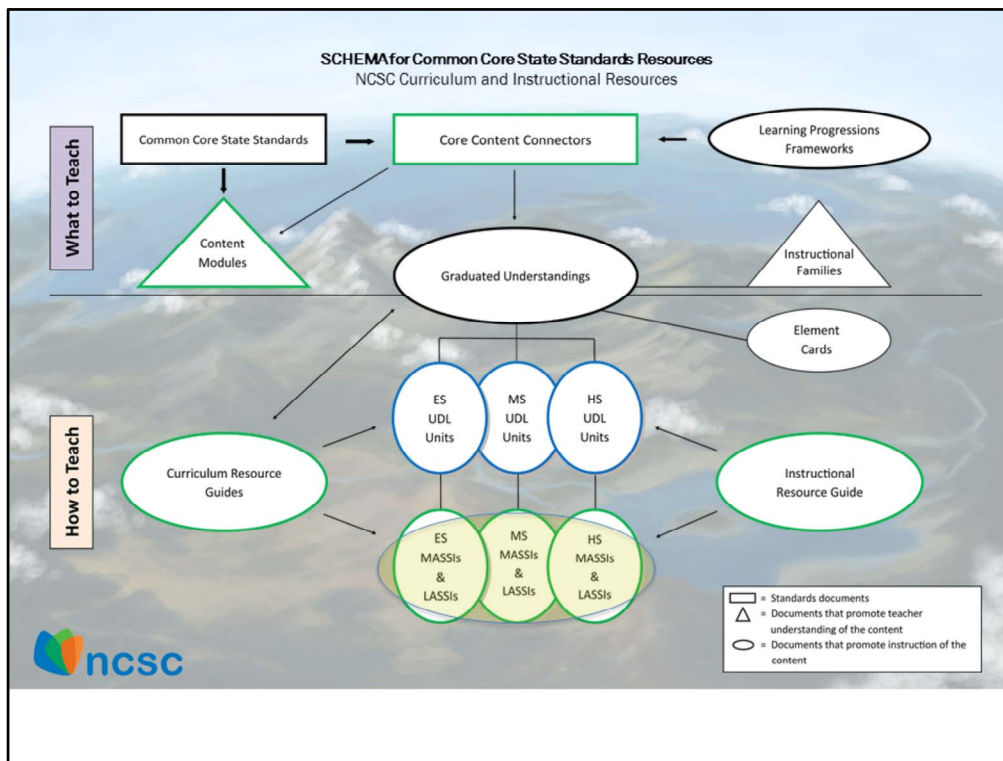
They include:

- [Core Content Connectors](#)
- Progress indicators from one or more [Learning Progression Frameworks](#)
- Concepts of [Universal Design for Learning](#)
- [Essential Understanding\(s\)](#)



Element cards promote instruction for students at different levels of understanding as they progress toward full understanding of content standards.

They contain one or more [Core Content Connectors](#) from a specific instructional family, include the related progress indicator from the [Learning Progression Frameworks](#), provide essential understandings that include measurable and observable content that is challenging, yet attainable, provide suggested instructional strategies, and suggested supports for students so that they can demonstrate what they know. The Element Cards are intended to assist teachers in developing instructional lessons that will include all students and promote [Universal Design for Learning](#). Each Element Card presents [Essential Understanding\(s\)](#), which define a range of skills based on a grade-specific Core Content Connector.



The MASSIs are located in the ‘how to teach’ section of the NCSC schema. They offer intensive instruction using evidence-based practices. These “Math Activities with Scripted Systematic Instruction” have several features.

- They target Core Content Connectors (CCCs) prioritized for NCSC assessment.
- They offer a guide for instruction with increasing levels of difficulty. In each of the MASSIs the following methods make the content accessible and appropriate for academic interventions:
  - The first steps of the lesson are accessible to students with little to no understanding of the content.
  - The lesson continues building understanding through a target component of the CCCs.
  - The MASSIs use a real life activity to teach the concept; that is, they bring math word problems to life using a hands-on activity. These activities can be easily set up in most classrooms with inexpensive materials.
  - Finally, the instruction is scripted, making them easy for teachers to use, and includes evidence-based practices shown to be effective in teaching mathematics skills to students with significant cognitive disabilities.
- The MASSIs come with data sheets that can be used for monitoring progress toward mastery and a skill test for practicing responding in a testing context.
- Neither the Units/Plans nor MASSIs provide everything needed to teach all CCCs at each level. Instead, they provide models for how to teach the content. Teachers may find they can apply these model plans as a way to get started in teaching the CCCs/-Common Core or state standards.
- After teaching the model lesson plan or MASSI, teachers will gain practice in instructional strategies that are effective for teaching general mathematics content. LASSIs will serve the same purpose for English Language Arts content as the MASSIs do for math content.
- **Please have a MASSI available to view as we continue.**

