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: Seven

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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 Leaning 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.

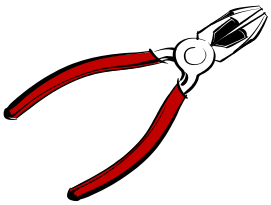
These tools are:

- ✓ 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

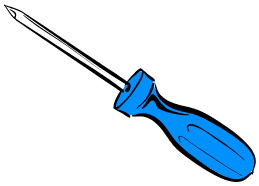
These tools are not:

- ✓ 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.

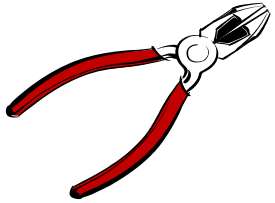


Educator Collaboration Plan - Planning sheets to prepare students for communication needs and for data collection in general education settings. Communication is key in teaching and assessing all students and especially those with severe cognitive disabilities. If a student does not have a consistent 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



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

Grade 6 ELA

Strand: Reading Literature

Cluster: Key Ideas and Details

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.

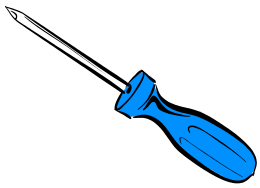
If the Essential Element says "See EE of a different number" (e.g. S-ID.2) that means that there is another Element Card that addresses some of this standard.

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.

Claim 1	**Number Sense: Students demonstrate increasingly complex understanding of number sense.** Conceptual Areas in the Dynamic Learning Map: **MC 1.1 Understand number structures (counting, place value, fraction)** *Essential Elements Included: 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* **MC 1.2 Compare, compose, and decompose numbers and sets** *Essential Elements Included: 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* **MC 1.3 Calculate accurately and efficiently using simple arithmetic operations** *Essential Elements Included: 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*
Claim 2	**Geometry: Students demonstrate increasingly complex spatial reasoning and understanding of geometric principles.** Conceptual Areas in the Dynamic Learning Map: **MC 2.1 Understand and use geometric properties of two- and three-dimensional shapes** *Essential Elements Included: 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* **MC 2.2 Solve problems involving area, perimeter, and volume** *Essential Elements Included: 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*
Claim 3	**Measurement Data and Analysis: Students demonstrate Increasingly complex understanding of measurement, data, and analytic procedures.** Conceptual Areas in the Dynamic Learning Map: **MC 3.1 Understand and use measurement principles and units of measure** *Essential Elements Included: 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* **MC 3.2 Represent and interpret data displays** *Essential Elements Included: 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*
Claim 4	**Algebraic and functional reasoning: Students solve increasingly complex mathematical problems, making productive use of algebra and functions.** Conceptual Areas in the Dynamic Learning Map: **MC 4.1. Use operations and models to solve problems** *Essential Elements Included: 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* **MC 4.2 Understand patterns and functional thinking** *Essential Elements Included: 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*

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 Name:_____ Week Of: _____

Gen. Ed. Contact:_____ Subject: _____

Gen Ed. Concepts Planned:	**CCSS Addressed:**	**Communication Plan:**
Mon. Tues. Wed. Thurs. Fri.		Mon. Tues. Wed Thurs Fri.

Accommodations in IEP:	***Data* Collection:**	**Notes:**
	Mon. _____ Tues._____ Wed._____ Thurs._____ Fri._____	

Educator Collaboration Plan Name: ____Sample_____ Week Of: Oct. 7 to 11, 2013

Gen. Ed. Contact: __Mrs. Jones_____ Subject: ____Math_____

Gen Ed. Concepts Planned:

Mon. Fractions – whole, half, quarter

Tues. Fractions – quarters, thirds
1/3, 2/3, 3/3
1/4, 2/4, 3/4, 4/4

Wed. Halves, quarters, thirds review

Thurs. Fractions project (demonstrate understanding of "equal parts" of a whole

Fri. Quiz on whole, halves, thirds, & quarters

CCSS Addressed:

1.G.3 Partition circles and rectangles into two and four equal shares using the words halves, fourths, and quarters.

Communication Plan: Pre-program Alpha Talker daily before class (allow student to practice before class).

Mon.

"That is a whole" "whole"
"That is a half" "one-half"
That is a quarter" "one-quarter"

Tues. " That is" "One-third" "two-thirds" "whole"
"One-forth" "one-half" "three-quarters"

Wed. Same as Mon and Tues

Thurs. "I have two fractions in my demonstration."
"One half, and half of that is one fourth."

Fri. Use words from Mon. and Tuesday for Quiz.

Accommodations in IEP:

Alpha Talker is communication mode and requires that specific terms and sentences are programmed into the device prior to class.
Para will accompany student to class and will be responsible to pre-program Talker with two specific answers according to the Collaboration Plan.
Data will be collected on comm. performance and accuracy by Para.

***Data* Collection:**

Mon. whole___ half ___
quarter____

Tues. whole___ half___ 1/4___
1/3___ 2/3___ 3/4___

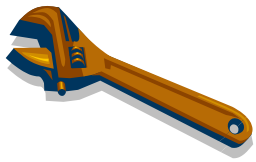
Wed. whole___ half___ 1/4___
1/3___ 2/3___ 3/4___

Thurs. half___ 1/4___
Used both sentences in demo ___

Fri. whole___ half___ 1/4___
1/3___ 2/3___ 3/4___

Notes:

Quiz (Friday) may need to be taken in an area where other students cannot hear the answers.
Para writes student's answers and gen. ed. teacher corrects quiz.



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.

Name_____School Term_____ **STANDARD EE.2.OA.3**

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											

Name_____**Grade**_____**School Term**_____ **STANDARD:**

"I Can" Statements ☑Checklist

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

Strand:	**Cluster:**				**Standard:**								
		Date											
		DATA											
		Date											
		DATA											
		Date											
		DATA											
		Date											
		DATA											
		Date											
		DATA											

Name_____Grade_____School Term_____ STANDARD:

	Date										
	DATA										
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Grade 7 Math **7.RP.1-3 Element Card**

Domain: **Ratios and Proportional Relationships**

Cluster: **Analyze proportional relationships and use them to solve real-world and mathematical problems**

Standard 7.RP.1: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction* $^{1/2}/_{1/4}$ *miles per hour, equivalently 2 miles per hour.* **Standard 7.RP.2**. Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. **b.** Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. *c.* Represent proportional relationships by equations. *For example, if total cost* t *is proportional to the number* n *of items purchased at a constant price* p*, the relationship between the total cost and the number of items can be expressed as* t = pn*.* d. Explain what a point (*x*, *y*) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r*) where *r* is the unit rate. **Standard 7.RP.3.** Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*	**Essential Element EE.7.RP.1-3:** Use a ratio to model or describe a relationship.

Grade 6 Essential Element EE.6.RP.1: • Demonstrate a simple ratio relationship.	**Grade 8 Essential Element 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*. *For example, when given a ratio in standard form (2:1), convert to 2/1, and plot the point (1, 2).*

Grade 7 Math **7.RP.1-3 Element Card**

Domain: **Ratios and Proportional Relationships**

Cluster: **Analyze proportional relationships and use them to solve real-world and mathematical problems**

I Can Statements:

- I can identify one item as it relates to another.
- I can demonstrate a simple ratio relationship.
- I can use a ratio to model or describe a relationship.
- I can complete the ratio using numbers to show relationships.

Key Vocabulary:

- ratio
-

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:

- When given two baskets with markers, count the number in each basket and compare.
- Given two cards with attendance cards, compare the number here and absent.
- Given a half an apple and a whole apple, identify "the whole" apple.
- Using a dry ease board demonstrate a ratio relationship of squares to circles.
- When playing a board game, move one space for every dot on the die.
- Complete a pattern given a simple ratio.
- Given a bag of green and red chips, identify the ratio of green chips compared to red chips.
- Use a pictorial representation to show part-whole relationship (e.g., What part of the picture is shaded? Three parts are shaded and one part is not.).
- Given one component of a ratio in standard form (1:_) complete the ratio.
- Given a family picture, what is the ratio of people wearing hats compared to the total number of people in the picture?
- Describe the relationship between miles driven and the time taken by creating a ratio (e.g., Katie knows she can drive one mile in two minutes is 1:2.)

