This Teacher Resource Guide has been developed to provide supporting materials to help educators successfully implement the Indiana Academic Standards for Kindergarten Mathematics – Adopted April 2014. These resources are provided to help you in your work to ensure all students meet the rigorous learning expectations set by the Academic Standards. Use of these resources is optional – teachers should decide which resource will work best in their school for their students.

This resource document is a living document and will be frequently updated. Please send any suggested links and report broken links to:

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The examples in this document are for illustrative purposes only, to promote a base of clarity and common understanding. Each example illustrates a standard but please note that examples are not intended to limit interpretation or classroom applications of the standards.

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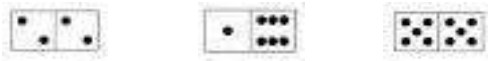
GOOD WEBSITES FOR MATHEMATICS:

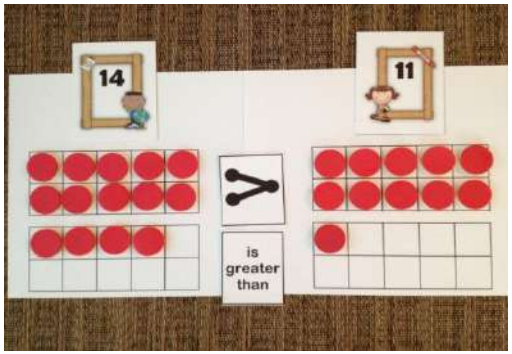
http://nlvm.usu.edu/en/nav/vlibrary.html
http://www.math.hope.edu/swanson/methods/applets.html
http://learnzillion.com
http://illuminations.nctm.org
https://teacher.desmos.com
http://illustrativemathematics.org
http://www.insidemathematics.org
https://www.khanacademy.org/
https://www.teachingchannel.org/
http://map.mathshell.org/materials/index.php
https://www.istemnetwork.org/index.cfm
http://www.azed.gov/azccrs/mathstandards/

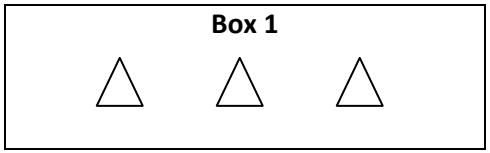
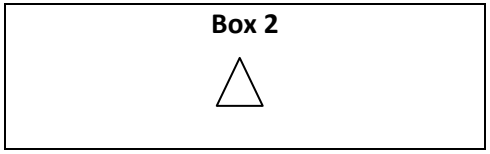
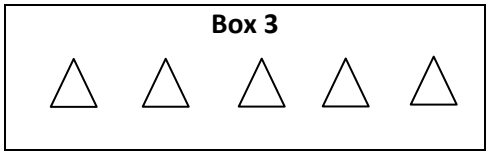
	Indiana Academic Standard for MathematicsKindergarten – Adopted April 2014	Highlighted Vocabulary Words from the Standard Defined	Specific Kindergarten Example for the Standard	Specific Kindergarten Electronic Resource for the Standard
Number Sense				
MA.K.NS.1	Count to at least 100 by ones and tens and count on by one from any number.		Count Around is an activity that can be used to help students with counting and counting on. Have the students sit in a circle. Then, toss a soft ball to one of the students and have them pick a number from 0-20. Next, that student tosses the ball to a different student and the student that catches the ball says the number that comes next. Continue play until everyone has had a chance to catch the ball at least once. Encourage students to think of the number that comes next even if they are not the ones to catching the ball. [There are variations to this activity, such as, starting from 0, count by tens with each toss of the ball.]	http://www.k-5mathteachingresources.com/Counting-Activities.html https://www.illustrativemathematics.org/illustrations/359

MA.K.NS.2	Write **whole numbers** from 0 to 20 and recognize number words from 0 to 10. Represent a number of objects with a written **numeral** 0-20 (with 0 representing a count of no objects).	**Whole numbers** - the set of numbers 0, 1, 2, 3, 4, 5, etc. **Numeral** – a symbol or name that stands for a number ; 0, 1, 2, 3, 4, 5, 6, 7, 8, 9	Practice Activity: Have students pick nine numbers from 0-10 and place them on a Bingo card like below. Then, show students a number word, such as "five", and have them mark that on their Bingo card if they used the number 5. Continue play until someone wins. [A variation of this is to have students pick nine numbers from 0-20 and place them on their Bingo card. Then, show students a picture of a number of objects and have them mark that number on their card if they used that number.] 5 7 2 9 0 10 1 4 3	ftp://math.stanford.edu/pub/papers/milgram/second-lecture-math100.pdf
MA.K.NS.3	Find the number that is one more than or one less than any whole number up to 20.		Count Around activity variation: Have the students sit in a circle. Start with a number from 0-20. Then, toss a soft ball to one of the students and have them say the numbers that are one more and one less than the given number. That student then picks a new number from 0-20 and play continues until everyone has had a chance to catch the ball at least once. Encourage students to think of the numbers that are one more and one less even if they are not the ones catching the ball.	http://www.learnnc.org/lp/pages/2959?ref=search http://www.youtube.com/watch?v=_wiZqtQ869o&safe=active

