

INTRODUCTION

The **purpose** of *Internationalizing the Academic Standards: Indiana* (IASI), **2021** (2nd edition), is to suggest ways for you to incorporate **international content** into the **core content areas: English/language arts, mathematics, science, and social studies**. We offer brief, easy-to-use ideas for internationalizing the existing K-12 academic standards to which you are already teaching. It was **created** <u>*for*</u> **Indiana classroom teachers** <u>*by*</u> **Indiana classroom teachers** (63 K-12 teachers from 38 different schools and two school corporations in 21 cities/towns/counties) and supplemented by Indiana University (IU) world area, global, and international business Centers.

The teachers' *Suggestions for Integrating International Content* (in blue and bold) are the most important content of IASI and are truly just that - *Suggestions* only - meant to get you thinking about how to internationalize your own curriculum. You may like entire *Suggestions* or only parts of them. Think of different ways to best integrate these *Suggestions* into your existing lesson plans and daily pedagogy. Create your own *Suggestions* (use the blank template below, located after all *Suggestions*).

The teachers selected academic standards from those listed on the IDOE website (<u>https://www.in.gov/doe/students/indiana-academic-standards/</u>). For each one, they created a **Suggestion** about how to incorporate international content, including knowledge, skills, and/or attitudes. Sometimes the teachers also suggested extensions, ideas for differentiation, examples, and/or specific resources, such as a book, web link, or poem that they have used successfully. IU Centers identified additional examples and resources.

Some Standard Descriptions and **Suggestions** call for **cultural or country comparisons**. To avoid over-generalizations and the possibility of stereotyping, the IASI leadership team encourages you to teach your students to appreciate not only the similarities and differences **among** cultures or countries, but also the diversity and variation **within** them.

KINDERGARTEN

GRADE: K PROCESS STANDARD: 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.

EXTENSIONS:

Ask the school cafeteria manager to bake the item (enough for the whole class) and have 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.

IDEAS FOR DIFFERENTIATION:

Have students search for recipes for international treats.

EXAMPLES:

- 1. Spanish tocinillo de cielo ("Heaven's
- Little Pig").
- 2. English shortbread.
- 3. French pastry.
- 4. French crème caramel.
- 5. Mexican chocolate.
- 6. Dulce de leche crêpe torte.

GRADE: K STRAND: Number Sense INDICATOR: K.NS.1

STANDARD DESCRIPTION:

Count to at least 100 by ones and tens and count on by one from any 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:

- 1. Stamps from various countries.
- 2. Hats from around the globe.
- 3. Country flags.
- 4. Use printable Russian matryoshka dolls to recognize sets.

RESOURCES:

http://www.makinglearningfun.com/the mepages/MatryoshkaDollSizing.htm

GRADE: K STRAND: Number Sense INDICATOR: K.NS.4 [#1 of 2]

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:	К	
STRAND:	Number Sense	
INDICATOR:	K.NS.4	[#2 of 2]

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: 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: K STRAND: Number Sense 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, given a number from one 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.

IDEAS FOR DIFFERENTIATION:

 Do this with additional languages.
 Have students learn the correct vocabulary for minus, plus, and equal in the second language and begin working basic math problems in that language.

EXAMPLES:

 Have students learn to count to five in the Ghanaian language Twi.
 Have students count the number of countries or flags in the European Union (28).

RESOURCES:

https://www.youtube.com/watch?v=nNz 0VFE8Szg

GRADE: K STRAND: Number Sense INDICATOR: K.NS.6

STANDARD DESCRIPTION:

Recognize sets of one 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 arrange in different patterns for recognition.

IDEAS FOR DIFFERENTIATION:

1. Discuss how the clothing of the dolls from the different countries is similar or different.

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

3. Have students use a world map and pushpins to mark countries of origin of the dolls used in the activity.

GRADE: K STRAND: Number Sense 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.

