

MATHEMATICS

Grade: K

Strand: Number Sense

Academic Standard Indicator: K.NS.1

Standard Description: Recognize sets of 1 to 10 objects in patterned arrangements and tell how many without counting.

Suggestion for Integrating International

Content: Have students use dolls from various countries as objects to match one-to-one correspondence. **Extension:** Discuss how the clothing of the dolls from the different countries is similar or different.

Differentiated Instruction – Special Needs

Accommodations: Provide outlines of the dolls to give students an additional concrete space for the matching of one-to-one correspondence.

Differentiated Instruction – Highly Able

Accommodations: Have highly able students use a world map and pushpins to mark countries of origin of the dolls used in the activity.

Grade: K

Strand: Number Sense

Academic Standard Indicator: K.NS.8

Standard Description: Compare the values of two numbers from 1 to 20 presented as written numerals.

Suggestion for Integrating International

Content: Have students use miniature objects or small pictures from various cultures to arrange in two sets to determine if one set is equal, more than, or less than the other set of objects or pictures. **Extension:** Have students read the book *Chrysanthemum* by Kevin Henkes (Greenwillow Books, 2007), to compare names written in English with the same name written in Chinese or Japanese by a parent or visitor fluent in that language. Students could have their names written in another language and compare the number of letters or characters in their name translations with those of other students to determine who has equal, more than, or less than the other.

Grade: K

Strand: Number Sense

Academic Standard Indicator: K.NS.5

Standard Description: 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, give a number from 1 to 20.

Suggestion for Integrating International

Content: Teach students how to count to ten in a different language or invite a parent, other teacher, or guest to the classroom to teach one to ten in another language. Then have some students use a number line and point to numbers or objects in English while other students are counting in the other language. **Extension:** Do this with additional languages. **Example:** Have students learn to count to five in a Ghanaian language. **Suggested resource:** https://www.youtube.com/watch?v=nNz0VFE8S_zg

Differentiated Instructions – Highly Able

Accommodations: Have students learn the correct vocabulary for minus, plus, and equal in the second language and begin working basic math problems.

Grade: K

Strand: Measurement

Academic Standard Indicator: K.M.1

Standard Description: 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.

Suggestion for Integrating International

Content: Have students maintain an ongoing comparison of temperatures in two or more countries on a daily basis. **Extension:** Have students illustrate the comparison of temperatures using a double bar graph. **Example:** Look up the different temperatures between African cities (Johannesburg) and American cities (Indianapolis). Draw and color a bar graph to represent the differences in

temperatures. **Suggested resource:**
<http://www.wolframalpha.com/widgets/view.jsp?id=520115043d9ba527a787577bd75930c8>.

Grade: K
Strand: Geometry
Academic Standard Indicator: K.G.2

Standard Description: 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).

Suggestion for Integrating International

Content: The teacher should cut out pictures of a variety of international objects and people and label each with its country or continent of origin. Cut the pictures into a variety of shapes. Mix the shapes up and pass them out to the students. Assign each student a country or continent. Have students trade pictures by playing “I have a (shape) from (country). Who has a (shape) from (country)?”, indicating the picture shapes every time, along with the countries/continents. Then have students put the pictures together in a collage. **Example:** Compare the general height of the Alps to that of the coastal Netherlands, which falls well below sea level.

Grade: K
Strand: Measurement
Academic Standard Indicator: K.M.1

Standard Description: 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.

Suggestion for Integrating International

Content: The teacher should, with the help of parents or students as needed, bring in objects from a variety of countries, for which the place of origin is known. Have students create ways to sort the objects by length and judge whether it’s better to measure in feet or inches. **Extension:** Have students create other ways to measure and sort the objects. **Example:** Compare different sizes of fast food drinks around the world.

Suggested resource:
<http://www.dailymail.co.uk/femail/article->

[2809810/Just-large-large-soda-McDonald-s-cup-sizes-vary-globe-biggest-U-S-30oz.html](http://www.dailymail.co.uk/femail/article-2809810/Just-large-large-soda-McDonald-s-cup-sizes-vary-globe-biggest-U-S-30oz.html).

