

Common Core Instructional Tools:

For special education teachers whose students will be assessed using the next generation of alternate assessment based on alternate achievement standards. These materials align with the Common Core State Standards and the Dynamic Learning Maps Essential Elements and are created specifically for use with students with severe cognitive disabilities.



Mathematics

Grade: Eight



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This resource is the result of a collaborative effort of North Dakota Teachers, the Dynamics Learning Maps Alternate Assessment Consortium materials, the North Dakota Curriculum Initiative project, and the North Dakota Department of Public Instruction. We would like to thank the following educators for their dedication and diligence in working on these instructional materials to provide tools to help special education teachers whose students will take the alternate assessment based on alternate achievement standards and the Common Core State Standards.

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Resources:

- **Common Core State Standards** documents at http://www.dpi.state.nd.us/standard/common_core.shtm
- **North Dakota Curriculum Initiative** documents at http://ndcurriculuminitiative.org/common_core
- **Dynamic Learning Maps**<http://dynamiclearningmaps.org/>
Common Core Essential Elements and Assessment Achievement Level Descriptors
Dynamic Learning Maps Essential Elements Versions 1 and 2
- **Kansas State Education Department** website: <http://www.ksde.org/>
- **Microsoft Office Clip Art**

Document Description:

This document is arranged by grade level so that teachers can access a single grade or multiple grades as needed. These materials are based on the Common Core State Standards and align with the Dynamic Learning Maps Essential Elements. North Dakota is a member of the Dynamic Learning Maps (DLM) Consortium of states creating the next generation of alternate assessments based on alternate achievement standards for assessing students with severe cognitive disabilities.

These materials are created by North Dakota teachers, for teachers, to assist them in accessing the Common Core State Standards in a meaningful fashion. Our goal was to provide teachers of students with severe cognitive disabilities with tools to get them started with the Common Core. They are intended to be tools for teachers to start with and build upon within their own local curriculum. They are not mandatory, but because they are linked to the DLM Essential Elements, they may be helpful in teaching the new standards which will begin to be assessed in 2014-15.

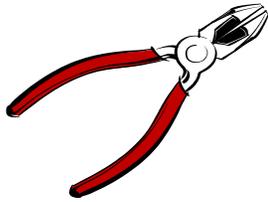
These tools are:

- ✓ Resources for teachers to use to access the Common Core State Standards (CCSS)
- ✓ Linked to the Dynamic Learning Maps (DLM) "Essential Elements"
- ✓ Ideas for learning activities based on CCSS
- ✓ Ideas on how to collect data on student performance
- ✓ Ideas on how to plan collaboration activities with general educators
- ✓ Resources to plan for "Communication Opportunities" for students who are learning a communication mode

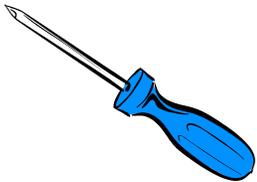
These tools are not:

- ✓ Not meant for test preparation purposes
- ✓ Not mandatory for use by educators
- ✓ Not meant to serve as curriculum

TOOLS FOR TEACHERS



Element Cards - A collection of Common Core State Standards materials specific to the Dynamic Learning Maps Essential Elements at each grade. These are meant to provide you with instructional ideas, key vocabulary, real world connections, and mapping of the concept the grade before and the grade after.



Educator Collaboration Plan - Planning sheets to prepare students for communication needs and for data collection in general education settings. Communication is key in teaching and assessing all students and especially those with severe cognitive disabilities. If a student does not have a consistent and reliable means of communicating what he/she knows and is able to do, it is very difficult to measure progress. More importantly, lack of a consistent communication system (high tech, low tech, or no tech) will affect the student's entire life in a negative way.



"I Can" Checklist - data sheet template for teacher use.



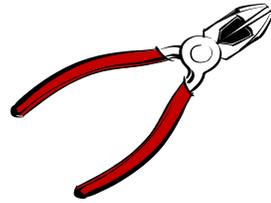
Website Resources - lists of web addresses where a variety of educational ideas can be found.

Element Card-Tool #1

Grade 6 ELA

Strand: Reading Literature

Cluster: Key Ideas and Details



(Element card number) **RL.6.1**

Standard RL.6.1: Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. (This is the grade level Common Core State Standard for this concept)	Essential Element: Analyze the text to determine what it says explicitly and what inferences must be drawn. (An Essential Element is a term used by Dynamic Learning Maps Consortium identifying 'specific knowledge and skills linked to the grade-level expectations identified in the Common Core State Standards')
Grade 5 Expectations: (What is related to this standard in the prior grade)	Grade 7 Expectations: (What is related to this standard in the next grade)
I Can Statements: (Statements of measures of specific skills related to this standard)	
Key Vocabulary: (Grade level vocabulary related to specific content in this standard)	Supports (specific to student): (IEP accommodations, assistive technology, communication system, visual aids, templates, active board, highlighters, etc.)
Instructional Examples: (Examples of activities that can be done to address this skill such as modeling, small group discussions, etc.)	
Real World Connections: (Activities from everyday life that relate to the content of this standard)	
Resources: (Educational materials or websites that can be accessed for ideas that may support this standard)	

Note: If the Essential Element says "Not Applicable" that means that the Dynamic Learning Maps Consortium did not address this Essential Element.

If the Essential Element says "See EE of a different number" (e.g. S-ID.2) that means that there is another Element Card that addresses some of this standard.

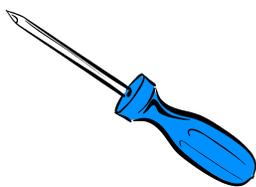
The Essential Elements are highlighted to indicate the importance of their focus.

These are the **Dynamic Learning Maps Claims and Conceptual Areas in Mathematics**.

This document was used by ND teachers who worked on these Tools. The Element cards may correlate or in some cases may not. High School divided the math documents into Consumer Math (measurement and data analysis and number sense), Algebra, and Geometry.

<p>Claim 1</p>	<p>Number Sense: Students demonstrate increasingly complex understanding of number sense.</p> <p>Conceptual Areas in the Dynamic Learning Map:</p> <p>MC 1.1 Understand number structures (counting, place value, fraction) <i>Essential Elements Included:</i> K.CC.1.4 ,5; 1.NBT.1a-b; 2.NBT.2a-b,3; 3.NBT.1,2,3; 4.NBT.3; 3.NF.1-3; 4.NF.1-2,3; 5.NF.1,2; 6.RP.1; 7.RP.1-3; 7.NS.2.c-d; M.EE.8.NS.2.a</p> <p>MC 1.2 Compare, compose, and decompose numbers and sets <i>Essential Elements Included:</i> K.CC.6; 1.NBT.2, 3, 4, 6; 2.NBT.1, 4, 5b; 4.NBT.1, 2; 5.NBT.1, 2, 3, 4; 6.NS.1, 5-8; 7.NS.3; 8.NS.2.b; 8.EE.1-4</p> <p>MC 1.3 Calculate accurately and efficiently using simple arithmetic operations <i>Essential Elements Included:</i> 2.NBT.5.a, 6-7; 3.OA.4; 4.NBT.4, 5, 6-7; 6.NS.2, 3; 7.NS.1, 2a, 2b; 8.NS.1;8.EE.1; HS.N-CN.2, 2.a, 2.b; HS.N-RN.1; HS.S-CP.1-5; HS.S-IC.1-22</p>
<p>Claim 2</p>	<p>Geometry: Students demonstrate increasingly complex spatial reasoning and understanding of geometric principles.</p> <p>Conceptual Areas in the Dynamic Learning Map:</p> <p>MC 2.1 Understand and use geometric properties of two- and three-dimensional shapes <i>Essential Elements Included:</i> K.MD.1; K.G.2-3; 1.G.1, 2; 2.G.1; 3.G.1; 4.G.1, 2, 2a, 2b; 5.G.1-4; 5.MD.3; 7.G.1, 2, 3, 5; 8.G.1, 2, 4, 5; HS.G-CO.1, 4-5; 6-8; HS.G-GMD.1-3, 4</p> <p>MC 2.2 Solve problems involving area, perimeter, and volume <i>Essential Elements Included:</i> 1.G.3; 3.G.2; 4.G.3; 4.MD.2; 5.MD.4-5; 6.G.1, 2; 7.G.4, 6; 8.G.9; HS.G-GMD.1-3; HS.G-GPE.7</p>
<p>Claim 3</p>	<p>Measurement Data and Analysis: Students demonstrate Increasingly complex understanding of measurement, data, and analytic procedures.</p> <p>Conceptual Areas in the Dynamic Learning Map:</p> <p>MC 3.1 Understand and use measurement principles and units of measure <i>Essential Elements Included:</i> 1.MD.1-2, 3a, 3b, 3c, 3d; 2.MD.1, 3-4, 5, 6, 7, 8; 3.MD.1, 2, 4; 4.MD.1, 2a, 2b, 2c, 2e; 5.MD.1a, 1b, 1c; HS.N-Q.1-3</p> <p>MC 3.2 Represent and interpret data displays <i>Essential Elements Included:</i> 1.MD.4; 2.MD.9-10; 3.MD.3; 4.MD.4a, 4b; 5.MD.2; 6.SP.1-2, 5; 7.SP.1-2, 3, 5-7; 8.SP.4; HS.S-ID. 1-2, 3, 4</p>
<p>Claim 4</p>	<p>Algebraic and functional reasoning: Students solve increasingly complex mathematical problems, making productive use of algebra and functions.</p> <p>Conceptual Areas in the Dynamic Learning Map:</p> <p>MC 4.1. Use operations and models to solve problems <i>Essential Elements Included:</i> K.OA.1, 1a, 1b, 2, 5a, 5b; 2.OA.1, 3, 4; 3.OA.1-2, 8; 4.OA.1-2, 3, 4; 6.EE.1-2, 3, 5-7; 7.EE.1-2, 4; 8.EE.7; HS.A-CED.1, 2-4; HS.A-SSE.1, 3</p> <p>MC 4.2 Understand patterns and functional thinking <i>Essential Elements Included:</i> 3.OA.9; 4.OA.5; 5.OA.3; 7.EE.3; 8.EE.5-6; 8.F.1-3, 4, 5; HS.A-REI.10-12; HS.A-SSE.4; HS.F-BF.1, 2; HS.F-IF.1-3, 4-6; HS.F-LE.1</p>

A-CED= creating equations; A-SSE = seeing structure in equations BF= building functions; CC= counting & cardinality; EE = expressions & equations; F-BF = basic fractions; F-IF = interpreting functions; G = geometry; G-GMD=geometric measurement & dimension; G-GPE = general properties & equations: MD= measurement & data; NBT= numbers and operations in base ten; N-CN=complex number system; NF= numbers & operations - fractions; N-RN=real number system; NS= number systems; N-Q= number & quantity; OA = operations & algebraic thinking; RP = ratios & proportional relationships; S-IC- statistics & probability - making inferences/justifying conclusions; S-ID=statistics & probability – interpreting categorical & quantitative data: SP = statistics & probability



Tool # 2 - Educator Collaboration Plan:

This plan is a tool that can be utilized to prepare students and their paraprofessionals for fuller participation in general education classes and an increased communication expectation.