Real World Connections:

Resources:

- How to Use M&M's to Teach Ratios http://www.ehow.com/how_8517061_use-mms-teach-ratios.html
- Ratio Worksheets for Teachers http://www.math-aids.com/Ratios/
- Ratios Lesson Plan http://mathlessons.about.com/od/sixthgradelessons/a/Lesson-Plan-Ratios.htm
- Interactive Internet Ratio Relationships Activity http://math.rice.edu/~lanius/proportions/index.html
- Learn Zillion: Use a ratio to model or describe a relationship http://learnzillion.com/lessonsets/133-understanding-ratios-and-using-ratio-language-to-describe-a-ratio-relationship-1
- TpT: Lego Rations (FREE) http://www.teacherspayteachers.com/Product/Lego-Ratios-195670
- If You Hopped Like a Frog by David Schwartz http://www.amazon.com/exec/obidos/tg/detail/-/0590098578/qid=1081640965/sr=1-1/ref=sr_1_1_xs_stripbooks_i1_xgl14/102-4374414-9350549?s=books&v=glance

Grade 7 Math **7.RP.1-3 Element Card**

Domain: **Ratios and Proportional Relationships**

Cluster: **Analyze proportional relationships and use them to solve real-world and mathematical problems**

Grade 7 Math **7.NS.1 Element Card**

Domain: **The Number System**

Cluster: **Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**

Standard 7.NS.1: Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. *a.* Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.* b. Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + (–q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers.	**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 6 Essential Element EE.6.NS.1: • Compare the relationships between two unit fractions.	**Grade 8 Essential Element EE.8.NS.1:** • Subtract fractions with like denominators (halves, thirds, fourths, and tenths) with minuends less than or equal to one.
I Can Statements: • I can use models to identify the whole and find the missing pieces of a whole. • I can use models to add halves, thirds, and fourths. • I can add fractions with like denominators (halves, thirds fourths, and tenths) so the solution is less than or equal to one.	
Key Vocabulary: • denominator • halves, thirds, fourths • numerical 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)

Grade 7 Math **7.NS.1 Element Card**

Domain: **The Number System**

Cluster: **Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**

Instructional Examples:

- Given three choices, identify which is more, a whole or a half.
- Presented with a whole object and the same object with a piece missing, identify the whole.
- Given 1/2 a pizza, identify the missing part (concrete model or touch board).
- Shown papers cut in halves, thirds, etc., choose the object cut in halves.
- Given boxes with one-third shaded, one-half shaded, and the whole shaded, choose the one with the whole shaded.
- Given thirds, construct the whole and add the number of thirds needed to make a whole.
- Given fourths, construct the whole and add the number of fourths needed to make a whole.
- Given a recipe that calls for a 1/4 cup of sugar, shade a picture of a measuring cup marked into fourths to show how much sugar is needed to double the recipe (1/4 + 1/4 = 2/4 or 1/2).
- Demonstrate that a whole can be divided into equal parts, and when reassembled, recreates the whole using a model.
- Use fraction bars or fraction circles to add so that answer is less than or equal to one. Match a numerical representation to the model.
- Given tenths, construct the whole and recognize that 10 tenths are needed to make a whole. (Connect to money -- 10 dimes = one whole dollar).

Real World Connections:

Resources:

- How to Use M&M's to Teach Ratios http://www.ehow.com/how_8517061_use-mms-teach-ratios.html
- Ratio Worksheets for Teachers http://www.math-aids.com/Ratios/
- Ratios Lesson Plan http://mathlessons.about.com/od/sixthgradelessons/a/Lesson-Plan-Ratios.htm
- Interactive Internet Ratio Relationships Activity http://math.rice.edu/~lanius/proportions/index.html
- Learn Zillion: Use a ratio to model or describe a relationship http://learnzillion.com/lessonsets/133-understanding-ratios-and-using-ratio-language-to-describe-a-ratio-relationship-1
- TpT: Lego Rations (FREE) http://www.teacherspayteachers.com/Product/Lego-Ratios-195670
- If You Hopped Like a Frog by David Schwartz http://www.amazon.com/exec/obidos/tg/detail/-/0590098578/qid=1081640965/sr=1-1/ref=sr_1_1_xs_stripbooks_i1_xgl14/102-4374414-9350549?s=books&v=glance

Grade 7 Math **7.NS.2a Element Card**

Domain: **The Number System**

Cluster: **Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**

Standard 7.NS.2: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. **a.** Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.	**Essential Element EE.7.NS.2a:** Solve multiplication problems with products to 100.

Grade 6 Essential Element EE.6.NS.3: • Solve two factor multiplication problems with products up to 50 using concrete objects and/or a calculator.	**Grade 8 Essential Element EE.8.NS.2b:** • Compare quantities represented as decimals in real world examples to hundredths.
I Can Statements: • I can skip count by twos and tens. • I can solve multiplication problems using factors 1–10. • I can solve multiplication problems with products to 100. • I can solve multiplication problems with products to 144.	
Key Vocabulary: • product • skip count • factor • array	**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: • Model repeated addition. • Use a 100s board or touch board to skip count (i.e., 2, 4, 6, 8, . . .). • Given bundles of pipe cleaners (10 in each bundle), skip count to find the total. • Use repeated addition to solve multiplication problems. • Using a multiplication chart, identify the answer to multiplication problems. • Create arrays to model multiplication facts. • Use 100s board or touch board to model skip counting (i.e., 2, 4, 6, 8…). • Group items to model multiplication (e.g., 3x5 could be modeled by three groups with five in each group).	

Grade 7 Math **7.NS.2a Element Card**

Domain: **The Number System**

Cluster: **Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**

- Given the model of a multiplication problem, identify the multiplication problem and the corresponding answer.
- Given a multiplication problem (4x3) and three answer choices, use a calculator to solve the problem and choose the correct answer.
- Given an array of models, show which array depicts a problem (e.g., 5x7=35).
- Solve word problems using multiplication (e.g., I want bring 10 people to my party and I have two party hats for each person. How many party hats do I have?).
- Given a multiplication problem, solve independently using a variety of methods.
- Given the product and three possible multiplication problems, identify the correct multiplication problem for the answer.

Real World Connections:

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Resources:

- Multiplication Fact Game http://mathcoachscorner.blogspot.ca/2013/03/multiplication-fact-game.html
- Speed Math Freebie http://www.teacherspayteachers.com/Product/Speed-Math-781509
- Interactive Multiplication Fact Games http://www.multiplication.com/games
- Fun 4 the Brain Multiplication Fact Games http://www.fun4thebrain.com/mult.html
- Learn Zillion http://learnzillion.com/lessons

Grade 7 Math **7.NS.2b Element Card**

Domain: **The Number System**

Cluster: **Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**

Standard 7.NS.2: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. **b.** Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.	**Essential Element EE.7.NS.2b:** Solve division problems with divisors up to five and also with a divisor of 10 without remainders.

Grade 6 Essential Element EE.6.NS.2: • Apply the concept of fair share and equal shares to divide.	**Grade 8 Essential Element EE.8.EE.3-4:** • Compose and decompose whole numbers up to 999.
I Can Statements: • I can associate value with the number one by recognizing the group/set that has more than one. • I can determine how many times a number can be subtracted from an equally divisible number. • I can solve division problems with divisors up to five and also with a divisor of 10 without remainders. • I can solve division problems with divisors up to 10 using numbers.	
Key Vocabulary: • divisor • remainder • quotient • divisible	**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: • Given a stack of library books and a single book, identify which set has more than one. • Compose a set with more than one manipulative. • Given a number divisible by five or 10, subtract out five or 10, show the number of times this number can be subtracted (e.g., "Show me how many sets of five pipe cleaners you can divide 20 pipe cleaners into"). • Given a number line, demonstrate how many times a number can be subtracted from an equally divisible number (e.g., "Show me how many times can you subtract five from 25 using the number line"). • Given pictures of pairs of shoes, subtract pairs to determine how many people (e.g., "If there are 10 shoes in the room, how many people are there?"). • Use money to solve division problems (e.g., If a friend and I find 10 dollars, how will we split it up so that we each get the same amount? Divide the paper money to find the answer.). • Given 10 manipulatives, divide into two equal groups of five. Show that $10 / 2 = 5$.	