IDEAS FOR DIFFERENTIATION:

 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: Geometry 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:** Cut out international objects and people from old magazines in a variety of shapes (actual shape of the object/person, made-up shapes, or geometric shapes) and label each piece on the back with their country of origin. Mix up the shapes and pass them out to 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. Have students identify the location of each country on a map or globe.

EXAMPLES:

Compare these shapes in Asia: sundial (circle, Korea), rain gauge (cube and cylinder, Korea), and bagua (octagon, China).

GRADE: K STRAND: Measurement INDICATOR: K.M.1 [#1 of 2]

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.

IDEAS FOR DIFFERENTIATION:

Have students illustrate the comparison of temperatures using a double bar graph.

EXAMPLES:

1. Have students compare different temperatures among an African city (e.g., Johannesburg), an Asian city (e.g., Beijing), a Russian city (e.g., Murmansk), and an American city (e.g., Indianapolis). Draw and color a bar graph to represent the differences in their temperatures. 2. Have students compare the measurements of the most well-known European monuments: Eiffel Tower (France), Big Ben (United Kingdom), and Leaning Tower of Pisa (Italy).

RESOURCES:

http://www.wolframalpha.com/widgets/v iew.jsp?id=520115043d9ba527a78757 7bd75930c8

GRADE:KSTRAND:MeasurementINDICATOR: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:

With the help of parents or students as needed, bring in objects for which the place of origin is known from a variety of countries. Have students create ways to sort the objects by length and judge whether it is better to measure in feet or inches.

IDEAS FOR DIFFERENTIATION:

 Have students create other ways to measure and sort the objects.
 Have students use a world map and pushpins to mark the objects' countries of origin.

EXAMPLES:

Compare different sizes of fast food drinks around the world.

RESOURCES:

http://www.dailymail.co.uk/femail/article -2809810/Just-large-large-soda-McDonald-s-cup-sizes-vary-globebiggest-U-S-30oz.html

GRADE ONE

GRADE: 1 STRAND: Number Sense INDICATOR: 1.NS.1

STANDARD DESCRIPTION:

Count to at least 120 by ones, fives, and tens from any given number. In this range, read and write numerals and represent a number of objects with a written numeral.

SUGGESTION FOR INTEGRATING INTERNATIONAL CONTENT: Have students count to twenty in different languages. Have students match numbers to corresponding symbols in several languages.

RESOURCES:

http://www.marijn.org/everything-is-4/counting-0-to-100

GRADE:

STRAND: Computation and Algebraic Thinking INDICATOR: 1.CA.3

STANDARD DESCRIPTION:

1

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.

EXAMPLES:

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? Have students identify these continents on a world map and/or globe.

GRADE: 1 STRAND: Geometry INDICATOR: 1.G.1 [#1 of 2]

STANDARD DESCRIPTION:

Identify objects as two-dimensional or three-dimensional. Classify and sort twodimensional and three-dimensional objects by shape, size, roundness, and other attributes. Describe how twodimensional 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 (actual shape of the object/person, made-up shapes, or geometric shapes) and label each piece on the back with their country of origin. Mix up the shapes and pass them out to students. To practice identifying and describing any kind of shape by its attributes, have students in pairs, small groups, or whole groups describe the shape attributes of their piece and identify their country of origin. Then have students locate all of the countries on a world map and/or globe.

EXAMPLES:

Give students a puzzle of Europe (or any continent) to assemble in which the pieces are cut out in the shape of each European country. Have students describe the attributes of each country's shape.

GRADE: 1 STRAND: Geometry INDICATOR: 1.G.1

[#2 of 2]

STANDARD DESCRIPTION:

Identify objects as two-dimensional or three-dimensional. Classify and sort twodimensional and three-dimensional objects by shape, size, roundness, and other attributes. Describe how twodimensional shapes make up the faces of three-dimensional objects.

SUGGESTION FOR INTEGRATING INTERNATIONAL CONTENT: Use commercial magnetic pieces or have each student cut out four paper triangles, nine squares, and four rectangles. Then guide students to construct a pyramid from the triangles and one square, a cube from six

squares, and a rectangular box from the rectangles and two squares. Then show pictures of architectural structures from around the world and have students identify the two-dimensional and three-dimensional shapes of those structures.