Remember - If communication is planned for, it is much more likely to happen.

Keep the student's Speech Pathologist in the loop so he/she can support and participate in these collaboration efforts.

Suggested Use of this tool:

Meet with the general education teacher once a week (maybe the Thursday before) and identify what concepts he/she will be covering the following week.

1. Fill in the first box (Monday through Friday) with the gen. ed. class lesson plan concepts. (See Sample)
2. Discuss Common Core State Standards (CCSS) being covered. Fill in box two. (See Sample)
3. Communication Plan: Identify the concepts and key words that will be covered in each lesson and identify what you want the student to be able to communicate in class. (See Sample)

Discuss with gen. ed. teacher which concepts student needs to answer during class. Identify (for example) two specific questions he/she will ask the student so the teacher knows ahead of time. If the plan is that the student needs to answer two questions during class every day and the questions are determined ahead of time (so the answers can be made available for the student to use) then expecting student participation becomes second nature.

Talker: preprogram it and allow student to practice ahead of time.

Pictures: prepare the pictures prior to class and practice.

Switches: program choices ahead of time and practice.

4. Identify what accommodations are listed in IEP to be used in the educational setting and make sure the student has them available. (See Sample)
5. Data Collection: Para collects data on the concepts. This can be a plus or minus per questions or item in this section. (See Sample)
6. Para or student brings an extra copy of the plan at the beginning of class on Monday. Para keeps the other copy as a working copy for the week. The copy needs to be brought back to you (special education teacher) so that you are aware of both the success and have data to work with. You will also be able to

see where the student excels or may be struggling. Share this data with the student's Speech Pathologist so he/she is aware of progress and possible problems.

7. Notes section allows Para to identify anything that needs to be brought to your attention. For example, student was distracted, or ill, or something interfered with the lesson getting finished. Para: Don't be afraid to remind the teacher in case he/she forgets to ask a question (even after the class has ended) rather than "just skipping it". Students need to be able to demonstrate their competence and it is not ok to have lower expectations for some students than others.

Educator Collaboration Plan

Gen. Ed. Contact: _____

Name: _____ Week Of: _____

Subject: _____

Gen Ed. Concepts Planned:

Mon.

Tues.

Wed.

Thurs.

Fri.

CCSS Addressed:

Communication Plan:

Mon.

Tues.

Wed

Thurs

Fri.

Accommodations in IEP:

Data Collection:

Mon. _____

Tues. _____

Wed. _____

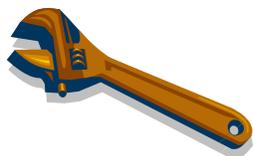
Thurs. _____

Fri. _____

Notes:

Educator Collaboration PlanName: SampleWeek Of: Oct. 7 to 11, 2013Gen. Ed. Contact: Mrs. JonesSubject: Math

<p>Gen Ed. Concepts Planned:</p> <p>Mon. Fractions – whole, half, quarter</p> <p>Tues. Fractions – quarters, thirds 1/3, 2/3, 3/3 1/4, 2/4, 3/4, 4/4</p> <p>Wed. Halves, quarters, thirds review</p> <p>Thurs. Fractions project (demonstrate understanding of "equal parts" of a whole)</p> <p>Fri. Quiz on whole, halves, thirds, & quarters</p>	<p>CCSS Addressed:</p> <p>1.G.3 Partition circles and rectangles into two and four equal shares using the words halves, fourths, and quarters.</p>	<p>Communication Plan: Pre-program Alpha Talker daily before class (allow student to practice before class).</p> <p>Mon. "That is a whole" "whole" "That is a half" "one-half" That is a quarter" "one-quarter"</p> <p>Tues. " That is" "One-third" "two-thirds" "whole" "One-fourth" "one-half" "three-quarters"</p> <p>Wed. Same as Mon and Tues</p> <p>Thurs. "I have two fractions in my demonstration." "One half, and half of that is one fourth."</p> <p>Fri. Use words from Mon. and Tuesday for Quiz.</p>
<p>Accommodations in IEP:</p> <p>Alpha Talker is communication mode and requires that specific terms and sentences are programmed into the device prior to class.</p> <p>Para will accompany student to class and will be responsible to pre-program Talker with two specific answers according to the Collaboration Plan.</p> <p>Data will be collected on comm. performance and accuracy by Para.</p>	<p>Data Collection:</p> <p>Mon. whole__ half __ quarter__</p> <p>Tues. whole__ half__ 1/4__ 1/3__ 2/3__ 3/4__</p> <p>Wed. whole__ half__ 1/4__ 1/3__ 2/3__ 3/4__</p> <p>Thurs. half__ 1/4__ Used both sentences in demo __</p> <p>Fri. whole__ half__ 1/4__ 1/3__ 2/3__ 3/4__</p>	<p>Notes:</p> <p>Quiz (Friday) may need to be taken in an area where other students cannot hear the answers.</p> <p>Para writes student's answers and gen. ed. teacher corrects quiz.</p>



Tool # 4 - Resources

A Few Communication Resources (See also Resources at end of each grade)

1. <http://www.designtolearn.com>: A good site for introducing communication systems—knowing which ones to use, etc.
2. <http://www.alltogetherwecan.com/2008/06/02/ablenet-how-to-videos-step-by-step-with-levels/>: A set of videos on how to set up communication systems
3. http://www2.edc.org/NCIP/tour/Resources_PictureSym.html: A good overview of how to set up picture communication systems.
4. <http://www.pdictionary.com>: A large, easily searchable library of various pictures for instruction. This website may be used for students of various communication levels.
5. <http://www.tsbvi.edu/component/content/article/53/1116-tactile-symbols-directory-to-standard-tactile-symbol-list>: From Texas School for the Blind and Visually Impaired. This site offers information on developing and using tactile symbols.
6. <http://bookbuilder.cast.org/>: From cast.org—a free resource that allows you or your students to build books online. It provides text to speech and animation for the books so your students can listen to and watch the book. Can also access books others have written. Great if you are creating a modified version of a grade level text.
7. <http://aex.intellitools.com/>: Collection of free IntelliKeys activities posted by other teachers.
8. <http://teachinglearnerswithmultipleneeds.blogspot.com/2008/02/free-boardmaker-boards-and-activities.html>: Collection of free Boardmaker boards. Excellent if you already have Boardmaker. Not all of the links work though.
9. <http://zacbrowser.com/>: An internet engine designed for children with autism.



Tool # 3 - I Can Statements Checklist

Grade 2 Math “I Can” Statements Checklist

Instructions: These checklists are meant to provide a visual to record progress toward Common Core Standard Skills.

Domain: Operations and Algebraic Thinking	Cluster: Work with equal groups of objects to gain foundations for multiplication	Standard: EE.2.OA.3									
I can make two groups of two.	Date										
	DATA										
I can separate objects into two groups.	Date										
	DATA										
I can equally distribute even numbers of objects between two groups.	Date										
	DATA										
I can determine that a quantity of objects is even or odd by separating them into two groups.	Date										
	DATA										

Grade 8 Math

8.NS.1 Element Card

Domain: The Number System

Cluster: Know that there are numbers that are not rational and approximate them by rational numbers

Standard 8.NS.1: Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.

Essential Element EE.8.NS.1: Subtract fractions with like denominators (halves, thirds, fourths, and tenths) with minuends less than or equal to one.

Grade 7 Essential Element EE.7.NS.1:

- Add fractions with like denominators (halves, thirds, fourths, and tenths) with sums less than or equal to one.

Grade HS Essential Element EE.N-CN.2a:

- Use the commutative, associative, and distributive properties to add, subtract, and multiply whole numbers.

I Can Statements:

- I can use models to identify the whole and find the missing pieces of a whole using halves.
- I can use models to subtract halves, thirds, and fourths.
- I can subtract fractions with like denominators (halves, thirds, fourths, and tenths) with minuends less than or equal to one.
- I can subtract fractions with like denominators (halves, thirds, fourths, and tenths) with minuends that may be greater than one.

Key Vocabulary:

- Fractions
- Denominator
- Halves
- Thirds
- Fourths
- Tenths
- Minuends

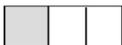
Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)

Instructional Examples:

- Presented an object with a piece missing and a whole object, identify the whole.
- Given $\frac{1}{2}$ of a pizza, identify the missing part (concrete model or touch board).
- Given a whole with $\frac{1}{2}$ shaded, identify the missing part.