Grade 7 Math **7.NS.2b Element Card**

Domain: **The Number System**

Cluster: **Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**

- Divide the classroom into four equal groups for a sports tournament.
- Use the number line to show how many times you can subtract five out of 15.
- If you give each person two cups of soup and you have 10 cups of soup, how many people could come to your soup party?
- Given a real-world problem, find the solution using division (e.g., "If I have the area of a hall that is 50 feet and one side has a length of 5 feet, how long is the other side?).
- Given a problem involving money, find the solution using division (e.g., "If a friend and I find 20 dollars, how will we split it up so that we each get the same amount?").
- If I have a large bowl with eight cups of beans, how many two-cup servings can I get out of that bowl?
- Given a computer program with division problems, find the quotient.
- When planting seeds for a science experiment, divide the seeds into 10 equal shares and represent the problem in numerals.

Real World Connections:

Resources:

- Great Schools: Dividing by 10 http://www.greatschools.org/worksheets-activities/5748-dividing-by-10.gs
- Great Schools: Dividing by 5 http://www.greatschools.org/ads/interstitial.page?adslot=ContentSearch&passThroughURI=http%3A%2F%2Fwww.greatschools.org%2Fworksheets-activities%2F5723-dividing-by-5.gs
- Fling the Teacher: Multiply by 10, 100, or 1000 http://www.mathsrevision.com/index_files/Maths/Presentations/S1_Presentations/S1_TTT_10_100_100.html
- Flocabulary: Dividing by 5 & 10 Hip Songs (Free Trial) http://www.flocabulary.com/good-with-5s-and-10s-division/
- K-5 Math Teaching Resources: http://www.k-5mathteachingresources.com/multiplication-and-division-activities.html

Grade 7 Math **7.NS.2.c-d Element Card**

Domain: **The Number System**

Cluster: **Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**

Standard 7.NS.2: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Apply properties of operations as strategies to multiply and divide rational numbers. b. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	**Essential Element EE.7.NS.2.c-d:** Express a fraction with a denominator of 10 as a decimal.

Grade 6 Essential Element EE.6.NS.1: • Compare the relationships between two unit fractions.	**Grade 8 Essential Element EE.8.NS.2a:** • Express a fraction with a denominator of 100 as a decimal.
I Can Statements: • I can identify decimals or fractions. • I can identify the location of a fraction or decimal used in the real world and/or on a number line. • I can compare fractions to fractions and decimals to decimals using rationale numbers less than one. • I can compare and order fractions and decimals when all numbers are fractions or when all numbers are decimals or when fractions and decimals are mixed.	
Key Vocabulary: • denominator • decimal • compare	**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: • Given a whole number and a decimal, choose the decimal. • Given a ball, a block, and a decimal, point to the decimal. • Select 1/2 of an object when asked to show 1/2 (i.e., 1/2 of an apple). • Label the location of a fraction or decimal on a number line. • Given a number 2 1/2, point to the number on a number line. • Locate a decimal used in the real world on a number line to tell which is more (e.g., "If an item cost $0.58 and another item cost $0.59 cents, find both amounts on the number line and tell which costs more."). • Locate a fraction used in the real world on a number line to tell which is more (e.g., If I have 3/4 of a pie and you have 1/2 of a pie using the number line, show who has more pie. Find the location of the number 0.5 on a number line.).	

Grade 7 Math **7.NS.2.c-d Element Card**

Domain: **The Number System**

Cluster: **Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**

- Compare two fractions and locate them on a number line.
- Use pictorial representations to compare fractions to fractions and decimals to decimals.
- Point to the measuring cup that shows 1/2.
- Given a quarter and a dime, show which has a smaller value.
- Given two clocks, one on the hour and one on the half hour, choose which shows a half hour.
- Divide a whole pizza into different fractions (1/4 and 1/2).
- Order fractions or decimals from least to greatest (1/4, 1/2, and 3/4) on a number line.
- Sort fractions and decimals and match monetary amounts (1/4 of a dollar = 25¢, 1/2 of a dollar = $0.50).

Real World Connections:

Resources:

- Education.com: Decimals – Tenth's Place http://www.education.com/worksheet/article/decimals-tenths-place-third/?fb_action_ids=10151655997767525,10151655991037525&fb_action_types=educationdotcom:download&fb_source=other_multiline&action_object_map=%7B%2210151655997767525%22:10150325535118032,%2210151655991037525%22:10150330371313275%7D&action_type_map=%7B%2210151655997767525%22:%22educationdotcom:download%22,%2210151655991037525%22:%22educationdotcom:download%22%7D&action_ref_map=[]
- Learn Zillion: Convert fractions to decimals to the tenths place using visual aids and division http://learnzillion.com/lessons/1426-convert-fractions-to-decimals-to-the-tenths-place-using-visual-aids-and-division
- Learn Zillion: Convert fractions into decimals to the tenths place http://learnzillion.com/lessons/336-convert-fractions-into-decimals-to-the-tenths-place

Grade 7 Math **7.NS.3 Element Card**

Domain: **The Number System**

Cluster: **Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**

Standard 7.NS.3: Solve real-world and mathematical problems involving the four operations with rational numbers.	**Essential Element EE.7.NS.3:** Compare quantities represented as decimals in real-world examples to tenths.

Grade 6 Essential Element EE.6.NS.1: • Compare the relationships between two unit fractions.	**Grade 8 Essential Element EE.8.NS.2b:** • Compare quantities represented as decimals in real-world examples to hundredths.
I Can Statements: • I can identify money. • I can identify the decimal value of various coins. • I can demonstrate the value of various money amounts using decimals. • I can determine the total value of money written as a decimal given real-world situations.	
Key Vocabulary: • decimals • tenths	**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: • Given a group of coins representing different values, sort coins by like amounts. • Given a picture of a coin, match real coins to the picture. • Differentiate between dollar money and change (coins). • Choose money versus non-money (e.g., colored chips, etc.) to pay for purchases. • Given pictures of coins, identify the value of each coin in cents. • Given cards with different coin amounts written in decimals ($0.05, $0.10, $0.20, etc.), match the amount with the correct coin. • Given more than one of the same coin, identify the total value of the given coins. • Given a variety of coins and bills, write the value of the given money using a decimal. • Given a variety of coins, bills, and cards with amounts written with decimals, match the cards to the value of the coins. • Use a calculator to show the value of coins in decimals (e.g., quarters ($0.25), dimes ($0.10) nickels ($0.05), and pennies ($0.01). • Use a calculator to determine how much money they have total in decimal form. • Count money by using decimals/calculator to “shop” for items and determine how much money to pay the cashier when given the total of the purchase.	

Grade 7 Math **7.NS.3 Element Card**

Domain: **The Number System**

Cluster: **Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**

Real World Connections:
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 7 Math **7.EE.1 Element Card**

Domain: **Expressions and Equations**

Cluster: **Use properties of operations to generate equivalent expressions.**

Standard 7.EE.1: Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	**Essential Element EE.7.EE.1:** Use the properties of operations as strategies to demonstrate that expressions are equivalent.

Grade 6 Essential Element EE.6.EE.1-2: • Identify equivalent number sentences.	**Grade 8 Essential Element EE.8.EE.7:** • Solve simple algebraic equations with one variable using addition and subtraction.

I Can Statements:

- I can understand that different displays of the same quantity are equal.
- I can use the relationship within addition to illustrate that two expressions are equivalent.
- I can use the relationship within addition and/or multiplication to illustrate that two expressions are equivalent.
- I can apply the commutative property to complete an equation.

Key Vocabulary:

- expressions
- properties of operations
- balanced equations
- equivalent

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 that different arrangements of the same amount are equal (e.g., different arrangements of 4 dots – connection to subtilizing).
- Recognize that three discs and three squares are the same quantity.
- Is 2 + 3 = to 3 + 2? Answer yes/no. Ex. Is 2 + 3 = to 4 + 2? Answer yes/no.
- Given a model showing five objects plus two objects on one side of an equals sign and two objects on the other side, recognize that five objects are needed to get the same amount.
- 4 + 7 = 7 + ___ Ex. 2 x 4 = ___ x 2 Ex. 3 + ___ = 5 + 3
- 5 x 7 = ___ x ___ (7 x 5) Ex. ___ + ___ = 4 + 8 (8 + 4)
- Given 12 objects and an equation with three groups on one side of the equals sign and two groups on other side, create a balanced equation by recognizing that the side with three groups will have two objects in each group, and the side with two groups will have three objects in each group.