EXAMPLES:

1. Egyptian pyramids.

2. Glass pyramid structure in front of the Louvre Museum in Paris, France.

- 3. Stepped pyramids in Mayan culture.
- 4. Cubic architecture.
- 5. Rectangular architecture.

GRADE: 1 STRAND: Data Analysis 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.

EXAMPLES:

Have students note what type of restaurant or favorite meal they each prefer (e.g., Mexican versus Chinese) and have them analyze the class' data set.

GRADE TWO

GRADE: 2 STRAND: Number Sense 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 each country.

IDEAS FOR DIFFERENTIATION:

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.

EXAMPLES:

Have the class locate Brazil. Now locate three (odd number) or four (even number) city names in Brazil. Then have students work in small groups to locate other countries of their choice and identify odd or even number city names.

GRADE: 2 STRAND: Number Sense INDICATOR: 2.NS.7 [#1 of 3]

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 cornproducing nations, such as Chile and Brazil, contrasting corn exports and imports.

RESOURCES:

http://www.grains.org

GRADE:	2	
STRAND:	Number Sense	
INDICATOR:	2.NS.7	[#2 of 3]

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 the five longest rivers in the world by length and/or compare the rainfall in the five largest cities. Then have students select five locations of their choice around the world to compare rainfall.

GRADE: 2 STRAND: Number Sense INDICATOR: 2.NS.7 [#3 of 3]

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 the values of currencies from different countries. They could simply compare the facevalue of numbers on the currency pieces (paper or coin), or actually convert currencies to U.S. equivalents.

EXAMPLES:

1. Is the "100" on a French franc note greater or less than the "50" U.S dollar bill?

2. Are 100 French francs greater or less than 100 Japanese yen, after both are converted to U.S. dollars?

RESOURCES:

http://www.math-aids.com/Money/

2

GRADE:

STRAND:

Computation and Algebraic Thinking 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
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.

IDEAS FOR DIFFERENTIATION:

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 round globe and a flat map.

EXAMPLES:

Look for countries on an African map that look similar in size. Compare countries from different sections of Africa (e.g., West Africa versus East Africa).

RESOURCES:

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

GRADE:	2	
STRAND:	Geometry	
INDICATOR:	2.G.2	[#1 of 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 geometrical shapes and label on the back where each piece is 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 every time, along with the countries/continents. Then have students put the pictures together in a collage. Have students identify the location of each country on a map or globe.

GRADE: 2 STRAND: Geometry INDICATOR: 2.G.2

[#2 of 2]

STANDARD DESCRIPTION:

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

SUGGESTION FOR INTEGRATING INTERNATIONAL CONTENT: 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.

IDEAS FOR DIFFERENTIATION:

1. Have students color in the countries of origin of their pictures on an outline map of the world.

2. 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.

EXAMPLES:

Have students cut out the basic geometrical shapes from pictures of European monuments, then give their new puzzles to a partner to solve. The teacher can lead the students in identifying where on a map of Europe the monuments are located.

GRADE: 2 STRAND: Measurement 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).

IDEAS FOR DIFFERENTIATION:

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.

RESOURCES:

Interactive map with all of the world's time zones: http://www.worldtimezone.com/

GRADE: 2 STRAND: Data Analysis 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 puttogether, 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 classor 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 THREE

GRADE: 3 STRAND: Number Sense 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.

RESOURCES:

Usborne Starting Point History books are particularly useful in explaining the basis for Roman Numerals: <u>http://www.usborne.com/quicklinks/e</u> <u>ng/?loc=us</u>

GRADE: 3 STRAND: Number Sense 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.

IDEAS FOR DIFFERENTIATION:

1. Provide helpful hints to assist students in identifying what information is the numerator and what information is the denominator. 2. Have students apply their understanding of fractions by applying this concept to other problems involving international or global data and create their own problems.