- Given a whole divided into thirds, tell me how many times they can take a third out of the whole.
- Presented a rectangle with $\frac{1}{3}$ of the whole shaded, tell how many thirds are left.



- Use fraction bars or fraction circles to add and match a numerical representation to the model so the answer is less than or equal to one.
- Given $\frac{3}{4}$, take $\frac{1}{4}$ away and tell or show how many fourths are left.

Grade 8 Math

8.NS.1 Element Card

Domain: The Number System

Cluster: Know that there are numbers that are not rational and approximate them by rational numbers

- Given $7/10$, recognize that $3/10$ are needed to make a whole. (Connect to money – 10 dimes = one whole dollar)
- Subtract two fractions with like denominators with models or numbers.
- If I have $1\ 3/4$ and I take $1/4$ away, how many wholes and fourths are left?

Real World Connections:

- Sharing
- Cooking (cutting items for eating)

Resources:

- Teacher's Notebook: Adding and Subtracting Fractions Games (FREE) <http://www.teachersnotebook.com/product/bmarsh930/adding-and-subtracting-fractions-with-like-denominators>
- TpT: Adding and Subtracting Fractions with Like Denominators (\$2.00) <http://www.teacherspayteachers.com/Product/Adding-Subtracting-Fractions-with-Like-Denominators-Task-Cards-CCS-4NFB3-413410>
- Learn Zillion: Add and Subtract Fractions with Like Denominators <http://learnzillion.com/lessons?utf8=%E2%9C%93&filters%5Bsubject%5D=math&query=add+and+subtract+fractions+with+like+denominators&commit=Search+lessons>
- You Tube: Subtracting Fractions with Like Denominators <http://www.youtube.com/watch?v=aMJZKRhEzE>

Domain: The Number System

Cluster: Know that there are numbers that are not rational and approximate them by rational numbers

<p>Standard 8.NS.2: Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). <i>For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.</i></p>	<p>Essential Element EE.8.NS.2a: Express a fraction with a denominator of 100 as a decimal.</p>
<p>Grade 7 Essential Element EE.7.NS.2c-d:</p> <ul style="list-style-type: none"> Express a fraction with a denominator of 10 as a decimal. 	<p>Grade HS Essential Element EE.N-CN.2.b:</p> <ul style="list-style-type: none"> Solve real-world problems involving addition and subtraction of decimals, using models when needed.
<p>I Can Statements:</p> <ul style="list-style-type: none"> I can represent different forms and values of decimal numbers using fractions with numerators that are multiples of five and a denominator of 100. I can represent different forms and values of decimal numbers to the hundreds place (decimal, fraction, hundreds grid, and money representation). 	
<p>Key Vocabulary:</p> <ul style="list-style-type: none"> Fraction Denominator Decimal Numerator 	<p>Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)</p>
<p>Instructional Examples:</p> <ul style="list-style-type: none"> Given a hundreds grid with one fourth shaded-in, identify the correct decimal representation from choices 25/100, 10/100, or 100/100. When given coins representing 50 cents, write the decimal value as \$0.50. Given a hundreds grid, shade in an approximation to a given decimal or fraction. Given a picture of a shaded hundreds grid, determine the decimal or fractional part. When given coins representing 60 cents, write the decimal amount as \$0.60. 	
<p>Real World Connections:</p> <ul style="list-style-type: none"> Counting money Playing games 	
<p>Resources:</p>	

Grade 8 Math

8.NS.2.a Element Card

Domain: The Number System

Cluster: Know that there are numbers that are not rational and approximate them by rational numbers

- The Purse by Cathy Caple <http://www.barnesandnoble.com/w/purse-kathy-caple/1000636808>
- Fraction, Decimal, Percent <http://pinterest.com/pin/259660734738549416/>
- TpT: Fraction and Decimal Match Up <http://www.teacherspayteachers.com/Product/Fraction-and-Decimal-Match-Up-to-the-Hundredths-466292>

Domain: The Number System

Cluster: Know that there are numbers that are not rational and approximate them by rational numbers

<p>Standard 8.NS.2: Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). <i>For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.</i></p>	<p>Essential Element EE.8.NS.2b: Compare quantities represented as decimals in real-world examples to hundredths.</p>
<p>Grade 7 Essential Element EE.7.NS.3:</p> <ul style="list-style-type: none"> Compare quantities represented as decimals in real-world examples to tenths. 	<p>Grade HS Essential Element EE.N-CN.2.c:</p> <ul style="list-style-type: none"> Solve real-world problems involving multiplication of decimals and whole numbers, using models when needed.
<p>I Can Statements:</p> <ul style="list-style-type: none"> I can identify a part of a whole in concrete real-world objects. I can distinguish between a part represented by a decimal and a whole number without decimals. 	
<p>Key Vocabulary:</p> <ul style="list-style-type: none"> Quantities Decimals Whole Hundreds grid 	<p>Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)</p>
<p>Instructional Examples:</p> <ul style="list-style-type: none"> When shown an apple with a missing piece, identify the part that is missing. When given a student's schedule for the day with one activity missing, identify what activity is missing from their schedule. Show which piece is missing from a familiar object. Given a dollar and two quarters, identify which represents the whole (dollar) and the decimal part (two quarters). Given a fully shaded-in hundreds grid and a partially shaded-in hundreds grid, identify which represents the whole and which represents the decimal (part of a whole). 	
<p>Real World Connections:</p> <ul style="list-style-type: none"> Gas prices 	

Grade 8 Math

8.NS.2b Element Card

Domain: The Number System

Cluster: Know that there are numbers that are not rational and approximate them by rational numbers

Resources:

- Decimals in the Real World <http://my-ecoach.com/online/webresourcelist.php?rlid=6826>
- Great Schools: Real Life Problems <http://www.greatschools.org/worksheets-activities/5974-real-life-problems-working-with-decimals.gs>
- TpT: Pirate Pete Compares Decimals 10ths and 100ths (Free) <http://www.teacherspayteachers.com/Product/Pirate-Pete-Comparing-Decimals-539411>
- Learn Zillion: Identify equivalent decimals by comparing tenths and hundredths <http://learnzillion.com/lessons/430-identify-equivalent-decimals-by-comparing-tenths-and-hundredths>

Grade 8 Math

8.EE.1 Element Card

Domain: Expressions and Equations

Cluster: Work with radicals and integer exponents

Standard 8.EE.1: Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.*

Essential Element EE.8.EE.1: Identify the meaning of an exponent (limited to exponents of 2 and 3).

Grade 7 Essential Element EE.7.EE.1:

- Use the properties of operations as strategies to demonstrate that expressions are equivalent.

Grade HS Essential Element EE.N-RN.1:

- Determine the value of a quantity that is squared or cubed.

I Can Statements:

- I can identify numbers written in exponential form.
- I can recognize the specific value a number represents.
- I can use models to represent the composition of numbers (limited to exponents of 2 and 3).
- I can use powers of 2 and 3 to compose and decompose numbers.

Key Vocabulary:

- Exponent(s)
- Numerical value
- Pictorial representation
- Model

Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)

Instructional Examples:

- Recognize a number given in a pictorial representation.
- Match a numerical value with a pictorial representation or concrete objects.
- Look at a model and determine the numeric value.
- Given three bears, select the number three.

Real World Connections:

- Finding square footage for fabric, room space, etc.

Resources:

- Exponent Anchor Chart <http://media-cache-ec0.pinimg.com/originals/de/de/ae/dedeae2d7fe7f9fa06b24cfde6cf021b.jpg>
- Exponent Worksheet Generator <http://www.homeschoolmath.net/worksheets/exponents.php>

Grade 8 Math

8.EE.1 Element Card

Domain: Expressions and Equations

Cluster: Work with radicals and integer exponents

- Math is Fun: Power of 2 <http://www.mathsisfun.com/exponent.html>

Grade 8 Math

8.EE.2 Element Card

Domain: Expressions and Equations

Cluster: Work with radicals and integer exponents

Standard 8.EE.2: Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.

Essential Element 8.EE.2: Identify a geometric sequence of whole numbers with a whole number common ratio.

Grade 7 Essential Element EE.7.EE.2:

- Identify an arithmetic sequence of whole numbers with a whole number common difference.

Grade HS Essential Element EE.A-SSE.4:

- Determine the successive term in a geometric sequence given the common ratio.

Grade HS Essential Element EE.F-BF.2:

- Determine an arithmetic sequence with whole numbers when provided a recursive rule.

I Can Statements:

- I can recognize a sequence.
- I can create a sequence.
- I can identify a pattern in a sequence.
- I can find the constant or common ratio in a geometric sequence.

Key Vocabulary:

- Common ratio
- Constant
- Pattern
- Geometric sequence
- Whole number

Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)

Instructional Examples:

- Keep track of days on a calendar.
- Given items presented in a visual, put them in chronological order.
- Given a locker number, student will demonstrate understanding of which direction to go.
- Student will put words/items in alphabetical order.
- Order numbers from least to greatest.
- Given stacking rings, student will order them in the correct sequence.
- Given a visual pattern, student will copy/match the pattern.
- Be able to keep track of dates on a calendar.

Grade 8 Math

8.EE.2 Element Card

Domain: Expressions and Equations

Cluster: Work with radicals and integer exponents

- Given a geometric sequence and calculator, determine the rate at which the sequence is changing.