## MASSI TOPICS BY GRADE



MASSI	Elementary	Middle	High
Data Analysis	<ul style="list-style-type: none"> <li>Reading a table</li> <li>Filling in a bar graph</li> <li>Collecting data and organizing it in a bar graph,</li> <li>Creating a line graph</li> </ul>	<ul style="list-style-type: none"> <li>Given a data set, match statements for range,</li> <li>Average (mean), and find mode and median,</li> <li>Analyze a bar graph to make comparative inferences,</li> <li>Analyze a table with bivariate data to select an appropriate claim about the data</li> </ul>	<ul style="list-style-type: none"> <li>Identify Range</li> <li>Mean/Average,</li> <li>Median, Mode,</li> <li>Outliers/Gaps</li> </ul>
Equations	<ul style="list-style-type: none"> <li>Selecting an expression that matches a word problem</li> <li>Matching an expression to a representation</li> <li>Indicate whether an equation is true</li> </ul>	<ul style="list-style-type: none"> <li>Write an equation given story problem and solve equation</li> <li>Write an equation given story problem and solve equation.</li> <li>Given multiplication equation solve for variable.</li> </ul>	<ul style="list-style-type: none"> <li>Making Sets</li> <li>Using a variable to represent an unknown number</li> <li>Writing expressions with unknown numbers</li> <li>Simplifying expressions</li> </ul>



The MASSIs cover 4 math strands and several skills within each strand.

Data Analysis in elementary grades starts with reading a table or graph and creating a graph and then moves to analyzing data in middle school. At the high school level MASSIs include instruction on finding mean, median and mode, as well as identifying gaps and range.

The MASSIs based on Equations begin at the elementary level with matching an expression to a word problem and then move to writing an equation at middle school. High school instruction includes using variables and simplifying expressions.

