MATH

grades
K-5

SAMPLER

integrated

curriculum maps

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before

you begin...

Welcome to your Math Integrated Curriculum Maps Sampler! These maps are intended to provide you with a way to begin exploring how to authentically integrate math and the arts through aligned standards. These alignments are based upon the Mathematics Common Core State Standards and the National Coalition for Core Arts National Arts Standards. You will find alignments to Visual Art, Music, Dance and Drama in this resource. There are a few things to keep in mind when using these maps for your classroom:

- **This is a sampler pack of maps.** You will find one page from each of our grade-level curriculum maps. Additionally, you'll find that each domain is covered in this sampler, so that you can get a nice preview of format and functionality.
- **These maps are meant for planning purposes only.** Please do not substitute these maps for lesson plans. The lesson seed ideas you find should provide you with enough information, along with the standards alignments, to craft a fully-developed lesson. However, they are not intended to be "copy and pasted" into a lesson planner.
- **The alignments provided are meant as a fire starter for your lesson ideas.** These are not the only alignments which can be made for these standards. Many of these standards could align to a variety of fine arts standards, and many invite multiple art forms to be explored. Please do not feel confined by the standards and lesson ideas presented, but rather think of them as a springboard for further exploration.
- **Maps are arranged by math domain and are color-coded for each domain.** This is a sampler pack, so each domain is a sample of a single grade level. Each full grade-level map can be used in conjunction with another grade-level. In these, you will find that the math domains are all the same color for easy vertical alignment.

Hopefully, this sampler will provide you with a helpful tool for your own integrated lesson planning and can support student achievement through whatever access point they need to successfully thrive in your classroom. Have questions? Please feel free to email us at service@educationcloset.com and we will look forward to working with you to get the most out of what these maps can offer.

grade
K

counting
and cardinality

Math Standard	Arts Standard	Lesson Seed Idea
K.CC.A.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1).	**MU:Pr4-K. b** With guidance, explore and demonstrate through performance awareness of music concepts (such as beat and melodic contour). **Artistic Process**: Performing **Anchor Standard:** Analyze, interpret and select artistic work for presentation	Create a drum beat circle. Everyone taps the beat and then one person plays a different rhythm with 1-2-3. The next person picks up with 4-5-6, and this continues all the way around the drum circle. How students choose to play their three numbers is completely up to them.
K.CC.B.4 Understand the relationship between numbers and quantities; connect counting to cardinality. a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.	**VA:Cr1-K.b.** Collaboratively engage in creative art-making in response to an artistic problem. **Artistic Process:** Creating **Anchor Standard:** Generate and conceptualize artistic ideas and work.	Let students look at themselves in a mirror and identify the shapes they see on their face. Draw and cut out each of these shapes. Pair each of these shapes with one number (2 circles, 1 triangle, 4 squares) and then create a self portrait collage of the counted shapes.
K.CC.B.4b Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.	**VA:Cr1-K.b.** Collaboratively engage in creative art-making in response to an artistic problem. **Artistic Process:** Creating **Anchor Standard:** Generate and conceptualize artistic ideas and work.	Give each student a set of objects totally different numbers, such as 5 jacks or 2 erasers. Have students count the number that they have and then paint or draw their number in the shape of their object using only the amount of strokes they have for their set. For instance, if I had 5 jacks, I would draw a 5 that looked like a jack and only use 5 strokes.
K.CC.1 Know number names and count sequence	**DA:Cn11-K.** a. Describe or demonstrate the movements in a dance that was watched or performed. **Artistic Process:** Connecting **Anchor Standard:** Relate artistic ideas and works with societal, cultural and historical context to deepen understanding.	Sequence the steps in a dance. Use either a popular line dance or a folk dance and have students count the steps and place them in the correct order. Then perform the dance. Once secure, students can create their own simple dance sequence.
K.CC.C.6 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.	**VA:Re7-Kb.** Describe what an image represents **Artistic Process:** Responding **Anchor Standard:** Perceive and analyze artistic work	Explore the still life paintings of Henry Matisse and identify the number of objects in the painting. Then, try to determine what the image represents (symbolism). Have students create their own still life selecting objects that represent something to them and then be able to describe it to the class.