Real World Connections:

- Follow a visual schedule/routine
- Using a planner
- Locating and orienting items
- Sorting and Organizing

Resources:

- Cool Math: Geometric Sequences <http://www.coolmath.com/algebra/19-sequences-series/07-geometric-sequences-01.htm>
- TpT: Arithmetic and Geometric Sequences and Series Football Review Game (Free) <http://www.teacherspayteachers.com/Product/Arithmetic-and-Geometric-Sequences-and-Series-Football-Review-Game-246911>
- Learn Zillion: Finding the Rule for a Function Table <http://learnzillion.com/lessons/790-find-the-rule-for-a-function-machine-using-a-vertical-table>
- Learn Zillion: Find the 9th shape for a geometric pattern using a table <http://learnzillion.com/lessons/793-find-the-9th-shape-for-a-geometric-pattern-using-a-table>

Grade 8 Math

8.EE.3-4 Element Card

Domain: Expressions and Equations

Cluster: Work with radicals and integer exponents

Standard 8.EE.3: Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9 , and determine that the world population is more than 20 times larger.*

Standard 8.EE.4: Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation, and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

Essential Element EE.8.EE.3-4: Compose and decompose whole numbers up to 999.

Grade 7 Essential Element EE.7.NS.2a:

- Solve multiplications problems with products to 100.

Grade 7 Essential Element EE.7.NS.2b:

- Solve division problems with divisors up to 5 and also with a divisor of 10 without remainders.

Grade HS Essential Element EE.N-CN.2.a:

- Use the commutative, associative, and distributive properties to add, subtract, and multiply whole numbers.

I Can Statements:

- I can recognize the specific value a number represents.
- I can use models to represent the composition of numbers.
- I can compose and decompose numbers to three digits.

Key Vocabulary:

- Compose
- Decompose
- Numeric value
- Number
- Digits
- Pictorial representation

Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)

Instructional Examples:

Grade 8 Math

8.EE.3-4 Element Card

Domain: Expressions and Equations

Cluster: Work with radicals and integer exponents

- Recognize a number using pictorial representations.
- Match a numerical value with a pictorial representation or concrete objects.
- Look at a model and determine the numeric value.
- Given a jig or a model with 10 spaces, put one object per space and assemble a group of 10.
- Given three bears, select the number three card.
- Illustrate a number using models.
- Model numbers using base ten blocks.
- Distinguish the value of the digits in 134 (e.g., 1=100, 3=30, and 4=1).
- Given two nickels, show the correct number to represent that value.
- $300 + 50 + 7 = \underline{\quad}$. Ex. $57 = \underline{\quad} + \underline{\quad}$.
- Show that twelve is one 10 and two ones, or 12 ones, or seven ones and five ones, etc.

Real World Connections:

- Problem solving in finding totals
- Sharing items (pizza) fairly with a group of friends

Resources:

- The Teacher's Chair: Composing and Decomposing Numbers <http://theteacherschair.blogspot.com/2012/11/composing-and-decomposing-numbers.html>
- TpT: Snapping Numbers (LEGOS) Decomposing and Composing Activities <http://www.teacherspayteachers.com/Product/Snapping-Numbers-Composing-and-Decomposing-Numbers-390611>
- A to Z Teacher Stuff: Composing and Decomposing Numbers 11-19 (\$10) <http://shop.atozteacherstuff.com/downloads/composing-and-decomposing-numbers-11-19-differentiated-materials.html>

Grade 8 Math

8.EE.5-6 Element Card

Domain: Expressions and Equations

Cluster: Understand the connections between proportional relationships, line, and linear equations

Standard 8.EE.5: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*

Standard 8.EE.6: Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b .

Essential Element 8.EE.5-6: Graph a simple ratio by connecting the origin to a point representing the ratio in the form of y/x . *For example, when given a ratio in standard form (2:1), convert to $2/1$, and plot the point (1,2).*

Grade 7 Essential Element EE.7.RP.1-3:

- Use a ratio to model or describe a relationship.

Grade HS Essential Element EE.F-IF.4-6:

- Construct graphs that represent linear functions with different rates of change and interpret which is faster/slower, higher/lower, etc.

I Can Statements:

- I can place or locate data on a simple two-category graph.
- I can identify a specific data point when given the coordinates.
- I can graph a simple ratio using the x and y axis points when given the ratio in standard form (2:1) and convert to $2/1$.
- I can graph a simple ratio using the x and y axis points when given the ratio in standard form (2:1) and expand on the ratio by two or more points.

Key Vocabulary:

- Graph
- Simple ratio
- Point
- X-axis
- Y-axis
- Coordinates

Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)

Instructional Examples:

- Use distance landmark to tell if something is close or far away.
- Finds objects after movement (searches a small area comprehensively).
- Locate objects on a map (with or without coordinates).
- Read and plot coordinates on a map.
- Given three widespread data points and coordinates, identify named point.

Grade 8 Math

8.EE.5-6 Element Card

Domain: Expressions and Equations

Cluster: Understand the connections between proportional relationships, line, and linear equations

- Given a standard multiplication chart, find the product of two numbers using coordinate skills.
- Indicate with coordinates what data points mean or the data revealed by the specify point.
- Given two pieces of data, place on a graph.
- Given a ratio of 3:1 indicating that each student needs three items, guide student in converting ratio to fraction form ($\frac{2}{1}$) and plot on a pre-labeled graph.
- Given a ratio 2:1 (there are two balloons for every child), graph the linear equation on a graph labeled x axis and the y axis. This equation would have a slope of 2.
- Given there is one boy for every one girl, graph points for the ratio of 1:1 (this linear equation will have a slope of 1).
- Given two plotted data points, plot a third point using pictures.
- Given a ratio of 3:1 indicating that each student needs three items, convert the ratio to fraction form ($\frac{2}{1}$) and plot on a pre-labeled graph this point and two additional points that are functions of the original ratio (3:1, 6:2, 9:3).

Real World Connections:

- Finding your seat in a auditorium

Resources:

- Battleship Game <http://pinterest.com/pin/149744756330273096/>
- TpT: Coordinate Graphing Bundle (\$5) <http://www.teacherspayteachers.com/Product/Coordinate-Graphing-Activity-Bundle-CCSS-5OA3-5G1-569466>
- Coordinate System <http://pinterest.com/pin/327285097890757187/>

Grade 8 Math

8.EE.7 Element Card

Domain: Expressions and Equations

Cluster: Analyze and solve linear equations and pairs of simultaneous linear equations

<p>Standard 8.EE.7: Solve linear equations in one variable.</p> <ol style="list-style-type: none">Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	<p>Essential Element EE.8.EE.7: Solve simple algebraic equations with one variable using addition and subtraction.</p>
<p>Grade 7 Essential Element EE.7.EE.4:</p> <ul style="list-style-type: none">Use the concept of equality with models to solve one-step addition and subtraction equations.	<p>Grade HS Essential Element EE.A-SSE.1:</p> <ul style="list-style-type: none">Identify an algebraic expression involving one arithmetic operation to represent a real-world problem. <p>Grade HS Essential Element EE.A-SSE.3:</p> <ul style="list-style-type: none">Solve simple algebraic equations with one variable using multiplication and division.
<p>I Can Statements:</p> <ul style="list-style-type: none">I can distinguish between a letter and a number.I can solve simple addition and subtraction problems.I can solve algebraic expressions using simple addition and subtraction.I can solve algebraic expressions using two-digit addition and subtraction.	
<p>Key Vocabulary:</p> <ul style="list-style-type: none">LetterNumberAlgebraic expression	<p>Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)</p> <ul style="list-style-type: none">AdditionSubtractionTwo-digit
<p>Instructional Examples:</p> <ul style="list-style-type: none">When asked to write their home address, identify between the letters and numbers in the address.When a book is read to them, identify the page number.When looking in a telephone book identify the telephone number vs. the name.	

Grade 8 Math

8.EE.7 Element Card

Domain: Expressions and Equations

Cluster: Analyze and solve linear equations and pairs of simultaneous linear equations

- Playing a game, roll two dice and add up the dots (dice with dots or dice with numerals).
- Using a pictorial representation of numbers, solve the addition and subtraction problems (i.e. three balloons minus one balloon).
- Mark had 10 dollars and needs 15. How many more dollars does he need?
- Given a set of basketballs, some in a bag and five outside of the bag, solve for find the total number of basketballs in the set when the bag contains two basketballs.
- Find the difference when given the total and the solution (e.g., A student has 10 chocolate chips and a bag of chocolate chips. Solve for the amount the bag contains when the total is 25.)
- Solve $20 + x$, when $x = 25$.
- Solve $35 - x$, when $x = 12$.

Real World Connections:

- Recipes
- Determine what you can purchase with a given amount of money

Resources:

- Millionaire Game <http://www.math-play.com/Algebraic-Expressions-Millionaire/algebraic-expressions-millionaire.html>
- One Step Equation Game <http://www.math-play.com/One-Step-Equation-Game.html>
- Two Step Equation Game <http://www.math-play.com/One-Step-Equation-Game.html>
- iTunes: Algebraic Equations Builder App <https://itunes.apple.com/us/app/algebra-equation-builder/id673887933?mt=8>
- Brain Pop <http://www.brainpop.com/math/algebra/equationswithvariables/>

Grade 8 Math

8.EE.8 Element Card

Domain: Expressions and Equations

Cluster: Analyze and solve linear equations and pairs of simultaneous linear equations

<p>Standard 8.EE.8: Analyze and solve pairs of simultaneous linear equations.</p> <ol style="list-style-type: none">Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. <i>For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.</i>Solve real-world and mathematical problems leading to two linear equations in two variables. <i>For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.</i>	<p>Essential Element EE.8.EE.8: Not Applicable</p>
<p>Grade 7 Essential Element: Not Applicable</p>	<p>Grade HS Essential Element: Not Applicable</p>
<p>I Can Statements:</p>	
<p>Key Vocabulary:</p>	<p>Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)</p>
<p>Instructional Examples:</p>	
<p>Real World Connections:</p>	
<p>Resources:</p>	

Grade 8 Math

8.F.1-3 Element Card

Domain: Functions

Cluster: Define, evaluate, and compare functions

Standard 8.F.1: Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in Grade 8.)

Standard 8.F.2: Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*

Standard 8.F.3: Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*

Essential Element EE.8.F.1-3: Given a function table containing at least 2 complete ordered pairs, identify a missing number that completes another ordered pair (limited to linear functions).