## MASSI TOPICS BY GRADE CONTINUED

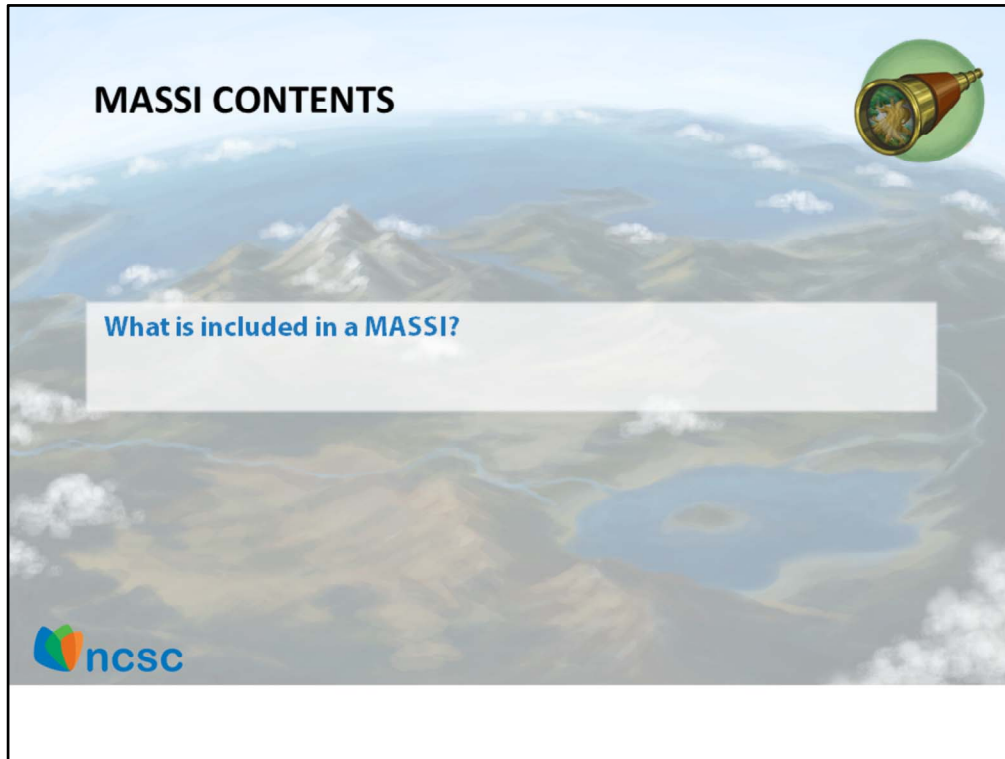


MASSI	Elementary	Middle	High
Geometry	<ul style="list-style-type: none"> <li>Use tiling squares to find area of a rectangle.</li> <li>Use formula to calculate area of a rectangle.</li> <li>Solve for changes in perimeter</li> <li>Convert units of measurement to solve for area.</li> </ul>	<ul style="list-style-type: none"> <li>Using formula to calculate area of rectangles</li> <li>Using nets and formula to calculate surface area of rectangles</li> <li>Using formula to calculate changes in area</li> </ul>	<ul style="list-style-type: none"> <li>Calculate to find a missing attribute when given area</li> <li>Calculate to find a missing attribute when given volume</li> </ul>
Ratio and Proportions	<ul style="list-style-type: none"> <li>Word problems</li> <li>Solve a variety of multiplication and division word problems using calculator.</li> </ul>	<ul style="list-style-type: none"> <li>Students will write a ratio that matches a pictured ratio relationship.</li> <li>calculate the proportional relationship between two items</li> <li>Given a graph, Using manipulatives, in a two-step problem.</li> </ul>	Students will identify graphs which match wages for jobs and then compare the wages




The geometry MASSIs at the elementary level provide instruction on tiling and formulas to find the area of a rectangle. Middle school instruction continues using formulas but includes using nets and calculating changes in area. High school moves on to finding missing attributes of area and volume.

The MASSIs for Ratio and Proportions start in elementary with word problems and using a calculator then move to writing ratios and calculating proportional relationships between two items in middle school instruction. High school includes identifying graphs in the context of wages earned.



What is included in a MASSI? Each MASSI has the same areas so that navigation is easier. Let's go through them.

## CONTENTS ACROSS ALL MASSIS



- Same scripted systematic instruction
  - Content Basic Concepts and vocabulary
- Building toward grade level work
  - Additional Activities to extend competence
- Progress Monitoring



These are the key components of each MASSI:

- Sample scripted systematic instruction
- Content Basic Concepts and vocabulary
- Building toward grade level work
- Additional Activities to extend competence
- Progress Monitoring

This review will start with scripted systematic instruction

# SAMPLE SCRIPTED SYSTEMATIC INSTRUCTION



MS Data Analysis MASSI 3

*MASSI: Math Activities with Scripted Systematic Instruction*

**Activity: Voting for Class President**

Grade Band: Grades 6-8    Concept: Data Analysis

Common Core State Standard	Core Content Connectors	MASSI OBJECTIVES
6.SP.2 Summarize numerical data sets in relation to their context.	6.DPS.1d) Select statement that matches mean, mode, and spread of data for 1 measure of central tendency for a given data set.	Given a data set, matching statements for range, average (mean), and finding mode and median.
7.SP.2 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	7.DPS.1k) Analyze graphs to determine of select appropriate comparative inferences about two samples or populations.	Analyzing a bar graph to make comparative inferences.
8.SP.2 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.	8.DPS.1k2) Analyze displays of bivariate data to develop or select appropriate claims about those data.	Analyzing a table with bivariate data to select an appropriate claim about the data.

Be sure to provide specific practice to students on the skills that correspond to their grade level.

**Teaching Materials:** Table for 8<sup>th</sup> grade election results; bar graph for 8<sup>th</sup> grade election results; greater than, less than, and equal response options; equation for range; equations for mean average; double bar graph for 8<sup>th</sup> grade showing how different classes voted; bivariate table showing 8<sup>th</sup> grade election results and hours spent campaigning; response options for bivariate data.