Real World Connections:

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Resources:

Grade 7 Math **7.EE.1 Element Card**

Domain: **Expressions and Equations**

Cluster: **Use properties of operations to generate equivalent expressions.**

- Tonya's Treats for Teachers: A Math Sentence that Says Two Things are Equal http://tonyastreatsforteachers.blogspot.com/2013/06/friday-freebie_28.html
- Monkey Math Balance iTunes App: Creating Balanced Equations https://itunes.apple.com/us/app/monkey-math-balance/id420919800?mt=8
- TpT: Balancing Equations for Younger Students ($2.25) http://sparklinginthirdgrade.blogspot.com/2013/04/its-spring-break-freebie.html
- Learn Zillion: Equivalent Expressions http://learnzillion.com/lessons?utf8=%E2%9C%93&filters%5Bsubject%5D=math&query=equivalent+expressions&filters%5Bgrade%5D%5B%5D=3&filters%5Bdomain%5D=&filters%5Bstandard%5D=
- Skittle Riddles http://www.amazon.com/Skittles-bite-size-candies-riddles/dp/0439318440/?ref=pd_sim_b_12
- TpT: Candy Math and Equivalent Number Sentences http://www.teacherspayteachers.com/Product/Candy-Math-Number-Sentences-and-Equivalent-Sets-132629
- TpT: Touchdown Number Sentences with QR Codes http://www.teacherspayteachers.com/Product/Touchdown-Number-Sentences-with-QR-Codes-526746
- The Lesson Plan Diva: Balanced Equations http://www.lessonplandiva.com/2013/03/blooming-into-spring-contractions.html
- Writing Equivalent Number Sentences http://www.greatschools.org/worksheets-activities/5656-writing-equivalent-number-sentences.gs
  Learn Zillion http://learnzillion.com/lessons

Grade 7 Math **7.EE.2 Element Card**

Domain: **Expressions and Equations**

Cluster: **Use properties of operations to generate equivalent expressions.**

Standard 7.EE.2: Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example,* a *+ 0.05*a *= 1.05*a *means that "increase by 5%" is the same as "multiply by 1.05."*	**Essential Element EE.7.EE.2:** Identify an arithmetic sequence of whole numbers with a whole number common difference.

Grade 6 Essential Element EE.6.NS.5-8: • Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero).	**Grade 8 Essential Element EE.8.EE.2:** • Identify a geometric sequence of whole numbers with a whole number common ratio.

I Can Statements:

- I can understand that different displays of the same quantity are equal.
- I can use the relationship within addition to illustrate that two expressions are equivalent.
- I can use the relationship within addition and/or multiplication to illustrate that two expressions are equivalent.
- I can apply the commutative property to complete an equation.

Key Vocabulary: • expressions • properties of operations • balanced equations • equivalent	**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 that different arrangements of the same amount are equal (e.g., different arrangements of 4 dots – connection to subtilizing).
- Recognize that three discs and three squares are the same quantity.
- Is 2 + 3 = to 3 + 2? Answer yes/no. Ex. Is 2 + 3 = to 4 + 2? Answer yes/no.
- Given a model showing five objects plus two objects on one side of an equals sign and two objects on the other side, recognize that five objects are needed to get the same amount.
- 4 + 7 = 7 + ___ Ex. 2 x 4 = ___ x 2 Ex. 3 + ___ = 5 + 3
- 5 x 7 = ___ x ___ (7 x 5) Ex. ___ + ___ = 4 + 8 (8 + 4)
- Given 12 objects and an equation with three groups on one side of the equals sign and two groups on other side, create a balanced equation by recognizing that the side with three groups will have two objects in each group, and the side with two groups will have three objects in each group.
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Real World Connections:

Grade 7 Math **7.EE.2 Element Card**

Domain: **Expressions and Equations**

Cluster: **Use properties of operations to generate equivalent expressions.**

Resources:

- Ordering Numbers http://mrsharrellsprek.blogspot.com/search?updated-max=2013-04-23T17:56:00-07:00&max-results=7
- Teaching Blog Addict: Ordering Numbers http://www.teachingblogaddict.com/2011/06/ordering-numbers-what-number-comes.html
- From the Pond: Grab the Dragon Ordering Numbers Game http://frompond.blogspot.com.au/2013/02/grab-dragon.html
- Top Marks: Ordering Numbers http://www.topmarks.co.uk/maths-games/7-11-years/ordering-and-sequencing-numbers

Grade 7 Math **7.EE.3 Element Card**

Domain: **Expressions and Equations**

Cluster: **Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**

Standard 7.EE.3: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form, convert between forms as appropriate, and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*	**Essential Element EE.7.EE.3:** Not Applicable

Grade 6 Essential Element: • Not Applicable	**Grade 8 Essential Element:** • Not Applicable
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)
Instructional Examples:	
Real World Connections:	
Resources:	

Grade 7 Math **7.EE.4 Element Card**

Domain: **Expressions and Equations**

Cluster: **Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**

Standard 7.EE.4: Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?* b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*	**Essential Element EE.7.EE.4:** Use the concept of equality with models to solve one-step addition and subtraction equations.

Grade 6 Essential Element EE.6.EE.1-3: • Identify equivalent number sentences. **Grade 6 Essential Element EE.6.EE.3:** • Apply the properties of addition to identify equivalent numerical expressions.	**Grade 8 Essential Element EE.8.EE.7:** • Solve simple algebraic equations with one variable using addition and subtraction.

I Can Statements:

- I can recognize equal quantities on both sides of an equation.
- I can identify the amount needed to equal the value on the given side of an equation.
- I can use the concept of equality with models to solve one-step addition and subtraction equations.
- I can solve two-step addition and subtraction equations.

Grade 7 Math **7.EE.4 Element Card**

Domain: **Expressions and Equations**

Cluster: **Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**

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)
• balanced equation • equality • value	

Instructional Examples:

- Give the digit 5, count out five objects as an equal quantity.
- Match equal quantities: three triangles is the same quantity as three circles.
- Given a number from 2 to 10, decompose the number to create a balanced equation (connection to decomposition of numbers).
- Three objects + two objects will equal five objects.
- Given 10=2+__, identify the missing amount using models.
- Given 12-__=5, identify the missing amount using models.
- Given 4+__=12, identify the missing amount using models.
- If I have three balls and I get some more balls – how many did I get if I now have seven?
- If there is a quantity of five on one side of the equation and a quantity of two on the other side, what quantity is added to make it equal?
- After determining that 9-6=3, determine that three is composed of 3+1).
- After determining that 5+5=10, decompose 10 into three and seven.

Real World Connections:

Resources:

- Commutative Property Activity http://www.brainpop.com/math/numbersandoperations/commutativeproperty/preview.weml
- ALEX: Cracker Math – Commutative Property Activity http://alex.state.al.us/lesson_view.php?id=16804
- Smart Exchange Smart Board Activities/Lessons http://exchange.smarttech.com/search.html?q=%22Commutative%20Property%22
- Super Teachers Associative Property Worksheet http://www.superteacherworksheets.com/addition/associative-property-addition.pdf
- Commutative & Associative Anchor Chart http://thegoodlife-lindsay.blogspot.com/
- Learnist: Commutative & Associative of Addition http://learni.st/users/52903/boards/19903-applying-commutative-and-associative-properties-common-core-1-oa-3#/users/52903/boards/19903-applying-commutative-and-associative-properties-common-core-1-oa-3
- Learn Zillion http://learnzillion.com/lessons

Grade 7 Math **7.G.1 Element Card**

Domain: **Geometry**

Cluster: **Draw, construct, and describe geometrical figures and describe the relationships between them**

Standard 7.G.1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	**Essential Element EE.7.G.1:** Match two similar geometric shapes that are proportional in size and in the same orientation.