Grade 7 Essential Element EE.7.EE.4:

- Use the concept of equality with models to solve one-step addition and subtraction equations.

Grade 7 Essential Element EE.7.RP.1:

- Use a ratio to model or describe a relationship.

Grade HS Essential Element EE.A-REI.10-12:

- Interpret the meaning of a point on the graph of a line. For example, on a graph of pizza purchase, trace the graph to a point and tell the number of pizzas purchased and the total cost of the pizzas.

I Can Statements:

- I can, given a sequence, match the element of a sequence.
- I can identify the relationship between two numbers.
- I can, given a function table, identify the missing number.
- I can, given a function table, identify the rule and express the rule for the missing variable (e.g., n times 2).

Key Vocabulary:

- Function
- Input
- Output
- Ordered pairs

Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)

Grade 8 Math

8.F.1-3 Element Card

Domain: Functions

Cluster: Define, evaluate, and compare functions

Instructional Examples:

- Given the sequence 1, 2, 1, 2 and a 1, match to number 1.
- Given a sequence of triangle, circle, triangle, circle and a circle, match the circle.
- Given choices, tell the relationship between two numbers (e.g., How much more is five than three? Five is two more than three.).
- Identify the relationship between two given numbers (e.g., If you double four, you have eight).

1	2	3	4
2	4	X	8

- Given a function table, identify the rule to find the missing number.

1	2	3	4	n
2	4	6	8	X

- Given a function table, identify the rule to find the missing number.

1	2	3	4	n
5	10	15	20	X

Real World Connections:

- Following charts on a kool-aid container

Resources:

- Identify Missing Numbers on a Function Table http://www.helpingwithmath.com/by_subject/algebra/alg_patterns_4oa5.htm
- Coordinate Geometry: Linear Equations <http://www.youtube.com/watch?v=eQU4Ag-tWxU>
- Brain Pop Linear Equations <http://www.brainpop.com/math/algebra/graphinglinearequations/preview.weml>

Grade 8 Math

8.F.4 Element Card

Domain: Functions

Cluster: Use functions to model relationships between quantities

Standard 8.F.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

Essential Element EE.8.F.4: Determine the values or rule of a function using a graph or a table.

Grade 7 Essential Element EE.7.EE.2:

- Identify an arithmetic sequence of whole numbers with a whole number common difference.

Grade HS Essential Element EE.F-IF.4-6:

- Construct graphs that represent linear functions with different rates of change and interpret which is faster/slower, higher/lower, etc.

I Can Statements:

- I can identify the different parts of a graph or a table.
- I can navigate, read, use, or apply a graph or table.
- I can determine the values or rule of a function using a graph or a table.
- I can, given the input values and a rule, complete the output.

Key Vocabulary:

- Values
- Rule
- Function
- Output
- Graph
- Table
- Input

Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)

Instructional Examples:

- Recognize more or less.
- Recognize a graph.
- Recognize a table.
- Identify rows/columns.
- Given a set of coordinates, locate on a graph.
- Given a location, identify coordinates.

Grade 8 Math

8.F.4 Element Card

Domain: Functions

Cluster: Use functions to model relationships between quantities

- Using a basic map of town, identify two streets over.

- Given a table, determine rule applied.

x		y
1	$1 + \underline{\quad} =$	4
2	$2 + \underline{\quad} =$	5
3	$3 + \underline{\quad} =$	6

- Given a table, determine increase or decrease.

x	y
1	4
2	5
3	6

- Complete the table by adding three to each input value.

x	y
1	
2	
3	
4	

Real World Connections:

- Cause and effect relationships
- Doubling a recipe

Resources:

- Brain Pop: Problem Solving Using Tables <http://www.brainpop.com/math/dataanalysis/problemsolvingusingtables/preview.weml>
- Function Table Worksheets http://www.math-aids.com/Function_Table/
- TpT: What's My Rule – Input and Output Tables (FREE) <http://www.teacherspayteachers.com/Product/Whats-My-Rule-Input-and-Output-Tables-385520>
- Common Core Standards Function Lesson <http://www.youtube.com/watch?v=ZFdeCkpwACQ&feature=share>

Domain: Functions

Cluster: Use functions to model relationships between quantities

Standard 8.F.5: Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Essential Element EE.8.F.5: Describe how a graph represents a relationship between two quantities.

Grade 7 Essential Element EE.7.RP.1:

- Use a ratio to model or describe a relationship.

Grade HS Essential Element EE.F-BF.1:

- Select the appropriate graphical representation (first quadrant) given a situation involving constant rate of change.

I Can Statements:

- I can place data in a graph.
- I can answer questions about data from a graph.
- I can describe how a graph represents a relationship between two quantities.
- I can describe how a graph represents a relationship between two quantities and use the graph to answer questions using that relationship.

Key Vocabulary:

- Two quantities
- Graph (line, picture, etc.)
- Consecutive
- Relationship
- Data
- Chart

Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)

Instructional Examples:

- Place stickers of the same type (e.g., color, animal) on the same bar in a graph?
- Group data into categories and place on a graph (e.g., types of music, types of food).
- Given a chart of colors in an M&M bag, answer a question about the information on the graph (e.g., Which is the most common color?).
- Given a bar graph representing numbers of colored disks found in a bag, answer a question about the information (e.g., A bag of colored discs contains 15 red, 12 blue, eight green, and five yellow. Which bar shows how many red discs are in the bag?).
- Given a picture graph showing a five-day forecast showing snow showers for all days, identify which point shows how much snow is expected to fall on the fifth day.
- Given a chart showing the numbers of each colored disk in a bag, show how the graph relates color to number (e.g., Point to the axis that tells you the number and to the axis that tells you the color.).

Grade 8 Math

8.F.5 Element Card

Domain: Functions

Cluster: Use functions to model relationships between quantities

- Given a line graph showing days of consecutive snowfall and inches of accumulated snow, show how the graph relates number of days to amount of accumulated snow (e.g., say the name of the axis that shows inches of snow and the axis that shows consecutive days of snowfall).
- Given a chart showing the numbers of each colored disk in a bag, show how the graph relates color to number (e.g., Point to the axis that tells you the number and to the axis that tells you the color and point to the bar that shows the color with the highest number).
- Given a line graph showing days of consecutive snowfall and inches of accumulated snow, show how the graph relates number of days to amount of accumulated snow (e.g., Say the name of the axis that shows inches of snow and the axis that show consecutive days of snowfall and then tell which point on the graph shows the most snow and most consecutive days of snowfall.).

Real World Connections:

- Comparison shopping
- Choosing appropriate clothing for the weather

Resources:

- PBS: Interpreting Stories and Graphs <http://www.pbslearningmedia.org/resource/rttt12.math.graphstories/interpreting-stories-and-graphs/>
- Lesson Planet: Graphing Lessons <http://www.lessonplanet.com/article/elementary-science/graphing-lesson-plans>

Domain: Geometry

Cluster: Understand congruence and similarity using physical models, transparencies, or geometry software

<p>Standard 8.G.1: Verify experimentally the properties of rotations, reflections, and translations:</p> <ul style="list-style-type: none"> a. Lines are taken to lines, and line segments to line segments of the same length. b. Angles are taken to angles of the same measure. c. Parallel lines are taken to parallel lines. 	<p>Essential Element EE.8.G.1: Recognize translations, rotations, and reflections of shapes.</p>
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<p>Grade 7 Essential Element EE.7.G.1:</p> <ul style="list-style-type: none"> • Match two similar geometric shapes that are proportional in size and in the same orientation. 	<p>Grade HS Essential Element EE.G-CO.4-5:</p> <ul style="list-style-type: none"> • Given a geometric figure and a rotation, reflection, or translation of that figure, identify the components of the two figures that are congruent.
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<p>I Can Statements:</p> <ul style="list-style-type: none"> • I can match shapes using a three-dimensional object. • I can match similar shapes. • I can identify similarity and congruence (same) in objects and shapes containing angles without translations. • I can identify a translation. • I can identify a rotation. • I can identify a reflection. 	
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<p>Key Vocabulary:</p> <ul style="list-style-type: none"> • Shape(s) • Similar • Congruent • Angles • Rotated • Translated • Transform • Three-dimensional 	<p>Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)</p>
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<p>Instructional Examples:</p> <ul style="list-style-type: none"> • Overlay the outline of a shape with a three-dimensional object using angles in the outline as guides (e.g., building with blocks). • Tell, which socks match in color, shape, and size. • If a sock is upside down and another sock is right side up, can you make them match? • Match a square to a square. 	
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Grade 8 Math

8.G.1 Element Card

Domain: Geometry

Cluster: Understand congruence and similarity using physical models, transparencies, or geometry software

- Match a large square with a large square.
- Given shapes, find the two shapes that are similar and tell why.
- Match an angle in one shape with the same angle in another shape with manipulatives or pictures.
- Given different size shapes, find the two shapes that are similar and tell why.
- Given a picture of a shape, match that picture to the congruent object on the table.
- Using a picture of a door at a 45 or 90-degree angle adjust the classroom door to the same angle.

Real World Connections:

- Understanding mirror images
- Relating a model to an actual object

Resources:

- Power Point <http://misssettle5thgrade.wikispaces.com/file/view/Translations,+Rotations,+Reflections.pdf>
- Super Teacher Free Worksheets for Translations, Rotations and Reflections <http://www.superteacherworksheets.com/translation-rotation-reflection.html>
- Math is Fun: Transformations <http://www.mathsisfun.com/geometry/transformations.html>
- Mannel's Math Music <http://www.youtube.com/watch?v=hFajxpVeobY>
- TpT: Transform! (\$3) <http://www.teacherspayteachers.com/Product/Transform-Rotations-Reflections-and-Translations-601522>

Grade 8 Math

8.G.2 Element Card

Domain: Geometry

Cluster: Understand congruence and similarity using physical models, transparencies, or geometry software

Standard 8.G.2: Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

Essential Element EE.8.G.2: Identify shapes that are congruent.