EXAMPLES:

 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.
 Have them determine what fraction of a set France is to Europe.

GRADE: 3 STRAND: Geometry INDICATOR: 3.G.1

STANDARD DESCRIPTION:

Identify and describe the following: cube, sphere, prism, pyramid, cone, and cylinder.

SUGGESTION FOR INTEGRATING INTERNATIONAL CONTENT: Have students look at famous paintings from various international artists to identify shapes.

EXAMPLES:

Identify the following shapes in "Guernica" by Pablo Picasso, one of the most famous anti-war messages in the Western world: quadrilaterals, triangles, lines of symmetry, right angles, acute or obtuse angles.

GRADE: 3 STRAND: Geometry INDICATOR: 3.G.2

STANDARD DESCRIPTION:

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.

SUGGESTION FOR INTEGRATING INTERNATIONAL CONTENT: Have students look at famous paintings from various international artists to identify shapes.

EXAMPLES:

Identify the following shapes in "Guernica" by Pablo Picasso, one of the most famous anti-war messages in the Western world: quadrilaterals, triangles, lines of symmetry, right angles, acute or obtuse angles.

GRADE:3STRAND:GeometryINDICATOR:3.G.3[#1 of 2]

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 twodimensional 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: Geometry INDICATOR: 3.G.3

[#2 of 2]

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 twodimensional shapes.

SUGGESTION FOR INTEGRATING INTERNATIONAL CONTENT:

Have students look at famous paintings from various international artists to identify shapes.

EXAMPLES:

Identify the following shapes in "Guernica" by Pablo Picasso, one of the most famous anti-war messages in the Western world: quadrilaterals, triangles, lines of symmetry, right angles, acute or obtuse angles.

GRADE: 3 STRAND: Measurement 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.

IDEAS FOR DIFFERENTIATION:

Have students discuss why the U.S. seems to be the only country in the world that has not yet converted to the metric system.

GRADE:3STRAND:MeasurementINDICATOR:3.M.2[#1 of 3]

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.

IDEAS FOR DIFFERENTIATION:

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

EXAMPLES:

- 1. Weight: pound to kilogram.
- 2. Distance: mile to kilometer.
- 3. Height: inch/foot to centimeter.

GRADE: 3 STRAND: Measurement INDICATOR: 3.M.2 [#2 of 3]

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

 INDICATOR:
 3.M.2
 [#3 of 3]

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 from Celsius to Fahrenheit.

GRADE FOUR

 GRADE:
 4

 STRAND:
 Number Sense

 INDICATOR:
 4.NS.1
 [#1 of 2]

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.

IDEAS FOR DIFFERENTIATION:

1. Over a week (or any period of time), have students play the word games on the <u>www.freerice.com</u> 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).

2. They could then challenge other classes in the same grade or school.

3. 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.

4. Students could compare the economic data among these four major economic countries.

GRADE: 4 STRAND: Number Sense INDICATOR: 4.NS.1 [#2 of 2]

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.

IDEAS FOR DIFFERENTIATION:

Using their knowledge of place value, have students create their own place value problems which must involve information of a global or international nature.

EXAMPLES:

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.

RESOURCES:

http://www.citymayors.com

GRADE: 4 STRAND: Computation 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.

RESOURCES:

One Grain of Rice by Demi (Scholastic Press, 1997)

GRADE: 4 STRAND: Computation 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.

RESOURCES:

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: Geometry INDICATOR: 4.G.4

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:

Identify the following shapes in "Guernica" by Pablo Picasso, one of the most famous anti-war messages in the Western world: quadrilaterals, triangles, lines of symmetry, right angles, acute or obtuse angles.

GRADE: 4 STRAND: Geometry INDICATOR: 4.G.5

STANDARD DESCRIPTION:

Classify triangles and quadrilaterals based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles (right, acute, obtuse).

SUGGESTION FOR INTEGRATING INTERNATIONAL CONTENT: Have students explore examples of architecture from around the world that are inspired by geometric shapes.