**Other Materials:** Tables for 7<sup>th</sup> and 6<sup>th</sup> grade election results; bar graphs for 7<sup>th</sup> and 6<sup>th</sup> grade election results; equation for range; equations for mean average; double bar graphs for 7<sup>th</sup> and 6<sup>th</sup> grade showing how different classes voted; bivariate tables showing 7<sup>th</sup> and 6<sup>th</sup> grade election results and hours spent campaigning; response options for bivariate data.

- The MASSIs offer intensive instruction using evidence-based practices known to be effective in teaching academic skills to students with significant cognitive disabilities. MASSIs are built around a real-world theme. In this middle school example, the theme in the MASSI is voting for class president and the entire MASSI will relate to this theme.

- Using scripts, the MASSIs present instruction in grades bands 3-5, 6-8 and high school and help teachers plan and prepare for instruction with suggested teacher and student materials. The MASSIs include the following features:

- They are color coded with instructional families.
- They present Core Content Connectors, Common Core State Standards, and lesson objectives by grade level.
- They list materials needed and
- Provide an Overview for all 3 grade levels.

- They offer a guide for instruction with **graduating levels of difficulty** – ranging from the first steps of teaching the content to students with little or no understanding of the content to building understanding of the target concepts of the CCCs using real-life word problems and using hand-on activities aligned to grade-level content.

- After teaching the UDL Instructional Units and utilizing the MASSIs as appropriate for individual students, teachers will gain practice in instructional strategies that are effective for teaching content to students with the most significant cognitive disabilities.

# BUILD ESSENTIAL UNDERSTANDINGS CONCEPTS AND SYMBOLS



Overall directions:

- ✓ Introduce the activity
- ✓ Introduce the problem
- ✓ Model the process
- ✓ Student practice (scripted)
- ✓ Move on if criterion is met

**SCRIPT FOR LESSON**  
**BUILD ESSENTIAL UNDERSTANDINGS - CONCEPT AND SYMBOLS: Identifying the Number from a Sentence**  
*(Skip this activity for students who understand these relationships and can identify these concepts.)*

**INTRODUCE ACTIVITY:** Today we are going to learn how to keep track of our money when we go bowling. Here are some pictures of a bowling alley. How many of you have bowled before? Or students opportunity to answer yes or no. We have to pay to go bowling. It costs money for shoes, game, and snacks. Today we are going to practice learning how to keep track of what we might spend at a bowling alley by using a variable in our equations.

**INTRODUCE THE PROBLEM:** Display story problem. Here is a story about going bowling. "Lucia had \$11 for bowling. Lucia spent \$8 on shoes and games. She spent the rest on snacks. How much did Lucia spend on snacks?"

**MODEL THE PROCESS:** The first thing I need to do to answer the story problem is to write an equation, but before I can write an equation I need to find the numbers in my story problem. Do you see any numbers? Or a student opportunity to answer yes or no. Point to a number. "What if I need to find the numbers to respond. Here is a number. Circle 11. It is number 11. Do you see another number? Or a student opportunity to answer yes or no. Point to a number. "What if I need to find the numbers to respond. Here is a number. Circle 8. That is number 8. Circle 8."

**STUDENT PRACTICE:** Now it is your turn to practice. Display story problem. Use the **CONSTANT TIME DELAY** script as needed to help students with writing. **Check and Score:** Check student work. Change number and/or operation as necessary.

Teacher Says	Student Response
<b>STEP 1:</b> Let's try another problem. "Shawn has 9 dollars in his hand. He has more in his pocket. He has 12 dollars in total. How many are in his pocket?" Circle the numbers.	Student writes an equation to model the story problem.

**BUILD A GRADE ALIGNED COMPONENT: Creating an Equation**  
**BUILD ESSENTIAL UNDERSTANDING: Symbol Concept**

**INTRODUCE PROBLEM:** Display "Shawn" story problem. We are going to solve these problems. In both of the problems there is a number we don't know yet. We will solve the problem using a variable. A variable is a letter that can be used in place of a number you don't know yet.