Grade 7 Essential Element EE.7.G.2:

- Recognize geometric shapes with given conditions.

Grade HS Essential Element EE.G-CO.6-8:

- Identify corresponding congruent and similar parts of shapes.

I Can Statements:

- I can match shapes using a three-dimensional object.
- I can match similar shapes.
- I can identify similarity and congruence (same) in objects and shapes containing angles without translations.

Key Vocabulary:

- Three-dimensional
- Shapes
- Congruent

Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)

Instructional Examples:

- Overlay the outline of a shape with a three-dimensional object using angles in the outline as guides (e.g., building with blocks).
- Tell, which socks match in color, shape, and size.
- If a sock is upside down and another sock is right side up, can you make them match?
- Match a square to a square.
- Match a large square with a large square.
- Given shapes, find the two shapes that are similar and tell why.
- Match an angle in one shape with the same angle in another shape with manipulatives or pictures.
- Given different size shapes, find the two shapes that are similar and tell why.
- Given a picture of a shape, match that picture to the congruent object on the table.
- Using a picture of a door at a 45 or 90-degree angle adjust the classroom door to the same angle.

Real World Connections:

Grade 8 Math

8.G.2 Element Card

Domain: Geometry

Cluster: Understand congruence and similarity using physical models, transparencies, or geometry software

- Comparison shopping
- Matching items (socks, colors, etc.)
- Finding clothes that fit appropriately

Resources:

- Congruent Shapes Basic Worksheet <http://www.education.com/worksheet/article/shape-basics-congruent-shapes/>
- The Mailbox Congruent Shapes Game http://www.theeducationcenter.com/af/nl/tec/core/nav/channelPage.do?ChannelName=secondary.channel.title.companiondetail&DETAIL=121211_thi_sweek_02
- Fuel the Brain Congruent Interactive Game <http://www.fuelthebrain.com/Game/play.php?ID=131>
- You Tube: Congruent vs. Similar Shapes for Children <http://www.youtube.com/watch?v=mG-eScocdsw>

Grade 8 Math

8.G.3 Element Card

Domain: Geometry

Cluster: Understand congruence and similarity using physical models, transparencies, or geometry software

Standard 8.G.3: Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	Essential Element EE.8.G.3: Not Applicable
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Grade 7 Essential Element: Not Applicable	Grade HS Essential Element: Not Applicable
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I Can Statements:

Key Vocabulary:	Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)
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Instructional Examples:

Real World Connections:

Resources:

Grade 8 Math

8.G.4 Element Card

Domain: Geometry

Cluster: Understand congruence and similarity using physical models, transparencies, or geometry software

Standard 8.G.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

Essential Element EE.8.G.4: Identify similar shapes with and without rotation.

Grade 7 Essential Element EE.7.G.1:

- Match two similar geometric shapes that are proportional in size and in the same orientation.

Grade 7 Essential Element EE.7.G.2:

- Recognize geometric shapes with given conditions.

Grade 7 Essential Element EE.7.G.3:

- Match a two-dimensional shape with a three-dimensional shape that shares an attribute.

Grade HS Essential Element EE.G-GMD.4:

- Identify the shapes of two-dimensional cross-sections of three-dimensional objects.

I Can Statements:

- I can recognize geometric shapes.
- I can identify similar geometric shapes.
- I can identify similar shapes with and without rotation.
- I can determine if geometric shapes are similar with rotations or reflections.

Key Vocabulary:

- Similar shapes
- Geometric shapes
- Rotation
- Reflections

Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)

Instructional Examples:

- Same thing comparer – compare to shapes to see if they are the same.
- Select the named shape.
- When shown a shape, name the shape.
- Point to a triangle when shown a circle and a triangle.
- Trace around a geometric shape.
- Sort regular polygons into groups of similar shapes.

Domain: Geometry

Cluster: Understand congruence and similarity using physical models, transparencies, or geometry software

- When given a shape, select a similar shape.
- Match the shape of one small square to the shape of a large square.
- Given a shape find its similar rotation.
- Compare shapes in the environment to find a similar shape that is rotated.
- When given a group of triangles, select two that are similar when one is rotated.
- Select the shape that is not similar from a group of three shapes.
- Sort shapes into groups of similar shapes with rotation and similar shapes with reflections.
- Matches combinations of similar shapes to each other (e.g., match similar shapes with rotations to each other and match similar shapes with reflections to each other).

Real World Connections:

- Finding clothing for your body

Resources:

- Interactive: Match Whole Number, Shapes, Basic Fractions and Multiplication Facts to Equivalents <http://media-cache-ec0.pinimg.com/originals/12/4b/b1/124bb18658edde723265f787a6dab1dc.jpg>
- NCTM Illuminations: Concentration <http://illuminations.nctm.org/ActivityDetail.aspx?ID=73>
- BBC: Shapes Lab <http://www.bbc.co.uk/bitesize/ks1/maths/shapes/play/popup.shtml>
- Cricket Web: Triangle Sort <http://www.crickweb.co.uk/ks2numeracy-shape-and-weight.html#triangles>
- Cricket Web: Polygon Sort <http://www.crickweb.co.uk/ks2numeracy-shape-and-weight.html#quad>
- Shapes Game <http://michellescharmworld.blogspot.com/2011/09/geometric-shape-game.html>
- Shapes Game <http://kinderkraziness.blogspot.com/2012/05/math-mondays.html?showComment=1338218063905#c8486678186476060993>
- Brain Pop: Similar Figures Video <http://www.brainpop.com/math/geometryandmeasurement/similarfigures/preview.weml>
- Brain Pop: Similar Figure Lessons and Activities <http://www.brainpop.com/educators/community/bp-topic/similar-figures/>
- 2 & 3D Shape Activities <http://www.primaryresources.co.uk/maths/mathsE3.htm>

Domain: Geometry

Cluster: Understand congruence and similarity using physical models, transparencies, or geometry software

Standard 8.G.5: Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*

Essential Element EE.8.G.5: Compare any angle to a right angle, and describe the angle as greater than, less than, or congruent to a right angle.

Grade 7 Essential Element EE.7.G.5:

- Recognize angles that are acute, obtuse, and right.

Grade HS Essential Element EE.G-CO.1:

- Know the attributes of perpendicular lines, parallel lines, and line segments; angles; and circles.

I Can Statements:

- I can recognize an angle.
- I can recognize a right angle.
- I can compare measures of angles to a right angle (greater than, less than, or equal to).
- I can compare measures of angles formed by intersecting lines.

Key Vocabulary:

- Angle
- Right angle
- Greater than (>)
- Less than (<)
- Congruent

Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)

Instructional Examples:

- Find angles in given shapes.
- Find a corner in the classroom (e.g., corner of the room or a table).
- Identify a right angle in the school environment.
- Which of these is a right angle?
- Teacher creates an angle on a geoboard. He/she asks, "Is this a right angle?"
- Locate an angle with a measure greater than the measure of a right angle.
- Use a right-angle tool (square corner - corner of a note card), to find right angles.
- Given intersecting lines, identify linear pair angles.

Grade 8 Math

8.G.5 Element Card

Domain: Geometry

Cluster: Understand congruence and similarity using physical models, transparencies, or geometry software

- Given a pair of parallel lines intersected by a third line, identify angles that are the same measure.

Real World Connections:

- Driving (parking a car/bike)
- Sitting with good posture on a chair
- Reclining a chair

Resources:

- Use K-Nex to Make and Recognize Different Types of Angles <http://pinterest.com/pin/524669425308940965/>
- Multiple Sources for Angle and Interactive Activities http://www.aasd.k12.wi.us/staff/boldtkatherine/MathResources3-6/Math_Geometry.htm#Angles
- Toon University: Identifying Angles <http://www.toonuniversity.com/flash.asp?err=200>
- Make an Angles Math Notebook Page <http://mayreesroom.blogspot.com/>
- Make Angles <http://pinterest.com/pin/148126275215934119>
- Teacher's Notebook: Compare Angles <http://www.teachersnotebook.com/product/TeachingWithAMountainView/angles-task-cards-common-core-identify-draw-measure-amp-more>

Grade 8 Math

Domain: Geometry

Cluster: Understand and apply the Pythagorean Theorem

<p>Standard 8.G.6: Explain a proof of the Pythagorean Theorem and its converse.</p> <p>Standard 8.G.7: Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.</p> <p>Standard 8.G.8: Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.</p>	<p>Essential Element EE.8.G.6-8: Not Applicable</p>
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<p>Grade 7 Essential Element: Not Applicable</p>	<p>Grade HS Essential Element: Not Applicable</p>
<p>I Can Statements:</p>	
<p>Key Vocabulary:</p>	<p>Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)</p>
<p>Instructional Examples:</p>	
<p>Real World Connections:</p>	
<p>Resources:</p>	

Grade 8 Math

8.G.9 Element Card

Domain: Geometry

Cluster: Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres

Standard 8.G.9: Know the formulas for the volumes of cones, cylinders, and spheres, and use them to solve real-world and mathematical problems.

Essential Element EE.8.G.9: Use the formulas for perimeter, area, and volume to solve real-world and mathematical problems (limited to perimeter and area of rectangles and volume of rectangular prisms).

Grade 7 Essential Element EE.7.G.4:

- Determine the perimeter of a rectangle by adding the measures of the sides.

Grade 7 Essential Element EE.7.G.6:

- Determine the area of a rectangle using the formula for length x width, and confirm the result using tiling or partitioning into unit squares.

Grade HS Essential Element EE.G-GMD.1-3:

- Make a prediction about the volume of a container, the area of a figure, and the perimeter of a figure, and then test the prediction using formulas or models.