EXAMPLES:

1. Have students measure the angles on the glass pyramids in front of the Louvre Museum in Paris.

2. Have students identify the shapes and measure the angles in African, Greek, Islamic, Mayan, or Roman mosaic art.

RESOURCES:

Google: "International architecture inspired by geometric shapes"

Google: "African, Greek, Islamic, Mayan, or Roman" mosaic patterns"

GRADE FIVE

GRADE: 5 STRAND: Number Sense 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 less.

RESOURCES:

https://money.cnn.com/data/markets/

GRADE:	5	
STRAND:	Computation	
INDICATOR:	5.C.4	[#1 of 2]

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.

IDEAS FOR DIFFERENTIATION:

1. Give students an 'answer' first and then have them find flags to make the fraction word problem.

2. Using the flags, have pairs of students create new word problems for the class to solve.

EXAMPLES:

1. If students add the red sections of Poland's 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.

2. If students add the yellow sections of 4 Romanian flags and 3 Ukrainian flags, how much is yellow altogether? (Answer: 11/3+ 11/2 = 25/6).

RESOURCES:

http://www.liberty-flag.com/ (U.S. flags) https://flagpedia.net (flags of the world)

GRADE:5STRAND:ComputationINDICATOR:5.C.4[#2 of 2]

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.

IDEAS FOR DIFFERENTIATION:

How much more hamburger is needed for Swedish meatballs than Italian lasagna?

EXAMPLES:

1. If Italian lasagna takes 1/3 lbs of hamburger and Swedish meatballs take 2/3 lbs of hamburger, how much hamburger will we need to buy if we want to make both?

2. For subtraction, have students calculate how much more of an ingredient is needed for one recipe than another.

 GRADE:
 5

 STRAND:
 Computation

 INDICATOR:
 5.C.5
 [#1 of 2]

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.

RESOURCES:

Recipes from Africa: <u>http://allrecipes.com/recipes/world-cuisine/african/</u> Recipes from the Czech Republic: <u>https://www.cooklikeczechs.com/</u> Recipes from Southeast Asia: <u>http://www.thekitchn.com/thailand-to-vietnam-15-fresh-recipes-for-summer-from-southeast-asia-175211</u>

GRADE:	5	
STRAND:	Computation	
INDICATOR:	5.C.5	[#2 of 2]

STANDARD DESCRIPTION:

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

SUGGESTION FOR INTEGRATING INTERNATIONAL CONTENT:

Have students plan a trip to a foreign city using planes/buses/trains. Then have them calculate the fraction of each leg of the trip compared to the total trip length, in terms of time and/or distance.

GRADE:5STRAND:ComputationINDICATOR:5.C.8[#1 of 2]

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.

IDEAS FOR DIFFERENTIATION:

Have students use graph paper when adding and subtracting data to assist with correct alignment.

RESOURCES:

https://money.cnn.com/data/markets/

GRADE:5STRAND:ComputationINDICATOR:5.C.8[#2 of2]

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 explore how Japanese students learn to multiply large numbers.

RESOURCES:

http://lifehacker.com/5975917/quicklymultiply-big-numbers-the-japaneseway

GRADE: 5 STRAND: Geometry 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 African, Greek, Islamic, Mayan, and Roman 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 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 African, Greek, Islamic, Mayan, or Roman 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.

EXAMPLES:

Have students look at works of art that include tessellating pentagons and octagons, such as the sandstone screen at the Metropolitan Museum of Art or Tibetan sand mandalas.

RESOURCES:

http://www.metmuseum.org/toah/works -of-art/1993.67.2 https://www.worldhistory.org/article/105 2/tibetan-sand-mandalas/

GRADE: 5 STRAND: Measurement 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 realworld 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.

IDEAS FOR DIFFERENTIATION:

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.

EXAMPLES:

1. 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.