Differentiated Instruction – Highly Able

Accommodations: Have highly able students use a world map and pushpins to mark the objects’ countries of origin.

Grade: K
Strand: Process Standard
Academic Standard Indicator: K.MA.PS.1

Standard Description: Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze given constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway, rather than simply jumping into a solution attempt. They consider analogous problems and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” and “Is my answer reasonable?” They understand the approaches of others to solving complex problems and identify correspondences between different approaches. Mathematically proficient students understand how mathematical ideas interconnect and build on one another to produce a coherent whole.

Suggestion for Integrating International

Content: Have students, in pairs or small groups, use problem solving skills to decide how to divide international foods into equal parts. **Examples** Tocinillo de cielo (“Heaven’s Little Pig” in Spanish); English shortbread; French pastry. **Extension:** Have students search for recipes for international treats. **Examples:** Tocinillo de cielo; French creme caramel; Mexican Chocolate; Dulce de Leche Crepe Torte. Then ask the school cafeteria manager to bake the item (enough for the whole class) and have the student groups divide the baked item into equal parts. Have students eat the parts as a reward for solving the problem. **Note:** Be sure to learn about all student food allergies before choosing the food to be cooked.

Grade: K**Strand:** Number Sense**Academic Standard Indicator:** K.NS.1**Standard Description:** Count to at least 100 by ones and by tens and count on by one from any given number.**Suggestion for Integrating International****Content:** Use items that are international in nature to count, recognize, represent, name, and order a number of objects. **Examples:** Stamps from various countries; hats from around the globe; country flags. Use printable Russian Matryoshka dolls to recognize sets. **Suggested resource:**<http://www.makinglearningfun.com/themepages/MatryoshkaDollSizing.htm>**Grade: 1****Strand:** Number Sense**Academic Standard Indicator:** 1.NS.1**Standard Description:** Count to at least 120 by ones, fives and tens from any given number. Read and write numerals and represent a number of objects with a written numeral in this range.**Suggestion for Integrating International****Content:** Have students count to twenty in different languages. Have students match numbers to corresponding symbols in several languages. **Suggested resource:**<http://www.marijn.org/everything-is-4/counting-0-to-100>**Grade: 1****Strand:** Number Sense**Academic Standard Indicator:** 1.NS.4**Standard Description:** 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.**Suggestion for Integrating International****Content:** Have students choose different pairs of cities on a world map and calculate the miles between them (rounded to whole numbers). Then have students put the distances in order from the

largest number to the smallest. The teacher may want to guide the students to choose cities less than 100 miles apart.

Grade: 1**Strand:** Data Analysis**Academic Standard Indicator:** 1.DA.1**Standard Description:** Organize and interpret data with up to three choices (What is your favorite fruit? Apples, bananas, oranges); ask and answer questions about the total number of data points, how many in each choice, and how many more or less in one choice compared to another.**Suggestion for Integrating International****Content:** Have students pose questions about international topics and design a representative symbol(s) for the pictograph. **Example:** Have students note what type of restaurant or favorite meal they prefer (Mexican versus Chinese, etc.).**Grade: 1****Strand:** Computation and Algebraic Thinking**Academic Standard Indicator:** 1.CA.3**Standard Description:** Create a real-world problem to represent a given equation involving addition and subtraction within 20.**Suggestion for Integrating International****Content:** Have students solve culturally or internationally accurate problems. **Example:** John visited Europe, Asia, and Africa. How many continents did John visit? How many more continents does John need to visit if he intends to visit every continent?**Grade: 1****Strand:** Geometry**Academic Standard Indicator:** 1.G.1**Standard Description:** Identify objects as two-dimensional or three-dimensional. Classify and sort two-dimensional and three-dimensional objects by shape, size, roundness and other attributes. Describe how two-dimensional shapes make up the faces of three-dimensional objects.**Suggestion for Integrating International****Content:** Cut out international objects and

people from old magazines, in a variety of shapes and label the country of origin. Mix up the shapes and pass them out to students. Have students identify the countries and shapes.

Grade: 1

Strand: Number Sense

Academic Standard Indicator: 1.NS.4

Standard Description: 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.