I Can Statements:

- I can experience volume.
- I can identify which is more or less?
- I can identify volume of common measures (cups, pints, gallons, etc.).
- I can apply knowledge of volume.

Key Vocabulary:

- Formula(s)
- Volume
- Perimeter
- Area
- More
- Less

Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)

Instructional Examples:

- Compare two containers – which holds more?
- Point to the empty cup.
- Point to the full container.
- Compares two containers using a third for transitive reasoning – pours one container into two others to see which holds more because one may overflow and one may not become full.
- Which container has more marbles in it?
- Which container has less marbles in it?
- Tell which holds more when using cubes to fill two boxes (e.g., count the cubes that fit in one box as compared to another).

Grade 8 Math

8.G.9 Element Card

Domain: Geometry

Cluster: Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres

- Identify which is a cup when given a cup, teaspoon, and a gallon container.
- When given a teaspoon, ball, and a gallon container show which is a gallon.
- Given a gallon, tell if it will take longer to fill the gallon with cups or with pints?
- Use simple units to fill a container with accurate counting.
- Uses cubes to fill a small container and estimate the number of cubes it took by mathematical reasoning (addition or multiplication of row/column).
- Select appropriate tool to fill a pitcher (e.g., tsp., cup, bucket).
- Select appropriate tool to measure flour for a cake – cup or bucket.
- Convert – how many cups in a pint?

Real World Connections:

- Measuring for area rugs
- Gardening
- Cutting a pan of bars

Resources:

- Khan Academy <http://www.khanacademy.org/math/geometry/basic-geometry>
- Brain Pop: Finding the Volume of Prisms Video <http://www.brainpop.com/math/geometryandmeasurement/volumeofprisms/preview.weml>
- Brain Pop: Finding the Volume of Prisms Activities <http://www.brainpop.com/educators/community/bp-topic/volume-of-prisms/>
- iTunes App for Determining Area <https://itunes.apple.com/us/app/area-of-a-rectangle/id533607487?ls=1&mt=8>
- Platt Online Mathematics: Finding the Area of Rectangles <http://onlinemaths.global2.vic.edu.au/2009/06/23/finding-the-area-of-rectangles/>
- Brain Pop: Area Video <http://www.brainpopjr.com/math/measurement/area/grownups.weml>
- Brain Pop: Area Background and Activities <http://www.brainpopjr.com/math/measurement/area/grownups.weml>
- Learning About Surface Area and Volume <http://www.nnin.org/education-training/k-12-teachers/nanotechnology-curriculum-materials/learning-about-surface-area-and>
- Math Playground: Interactive Math Lesson on Area http://www.mathplayground.com/area_perimeter.html
- Learn Zillion <http://learnzillion.com/lessons>
- Brain Pop: Perimeter Background Information and Activities <http://www.brainpopjr.com/math/measurement/perimeter/grownups.weml>
- 10 Hands on Activities for Teaching Perimeter <http://www.scholastic.com/teachers/top-teaching/2012/12/10-hands-strategies-teaching-area-and-perimeter>
- Perimeter and Area <http://www.teachingwithamountainview.com/2013/04/perimeter-and-area.html>
- Learn Zillion: CORE Lessons on Perimeter <http://learnzillion.com/lessons?utf8=%E2%9C%93&filters%5Bsubject%5D=math&query=perimeter+of+a+rectangle&commit=Search+lessons>

Grade 8 Math

8.SP.1-3 Element Card

Domain: Statistics and Probability

Cluster: Investigate patterns of association in bivariate data

<p>Standard 8.SP.1: Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.</p> <p>Standard 8.SP.2: Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.</p> <p>Standard 8.SP.3: Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. <i>For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.</i></p>	<p>Essential Element EE.8.SP-1-3: Not Applicable</p>
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<p>Grade 7 Essential Element: Not Applicable</p>	<p>Grade HS Essential Element: Not Applicable</p>
<p>I Can Statements:</p>	
<p>Key Vocabulary:</p>	<p>Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)</p>
<p>Instructional Examples:</p>	
<p>Real World Connections:</p>	
<p>Resources:</p>	

Grade 8 Math

8.SP.4 Element Card

Domain: Statistics and Probability

Cluster: Investigate patterns of association in bivariate data

Standard 8.SP.4: 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. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*

Essential Element EE.8.SP.4: Construct a graph or table from given categorical data, and compare data categorized in the graph or table.

Grade 7 Essential Element EE.7.SP.1-2:

- Answer a question related to the collected data from an experiment, given a model of data, or from data collected by the student.

Grade 7 Essential Element EE.7.SP.3:

- Compare two sets of data within a single data display such as a picture graph, line plot, or bar graph.

Grade HS Essential Element EE.S-ID.1-2:

- Given data, construct a simple graph (line, pie, bar, or picture) or table, and interpret the data.

I Can Statements:

- I can organize data into groups.
- I can collect and organize data.
- I can construct a graph or table from given categorical data and compare data categorized in the graph or table.
- I can conduct an experiment, collect data, and construct a graph or table.

Key Vocabulary:

- Graph
- Table
- Categorical data
- Compare
- Survey

Supports (specific to student): (e.g., assistive technology, communication system, visual aids, templates, active board, highlighters, graphic organizers, task analysis, manipulatives, real world materials, modeling)

Instructional Examples:

- Survey five people and ask if they like hamburgers or pizza better. Keep track of the findings.
- Organize disks by color and count how many of each. Which is most and which is least?
- Organize clothing by type (e.g., shirt, pants, socks) and count how many of each. Which is most and which is least?

Grade 8 Math

8.SP.4 Element Card

Domain: Statistics and Probability

Cluster: Investigate patterns of association in bivariate data

- Organize objects into groups (teddy bears, balls, crayons).
- Examine a basic bus route schedule in table form and highlight which buses run at 5:00 p.m.
- Given five students, organize them shortest to tallest.
- Given data about boys' and girls' favorite games, create a bar graph and compare the preferences of boys and girls.
- Given two graphs (hours of TV watched by boys and hours of TV watched by girls), answer questions to compare the habits of each.
- Conduct an experiment to find if plants grow faster in the sun or in the shade. Graph plant height over time and make a conclusion.
- Ask 10 people how many hours of TV they watch a day. Put the findings into a table.

Real World Connections:

- Decision making (weighing pros and cons)
- Choice making

Resources:

- Criteria for a Good Graph <http://pinterest.com/pin/231583605810681848/>
- TpT: Which Milk is Your Favorite (Free) <http://www.teacherspayteachers.com/Store/Deanna-Jump-11>
- Graphing Boards on the Cheap <http://thetutorhouse.blogspot.com/2012/03/graphing-boards-on-cheap.html>
- TpT: Graphing Project, Worksheets and SMART Notebook File (\$3) Graphing <http://www.teacherspayteachers.com/Product/Graphing-Project-Worksheets-and-SMART-Notebook-File-514507>

Grade 8 Resources

EE.8.NS.1: Subtract Fractions with like denominators (halves, thirds, etc.) with minuends ($\frac{1}{4}$ – $\frac{1}{8}$) less than or equal to one.

- Teacher's Notebook: Adding and Subtracting Fractions Games (FREE) <http://www.teachersnotebook.com/product/bmarsh930/adding-and-subtracting-fractions-with-like-denominators>
- TpT: Adding and Subtracting Fractions with Like Denominators (\$2.00) <http://www.teacherspayteachers.com/Product/Adding-Subtracting-Fractions-with-Like-Denominators-Task-Cards-CCS-4NFB3-413410>
- Learn Zillion: Add and Subtract Fractions with Like Denominators <http://learnzillion.com/lessons?utf8=%E2%9C%93&filters%5Bsubject%5D=math&query=add+and+subtract+fractions+with+like+denominators&commit=Search+lessons>
- You Tube: Subtracting Fractions with Like Denominators <http://www.youtube.com/watch?v=aMJZXKRhEzE>

EE.8.NS.2a: Express a fraction with a denominator of 100 as a decimal.

- The Purse by Cathy Caple <http://www.barnesandnoble.com/w/purse-kathy-caple/1000636808>
- Fraction, Decimal, Percent <http://pinterest.com/pin/259660734738549416/>
- TpT: Fraction and Decimal Match Up <http://www.teacherspayteachers.com/Product/Fraction-and-Decimal-Match-Up-to-the-Hundredths-466292>

EE.8.NS.2b: Compare quantities represented as decimals in real-world examples to hundredths.

- Decimals in the Real World <http://my-ecoach.com/online/webresourcelist.php?rld=6826>
- Great Schools: Real Life Problems <http://www.greatschools.org/worksheets-activities/5974-real-life-problems-working-with-decimals.gs>
- TpT: Pirate Pete Compares Decimals 10ths and 100ths (Free) <http://www.teacherspayteachers.com/Product/Pirate-Pete-Comparing-Decimals-539411>
- Learn Zillion: Identify equivalent decimals by comparing tenths and hundredths <http://learnzillion.com/lessons/430-identify-equivalent-decimals-by-comparing-tenths-and-hundredths>

EE.8.EE.1: Identify the meaning of an exponent (2&3)

- Exponent Anchor Chart <http://media-cache-ec0.pinimg.com/originals/de/de/ae/dedeae2d7fe7f9fa06b24cfde6cf021b.jpg>
- Exponent Worksheet Generator <http://www.homeschoolmath.net/worksheets/exponents.php>
- Math is Fun: Power of 2 <http://www.mathsisfun.com/exponent.html>

EE.8.EE.2: Identify a geometry sequence of whole numbers with a whole number common ratio.