2. Have students identify a city in China that has the same monthly average temperature as their school location.

GRADE: STRAND:

Data Analysis and Statistics INDICATOR: 5.DS.2

5

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:

- 1. Area.
- 2. Population density.
- 3. Per capita income.
- 4. Daily caloric intake.
- 5. Life expectancy.
- 6. Literacy rate.

RESOURCES:

Material World: A Global Family Portrait by Peter Menzel (Sierra Club Books, 1995)

GRADE SIX

GRADE: 6 STRAND: Number Sense 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 realworld 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.

EXAMPLES:

1. Compare the general height of the Alps to that of the coastal Netherlands, which falls well below sea level.

 Compare the average hottest and coldest temperatures among an African country (e.g., Kenya), an Arctic country (e.g., Russia or Canada), and the U.S.
 Have students compare average high and low temperatures in northern and southern Europe.

4. Compare temperatures in different locations around the world over past decades to see if there is evidence of climate change.

GRADE: 6 STRAND: Number Sense INDICATOR: 6.NS.3

STANDARD DESCRIPTION:

Compare and order rational numbers and plot them on a number line. Write, interpret, and explain statements of order for rational numbers in real-world contexts.

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
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.

EXAMPLES:

1. Have students research the statistics of ethnic and/or racial diversity in South Africa.

2. Have students research the number of people of Indian origin in London, United Kingdom, versus the number of Turkish origin in Berlin.

3. Have students research the ethnic demographics of Romania.

RESOURCES:

http://en.wikipedia.org/wiki/Demographi cs_of_Romania

GRADE: 6 STRAND: Geometry and Measurement INDICATOR: 6.GM.1 [#1 of 2]

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:

STRAND: Geometry and Measurement INDICATOR: 6.GM.1 [#2 of 2]

STANDARD DESCRIPTION:

6

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 from Celsius to Fahrenheit.

GRADE: STRAND:

Geometry and Measurement INDICATOR: 6.GM.2

6

STANDARD DESCRIPTION:

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 realworld and mathematical problems. SUGGESTION FOR INTEGRATING INTERNATIONAL CONTENT: Have students explore the angles in quadrilateral architectural structures around the world. Then have students consider why some cultures build round buildings. Compare these architectural structures.

EXAMPLES:

1. Have students research why traditional Inuit live in hemisphere-shaped snow homes (igloos),

2. Have students examine the architecture of Inuit igloos, geodesic domes, Russian onion domes, or India's Taj Mahal.

3. Challenge students in pairs to construct a round (mini) architectural structure with paper, cardboard, or Styrofoam.

RESOURCES:

https://en.wikipedia.org/wiki/Onion_dom e

GRADE: 6 STRAND: Data Analysis and Statistics 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.

RESOURCES:

http://www.nationmaster.com/

GRADE: 6 STRAND: Data Analysis and Statistics INDICATOR: 6.DS.4

STANDARD DESCRIPTION:

Summarize numerical data sets in relation to their context in multiple ways, such as: a. report the number of observations; b. describe the nature of the attribute under investigation, including how it was measured and its units of measurement; c. determine quantitative measures of center (mean and/or median) and spread (range and interquartile range); d. describe any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered; and e. 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:

- 1. Area.
- 2. Population density.
- 3. Per capita income.
- 4. Daily caloric intake.
- 5. Life expectancy.
- 6. Literacy rate.

RESOURCES:

Material World: A Global Family Portrait by Peter Menzel (Sierra Club Books, 1995)

CREATE YOUR OWN "SUGGESTIONS FOR INTEGRATING INTERNATIONAL CONTENT"

	MATHEMATICS	
GRADE:		
STRAND:		
INDICATOR:		
STANDARD DESCRIPTIO	N:	
SUGGESTION FOR INTEG	RATING INTERNATIONAL CONT	ENT:
EXTENSIONS:		
IDEAS FOR DIFFERENTIA	TION:	
EXAMPLES:		
RESOURCES:		

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For additional general project information, go to: <u>https://go.iu.edu/iasi</u>

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