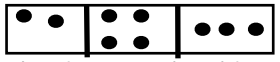
grade 1

operations and algebraic thinking

Math Standard	Arts Standard	Lesson Seed Idea
1.OA.C.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.	**VA:Cr1-1b.** Use observation and investigation to make a work of art. **Artistic Process:** Creating **Anchor Standard:** Generate and conceptualize artistic ideas and work.	Create a city architecture that shares same total numbers of rooms in buildings using different configurations. *ie: one house could have 4 rooms on the main floor and 4 rooms on the top floor. Another could have 4 rooms on the bottom floor, 3 rooms on the second level and 1 room for the attic.*
1.OA.D.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.	**TH:Cr1-1b** Propose potential choices characters could make and/ or potential new endings to plot and story within process drama. **Artistic Process:** Creating **Anchor Standard:** Generate and conceptualize artistic ideas and work.	Create an if/then interactive drama improvisation using true and false equations. Students pose an "if" question through a dramatic representation. For instance, students could act out "if Charlie had 2 apples and he gave one away...", and their partner or partner group would act out the solution. ie: "then, Charlie would only have 1 apple left". Students must act immediately, not planning their actions.
1.OA.D.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.	**MU:Cr1-1a** With support, improvise musical ideas (such as answering a musical question), that represent specific interests, concepts or purpose. **Artistic Process**: Creating **Anchor Standard:** Generate and conceptualize artistic ideas and work.	Create mystery musical compositions using quarter note, quarter rest, half note, half rest and eighth note pairs to equal whole notes. For example, students could create a rhythmic composition that states quarter, quarter, _____, eighth note, eighth note = whole note. Another group of students would need to solve the problem and play it with rhythm instruments with the correct solution.

grade 2

numbers in base ten

Math Standard	Arts Standard	Lesson Seed Idea
2.NBT.1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones.	**TH:Cr2-2c.** Generate multiple representations from a single prop/ object within dramatic play and process drama **Artistic Process:** Creating **Anchor Standard:** Organize and develop artistic ideas and work	Create a "living" hundreds-domino set. Gather students into groups of 3. Provide them with each with three numbers and 3 sheets of paper with markers. Each student in the group creates a picture with their number represented through dots (large enough to be seen from afar). Then, arrange themselves into a domino form of a hundreds number. For example, 243 could look like:  The class must be able to identify the number. Extend by adding the dominos together and create a new domino.
2.NBT.2 Count within 1000; skip-count by 5s, 10s, and 100s.	**VA:Cr1-2b.** Make art or design with various materials and tools to explore personal interests, questions, and curiosity. **Artistic Process:** Creating **Anchor Standard:** Generate and conceptualize artistic ideas and work.	Create a lego-grid piece of art. Provide students with a piece of grid paper and overlay the grids with lego blocks. Build the legos vertically to equal groups of 5s or 10s. Have students trace the lego blocks and identify the total number in flat plane shape created by the tracing. Extend by creating a pattern before laying the out the Lego blocks. ie: after the first placement, move over two grid spaces for the next placement. Students can move in any direction around the grid paper.
2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form	**VA:Cr1-2b.** Make art or design with various materials and tools to explore personal interests, questions, and curiosity. **Artistic Process:** Creating **Anchor Standard:** Generate and conceptualize artistic ideas and work.	Create place value art. Give each student a number, along with grid block paper. They must create a landscape that shows that number using ones, tens and hundreds. For instance, for the number 210, students could create an ocean using a continuous block of 210 blocks. Then, they could create 210 individual blocks of fish. Finally, they could create 21 stands of seaweed containing 10 blocks each.

grade 3

measurement and data

Math Standard	Arts Standard	Lesson Seed Idea
3.MD.3 Represent and interpret data. **3.** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*	**TH:Pr4-3b.** Investigate how costumes, props, light, and sound assist in communicating ideas. **Artistic Process:** Performing **Anchor Standard:** Analyze, interpret and select artistic work for presentation	Create a prop that represents a data scale. Measure this prop to be as high as the tallest student in the class. Create a bar graph from a problem that has been presented. Then, have students create a drama scene that explains each data set plotted on the scaled picture graph. Each actor rises or falls based upon where their assigned data set lives on the data scale prop. As the actors move into their positions on the scale, they must explain why they are moving up or down.
3.MD.5 Geometric measurement: understand concepts of area and relate area to multiplication and to addition. **5.** Recognize area as an attribute of plane figures and understand concepts of area measurement. a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.	**VA:Re8-3a.** Interpret art by analyzing use of media to create subject matter, characteristics of form, and mood. **Artistic Process:** Responding **Anchor Standard:** Interpret intent and meaning in artistic work.	Study the work of Escher and his use of tessellations in his art compositions. Have students study and comment on what they notice about the use of patterns (it's a tiling technique, there are no gaps, etc). Using a sample Escher print copy, have students measure each item and provide that number as "1 square unit" of area in the print. Identify how many square units are in the print.
3.MD.6 Geometric measurement: understand concepts of area and relate area to multiplication and to addition. **6.** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	**VA:Cr1-3b.** Apply knowledge of available resources, tools, and technologies to investigate own ideas through the art-making process. **Artistic Process:** Creating **Anchor Standard:** Generate and conceptualize artistic ideas and work.	Give each student a different Escher print copy. Have them measure as before and determine how many square units are in their print. Then, create their own Escher-inspired tessellation print. Decide upon an object to use for the tiling. Then, measure its square unit. Create a tiling that does not contain any gaps and which uses color to contrast the pattern.