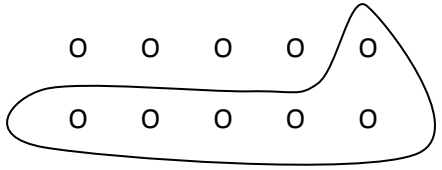
MA.K.NS.4	Say the number names in standard order when counting objects, pairing each object with one and only one number name and each number name with one and only one object. Understand that the last number name said describes the number of objects counted and that the number of objects is the same regardless of their arrangement or the order in which they were counted.		Activity: Place a number of counters on an overhead projector. As a class, count the number of counters one at a time, modeling how to count the objects and keep track of those already counted. Repeat this with different numbers of counters. Also, try placing the counters in rows and counting them in two different ways (e.g., counting from left to right and then counting from right to left) to show that the order in which the objects are counted does not change the number of objects in the set. Dot Cards may help students build number sense. The 1st web link to the right provides free printable dot cards. Activity: Provide students with a set of dot cards. Ask them to find a card with a certain number of dots, such as 5. Ask them if they can find another card with the same number of dots and if they can find a card that contains one more dot.	http://www.thecurriculumcorner.com/wp-content/pdf/mathdotcards.pdf https://www.illustrativemathematics.org/K

MA.K.NS.5	Count up to 20 objects arranged in a line, a **rectangular array**, or a circle. Count up to 10 objects in a **scattered configuration**. Count out the number of objects, given a number from 1 to 20.	**Rectangular array**- arranged in rows and columns, such as: • • • • • • • • **Scattered configuration**- objects are not arranged in any apparent order, such as: • • • • • • •	Activity A: Arrange up to 20 objects in a line, rectangular array, or circle and have students count the number of objects. Activity B: Provide students with a bag or jar of objects and ask them to count out a given number of the objects from 1-20. Activity C: 1. Fill a jar with no more than 10 objects. Have the students guess the number of objects in the jar. Then, ask them to think of a way to figure the exact number of objects in the jar. [You may need to explain that one way to figure the number of objects is by dumping them out and counting them.] 2. Then, dump them out so that they are in a scattered configuration. 3. Initially, you will likely need to model how to count a set of objects when they are in a scattered configuration (e.g., where to start, how to keep track of what's been counted). 4. After counting, ask students, "How do we know there are "X" objects?" [It's the last number counted.]	https://www.illustrativemathematics.org/illustrations/1397 https://www.illustrativemathematics.org/illustrations/452
MA.K.NS.6	Recognize sets of 1 to 10 objects in **patterned arrangements** and tell how many without counting.	**Patterned arrangements**- the way that things are arranged in a particular order or pattern	Students should develop recognition of the number of objects in an arrangement without counting. In the examples below, students should start to recognize that a pair of 2's makes 4; that the two rows of 3 make 6 and 1 more makes 7; and that the two 5's make 10. 	http://www.sas.com/images/landingpage/venues/mathssummit/2013/123LynneAllenBuildingK-1NumberSenseMathSummit.pdf http://www.doe.virginia.gov/instruction/mathematics/elementary/number_sense_module/nns_gradek.pdf

MA.K.NS.7	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group (e.g., by using matching and counting strategies).		Activity: Provide students with dot cards, counters, or blocks, and three word cards labeled “More Than”, “Less Than”, and “Same”. Then, have the students create two sets of objects (e.g., 4 blocks in one set and 6 blocks in another set), and have them match the word card that describes the relationship between the sets. Students can also verbally describe the relationship (e.g., “6 blocks is more than 4 blocks” or “4 blocks is less than 6 blocks”. You may also ask students to describe how they know their comparison is right (e.g., “each group has 4 blocks and this group has 2 extra blocks so it has more”).	https://www.illustrativemathematics.org/K
MA.K.NS.8	Compare the values of two numbers from 1 to 20 presented as written numerals.		It may help to initially compare numbers using numerals combined with counters as shown below. 	http://mdk12.org/instruction/academies/resources_2013/MATH/pdf/Math_unit_resources/K/M_K_CC_C_6_7_U_CompareNums.docx