Grade 6 Essential Element EE.6.RP.1: • Demonstrate a simple ratio relationship.	**Grade 8 Essential Element EE.8.G.2:** • Identify shapes that are congruent.

I Can Statements:

- I can demonstrate the ability to recognize a two-dimensional shape (circle, triangle, rectangle, square) when given a complete shape.
- I can demonstrate the ability to complete a two-dimensional shape (circle, triangle, rectangle, square).
- I can draw or classify and recognize basic two-dimensional geometric shapes without a model (circle, triangle, rectangle/square).
- I can draw or model two-dimensional shapes including a trapezoid and rhombus without a model.

Key Vocabulary: • geometric shapes • proportional • rhombus • two-dimensional shape • trapezoid	**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:

- Given a sample shape, trace the shape (touch board, raised paper, wiki sticks, etc.)
- Use various media for students to form a simple geometric shape (i.e. sand, shaving cream)
- Compare shapes when given manipulatives – to say two shapes are the same (congruent) after matching the sides on each.
- When given a shape, find another shape like the one just given.
- Recognize a shape.
- Given concrete pieces, complete a specified shape (i.e., four equal length popsicle sticks to create a square).
- Given an arc, complete the drawing of a circle.
- Compare shapes when given manipulatives/pictures and asked to tell what shapes are the same and what shapes are is different.
- Draw a rectangle and circle.
- State the name of circle, triangle, rectangle, and square.
- Recognize and group together different types of rectangles and circles
- Draw a shape that is twice as big in one dimension (length or width) as a given shape (e.g., given a coordinate grid, have the student draw a rectangle that is twice as long and twice as high as the one he/she is given).

Grade 7 Math **7.G.1 Element Card**

Domain: **Geometry**

Cluster: **Draw, construct, and describe geometrical figures and describe the relationships between them**

- Replicate a geometric shape with given dimensions.
- Draw/create a trapezoid. Draw/create a rhombus.

Real World Connections:

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

Grade 7 Math **7.G.2 Element Card**

Domain: **Geometry**

Cluster: **Draw, construct, and describe geometrical figures and describe the relationships between them**

Standard 7.G.2: Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.	**Essential Element EE.7.G.2:** Recognize geometric shapes with given conditions.

Grade 6 Essential Element EE.6.G.1: • Solve real-world and mathematical problems about area using unit squares. **Grade 6 Essential Element EE.6.G.2:** • Solve real-world and mathematical problems about area using unit cubes.	**Grade 8 Essential Element EE.8.G.2:** • Identify shapes that are congruent. **Grade 8 Essential Element EE.8.G.4:** • Identify similar shapes with and without rotation.
I Can Statements: • I can demonstrate the ability to recognize a two-dimensional shape (circle, triangle, rectangle, square) when given a complete shape. • I can demonstrate the ability to complete a two-dimensional shape (circle, triangle, rectangle, square). • I can draw or classify and recognize basic two-dimensional geometric shapes without a model (circle, triangle, rectangle/square). • I can draw or model two-dimensional shapes including a trapezoid and rhombus without a model.	
Key Vocabulary: • geometric shapes • congruent • trapezoid • rhombus • arc • rectangle • circle • one-dimension	**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: • Given a sample shape, trace the shape (touch board, raised paper, wiki sticks, etc.) • Use various media for students to form a simple geometric shape (i.e. sand, shaving cream) • Compare shapes when given manipulatives – to say two shapes are the same (congruent) after matching the sides on each. • When given a shape, find another shape like the one just given. • Recognize a shape. • Given concrete pieces, complete a specified shape (i.e., four equal length popsicle sticks to create a square). • Given an arc, complete the drawing of a circle.	

Grade 7 Math **7.G.2 Element Card**

Domain: **Geometry**

Cluster: **Draw, construct, and describe geometrical figures and describe the relationships between them**

- Compare shapes when given manipulatives/pictures and asked to tell what shapes are the same and what shapes are is different.
- Draw a rectangle and circle.
- State the name of circle, triangle, rectangle, and square.
- Recognize and group together different types of rectangles and circles
- Draw a shape that is twice as big in one dimension (length or width) as a given shape (e.g., given a coordinate grid, have the student draw a rectangle that is twice as long and twice as high as the one he/she is given).
- Replicate a geometric shape with given dimensions.
- Draw/create a trapezoid. Ex. Draw/create a rhombus.

Real World Connections:

Resources:

- Circles and Squares Everywhere by Max Glover http://www.amazon.com/dp/0152000917/?ref=cm_sw_r_pi_dp_rCVLrb06A3618
- The Shape of Things by Dayle Dodds http://www.amazon.com/dp/0613000560/?ref=cm_sw_r_pi_dp_iCVLrb1D6XYJV
- Fun School: Shape Cave Game http://funschool.kaboose.com/formula-fusion/games/game_shape_cave.html
- Identify Shapes Interactive http://www.theproblemsite.com/junior/color_shape_size.asp
- Share My Lesson: 2 & 3 Dimensional Shape Properties http://www.sharemylesson.com/teaching-resource/Shapes-and-their-properties-3004440/
- Share My Lesson: 3 Dimensional Shapes http://www.sharemylesson.com/teaching-resource/3D-shapes-3004775/
- Share My Lesson: 3 D Shape Photo Lotto http://www.sharemylesson.com/teaching-resource/3D-Shape-Photo-Lotto-3009927/
- 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

Grade 7 Math **7.G.3 Element Card**

Domain: **Geometry**

Cluster: **Draw, construct, and describe geometrical figures and describe the relationships between them**

Standard 7.G.3: Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	**Essential Element EE.7.G.3:** Match a two-dimensional shape with a three-dimensional shape that shares an attribute.

Grade 6 Essential Element EE.6.G.1: • Solve real-world and mathematical problems about area using unit squares.	**Grade 8 Essential Element EE.8.G.2:** • Identify shapes that are congruent.

I Can Statements:

- I can replicate the two-dimensional cross-section of a three-dimensional shape (cube, sphere, cylinder) when given a complete shape.
- I can identify the attributes of a three-dimensional shape (color, number of sides, faces, size, textures, shape, etc.).
- I can match a two-dimensional shape with a three- dimensional shape that shares an attribute.
- I can pair two- and three-dimensional shapes to complete a real-world task.

Key Vocabulary: • two-dimensional shape • three-dimensional shape • attribute • cube • face	**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:

- Given a cube, outline the base to form a square.
- Given a soda can, outline the base to form a circle.
- Given a red ball and communication device, identify words that describe the attributes of the ball.
- Given a group of shapes, describe common attributes.
- Given a class of objects, identify common attributes and choose one to sort by.
- Given a circle, find objects that are three-dimensional counterparts (e.g., ball, globe, sphere).
- Given a square, find objects that are three-dimensional counterparts (e.g., box, locker).
- Given a square, find three-dimensional objects that share one attribute (e.g., square with cube, circle with cylinder).
- Given a three-dimensional shape and several different two-dimensional shapes (e.g., cube, cylinders), select the two-dimensional shape that represents one face of the three-dimensional shape (e.g., square, circle).
- Given a diagram to show the placement of different shaped objects in a storeroom, use the two-dimensional shape in the diagram to place three-dimensional objects appropriately on the shelf (e.g., square boxes on squares, rectangular boxes on rectangles, and bottles on circles).

Grade 7 Math **7.G.3 Element Card**

Domain: **Geometry**

Cluster: **Draw, construct, and describe geometrical figures and describe the relationships between them**

Real World Connections:
Resources: • Share My Lesson: 2 & 3 Dimensional Shape Properties http://www.sharemylesson.com/teaching-resource/Shapes-and-their-properties-3004440/ • Share My Lesson: 3 Dimensional Shapes http://www.sharemylesson.com/teaching-resource/3D-shapes-3004775/ • Share My Lesson: 3 D Shape Photo Lotto http://www.sharemylesson.com/teaching-resource/3D-Shape-Photo-Lotto-3009927/ • 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

Grade 7 Math **7.G.4 Element Card**

Domain: **Geometry**

Cluster: **Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.**

Standard 7.G.4: Know the formulas for the area and circumference of a circle, and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	**Essential Element EE.7.G.4:** Determine the perimeter of a rectangle by adding the measures of the sides.