Suggestion for Integrating International

Content: Teacher should research the number of different countries in each continent. Have students discuss that continents are made up of different countries, compare the numbers, and put those numbers in numerical order to identify the continents with largest and smallest numbers of countries.

Grade: 2

Strand: Number Sense

Academic Standard Indicator: 2.NS.5

Standard Description: Determine whether a group of objects (up to 20) has an odd or even number of members (e.g., by placing that number of objects in two groups of the same size and recognizing that for even numbers no object will be left over and for odd numbers one object will be left over, or by pairing objects or counting them by 2s).

Suggestion for Integrating International

Content: Have students locate different countries on a world map or globe. Then have them identify an odd or even number of cities in that country. **Example:** Have the class locate Brazil. Now locate three (odd number) or four (even number) cities in Brazil. Then have students work in small groups to locate other countries of their choice and identify odd or even number of cities. **Extension:** Have students work in small groups and identify 10 countries around the world. Then have each group make a chart and categorize the country names by even or odd

number of letters in it and share with the class. Then, as a class, add up all of the different countries identified by the groups and see whether that number is even or odd.

Grade: 2

Strand: Number Sense

Academic Standard Indicator: 2.NS.7

Standard Description: Use place value understanding to compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.

Suggestion for Integrating International

Content: Have students compare corn production in the U.S. to other corn-producing nations, such as Chile and Brazil, contrasting corn exports and imports. **Suggested resource:** <http://www.grains.org>.

Grade: 2

Strand: Computation and Algebraic Thinking

Academic Standard Indicator: 2.CA.7

Standard Description: Create, extend, and give an appropriate rule for number patterns using addition and subtraction within 1000

Suggestion for Integrating International

Content: Have students compare and contrast what is happening in Indiana versus Australia at one-hour intervals through an entire day, based on Indiana time. Then have them create a chart with pictures to accompany times, inspired by *Alexander and the Terrible, Horrible, No Good, Very Bad Day* by Judith Viorst (Atheneum, 2009).

Grade: 2

Strand: Geometry

Academic Standard Indicator: 2.G.1

Standard Description: Identify, describe, and classify two- and three-dimensional shapes (triangle, square, rectangle, cube, right rectangular prism) according to the number and shape of faces and the number of sides and/or vertices. Draw two-dimensional shapes.

Suggestion for Integrating International

Content: On a world map, have students locate countries that are similar in size and shape.

Extension: Have students use a globe of the world and identify various shapes. Then have students try to explain why a particular country or continent has different shapes on the map and the globe. **Example:** Look for countries on an African map that look similar in size. **Suggested resource:**

<http://www.africaguide.com/afmap.htm>.

Grade: 2

Strand: Geometry

Academic Standard Indicator: 2.G.2

Standard Description: Create squares, rectangles, triangles, cubes, and right rectangular prisms using appropriate materials.

Suggestion for Integrating International

Content: Cut out objects and people from around the world in a variety of shapes and label where these are from. Mix the shapes up and pass them out to students. Have students identify the countries and shapes. Have students trade pictures by playing “I have a (shape) from (country). Who has a (shape) from (country)?”, indicating the picture shapes everytime, along with the countries/continents. Then have students put the pictures together in a collage.

Grade: 2

Strand: Geometry

Academic Standard Indicator: 2.G.2

Standard Description: Create squares, rectangles, triangles, cubes, and right rectangular prisms using appropriate materials.

Suggestion for Integrating International

Content: Teacher should cut up a number of pictures of the world into a variety of rectangles, triangles, squares, and circles. Have students recreate the original pictures using the shapes.

Extension: Have students color in the countries of origin of their pictures on an outline map of the world. **Extension:** Have students make a bulletin board display with the world map in the middle. Have students post their completed pictures around the map and attach them to the corresponding countries with string.

Grade: 2

Strand: Data Analysis

Academic Standard Indicator: 2.DA.1

Standard Description: Draw a picture graph (with single-unit scale) and a bar graph (with single-unit scale) to represent a data set with up to four choices (What is your favorite color? red, blue, yellow, green). Solve simple put-together, take-apart, and compare problems using information presented in the graphs.