grade 4

numbers
and operations - fractions

Math Standard	Arts Standard	Lesson Seed Idea
4.NF.B.3 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers Understand a fraction *a*/*b* with *a* > 1 as a sum of fractions 1/*b*	**MU:Cr2-4b** Document the selected ideas using iconic and/or standard notation and explain the evolving plan. **Artistic Process**: Creating **Anchor Standard:** Organize and develop artistic ideas and work.	Fraction music. Have students view a piece of music in standard notation, that is either in 2/4, 3/4 or 6/8 meter. Look at the bottom number of the meter and review that this indicates the type of note that receives the beat (ie: in 3/4 time, the quarter note receives the beat). The top number of the meter tells you how many of those beats are in a measure. So in 3/4 meter, there are 3 quarter note beats in each measure. Provide the example of 3/4 meter = 1/4 note + 1/4 note + 1/4 note. Have them write this in standard notation. Then, have students apply this same logic to songs in 2/4 and 6/8 meter. Finally, have students play their meter compositions using instruments such as handchimes, finger cymbals, tambourines or drums.
4.NF.C.5 Understand decimal notation for fractions, and compare decimal fractions Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.[2] *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*	**VA:Cr1-4a.** Brainstorm multiple approaches to a creative art or design problem. **Artistic Process:** Creating **Anchor Standard:** Generate and conceptualize artistic ideas and work.	Advertising Decimals. Gather students into teams of 3-4 students. Explain that each team is in charge of marketing their favorite class in the school and must create a Facebook ad campaign. Students must include a "hook" and a "call to action" in their campaign, as well as a visually-appealing image to entice Facebook users to click on their advertisement. Facebook has a rule that only .25 of the image may be covered in text. Have students choose or create an image in a rectangular template and decide on their hook and call to action. Then, overlay a grid with 100 blocks over each image. Students may place their text anywhere in the image, cover .25 (or 25 hundredths) of the image. Ask students to determine how many blocks are on the grid (100), and then ask - if you can only use .25 or 25 hundredths of the space for text, how many blocks can the text cover? (25). Write this as a fraction = 25/100. Then, create a chart that shares this information. For instance, text = 25/100 = .25 and image = 75/100 = .75

geometry

grade 5

Math Standard	Arts Standard	Lesson Seed Idea
5.G.1.A Graph points on the coordinate plane to solve real-world and mathematical problems **Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).**	**DA:Cr1-5b.** Manipulate, modify, or expand movement possibilities by varying the elements of dance to develop and solve movement problems. Explain the reasons for movement choices using dance vocabulary. **Artistic Process:** Creating **Anchor Standard:** Generate and conceptualize artistic ideas and work.	Create a grid on the floor and mark off the X and Y Axes clearly. Have students identify where 0 is on the grid. Then, split the class into two teams - the Y team and the X team. The students should line up on their axis of the grid. Then, provide each student with a numbered index card with a specific number on the front. Use the numbers 1-10 to start. Then, the teacher can call out two numbers (1Y and 5X for example) and those students should move to where they meet on the grid in whatever way they would like. When they meet at their point of intersection, they must take no more than 5 seconds to decide on a motion that they will both do together. Then, the ordered pair may move back to their original spot using the motion they agreed upon.
5.G.2.A Graph points on the coordinate plane to solve real-world and mathematical problems. **Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.**	**TH:Cr1-5c.** Propose design solutions for imagined or reality-based worlds for drama or theatre work. **Artistic Process:** Creating **Anchor Standard:** Generate and conceptualize artistic ideas and work.	Students create a grid on the stage with exact block measurements. They then design and construct props for major landmarks in their community (pharmacy, school, houses, etc). One student must act as though they are new to the neighborhood and cannot see (cover them with a blindfold). Students must then direct the blindfolded student to the buildings in the neighborhood by providing specific coordinate instructions (ie: move two blocks forward).
5.G.3.B Classify two-dimensional figures into categories based on their properties. **Understand that attributes belonging to a category of two dimensional figures also belong to all subcategories of that category.** *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.*	**VA:Re.8-5a.** Interpret art by analyzing characteristics of form and structure, contextual information, subject matter, visual elements, and use of media to identify ideas and mood conveyed. **Artistic Process:** Responding **Anchor Standard:** Interpret intent and meaning in artistic work.	Using the work of Kandinsky, measure a variety of shapes he used in his work. Compare all of the attributes and draw conclusions about 2D figures in each subcategory represented in the work. Then, create a piece of artwork in the style of Kandinsky that maintains these distinct attributes and label each area of the artwork with the attributes assigned.

references

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National Coalition for Core Arts Standards. (2014) National Core Arts Standards - Draft Documents. Accessed online April 27, 2014, http://nccas.wikispaces.com