**MODEL THE PROCESS:** Model using Equation Template. Let's review our story problem about Shawn. I am going to read the three sentences. One doesn't have a number. We'll use a letter that we don't know the number. Let's put them in our equation now. "Shawn has 9 dollars in his hand." How many dollars are in his hand? Provide wait time for students to respond. Yes, 9. Write it on line. He has more in his pocket? Provide wait time for students to respond. We don't know do we? There isn't a number. Let's use a "p" for pocket. "What is p? I am writing "p." Because we know that Shawn had 9 dollars in his hand AND some dollars in his pocket. I want to add the 9 and the p. **POINT TO THE** dot in problem. He has 12 dollars in total. How many dollars in total? Provide wait time for students to respond. Yes, 12. So my equation is  $9 + p = 12$ .

**STUDENT PRACTICE:** Display "Shade" story problem. Provide student with the Equation Template. Use the **SYSTEM OF LEAST PROMPTS** script as needed to help students with writing.

**CHECK AND SCORE:**



This is a screen shot of the Script for Lessons provided in the MASSI on data analysis. To get a clearer picture of what this MASSI has to offer, open it in the WIKI and either follow along for the next few slides or make a copy.

This MASSI identifies the concept and symbols needed to move toward mastery of the Core Content Connectors. All the MASSIs are composed of leveled instruction, beginning with building the essential understanding, and moving toward the grade-aligned content. Each includes scripted lessons with embedded systematic and explicit instruction, indicated by icons throughout the lesson. Each lesson is presented step by step with instructions for what the teacher says and what the student response should be. They are grouped by grade level, and the grade levels being addressed during each skill are noted.

MASSIs always follow the same format: introduce the activity, model the process, and then student practice. The steps enclosed in boxes correspond with the steps on the progress monitoring sheets for easy data collection. When the criteria are met, the student moves on.




**Stop** This may be a good stopping point. Have the student have a classroom student election (they can vote on class president for a day or student of the day). Students can fill out ballots, turn them in, count out the results, and mark them on a table and create a bar graph. There is a generalization worksheet with this level. You can use this for additional guided practice or to send home as homework.

	<b>Teacher Says/Does</b>	<b>Student Response</b>	<b>Error Correction</b>
<b>INDEPENDENT PRACTICE: Data Analysis Skills Test</b>	Give each student the <i>Data Analysis Skills Test 1</i> . <b>Read directions for each problem and have student select response. Record whether response is correct or incorrect.</b>	Only provide praise for completing assessment (if student needs encouragement). Do not provide specific praise for correct answers while student is testing.	Once the student has completed the test, review missed problems with the student.
<i>NOW</i>	<i>Stop the lesson here and repeat tomorrow if student is not yet getting at least 20 independent correct responses. Score responses 1-34 on the Data Analysis Progress Monitoring Sheet if you did not do so while teaching.</i>		<i>NEXT</i>
	<i>Remember the goal is for students to be able to examine the data in further detail using tables and bar graphs, move into the second half of the lesson to hit the target CCC for this grade level. You can skip this Conceptual Foundation section to move on.</i>		

MASSIs:

- comprised of many steps.
- taught across multiple sessions/days
- Include suggested stopping places
- Include skills tests
- Provide suggested criterion for moving forward (~60% or higher)



•MASSIs cover a lot of material and are intended to be taught over multiple days. The stops signs indicate suggested stopping points in the lesson. These stopping points also indicate that it is time to administer a skills test, which corresponds to the part of the MASSI just taught. The skills test is another form of progress monitoring, and also helps prepare students for an alternate assessment format. These include what the teacher says or does, what the student response should be, and error correction techniques. The MASSIs provide suggested criterion for moving forward, usually 60% or higher, and notes about what is to come in the lesson, as well as suggestions for each grade level.

## BUILDING TOWARD GRADE ALIGNED COMPONENTS



Same grade aligned components

Steps to check and score with script

Error correction suggestions for each component listed



Each MASSI builds toward grade level instruction and includes same grade aligned components. There are steps provided to check and score the scripted systematic lessons. If the student still struggles with activities closer to their appropriate grade level, there are error correction suggestions for each component listed.