Suggestion for Integrating International

Content: Have students pose questions about international items and interview class- or schoolmates for favorites, asking questions like “What is your favorite international food? What country does that come from?” Then have students tally favorites, analyze data, and complete a graph with symbols from that country showing favorite foods.

Grade: 2

Strand: Measurement

Academic Standard Indicator: 2.M.6

Standard Description: Describe relationships of time, including: seconds in a minute; minutes in an hour; hours in a day; days in a week; and days, weeks, and months in a year.

Suggestion for Integrating International

Content: Have students describe the relationships of time, by comparing and contrasting what is happening in Indiana versus Australia at one hour intervals through an entire day, based on Indiana time. Then have them create a chart with pictures to accompany times, inspired by *Alexander and the Terrible, Horrible, No Good, Very Bad Day* by Judith Viorst (Atheneum, 2009). **Extension:** Have students locate different points on a world map and determine the time zones of those locations using a chart. Students can compare what might be going on in those locations versus what is going on in Indiana at the same moment.

Suggested resource: Interactive map with all of the world’s time zones:

<http://www.worldtimezone.com/>.

Grade: 3

Strand: Geometry

Academic Standard Indicator: 3.G.3

Standard Description: Identify, describe and draw points, lines and line segments using appropriate tools (e.g., ruler, straightedge, and technology), and use these terms when describing two-dimensional shapes.

Suggestion for Integrating International Content: Have students learn about points and lines in relationship to maps by comparing distances on an Indiana map and a map of China or other international region.

Grade: 3
Strand: Number Sense
Academic Standard Indicator: 3.NS.1

Standard Description: Read and write whole numbers up to 10,000. Use words, models, standard form and expanded form to represent and show equivalent forms of whole numbers up to 10,000.

Suggestion for Integrating International Content: Have students learn the basis of Roman Numerals, stemming from Ancient Rome. Have students write out and convert numbers up to 1,000 into Roman Numerals and expanded form. This lesson is particularly effective as a "Fun Friday" activity prior to Super Bowl Sunday. **Suggested resources:** Usborne Starting Point History books are particularly useful in explaining the basis for Roman Numerals; see also <http://www.usborne.com/quicklinks/eng/?loc=us>.

Grade: 3
Strand: Geometry
Academic Standard Indicator: 3.G

Standard Description: 3.G.1: Identify and describe the following: cube, sphere, prism, pyramid, cone, and cylinder.
 3.G.2: Understand that shapes (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize and draw rhombuses, rectangles, and squares as examples of quadrilaterals. Recognize and draw examples of quadrilaterals that do not belong to any of these subcategories.
 3.G.3: Identify, describe and draw points, lines and line segments using appropriate tools (e.g., ruler, straightedge, and technology), and use

these terms when describing two-dimensional shapes.

Suggestion for Integrating International Content: Have students look at famous paintings from various international artists to identify shapes. **Examples:** Quadrilaterals; triangles; lines of symmetry; right angles; acute or obtuse angles. A famous painting that includes many geometrical concepts is "Guernica" by Pablo Picasso, one of the most famous anti-war messages in the Western world.

Grade: 3
Strand: Number Sense
Academic Standard Indicator: 3.NS.3

Standard Description: Understand a fraction, $1/b$, as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction, a/b , as the quantity formed by a parts of size $1/b$. [In grade 3, limit denominators of fractions to 2, 3, 4, 6, 8.]

Suggestion for Integrating International Content: Have students locate major land masses (or continents) and bodies of water (or oceans) on a globe or world map. Have them identify what fraction a specific land mass or body of water is to the whole set. **Example:** Students can determine what fraction Africa is of the total number of continents or what fraction the Atlantic Ocean is of the total number of ocean bodies.

Differentiated Instruction- Special Needs Accommodations: Provide helpful hints to assist students in identifying what information is the numerator and what information is the denominator.

Differentiated Instruction- Highly Able Accommodations: Have students apply their understanding of fractions by applying this concept to other problems involving international or global data and create their own problems. **Example:** Have them determine what fraction of a set France is to Europe.