Grade 6 Essential Element EE.6.G.1: • Solve real-world and mathematical problems about area using unit squares.	**Grade 8 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).
I Can Statements: • I can outline the perimeter of an object. • I can identify the length and width of a rectangle. • I can find the perimeter of a rectangle given the length and width. • I can solve simple perimeter problems with rectangles.	
Key Vocabulary: • perimeter • length • width • rectangle • square	**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: • Count the number of squares around the outside of a gridded rectangle. • Outline the perimeter of a tablet by laying string around the edge • Outline the perimeter of a rectangular pan by tracing the edge with a finger. • Use wiki sticks to outline the border of a square/rectangle. • Given a gridded rectangle, identify the length of the top/bottom a • Place a string around the perimeter of an object and then measure the length of the string to tell the distance around the object. • Given a circle, measure the distance around the circle (circumference –perimeter of a circle). • Cover a rectangle with squares (i.e., color tiles) and identify the sum of numbers of tiles of the top/bottom and the sides. • Measure the length and width of a desk and other rectangular objects in the classroom (i.e., books, picture frames). • Shown a taped rectangle on the floor with tic marks or floor tiles denoting squares within the rectangle, walk around the rectangle, counting steps/tiles/tic marks, to determine the perimeter.	

Grade 7 Math **7.G.4 Element Card**

Domain: **Geometry**

Cluster: **Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.**

- Given a rectangle with tic marks indicating a length of six and a width of four, determine the perimeter by counting (6 + 4 + 6 + 4).
- Determine the perimeter of a rectangle given a visual model and a calculator.
- When given a picture of a garden with only the length and width identified, solve for perimeter.
- A bulletin board is 5' by 5'. How much border paper is needed for the perimeter?
- Given a rectangle with identified dimensions, determine the perimeter.

Real World Connections:

Resources:

- 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 7 Math **7.G.5 Element Card**

Domain: **Geometry**

Cluster: **Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.**

Standard 7.G.5: Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	**Essential Element EE.7.G.5:** Recognize angles that are acute, obtuse, and right.

Grade 6 Essential Element: • Not Applicable	**Grade 8 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.

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 • acute angle • obtuse angle • right angle • intersecting lines • adjacent angles • parallel lines	**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 a corner in the classroom (e.g., corner of the room or a table).
- Find angles in given shapes.
- Teacher creates on a geoboard. Is this a right angle?
- Which of these is a right angle? (slats in a window blind, sides of a pyramid model)
- Identify a right angle in the school environment.
- Use a right-angle tool (square corner - corner of a note card), to find right angles.
- Locate an angle with a measure less than the measure of a right angle
- Indicate if an open door is at an acute, obtuse, or right angle.
- Locate an angle with a measure greater than the measure of a right angle.
- Given a pair of parallel lines intersected by a third line, identify angles that are the same measure

Grade 7 Math **7.G.5 Element Card**

Domain: **Geometry**

Cluster: **Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.**

Real World Connections:
Resources: • 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/

Grade 7 Math **7.G.6 Element Card**

Domain: **Geometry**

Cluster: **Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.**

Standard 7.G.6: Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	**Essential Element EE.7.G.6:** Determine the area of a rectangle using the formula for length × width, and confirm the result using tiling or partitioning into unit squares.

Grade 6 Essential Element EE.6.G.1: • Solve real-world and mathematical problems about area using unit squares.	**Grade 8 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).

I Can Statements:

- I can duplicate the area of a rectangle (square).
- I can identify the length and width (dimensions) of a rectangle.
- I can find the area of a rectangle given the length and width using a model.
- I can solve simple area problems with rectangles.

Key Vocabulary: • area • rectangle • formula • unit squares • dimensions • length x width	**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 squares of colored paper to cover their desk or tray on a wheelchair.
- Cover a square pan with pieces of toast, square crackers, etc. in a single layer.
- Given a gridded rectangular box place smaller boxes side-by-side (in one layer) to count how many small boxes the large box holds and identify the numerical value (sum) of the grids inside the rectangle
- Cover a given rectangle with squares (i.e., color tiles) and identify the numerical value of the total number of square units.
- Given a picture of a rectangle, have students divide the interior of the figure into equally squared units and determine the number of squared units within the rectangle.
- Partition rectangular figures into rows and columns of the same-size squares without gaps and overlaps and count them to find the area.
- Given rectangles (including squares) with grids, count squares to calculate the area.
- Given a rectangle with identified length and width dimensions, determine the area.
- A rectangular rug is 4’ by 5’. What is the area of the rug? Use a calculator to apply to the given model problem and find the answer.

Grade 7 Math **7.G.6 Element Card**

Domain: **Geometry**

Cluster: **Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.**

Real World Connections:

Resources:

- 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

Grade 7 Math **7.SP.1-2 Element Card**

Domain: **Statistics and Probability**

Cluster: **Use random sampling to draw inferences about a population.**

Standard 7.SP.1: Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences. **7.SP.2.** Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*	**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 6 Essential Element EE.6.SP.5: • Summarize data distributions shown in graphs or tables.	**Grade 8 Essential Element EE.8.SP.4:** • Construct a graph or table from given categorical data, and compare data categorized in the graph or table.
I Can Statements: • I can answer a question for data collection. • I can collect data to answer a given question. • I can answer a question related to the collected data from an experiment, given a model of data, or from data collected by the student. • I can answer a question about data collected from an experiment and explain or demonstrate the results.	
Key Vocabulary: • data • data collection • poll • experiment • tally marks • results	**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: • Answer a question about their favorite candy bar. • Answer a question about what they ate for breakfast. • Use a grid to record the number of tennis shoes in the classroom.	

Grade 7 Math **7.SP.1-2 Element Card**

Domain: **Statistics and Probability**

Cluster: **Use random sampling to draw inferences about a population.**

- Ask fellow classmates what their favorite activity subject is and keep tally marks of the responses.
- Asked what their favorite season is, place themselves in one of the four groups and answer a question about the results. (What is the group's favorite season? What is the group's least favorite season?)
- Given data (i.e., a frequency table) of favorite pizza toppings, which type of pizza would be ordered most often.
- Given data on height of students in two classes, identify which class has the tallest students.
- Poll classmates to determine where to go on a field trip and explain results.

Real World Connections:

Resources:

- Brain Pop: Graphs http://www.brainpopjr.com/search/?keyword=graph
- Brain Pop: Learn About Graphs http://www.brainpop.com/math/dataanalysis/graphs/preview.weml
- Brain Pop: Lessons about Graphs http://www.brainpop.com/educators/community/bp-topic/graphs/
- TpT: Calendar Graphs http://www.teacherspayteachers.com/Product/Calendar-Math-Pack-794107
- Graphing: Conversation Hearts http://helpinglittlehands.blogspot.com/2011/02/conversation-heart-activities.html
- TpT: Summarizing Calendar Graphs http://www.teacherspayteachers.com/Product/Weather-Graphing-for-Kids-with-Autism-615649
- Magic Tree House: Graphing for Gold http://www.mthclassroomadventures.org/pdf/mth-43-lesson-plan-graphing-for-gold.pdf
- Scholastic: Learning All About My Class with Graphs http://www.scholastic.com/teachers/lesson-plan/learning-all-about-me-my-class-graphs
- Learn Zillion http://learnzillion.com/lessons
- Teena's Teacher Tidbits: Transportation Graph Activity and Questions http://teenasteachertidbits.com/index.php?main_page=product_info&products_id=152

Grade 7 Math **7.SP.3 Element Card**

Domain: **Statistics and Probability**

Cluster: **Draw informal comparative inferences about two populations.**

Standard 7.SP.3: Informally assess the degree of visual overlap of two numerical data distributions with similar variables, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*	**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 6 Essential Element EE.6.SP.1-2: • Display data on a graph or table that shows variability in the data.	**Grade 8 Essential Element EE.8.SP.4:** • Construct a graph or table from given categorical data, and compare data categorized in the graph or table.