# BUILD TOWARD FULL GRADE LEVEL COMPETENCE TABLE



**Troubleshooting and Data-Based Decision Making for Data Analysis Skills Test:**  
If student is unable to complete any items on the data analysis test independently and correctly, go back and teach one problem step-by-step.

**MASSI CULMINATING ACTIVITY:** Have the student have a classroom or grade level student election (they can vote on class president for a day or student of the day). Students can fill out ballots, turn them in, count out the results, record results in a table, and create a bar graph. They can each campaign in the days ahead and track how many minutes they spent campaigning. They can analyze the relationship between minutes spent campaigning and votes received. They can also analyze the results based on how different classes vote. Students may also go campaign in another class and graph their voting results.

**BUILD TOWARDS FULL GRADE LEVEL COMPETENCE**  
Here are ideas to build competence towards the full grade level competence using this same activity. See the unit plan and talk with the general education teacher for more ideas.

Component	Activity	What Student Does	Generalization/ Fluency
Summarize numerical data sets in relation to their context.	Present students with a data set. Have students calculate range, mean, median, and mode without using equation templates. Practice finding median of a data set with an even number of items, so students have to average middle numbers and find median.	Students calculate range, mean, median, and mode without using equation templates.	Present data in a variety of formats. Use data sets that vary in size.
Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	Present students with data sets and double bar graphs that have at least two populations and have them calculate measure of center (mean, median, and mode) and measures of variability (range). They can then make informal comparative inferences between two populations.	Students calculate mean, median, mode, and range, and then make informal comparative inferences between two populations.	Present data in a variety of formats (table and double bar graph). Use data sets that vary in size.
Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between	Have students look at bivariate data, put it in order based on one of the values, and then enter the data in a table. Then, have students make associations between the data and support these associations using frequency data as support.	Students look at bivariate data, put it in order based on one of the values, and then enter the data in a table. Then, have students make claims between the data and support these claims using frequency data as support (see bivariate response options for example).	Present data in a variety of formats. Use data sets that vary in size.



Page: 14 of 33 Words: 7,979

- Each MASSI includes the following components:
  - The “Build Toward Full Grade Level Competence” table, which provides suggestions for activities that can be completed with students who excel throughout the MASSI and need a bit more challenge. There are activities at each grade level, for each Common Core State Standard addressed. These can be completed using your state’s standards.
  - a troubleshooting section
  - a culminating activity to reinforce concepts in a real world activity


Middle School Data Analysis Formative Assessment 2

**Middle School Data Analysis Progress Monitoring**

*Directions: Score each step during instruction or as soon as the lesson is complete. Score the step as unprompted correct with a "u." Use a system to code level of prompting required for incorrect responses (e.g., V = verbal prompt, G = gesture, P = physical). Graph the number of unprompted correct responses to monitor progress.*

**BUILDING ESSENTIAL UNDERSTANDING: CONCEPT AND SYMBOLS: Identifying Highest and Lowest Value in a Data Set, Matching Source of Values on x axis with the Category of Related Data on the Table, Analyzing a Bar Graph for Greater/Less/Equal**

Materials and Directions for Teacher	Instructional Cue	Student Expected Response	Date						
1. Give student the bar graph for 7 <sup>th</sup> grade class president election results.	"Show me who has the highest value; who got the most votes?"	Student identifies Kasim (e.g., by stating his name or pointing to his data).							
2. Give student the table for 7 <sup>th</sup> grade class president election results.	"Show me who has the highest value; who got the most votes?"	Student identifies Kasim (e.g., by stating his name or pointing to his data).							
3. Give student the bar graph for 7 <sup>th</sup> grade class president election results.	"Show me who has the lowest value; who got the least votes?"	Student identifies Maya (e.g., by stating her name or pointing to her data).							
4. Give student the table for 7 <sup>th</sup> grade class president election results.	"Show me who has the lowest value; who got the least votes?"	Student identifies Maya (e.g., by stating her name or pointing to her data).							
5. Give student the bar graph for 6 <sup>th</sup> grade class president election results.	"Show me who has the highest value; who got the most votes?"	Student identifies Ruby (e.g., by stating her name or pointing to her data).							
6. Give student the table for 6 <sup>th</sup> grade class president election results.	"Show me who has the highest value; who got the most votes?"	Student identifies Ruby (e.g., by stating her name or pointing to her data).							
7. Give student the bar graph for 6 <sup>th</sup> grade class president election results.	"Show me who has the lowest value; who got the least votes?"	Student identifies Clara (e.g., by stating her name or pointing to her data).							
8. Give student the table for 6 <sup>th</sup> grade class president election results.	"Show me who has the lowest value; who got the least votes?"	Student identifies Clara (e.g., by stating her name or pointing to her data).							
9. Teacher points to Amy on the 7 <sup>th</sup> grade results table.	"How many votes did Amy get?"	Student states, points to, or otherwise indicates 23.							
10. Teacher points to Amy on the 7 <sup>th</sup> grade results bar graph.	"Now find Amy on the bar graph."	Student points to Amy on the bar graph.							




