**East Asia Lesson Plans**

**Overview:** This unit is designed as a co-curricular mathematics lesson to be co-taught in a 5th grade classroom. It touches upon Chinse culture and customs while focusing primarily on tangrams and currency conversions. Mathematics concepts addressed are currency conversions, fractions, and various geometric standards such as angle measure and congruency.

**NxG Standards:**

ELA.5.4.C3.3 draw on information from multiple print or digital informational sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

ELA.5.W.C9.3 write a narrative to develop real or imagined experiences or events using effective technique, descriptive details and clear event sequences.

SS.5.G.4 measure distances in latitude and longitude using a scale on a variety of maps and globes, and transfer the concept of cardinal and intermediate directions to describe the relative location of countries by hemisphere and proximity to the equator.

SS.5.E.5 evaluate the role of agriculture and the impact of industrialization on the economic development of the United States.

SS.5.G.4 measure distances in latitude and longitude using a scale on a variety of maps and globes, and transfer the concept of cardinal and intermediate directions to describe the relative location of countries by hemisphere and proximity to the equator.

SS.5.G.7 identify the characteristics and purposes of maps, globes, GIS and other geographic tools.

M.5.NF.3 interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b) and solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers,

M.5.NF.7 apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions (Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.)

M.5.G.4 classify two-dimensional figures in a hierarchy based on properties.

**Day 1**Geography and Currency

Students will be placed in 2 groups. Both lessons will be taught simultaneously, lasting about 20 minutes, then groups will switch.

**Geography/Location Lesson** (teacher 1)**:**

Students will use Google Earth to locate China. Students will explore the program taking note of the landscape and geography of China. Students will use the wall map and use latitude and longitude to locate various locations in China.

**Currency Lesson** (teacher 2)**:**

Students will learn about Chinese currency, the yuan. Students will research conversion rates between U.S. currency and Chinese currency. Students will use the *Solve It in Yuan* activity guide to practice conversions.

**Potential vocabulary:** latitude, longitude, terrain, geography

**Potential ‘Math’ vocabulary:** currency, conversion

**Materials:** iPads or access to computer lab, access to Google Earth, *Solve It in Yuan* activity guide (student use)

**Day 2** Tangrams

Teacher will read two different accounts of how tangrams were created. One legend discusses the breaking of a ceramic tile while the other discusses a man’s attempt to deliver a glass window to the king and queen. Teacher/class will discuss why these legends would be different. The question will then be posed: Which, if either, is true? Students will spend time researching online. The period will conclude with sharing/discussing information found, teacher will add information as necessary.

\*Students who finish researching early should also research how traditional tangrams were constructed (i.e. what were they made of?)

**Potential vocabulary:** legend, sage, orient, commodity, pane

**Potential ‘Math’ vocabulary:** square, parallelogram, triangle, congruent

**Materials:** iPads or access to computer lab, *A Brief History of Tangrams* handout (teacher reference), *Fractions with Tangrams* handout (teacher reference)

**Day 3-4** Stations – Tangrams cont.

Students will be placed into 4 groups. Each group will rotate among 4 stations. Two stations will be supervised by a teacher, two stations will be independent. Each station will last approximately 20 minutes, it will take 2 class periods to complete stations.

**Station 1** (teacher)**:**

Students will use tangrams pieces and complete activities dealing with fractions. Students will be given tangram pieces to manipulate. The teacher will discuss/review fractions as necessary. Together, students and teacher will investigate how shapes can be divided into pieces. For examples, students can use two triangles to make 1 parallelogram. Students will continue this investigation with teacher assistance as necessary.

**Station 2** (independent)**:**

Each student will independently use tangrams to create a picture. The picture should have some cultural significance to China. Once completed, students will trace the outline of the shape, thus creating a template for others to complete a tangram puzzle. Students may trade puzzles to solve when finished.

**Station 3** (teacher)**:**

Students will be introduced to angles and angle measures. Continuing with the idea of tangrams, the teacher will show shapes and discuss angle measures. Ask questions such as, which angles are congruent? Are the angles obtuse, acute, right angles? What happens if we place to acute angles together? Two obtuse angles? Two right angles? How can we form a supplementary line?

**Station 4** (independent)**:**

Students will use iPads to assist in planning a trip to China. Students will need to create an itinerary and budget considering such items as airfare, hotel costs, food, cost of souvenirs, etc. Once complete, students will then convert their travel budgets into yuans.

**Potential vocabulary:** template

**Potential ‘Math’ vocabulary:** acute, obtuse, right, complementary, supplementary, congruent, budget

**Materials:** iPads, tangram pieces, paper, pencils, markers

**Day 5** Station/Lesson Wrap-Up

The first several minutes of class will be used to allow students to complete any work not completed in stations. During this time, if students are already finished, they will be encouraged to create additional tangram templates or to add to their trip itinerary/budgets. (10 minutes)

Students will then be randomly placed into groups to share with others the budget and itinerary that was made during station 4. Students will have an opportunity to discuss the places they would like to visit as well as discuss reasons why. Students should also check group members’ budgets and conversions for accuracy. (20 minutes)

The final portion of the lesson will be for students to write a paragraph about what they have learned. Along with observations throughout, this paragraph may be used to assess student learning. Paragraphs should include information learned such as: tangrams, geography/location of China, any Chinese customs, currency, conversions, tangrams, etc. In the paragraphs, students should also list anything that is still unclear or any information they would still like to know.

**Materials:** iPads or access, student work from previous days, paper, pencil

**Resources**

A Brief History of Tangrams. (n.d.). Retrieved July 10, 2016, from https://academic.evergreen.edu/.../ A%20Brief%20History%20of%20Tangrams.doc

Chinese Yuan. (n.d.). Retrieved July 10, 2016, from https://www.teachervision.com/math/lesson-plan/4375.html

Ecklund, L. (n.d.). Fractions with Tangrams. Retrieved July 10, 2016.