MA.K.NS.9	Use correctly the words for comparison, including: one and many; none, some and all; more and less; most and least; and equal to, more than and less than.		Ask questions like: • Which box has the most triangles? • Which box has the least triangles? • Which box has more triangles than box 1? • Which box has less triangles than box 1?   	http://www.kidzone.ws/prek_wrksht/math-readiness/comparisons.htm
MA.K.NS.10	Separate sets of ten or fewer objects into equal groups.		Give students an even number of objects (ten or fewer) and have them separate the objects into 2 groups (e.g., a group of 4 and a group of 2). Then, have them compare the number of objects in the groups. If they don't have the same number of objects in each group, have them move an object(s) so that they create 2 groups with the same number of objects. You can also have them try to create more than 2 groups of equal objects.	http://pbskids.org/lab/show/curiousgeorge/
MA.K.NS.11	Develop initial understandings of place value and the base 10 number system by showing equivalent forms of whole numbers from 10 to 20 as groups of tens and ones using objects and drawings.		Give students 20 counters. Ask them to show the number 13 with the counters. Then, have them separate the 13 counters into a group of ten and a group of three. Then, have them keep the group of ten and have them show different numbers (11, 12, 14, etc.) using the counters.	http://www.studyzone.org/testprep/math4/d/baseten4l.cfm

Computation and Algebraic Thinking				
MA.K.CA.1	Use objects, drawings, **mental images**, sounds, etc., to represent addition and subtraction within 10.	**mental images -** to be seen or imagined in ones' head	Start with problems like 2 + 3 and have students act out, draw a picture, clap, and/or verbally explain the problem. For example, a student might draw a picture like the one below to show the addends and then count the number of dots to find the total. • • • • •	http://maccss.ncdpi.wikispaces.net/file/view/Kindergarten+Unit.pdf
MA.K.CA.2	Solve real-world problems that involve addition and subtraction within 10 (e.g., by using objects or drawings to represent the problem).		Focus on 4 situation types as described in the examples below. a) Two apples were on a desk. Five more apples were placed on the desk. How many apples are on the desk now? b) Five apples were on a desk. Then Mike ate two of the apples. How many apples are on the desk now? c) Two red apples and 5 green apples are on a desk. How many apples are on the desk? d) Seven apples are on a desk. Two of the apples are red and the rest are green. How many of the apples are green?	http://www.mathplayground.com/math_worksheets.html

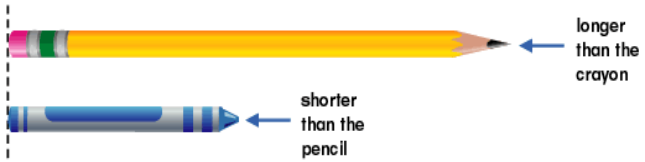
<table>
<tr>
<td>MA.K.CA.3</td>
<td>Use objects, drawings, etc., to decompose numbers less than or equal to 10 into pairs in more than one way, and record each decomposition with a drawing or an equation (e.g., 5 = 2 + 3 and 5 = 4 + 1). [In Kindergarten, students should see equations and be encouraged to trace them, however, writing equations is not required.]</td>
<td>decompose- to take apart into more than one part
compose - to combine into fewer parts
equation - a mathematical sentence where both sides of the "=" sign have the same value or amount</td>
<td>Give students a number of objects less than or equal to 10. Have them separate the objects into two groups and draw a picture that shows the number of objects in each group related to the total number of objects. Then, ask them to repeat the process with different numbers of objects in the groups. For example, a student might draw the following picture if they have 6 objects.
<table>
<tr><td>O O O O O O
6</td><td>O O O
3</td><td>O O O
3</td></tr>
<tr><td>O O O O O O
6</td><td>O O O O O
5</td><td>O
1</td></tr>
</table>
</td>
<td>http://randolphk-5instruction.wikispaces.com/file/view/Activities+for+Decomposing+Numbers.pdf</td>
</tr>
<tr>
<td>MA.K.CA.4</td>
<td>Find the number that makes 10 when added to the given number for any number from 1 to 9 (e.g., by using objects or drawings), and record the answer with a drawing or an equation.</td>
<td>equation - a mathematical sentence where both sides of the "=" sign have the same value or amount</td>
<td>Activity: Write the numbers 1-9 on individual pieces of paper. Put the papers in a bag. Have a student pull a piece of paper out of the bag and say the number. Then, have the students draw a picture to show the number pulled from the bag and the number that is needed to make ten. For example, a student might draw a picture like the one below if the number 4 is pulled from the bag. They might start by drawing 4 objects, then draw the amount needed to make 10, and circle those objects to highlight that amount.