•The MASSIs come with tools such as data sheets that can be used for monitoring progress toward mastery and skills tests to practice responding in a testing context.

The Progress Monitoring Data Sheets follow the MASSI; the numbered steps in the data sheet correspond with the steps in the task analysis. These sheets are to be used for data collection.

The 1<sup>st</sup> column lists materials to present to student and directions for the teacher. The 2<sup>nd</sup> column is the instructional cue and prompt (if applicable). The 3<sup>rd</sup> column is the expected student response. The final columns on the data sheet should be used to record student responses per the directions given at the top of each sheet.

## MASSIS AND SUPPORT




Students are able to work independently to solve math equations when provided with a template, models, and a calculator.

Students may use assistive technology and tiling squares to find the area of a two-dimensional figure.

Constant time delay can be used to teach symbol identification. Students may use a touch response to select the correct symbol.

Students can demonstrate comprehension of math vocabulary by selecting the correct figure. Error correction for students may involve proximity prompting where the teacher moves the correct answer closer to the student.



Here are a few examples of how the MASSIs have been used to support students and provide access to materials.

Students are able to work independently to solve math equations when provided with a template, models, and a calculator.

Students may use assistive technology and tiling squares to find the area of a two-dimensional figure.

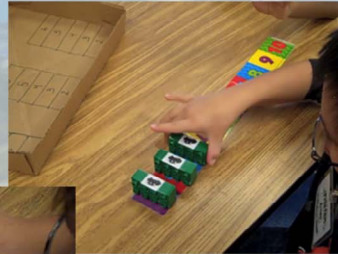
Constant time delay can be used to teach symbol identification. Students may use a touch response to select the correct symbol.

Students can demonstrate comprehension of math vocabulary by selecting the correct figure. Error correction for students may involve proximity prompting where the teacher moves the correct answer closer to the student.

## MASSIS AND SUPPORTS



The concept of perimeter is made accessible by adding texture around the shape



Manipulatives (Legos) and a number line were used to complete a jig



X and Y axis are made prominent by adding texture and color



Here, the concept of perimeter is made accessible for students with visual impairments by adding texture around the shape.

The “x” and “y” axis are made more prominent by adding texture and color.

The student uses manipulatives (Legos) and a number line to complete a jig, or template. The Legos will be pushed together and placed in the graph above to graph the number of car riders.

## CHECK FOR LEARNING



MASSIs offer intensive instruction grounded on evidence-based practices:

- Sample scripted systematic instruction
- Activities building toward grade level competence
- Progress Monitoring



Remember:

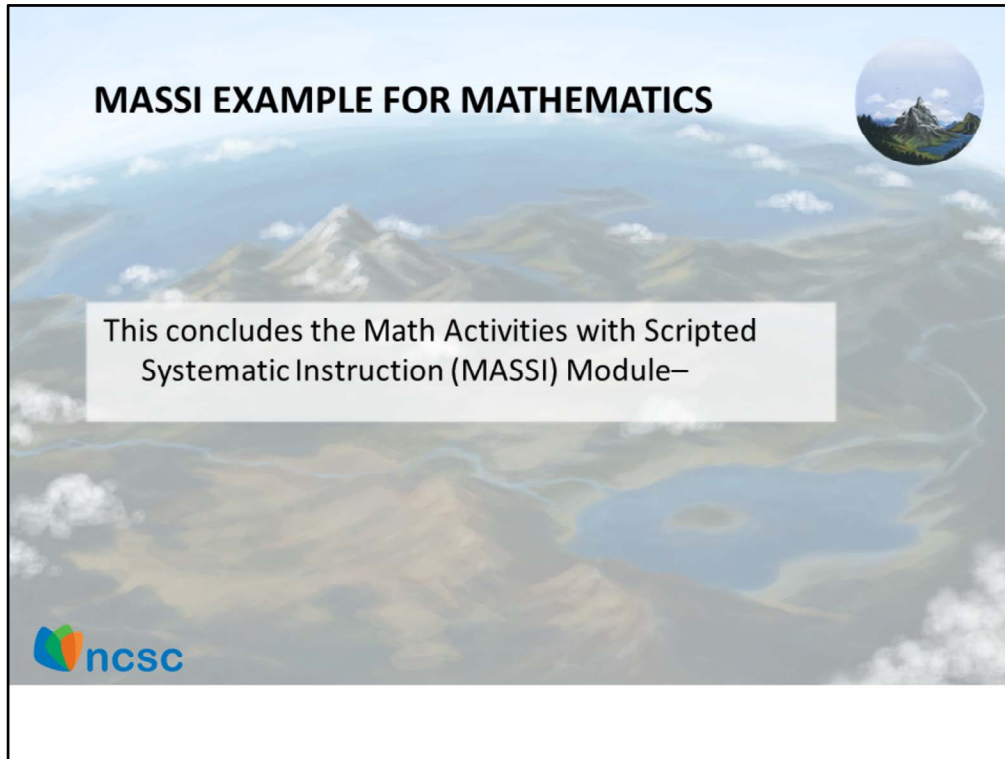
MASSIs offer intensive instruction grounded on evidence-based practices.

MASSIs all have the same components:

- Sample scripted systematic instruction that includes Content Basic Concepts and vocabulary
- Additional Activities to extend competence and build toward grade level work

And

- Tools for Progress Monitoring.




This concludes the Math Activities with Scripted Systematic Instruction (MASSI) Module content.

Move forward to view next steps, references, and your self-assessment summary. If you have participated in the self-assessment and have achieved a score of 80% or higher, you may also claim your badge.



**NEXT STEPS**

- Go online to the WIKI and review a MASSI at your student's grade level.
- Review the references on the next slide



### What can you do next?

- Go online to the WIKI and review a MASSI at your student's grade level.
- If you chose to use the self-assessment feature, make sure that you've answered all of the 5 self assessment items.
  - A summary of your responses will be presented after the references
  - Return to any section indicated to review content and retake self assessment items
- Review the references on the next slide. There are several articles by Anne Denham et al on how to adapt material and presentations that go right along with a teacher's planning after finishing the MASSIs.
- Claim your badge on the slide that will appear when you have scored 80% or higher.

## REFERENCES

- Center for Applied Special Technology (2005). *UDL Guidelines*. Retrieved from [www.cast.org](http://www.cast.org).
- Clayton, J., Burdge, M., Denham, A., Kleinert, H., & Kearns, J. (2006). A four-step process for accessing the general curriculum for students with significant cognitive disabilities. *Teaching Exceptional Children, 38*(5), 20-27.
- Denham, A. (2004). Pathways to Learning for Students with Cognitive Challenges: Reading, Writing and Presenting. Interdisciplinary Human Development Institute, University of Kentucky. [Online] Available: <http://www.ihdi.uky.edu/IEI/>
- Denham, A. & Lewis, P. (2006). *The Application of Universal Design for Learning in the Classroom for students with the most significant disabilities*. SPLASH Training. Human Development Institute, University of Kentucky. Lexington, KY.
- Denham, A., Land, L. & Taub, D. (2011). *Yes, We Can Support Grade Appropriate Academic Content in Inclusive Environments*. Presentation at the annual meeting of TASH, Atlanta, GA.
- Land, L., Pugalee, D., Denham, A., and Kleinert, H. (2010). Math Instruction and Assessment Linked to Grade-Level Standards. In H. Kleinert & J. Kearns, *Alternate Assessment for Students with Significant Cognitive Disabilities: An Educator's Guide*. Baltimore: Paul Brookes.



If you would like more information on the concepts we have presented today, a list of references appears on the slide.