Grade: 3
Strand: Measurement
Academic Standard Indicator: 3.M.2

Standard Description: Choose and use appropriate units and tools to estimate and

measure length, weight, and temperature. Estimate and measure length to a quarter-inch, weight in pounds, and temperature in degrees Celsius and Fahrenheit.

Suggestion for Integrating International

Content: Have students convert a variety of measurements into the metric system.

Extension: Post measurements in metric all over the classroom and use these, as appropriate, throughout the next days or weeks.

Grade: 3

Strand: Measurement

Academic Standard Indicator: 3.M.1

Standard Description: Estimate and measure the mass of objects in grams (g) and kilograms (kg) and the volume of objects in quarts (qt), gallons (gal), and liters (l). Add, subtract, multiply, or divide to solve one-step real-world problems involving masses or volumes that are given in the same units (e.g., by using drawings, such as a beaker with a measurement scale, to represent the problem).

Suggestion for Integrating International

Content: Have students bring in various food boxes or containers that can be weighed on a scale. Then convert all containers from U.S. Customary units to metric (global) units. Have them compare the simple base ten form of the metric system versus U.S. customary system.

Extension: Have them discuss why the U.S. seems to be the only country that hasn't yet converted to metric systems.

Grade: 3

Strand: Measurement

Academic Standard Indicator: 3.M.2

Standard Description: Standard Description:

Choose and use appropriate units and tools to estimate and measure length, weight, and temperature. Estimate and measure length to a quarter-inch, weight in pounds, and temperature in degrees Celsius and Fahrenheit.

Suggestion for Integrating International

Content: Use an Internet search engine such as Google Images to find photos of road mileage markers from around the globe. Then have students convert kilometers to miles.

Grade: 3

Strand: Measurement

Academic Standard Indicator: 3.M.2

Standard Description: Choose and use appropriate units and tools to estimate and measure length, weight, and temperature. Estimate and measure length to a quarter-inch, weight in pounds, and temperature in degrees Celsius and Fahrenheit.

Suggestion for Integrating International

Content: Have student use today's weather forecasts around the world and convert temperatures of major world cities.

Grade: 4

Strand: Geometry

Academic Standard Indicator: 4.G.5

Standard Description: Identify, describe, and draw rays, angles (right, acute, obtuse), and perpendicular and parallel lines using appropriate tools (e.g., ruler, straightedge and technology). Identify these in two-dimensional figures.

Suggestion for Integrating International

Content: Have students look at famous paintings from various international artists to identify shapes. **Examples:** Quadrilaterals; triangles; lines of symmetry; right angles; acute or obtuse angles. A famous painting that includes many geometrical concepts is "Guernica" by Pablo Picasso, one of the most famous anti-war messages in the Western world.

Grade: 4

Strand: Computation

Academic Standard Indicator: 4.C.1

Standard Description: Add and subtract multi-digit whole numbers fluently using a standard algorithmic approach.

Suggestion for Integrating International

Content: Have students explore the amount of rice they would have after 30 days if they double the amount of rice each day, drawing on folktales or stories. Have students keep a running total by creating a table. **Suggested resource:** *One Grain of Rice* by Demi (Scholastic Press, 1997).

Grade: 4

Strand: Computation

Academic Standard Indicator: 4.C.5

Standard Description: Add and subtract fractions with common denominators. Decompose a fraction into a sum of fractions with common denominators. Understand addition and subtraction of fractions as combining and separating parts referring to the same whole.

Suggestion for Integrating International

Content: Have students convert data on global topics into fractions and decimals, using mental math. **Suggested resource:** *If the World Were a Village: A Book about the World's People* by David Smith (Kids Can Press, 2002), which condenses world statistics to a village of 100 people.

Grade: 4

Strand: Number Sense

Academic Standard Indicator: 4.NS.1

Standard Description: Read and write whole numbers up to 1,000,000. Use words, models, standard form and expanded form to represent and show equivalent forms of whole numbers up to 1,000,000.