- Cool Math: Geometric Sequences <http://www.coolmath.com/algebra/19-sequences-series/07-geometric-sequences-01.htm>
- TpT: Arithmetic and Geometric Sequences and Series Football Review Game (Free) <http://www.teacherspayteachers.com/Product/Arithmetic-and-Geometric-Sequences-and-Series-Football-Review-Game-246911>
- Learn Zillion: Finding the Rule for a Function Table <http://learnzillion.com/lessons/790-find-the-rule-for-a-function-machine-using-a-vertical-table>
- Learn Zillion: Find the 9th shape for a geometric pattern using a table <http://learnzillion.com/lessons/793-find-the-9th-shape-for-a-geometric-pattern-using-a-table>

EE.8.EE.3-4: Compose and decompose whole numbers to 999.

- The Teacher's Chair: Composing and Decomposing Numbers <http://theteacherschair.blogspot.com/2012/11/composing-and-decomposing-numbers.html>

- TpT: Snapping Numbers (LEGOS) Decomposing and Composing Activities <http://www.teacherspayteachers.com/Product/Snapping-Numbers-Composing-and-Decomposing-Numbers-390611>
- A to Z Teacher Stuff: Composing and Decomposing Numbers 11-19 (\$10) <http://shop.atozteacherstuff.com/downloads/composing-and-decomposing-numbers-11-19-differentiated-materials.html>

EE.8.EE.5-6: Graph a simple ratio by connecting the origin to a point representing the ratio in the form of y/x . (EX. PLOT POINTS 2,1)

- Battleship Game <http://pinterest.com/pin/149744756330273096/>
- TpT: Coordinate Graphing Bundle (\$5) <http://www.teacherspayteachers.com/Product/Coordinate-Graphing-Activity-Bundle-CCSS-5OA3-5G1-569466>
- Coordinate System <http://pinterest.com/pin/327285097890757187/>

EE.8.EE.7: Solve simple algebraic equations with one variable using addition and subtraction.

- Millionaire Game <http://www.math-play.com/Algebraic-Expressions-Millionaire/algebraic-expressions-millionaire.html>
- One Step Equation Game <http://www.math-play.com/One-Step-Equation-Game.html>
- Two Step Equation Game <http://www.math-play.com/One-Step-Equation-Game.html>
- iTunes: Algebraic Equations Builder App <https://itunes.apple.com/us/app/algebra-equation-builder/id673887933?mt=8>
- Brain Pop <http://www.brainpop.com/math/algebra/equationswithvariables/>

EE.8.F.1-3: Given a function table containing at least 2 complete ordered pairs, identify a missing number that completes another ordered pair. (Linear equations)

- Identify Missing Numbers on a Function Table http://www.helpingwithmath.com/by_subject/algebra/alg_patterns_4oa5.htm
- Coordinate Geometry: Linear Equations <http://www.youtube.com/watch?v=eQU4Ag-tWxU>
- Brain Pop Linear Equations <http://www.brainpop.com/math/algebra/graphinglinearequations/preview.weml>

EE.8.F.4: Determine the values or rule of a function using a graph or a table.

- Brain Pop: Problem Solving Using Tables <http://www.brainpop.com/math/dataanalysis/problemsolvingusintables/preview.weml>
- Function Table Worksheets http://www.math-aids.com/Function_Table/
- TpT: What's My Rule – Input and Output Tables (FREE) <http://www.teacherspayteachers.com/Product/Whats-My-Rule-Input-and-Output-Tables-385520>
- Common Core Standards Function Lesson <http://www.youtube.com/watch?v=ZFdeCkjqACQ&feature=share>

EE.8.F.5: Describe how a graph represents a relationship between two quantities.

- PBS: Interpreting Stories and Graphs <http://www.pbslearningmedia.org/resource/rttt12.math.graphstories/interpreting-stories-and-graphs/>
- Lesson Planet: Graphing Lessons <http://www.lessonplanet.com/article/elementary-science/graphing-lesson-plans>

EE.8.G.1: Recognize translations, rotations, and reflections of shapes.

- Power Point <http://misssettle5thgrade.wikispaces.com/file/view/Translations,+Rotations,+Reflections.pdf>
- Super Teacher Free Worksheets for Translations, Rotations and Reflections <http://www.superteacherworksheets.com/translation-rotation-reflection.html>
- Math is Fun: Transformations <http://www.mathsisfun.com/geometry/transformations.html>
- Mannel's Math Music <http://www.youtube.com/watch?v=hFajxpVeobY>
- TpT: Transform! (\$3) <http://www.teacherspayteachers.com/Product/Transform-Rotations-Reflections-and-Translations-601522>

EE.8.G.2: Identify Shapes that are Congruent

- Congruent Shapes Basic Worksheet <http://www.education.com/worksheet/article/shape-basics-congruent-shapes/>
- The Mailbox Congruent Shapes Game http://www.theeducationcenter.com/af/nl/tec/core/nav/channelPage.do?ChannelName=secondary.channel.title.companiondetail&DETAIL=121211_thisweek_02
- Fuel the Brain Congruent Interactive Game <http://www.fuelthebrain.com/Game/play.php?ID=131>
- You Tube: Congruent vs. Similar Shapes for Children <http://www.youtube.com/watch?v=mG-eScodsw>

EE.8.G.4: Identify similar shapes with and without rotation.

- Interactive: Match Whole Number, Shapes, Basic Fractions and Multiplication Facts to Equivalents <http://media-cache-ec0.pinimg.com/originals/12/4b/b1/124bb18658edde723265f787a6dab1dc.jpg>
- NCTM Illuminations: Concentration <http://illuminations.nctm.org/ActivityDetail.aspx?ID=73>
- BBC: Shapes Lab <http://www.bbc.co.uk/bitesize/ks1/maths/shapes/play/popup.shtml>
- Cricket Web: Triangle Sort <http://www.crickweb.co.uk/ks2numeracy-shape-and-weight.html#triangles>
- Cricket Web: Polygon Sort <http://www.crickweb.co.uk/ks2numeracy-shape-and-weight.html#quad>
- Shapes Game <http://michellescharmworld.blogspot.com/2011/09/geometric-shape-game.html>
- Shapes Game <http://kinderkraziness.blogspot.com/2012/05/math-mondays.html?showComment=1338218063905#c8486678186476060993>
- Brain Pop: Similar Figures Video <http://www.brainpop.com/math/geometryandmeasurement/similarfigures/preview.weml>
- Brain Pop: Similar Figure Lessons and Activities <http://www.brainpop.com/educators/community/bp-topic/similar-figures/>
- 2 & 3D Shape Activities <http://www.primaryresources.co.uk/maths/mathsE3.htm>

EE.8.G.5: Compare any angle to a right angle and describe the angle as greater than, less than, or congruent to a right angle.

- Use K-Nex to Make and Recognize Different Types of Angles <http://pinterest.com/pin/524669425308940965/>
- Multiple Sources for Angle Activities and Interactives http://www.aasd.k12.wi.us/staff/boldtkatherine/MathResources3-6/Math_Geometry.htm#Angles
- Toon University: Identifying Angles <http://www.toonuniversity.com/flash.asp?err=200>
- Make a Angles Math Notebook Page <http://mayreesroom.blogspot.com/>
- Make Angles <http://pinterest.com/pin/148126275215934119/>
- Teacher's Notebook: Compare Angles <http://www.teachersnotebook.com/product/TeachingWithAMountainView/angles-task-cards-common-core-identify-draw-measure-amp-more>

EE.8.G.9: Use the formula for perimeter, area, and volume to solve real-world and mathematical problems (limited to perimeter and area of rectangles and volume of rectangular prisms).

- Khan Academy <http://www.khanacademy.org/math/geometry/basic-geometry>
- Brain Pop: Finding the Volume of Prisms Video <http://www.brainpop.com/math/geometryandmeasurement/volumeofprisms/preview.weml>
- Brain Pop: Finding the Volume of Prisms Activities <http://www.brainpop.com/educators/community/bp-topic/volume-of-prisms/>
- iTunes App for Determining Area <https://itunes.apple.com/us/app/area-of-a-rectangle/id533607487?ls=1&mt=8>
- Platt Online Mathematics: Finding the Area of Rectangles <http://onlinemaths.global2.vic.edu.au/2009/06/23/finding-the-area-of-rectangles/>
- Brain Pop: Area Video <http://www.brainpopjr.com/math/measurement/area/grownups.weml>
- Brain Pop: Area Background and Activities <http://www.brainpopjr.com/math/measurement/area/grownups.weml>
- Learning About Surface Area and Volume <http://www.nnin.org/education-training/k-12-teachers/nanotechnology-curriculum-materials/learning-about-surface-area-and>

- Math Playground: Interactive Math Lesson on Area http://www.mathplayground.com/area_perimeter.html
- Learn Zillion <http://learnzillion.com/lessons>
- Brain Pop: Perimeter Background Information and Activities <http://www.brainpopjr.com/math/measurement/perimeter/grownups.weml>
- 10 Hands on Activities for Teaching Perimeter <http://www.scholastic.com/teachers/top-teaching/2012/12/10-hands-strategies-teaching-area-and-perimeter>
- Perimeter and Area <http://www.teachingwithamountainview.com/2013/04/perimeter-and-area.html>
- Learn Zillion: CORE Lessons on Perimeter <http://learnzillion.com/lessons?utf8=%E2%9C%93&filters%5Bsubject%5D=math&query=perimeter+of+a+rectan+gle&commit=Search+lessons>

EE.8.SP.4: Construct a graph or table from given categorical data, and compare data categorized in the graph or table.

- Criteria for a Good Graph <http://pinterest.com/pin/231583605810681848/>
- TpT: Which Milk is Your Favorite (Free) <http://www.teacherspayteachers.com/Store/Deanna-Jump-11>
- Graphing Boards on the Cheap <http://thetutorhouse.blogspot.com/2012/03/graphing-boards-on-cheap.html>
- TpT: Graphing Project, Worksheets and SMART Notebook File (\$3) Graphing <http://www.teacherspayteachers.com/Product/Graphing-Project-Worksheets-and-SMART-Notebook-File-514507>