I Can Statements:

- I can read data from one given source.
- I can summarize data on a graph or table in one way.
- I can compare two sets of data within a single data display such as a picture graph, line plot, or bar graph.
- I can compare data from two picture graphs, two line plots, or two bar graphs.

Key Vocabulary: • picture graph • line plot • more or less • bar graph • pictograph	**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:

- Using a pictograph, identify the number of students who have a dog, are present, eat breakfast, etc.
- Using a bar graph, identify which is more or which is less.
- When looking at a graph of temperatures from the week, summarize the data in one way (i.e., three days were above 70 degrees).
- When looking at a table that contains data about what students like to eat or what students like to do, summarize the data in one way (i.e., “watch movies” has the most).
- Compare the change in the number of days of sunlight in summer and winter on a line plot on a given graph.
- Given a bar graph, compare the number of red M&Ms to blue M&Ms.
- Given two bar graphs showing the number of pets students from two different classrooms have, determine which classroom of students has the most pets.

Grade 7 Math **7.SP.3 Element Card**

Domain: **Statistics and Probability**

Cluster: **Draw informal comparative inferences about two populations.**

• Given two bar graphs, showing the number of boys and the number of girls from two different classrooms, determine which classroom has the least number of girls (or the least number of boys, or the greatest number of boys, or the greatest number of girls).
Real World Connections:
Resources: • TpT Bar Graph (free) http://www.teacherspayteachers.com/Product/Bar-Graphs-to-20-30883 • Picture Graph http://foundationteacherindubai.blogspot.com/ • Line graph http://jackofalltrades-leslie.blogspot.com/2011/08/line-graphshow-to-make-them-concrete.html • Graphing http://www.kidsmathgamesonline.com/numbers/mathdata.html

Grade 7 Math **7.SP.4 Element Card**

Domain: **Statistics and Probability**

Cluster: **Draw informal comparative inferences about two populations.**

Standard 7.SP.4: Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*	**Essential Element EE.7.SP.4:** Not Applicable

Grade 6 Essential Element: • Not Applicable	**Grade 8 Essential Element:** • Not Applicable
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)
Instructional Examples:	
Real World Connections:	
Resources:	

Grade 7 Math **7.SP.5-7 Element Card**

Domain: **Statistics and Probability**

Cluster: Investigate chance processes, and develop, use, and evaluate probability models.

Standard 7.SP.5: Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. **7.SP.6.** Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.* **7.SP.7.** Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.* b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*	**Essential Element EE.7.SP.5-7:** Describe the probability of events occurring as possible or impossible.

Grade 6 Essential Element EE.6.RP.1: • Demonstrate a simple ratio relationship. **Grade 6 Essential Element EE.6.SP.1-2:** • Display data on a graph or table that shows variability in the data.	**Grade 8 Essential Element EE.8.SP.4:** • Construct a graph or table from given categorical data, and compare data categorized in the graph or table.
I Can Statements: • I can identify outcomes based on a possible event. • I can identify possible events that could occur in the natural environment.	

Grade 7 Math **7.SP.5-7 Element Card**

Domain: Statistics and Probability

Cluster: Investigate chance processes, and develop, use, and evaluate probability models.

- I can describe the probability of events occurring as possible or impossible.
- I can differentiate and describe examples of a situation that is possible, a situation that is likely, and a situation that is impossible.

Key Vocabulary:

- probability
- possible
- impossible

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:

- Given a picture of a person wearing a heavy coat, scarf, and hat, identify if the clothing is appropriate for a picture of some weather condition.
- "We are going on a field trip in town. In which of the following would it be possible to transport the entire class (show pictures of a rocket, bicycle, and a bus)?"
- Given the lunch menu of pizza and hamburgers, identify whether it is possible to get a hamburger for lunch.
- Given a weekly chart of classroom jobs (different jobs every day of the week), answer "What job is possible for Monday?"
- Answer, "Is it possible that a squirrel attends school with you?"
- Answer, "Is it possible that a cow will ever drive a car?"
- Answer, "If you only own only three shirts - a red one, a blue one, and a black one - is it possible to pull a white one from your drawer?".
- State a situation that is impossible.
- State a situation that is possible.

Real World Connections:

Resources:

- TpT: Certain or Impossible Probability Sort (Free) http://www.teacherspayteachers.com/Product/Certain-or-Impossible-Probability-Sort-234401
- Possible and Impossible Download Sort Activity https://docs.google.com/file/d/0B5cZxPANzH3BMjRhOTk0ZDMtOTRiYy00YTQ4LTg3ZDQtNTk4NmZiZDdiNTk5/edit?pli=1
- Brain Pop: Probability Background Information and Activities http://www.brainpopjr.com/math/data/basicprobability/grownups.weml

Grade 7 Math **7.SP.8 Element Card**

Domain: **Statistics and Probability**

Cluster: Investigate chance processes, and develop, use, and evaluate probability models.

Standard 7.SP.8: Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space, which compose the event. c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*	**Essential Element EE.7.SP.8:** Not Applicable

Grade 6 Essential Element: • Not Applicable	**Grade 8 Essential Element:** • Not Applicable
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)
Instructional Examples:	
Real World Connections:	
Resources:	

Grade 7 Resources

EE.7.RP.1-3: Use a ratio to model or describe a relationship

- How to Use M&M's to Teach Ratios http://www.ehow.com/how_8517061_use-mms-teach-ratios.html
- Ratio Worksheets for Teachers http://www.math-aids.com/Ratios/
- Ratios Lesson Plan http://mathlessons.about.com/od/sixthgradelessons/a/Lesson-Plan-Ratios.htm
- Interactive Internet Ratio Relationships Activity http://math.rice.edu/~lanius/proportions/index.html
- Learn Zillion: Use a ratio to model or describe a relationship http://learnzillion.com/lessonsets/133-understanding-ratios-and-using-ratio-language-to-describe-a-ratio-relationship-1
- TpT: Lego Rations (FREE) http://www.teacherspayteachers.com/Product/Lego-Ratios-195670
- If You Hopped Like a Frog by David Schwartz http://www.amazon.com/exec/obidos/tg/detail/-/0590098578/qid=1081640965/sr=1-1/ref=sr_1_1_xs_stripbooks_i1_xgl14/102-4374414-9350549?s=books&v=glance

EE.7.NS.1: Add fractions with like denominators (halves, thirds, fourths and tenths) with sums less than or equal to one.

- Singapore Math: Adding fractions with like denominators http://www.youtube.com/watch?v=xNFfImiFSME
- Content Card for adding fractions with like denominators http://datadeb.wordpress.com/2010/04/09/content-card-adding-fractions-with-like-denominators/
- TpT: Roll, Slide, Cover Fraction Game (FREE) http://www.teacherspayteachers.com/Product/Roll-Slide-Cover-Fraction-Game-483019
- 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

EE.7.NS.2a: Solve multiplication problems with products to 100

- Multiplication Fact Game http://mathcoachscorner.blogspot.ca/2013/03/multiplication-fact-game.html
- Speed Math Freebie http://www.teacherspayteachers.com/Product/Speed-Math-781509
- Interactive Multiplication Fact Games http://www.multiplication.com/games
- Fun 4 the Brain Multiplication Fact Games http://www.fun4thebrain.com/mult.html
- Learn Zillion http://learnzillion.com/lessons

EE.7.NS.2b: Solve division problems with divisors up to five and also with a divisor of 10 without remainders.

- Great Schools: Dividing by 10 http://www.greatschools.org/worksheets-activities/5748-dividing-by-10.gs
- Great Schools: Dividing by 5 http://www.greatschools.org/ads/interstitial.page?adslot=ContentSearch&passThroughURI=http%3A%2F%2Fwww.greatschools.org%2Fworksheets-activities%2F5723-dividing-by-5.gs
- Fling the Teacher: Multiply by 10, 100, or 1000 http://www.mathsrevision.com/index_files/Maths/Presentations/S1_Presentations/S1_TTT_10_100_100.html
- Flocabulary: Dividing by 5 & 10 Hip Songs (Free Trial) http://www.flocabulary.com/good-with-5s-and-10s-division/
- K-5 Math Teaching Resources: http://www.k-5mathteachingresources.com/multiplication-and-division-activities.html

EE.7.NS.2c-d: Express a fraction with a denominator of 10 as a decimal.