Suggestion for Integrating International

Content: Have students read *One Grain of Rice* by Demi (Scholastic Press, 1997) and write the number of grains of rice the raja has given to Rani and the villagers after each day. **Extension:** Over a week (or any period of time), have students play the word games on the www.freerice.com website. Have them keep a record of the grains of rice that they contribute as a class, until they reach 1,000,000 (or less). They could challenge other classes in the same grade or school.

Differentiated Instruction- Highly Able

Accommodations: Using their knowledge of whole numbers beyond 1,000,000, have students examine data regarding gross domestic product, gross domestic imports, and gross domestic exports in the U.S., Brazil, China, and Russia. Have them determine the significance of these three economic terms. Then have the students

compare the economic data among these four major economic countries.

Grade: 4

Strand: Number Sense

Academic Standard Indicator: 4.NS.1

Standard Description: Read and write whole numbers up to 1,000,000. Use words, models, standard form and expanded form to represent and show equivalent forms of whole numbers up to 1,000,000.

Suggestion for Integrating International

Content: Have students compare the population of Indianapolis to other city populations around the world and write the numbers on a place value chart. Numbers can be written in standard form, word form, and expanded form. **Suggested resource:** <http://www.citymayors.com>.

Differentiated Instruction- Highly Able

Accommodations: Using their knowledge of place value, have students create their own place value problems which must involve information of a global or international nature. **Example:** Students might plan an around-the-world trip and track the number of miles they would travel each day as well as an ongoing cumulative total.

Grade: 5

Strand: Number Sense

Academic Standard Indicator: 5.NS.1

Standard Description: Use a number line to compare and order fractions, mixed numbers, and decimals to thousandths. Write the results using $>$, $=$, and $<$ symbols.

Suggestion for Integrating International

Content: Have students use international stock market results as the raw data for arranging whole numbers and decimals in numerical order and for making comparisons among them, such as which stock is worth more or which one is worth less. **Suggested resource:** http://money.cnn.com/data/world_markets/.

Grade: 5

Strand: Measurement

Academic Standard Indicator: 5.M.1

Standard Description Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step real-world problems.

Suggestion for Integrating International Content: Have students find international weather reports to convert temperature from Celsius to Fahrenheit and vice versa. Look at a 10-day forecast for a particular major global city and make a few conversions together. Have students to practice first with learning partners and then independently. **Extension:** Have students find a 10-day forecast for the school location. Then have them convert it to metric. Post this metric forecast in the classroom and refer to it every day. **Example:** Check the monthly average temperature (Celsius) in various parts of China, and convert to Fahrenheit so students can determine which regions are cool vs. warm.

Grade: 5

Strand: Computation

Academic Standard Indicator: 5.C.5

Standard Description: Use visual fraction models and numbers to multiply a fraction by a fraction or a whole number.

Suggestion for Integrating International Content: Supply, or have students bring in, international recipes (perhaps ones from their family's ancestral country). Using the recipes and their fractional amounts as the raw data, calculate how much of a specific ingredient would be needed if the recipe was doubled, tripled, halved, etc.

Suggested resources: Recipes from the Czech Republic:

<http://www.littleprague.com/RecipesAll.htm#Goulash>;

Recipes from Africa:

<http://allrecipes.com/recipes/world-cuisine/african/>.

Grade: 5

Strand: Computation

Academic Standard Indicator: 5.C.4

Standard Description: Add and subtract fractions with unlike denominators, including mixed numbers.

Suggestion for Integrating International

Content: Have students consider international flags with differently colored sections of the flags representing the fractions. **Example:** If students add the red sections of Poland and Paraguay's flags, how much is red altogether? (Answer: $1/2 + 1/3 = 5/6$) For mixed numbers, use multiples of the same flags. **Example:** If students add the yellow sections of 4 Romanian flags and 3 Ukrainian flags, how much is yellow altogether? (Answer: $1\ 1/3 + 1\ 1/2 = 2\ 5/6$) **Extension:** Give students an 'answer' first and then have them find flags to make the fraction word problem. **Extension:** Using the flags, have pairs of students create new word problems for the class to solve. **Suggested resource:** <http://www.liberty-flag.com/>.

Grade: 5

Strand: Computation

Academic Standard Indicator: 5.C.4

Standard Description: Add and subtract fractions with unlike denominators, including mixed numbers.