</td>
<td>http://www.pinterest.com/pint80/koa4-common-core-what-makes-10/</td>
</tr>
</table>

MA.K.CA.5	Create, extend, and give an appropriate rule for simple repeating and growing patterns with numbers and shapes.		a) Have students extend and describe the repeating patterns below. [The first pattern may be described as an ABAB pattern. The second pattern may be described as an AAB pattern.]   b) Have students extend and describe the growing pattern below. [This pattern may be described as growing or increasing by 1.] | * | ** | *** | **** | | | c) Activity: Have students create their own pattern. Then, have them switch patterns with another student and try to determine each other's rule.	http://www.cpalms.org/Public/PreviewResource/Preview/12774

Geometry				
MA.K.G.1	Describe the positions of objects and geometric shapes in space using the terms inside, outside, between, above, below, near, far, under, over, up, down, behind, in front of, next to, to the left of and to the right of.		a) Ask students to describe the positions of objects in the room using the terms in the standard. For example, a student might say, "The marker is *under* the desk." Continue describing the positions of objects until all of the terms in the standard have been used. b) Play "I spy": Start by choosing an object in the room, but don't tell the students your object. Then, describe the location of the object using the terms in the standard. For example, "I spy an object *behind* my desk." Then students guess the object. Whoever guesses correctly gets to pick the next "I spy" object. [You may make a rule that students must choose an object that uses a term in the standard that has not already been used.]	http://www.math4children.com/Kidergarden/worksheets/
MA.K.G.2	Compare two- and three-dimensional shapes in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).		Play a version of 20 questions: Start by choosing an object in the room that clearly models a typical two- or three-dimensional shape, but don't tell the students your object. Some examples of objects might be a piece of chalk, a box, an eraser, a clock, a piece of paper, a garbage can, a desk, etc. Then, have students ask questions to help them guess your object. For example, they might ask, "Is it square shaped?" You may have to help them initially when asking questions. It might help to talk about the types of things they should ask about, such as, size, orientation, and parts. [A variation would be to choose an object outside of the classroom. You may also have students choose the object, however, they may need assistance in this role.]	https://www.engageny.org/sites/default/files/resource/attachments/math-gk-m2-full-module.pdf https://www.illustrativemathematics.org/illustrations/515

MA.K.G.3	Model shapes in the world by composing shapes from objects (e.g., sticks and clay balls) and drawing shapes.		Read "The Shape of Things", by Dayle Ann Dodds, or show the youtube clip in the far right column. Then, provide several cut out shapes to students and discuss ideas about how they might put the shapes together to create something they see in the world. Students can then glue their shapes on paper to create a picture (example below). 	http://blackboard.aacps.org/portal/tconnect/_elem/Math09/K-2CCSS/Kindergarten/kgeom.htm http://www.youtube.com/watch?v=1h1HcChju_0&safe=active
MA.K.G.4	Compose simple geometric shapes to form larger shapes (e.g., create a rectangle composed of two triangles).		Provide students with several manipulative shapes and have them put two or more together to create a new shape.	http://www.internet4classrooms.com/common_core/compose_simple_shapes_form_larger_shapes_geometry_kindergarten_math_mathematics.htm

Measurement				
MA.K.M.1	Make direct comparisons of the length, capacity, weight, and temperature of objects, and recognize which object is shorter, longer, taller, lighter, heavier, warmer, cooler, or holds more.		a) Have students make direct comparisons of objects. For example, they can line up a pencil and crayon to compare their lengths.  b) Ask students different "Would you rather" questions and have them explain their answer, such as: • Would you rather carry the eraser or chair across the room? [Possible answer: the eraser because the chair is heavier] • Would you rather have this cup filled with juice to share with the class or this bucket? [Possible answer: the bucket because it would hold more juice] • Would you rather wear this T-shirt outside in the winter or this jacket? [Possible answer: the jacket because it would keep me warmer] • Would you rather have a candy bar that is the length of this pencil or the length of this book? [Possible answer: the length of the book because it's longer]	http://www.eduplace.com/math/mw/background/1/10/te_1_10_overview.html
MA.K.M.2	Understand concepts of time, including: morning, afternoon, evening, today, yesterday, tomorrow, day, week, month, and year. Understand that clocks and calendars are tools that measure time.		a) Questions that promote an understanding of time: • What was one thing that we did yesterday? • What would you like to do tomorrow? • What is your favorite time of day: morning, afternoon, or evening? Draw a picture that shows why it's your favorite time of day. b) Have students keep track of the days using a classroom calendar.	https://www.teachervision.com/measurement/printable/54600.html

Data Analysis				
MA.K.DA.1	Identify, sort, and classify objects by size, number, and other attributes. Identify objects that do not belong to a particular group and explain the reasoning used.		Provide a bag with different objects for each student or groups of students. For example, a bag might have 4 red counters, 6 blue counters, and 7 yellow counters. Have the students sort the objects by color. Then, have them arrange them in order from least to most (i.e. red, then blue, then yellow).	http://www.eduplace.com/math/mathsteps/k/b/