- Education.com: Decimals – Tenth's Place http://www.education.com/worksheet/article/decimals-tenths-place-third/?fb_action_ids=10151655997767525,10151655991037525&fb_action_types=educationdotcom:download

&fb_source=other_multiline&action_object_map=%7B%2210151655997767525%22:10150325535118032,%2210151655991037525%22:10150330371313275%7D&action_type_map=%7B%2210151655997767525%22:%22educationdotcom:download%22,%2210151655991037525%22:%22educationdotcom:download%22%7D&action_ref_map=[]

- Learn Zillion: Convert fractions to decimals to the tenths place using visual aids and division http://learnzillion.com/lessons/1426-convert-fractions-to-decimals-to-the-tenths-place-using-visual-aids-and-division
- Learn Zillion: Convert fractions into decimals to the tenths place http://learnzillion.com/lessons/336-convert-fractions-into-decimals-to-the-tenths-place

EE.7.NS.3: Compare quantities represented as decimals in real-world examples to tenths.

- 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

EE.7.EE.1: Use the properties of operations as strategies to demonstrate that expressions are equivalent.

- Tonya's Treats for Teachers: A Math Sentence that Says Two Things are Equal http://tonyastreatsforteachers.blogspot.com/2013/06/friday-freebie_28.html
- Monkey Math Balance iTunes App: Creating Balanced Equations https://itunes.apple.com/us/app/monkey-math-balance/id420919800?mt=8
- TpT: Balancing Equations for Younger Students ($2.25) http://sparklinginthirdgrade.blogspot.com/2013/04/its-spring-break-freebie.html
- Learn Zillion: Equivalent Expressions http://learnzillion.com/lessons?utf8=%E2%9C%93&filters%5Bsubject%5D=math&query=equivalent+expressions&filters%5Bgrade%5D%5B%5D=3&filters%5Bdomain%5D=&filters%5Bstandard%5D=
- Skittle Riddles http://www.amazon.com/Skittles-bite-size-candies-riddles/dp/0439318440/?ref=pd_sim_b_12
- TpT: Candy Math and Equivalent Number Sentences http://www.teacherspayteachers.com/Product/Candy-Math-Number-Sentences-and-Equivalent-Sets-132629
- TpT: Touchdown Number Sentences with QR Codes http://www.teacherspayteachers.com/Product/Touchdown-Number-Sentences-with-QR-Codes-526746
- The Lesson Plan Diva: Balanced Equations http://www.lessonplandiva.com/2013/03/blooming-into-spring-contractions.html
- Writing Equivalent Number Sentences http://www.greatschools.org/worksheets-activities/5656-writing-equivalent-number-sentences.gs
- Learn Zillion http://learnzillion.com/lessons

EE.7.EE.2: Identify an arithmetic sequence of whole numbers with a whole number common difference.

- Ordering Numbers http://mrsharrellsprek.blogspot.com/search?updated-max=2013-04-23T17:56:00-07:00&max-results=7
- Teaching Blog Addict: Ordering Numbers http://www.teachingblogaddict.com/2011/06/ordering-numbers-what-number-comes.html
- From the Pond: Grab the Dragon Ordering Numbers Game http://frompond.blogspot.com.au/2013/02/grab-dragon.html
- Top Marks: Ordering Numbers http://www.topmarks.co.uk/maths-games/7-11-years/ordering-and-sequencing-numbers

EE.7.EE.4: Use the concept of equality with models to solve one-step addition and subtraction equations.

- Commutative Property Activity

http://www.brainpop.com/math/numbersandoperations/commutativeproperty/preview.weml
- ALEX: Cracker Math – Commutative Property Activity http://alex.state.al.us/lesson_view.php?id=16804
- Smart Exchange Smart Board Activities/Lessons http://exchange.smarttech.com/search.html?q=%22Commutative%20Property%22
- Super Teachers Associative Property Worksheet http://www.superteacherworksheets.com/addition/associative-property-addition.pdf
- Commutative & Associative Anchor Chart http://thegoodlife-lindsay.blogspot.com/
- Learnist: Commutative & Associative of Addition http://learni.st/users/52903/boards/19903-applying-commutative-and-associative-properties-common-core-1-oa-3#/users/52903/boards/19903-applying-commutative-and-associative-properties-common-core-1-oa-3
- Learn Zillion http://learnzillion.com/lessons

EE.7.G.1: Match two similar geometric shapes that are proportional in size and in the same orientation.
- 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.7.G.2: Recognize geometric shapes with given conditions.
- Circles and Squares Everywhere by Max Glover http://www.amazon.com/dp/0152000917/?ref=cm_sw_r_pi_dp_rCVLrb06A3618
- The Shape of Things by Dayle Dodds http://www.amazon.com/dp/0613000560/?ref=cm_sw_r_pi_dp_iCVLrb1D6XYJV
- Fun School: Shape Cave Game http://funschool.kaboose.com/formula-fusion/games/game_shape_cave.html
- Identify Shapes Interactive http://www.theproblemsite.com/junior/color_shape_size.asp
- Share My Lesson: 2 & 3 Dimensional Shape Properties http://www.sharemylesson.com/teaching-resource/Shapes-and-their-properties-3004440/
- Share My Lesson: 3 Dimensional Shapes http://www.sharemylesson.com/teaching-resource/3D-shapes-3004775/
- Share My Lesson: 3 D Shape Photo Lotto http://www.sharemylesson.com/teaching-resource/3D-Shape-Photo-Lotto-3009927/
- 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.7.G.3: Match a two dimensional shape with a three-dimensional shape that shares an attribute.
- Share My Lesson: 2 & 3 Dimensional Shape Properties http://www.sharemylesson.com/teaching-resource/Shapes-and-their-properties-3004440/
- Share My Lesson: 3 Dimensional Shapes http://www.sharemylesson.com/teaching-resource/3D-shapes-3004775/

- Share My Lesson: 3 D Shape Photo Lotto http://www.sharemylesson.com/teaching-resource/3D-Shape-Photo-Lotto-3009927/
- 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.7.G.4: Determine the perimeter of a rectangle by adding the measures of the sides.

- 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

EE.7.G.5: Recognize angles that are acute, obtuse, and right.

- 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/

EE.7.G.6: Determine the area of a rectangle using the formula for l x w and confirm the result using tiling or partitioning into unit squares.

- 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

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.

- Brain Pop: Graphs http://www.brainpopjr.com/search/?keyword=graph
- Brain Pop: Learn About Graphs http://www.brainpop.com/math/dataanalysis/graphs/preview.weml
- Brain Pop: Lessons about Graphs http://www.brainpop.com/educators/community/bp-topic/graphs/
- TpT: Calendar Graphs http://www.teacherspayteachers.com/Product/Calendar-Math-Pack-794107
- Graphing: Conversation Hearts http://helpinglittlehands.blogspot.com/2011/02/conversation-heart-activities.html
- TpT: Summarizing Calendar Graphs http://www.teacherspayteachers.com/Product/Weather-Graphing-for-Kids-with-Autism-615649
- Magic Tree House: Graphing for Gold http://www.mthclassroomadventures.org/pdf/mth-43-lesson-plan-graphing-for-gold.pdf
- Scholastic: Learning All About My Class with Graphs http://www.scholastic.com/teachers/lesson-plan/learning-all-about-me-my-class-graphs

- Learn Zillion http://learnzillion.com/lessons
- Teena's Teacher Tidbits: Transportation Graph Activity and Questions http://teenasteachertidbits.com/index.php?main_page=product_info&products_id=152

EE.7.SP.5-7: Describe the probability of events occurring as possible or impossible.

- TpT: Certain or Impossible Probability Sort (Free) http://www.teacherspayteachers.com/Product/Certain-or-Impossible-Probability-Sort-234401
- Possible and Impossible Download Sort Activity https://docs.google.com/file/d/0B5cZxPANzH3BMjRhOTk0ZDMtOTRiYy00YTQ4LTg3ZDQtNTk4NmZiZDdiNTk5/edit?pli=1
- Brain Pop: Probability Background Information and Activities http://www.brainpopjr.com/math/data/basicprobability/grownups.weml