Suggestion for Integrating International

Content: Supply, or have students bring in, international recipes, perhaps ones from their family's ancestral heritage. Using the recipes and their fractional amounts as the raw data, have students calculate how much of like ingredients would be needed if several of the recipes were made for one dinner or event. **Example:** If the Italian lasagna takes $1/3$ lbs. of hamburger and the Swedish meatballs take $2/3$ lbs. of hamburger, how much hamburger will we need to buy if we want to make both? For subtraction, have students calculate how much more of an ingredient is needed for one recipe than another. **Extension:** How much more hamburger is needed for the Swedish meatballs than the Italian lasagna?

Grade: 5

Strand: Computation

Academic Standard Indicator: 5.C.5

Standard Description: Use visual fraction models and numbers to multiply a fraction by a fraction or a whole number.

Suggestion for Integrating International

Content: Supply, or have students bring in,

international recipes (perhaps ones from their family's ancestral country). Using the recipes and their fractional amounts as the raw data, calculate how much of a specific ingredient would be needed if the recipe was doubled, tripled, halved, etc. **Suggested resource:** Recipes from Southeast Asia: <http://www.thekitchn.com/thailand-to-vietnam-15-fresh-recipes-for-summer-from-southeast-asia-175211>.

Grade: 5
Strand: Computation
Academic Standard Indicator: 5.C.8

Standard Description: Add, subtract, multiply, and divide decimals to hundredths, using models or drawings and strategies based on place value or the properties of operations. Describe the strategy and explain the reasoning.

Suggestion for Integrating International Content: Have students use international stock market results as the raw data for adding and subtracting decimals. **Suggested resource:** http://money.cnn.com/data/world_markets/american/.

Differentiated Instruction- Special Needs Accommodations: Have students use graph paper when adding and subtracting data to assist with correct alignment.

Grade: 5
Strand: Geometry
Academic Standard Indicator: 5.G.1

Standard Description: Identify, describe, and draw triangles (right, acute, obtuse) and circles using appropriate tools (e.g., ruler or straightedge, compass and technology). Understand the relationship between radius and diameter.

Suggestion for Integrating International Content: Show examples of Greek, Islamic, and Mayan geometric art. Have students identify different geometric shapes in the art. Then have students practice making simple geometric shapes by drawing their own geometric art designs, using the appropriate tools.

Grade: 5
Strand: Geometry
Academic Standard Indicator: 5.G.2

Standard Description: Identify and classify polygons including quadrilaterals, pentagons, hexagons, and triangles (equilateral, isosceles, scalene, right, acute and obtuse) based on angle measures and sides. Classify polygons in a hierarchy based on properties.

Suggestion for Integrating International Content: Show examples of Greek, Islamic, or Mayan geometric art and have students practice identifying the polygons within the art. Then have them practice making polygons by drawing their own tessellating geometric art designs, using the appropriate tools to do so. **Example:** Have students look at works of art that include tessellating pentagons and octagons, like this sandstone screen at the Metropolitan Museum of Art. **Suggested resource:** <http://www.metmuseum.org/toah/works-of-art/1993.67.2>.

Grade: 5
Strand: Data Analysis and Statistics
Academic Standard Indicator: 5.DS.2

Standard Description: Understand and use measures of center (mean and median) and frequency (mode) to describe a data set.

Suggestion for Integrating International Content: Have students explore mean, median, and mode for data from different countries. **Examples:** Area; population density; per capita income; daily caloric intake; life expectancy; literacy rate. **Suggested resource:** *Material World: A Global Family Portrait* by Peter Menzel (Sierra Club Books, 1995).

Grade: 6
Strand: Number Sense
Academic Standard Indicator: 6.NS.1

Standard Description: Understand that positive and negative numbers are used to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge). Use positive and negative numbers to represent and compare

quantities in real-world contexts, explaining the meaning of 0 in each situation.

Suggestion for Integrating International

Content: Have students compare world high and low temperatures above and below zero, in both Fahrenheit and Celsius. Have students examine U.S. and world locations that fall above or below sea level. **Example:** Compare the general height of the Alps to that of the coastal Netherlands, which falls well below sea level.

Grade: 6

Strand: Number Sense

Academic Standard Indicator: 6.NS.3

Standard Description: Understand that positive and negative numbers are used to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge). Use positive and negative numbers to represent and compare quantities in real-world contexts, explaining the meaning of 0 in each situation.

Suggestion for Integrating International

Content: Have students explore “number sense” in different cultures, such as Mayan mathematics or the Babylonian base 60 system.

Grade: 6

Strand: Number Sense

Academic Standard Indicator: 6.NS.8

Standard Description: Interpret, model, and use ratios to show the relative sizes of two quantities. Describe how a ratio shows the relationship between two quantities. Use the following notations: a/b , a to b , $a:b$.

Suggestion for Integrating International

Content: Have students use ratios to study ethnic and racial diversity in a variety of international city or country populations in order to understand demographics. **Example:** Have students research statistics of ethnic and racial diversity in South Africa. **Suggested resource:** http://www.southafrica.info/about/people/population.htm#.VXDo_mRVikp.

Grade: 6

Strand: Geometry and Measurement

Academic Standard Indicator: 6.GM.1

Standard Description: Convert between measurement systems (English to metric and metric to English) given conversion factors, and use these conversions in solving real-world problems.

Suggestion for Integrating International

Content: Use an Internet search engine such as Google Images to find photos of road mileage markers from around the globe. Then have students convert kilometers to miles.

Grade: 6

Strand: Geometry and Measurement

Academic Standard Indicator: 6.GM.1

Standard Description: Convert between measurement systems (English to metric and metric to English) given conversion factors, and use these conversions in solving real-world problems.

Suggestion for Integrating International

Content: Have students use today’s weather forecasts around the world and convert temperatures of major world cities.

Grade: 6

Strand: Geometry and Measurement

Academic Standard Indicator: 6.GM.2 & 6.GM.3

Standard Description: 6.GM.2: Know that the sum of the interior angles of any triangle is 180° and that the sum of the interior angles of any quadrilateral is 360° . Use this information to solve real-world and mathematical problems. 6.GM.3: Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate; apply these techniques to solve real-world and other mathematical problems.

Suggestion for Integrating International

Content: Have students explore architecture and consider why some cultures build round buildings. **Example:** Have students research why traditional Inuits live in hemisphere-shaped

homes (igloos), or ask them to examine the architecture of Russian onion domes. **Suggested resource:**

https://en.wikipedia.org/wiki/Onion_dome.

Grade: 6

Strand: Data Analysis and Statistics

Academic Standard Indicator: 6.DS.3

Standard Description: Formulate statistical questions; collect and organize the data (e.g., using technology); display and interpret the data with graphical representations (e.g., using technology).

Suggestion for Integrating International

Content: Display international demographic or economic data using appropriate bar graphs, frequency tables, time plots, histograms, or circle graphs. **Suggested resource:**

<http://www.nationmaster.com/>.

Grade: 6

Strand: Data Analysis and Statistics

Academic Standard Indicator: 6.DS.4

Standard Description: Summarize numerical data sets in relation to their context in multiple ways, such as: report the number of observations; describe the nature of the attribute under investigation, including how it was measured and its units of measurement; determine quantitative measure of center (mean and/or median) and spread (range and interquartile range), as well as describe any overall pattern and any striking deviation from the overall pattern with reference to the context in which the data were gathered; and relate the choice of measures of center and spread to the shape of the data distribution and the context in which the data were gathered.

Suggestion for Integrating International

Content: Have students explore mean, median, and mode for data from different countries.

Examples: Area; population density; per capita income; daily caloric intake; life expectancy; literacy rate. **Suggested resource:** *Material World: A Global Family Portrait* by Peter Menzel (Sierra Club Books, 1995).

MATHEMATICS

Create Your Own Suggestions for Integrating International Content

Grade:

Strand:

Academic Standard Indicator:

Standard Description:

Suggestion for Integrating International Content:

Grade:

Strand:

Academic Standard Indicator:

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Suggestion for Integrating International Content: