# Lesson Cycle Lesson Title/Topic: 6th Grade Mathematics

**Target Concept:** Estimation and number sense

**Standards/Rationale:** 111.26(b)(1)(c)

**S**elect tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems

|  |  |
| --- | --- |
| **Lesson Objectives:** The student will be able to accurately write estimates of quantity with 20% or less error.{(E-A)/A}x100= error percentage | **Assessment:** completed worksheet |

**Materials:** 2 closed container, colored candies (15 red, 9 blue, 6 green)

# Lesson Cycle: (Direct instruction)

|  |  |
| --- | --- |
| **The teacher will:** | **The student will:** |
| **Focus/Mental Set:*** Write “How many candies are in my box?”
* Draw a closed box on the board with question marks surrounding it.
* Divide students into groups of 5.
* Give each group one closed container with 5 red candies, 3 blue candies, and 2 green candies inside the container.
* Ask them not to open the container, but encourage them to shake it, feel the weight of it, and pass it around within their group.
* Ask the students how full they think the container is. (1/2, 1/4, etc.)
* Give students 10 Mississippi's to quickly open the container and look inside to examine the contents.
* Instruct students to close the container and write down the answers to these questions.

“How many candies do you think are in the container?” “How many candies are red?”“How many candies are blue?” “How many candies are green?”* Explain that they used the estimation and number sense technique. Direct students to go back to their desks and enjoy a jolly rancher of their choice.
 | * examine the closed container
* estimate the fullness of the container
* examine the open container for 10 seconds
* estimate the number of candies inside the container
* answer the given questions

SIOP – Comprehensible InputDraw closed box on board. Write “How many candies are inside the box?”. Put question marks around box. Label the drawing “Estimation”. |

|  |  |
| --- | --- |
| **Teacher Input:*** Explain number sense importance: “Number sense is important because one should be able to understand quantities, differentiate between more and less, and understand the order of numbers and their values”
* Explain importance of estimation: “Estimation is an educated guess. It is

important to be able to make a guess as accurate as possible to save time and energy in a situation where you don’t necessarily need an exact number.”* One day you might need to make a

quick decision and not have tools to calculate the answer.”* List examples on the board:
* EX: You are standing in line at Six Flags, how so you estimate how long it take

you to get on the ride?* EX: How many rides could you ride in 2 hours?
* Jot Thoughts Structure

Give each table a stack of notecards. Instruct students to work as team with their table to write down as many examples of estimation as they can in 5 minutes. Explain that they must write one thought per notecard and their goal is cover the entire table with notecards without overlapping them.* Stand up -HandUp-Pair up and Time Pair

Share* instruct students to stand up, put their hand up, and pair up.
* instructs students to share and discuss some of the scenarios their table came up

with.* Walk around to listen.
 | * Demonstrate understanding of estimation by participating in the examples given.
* Brain storm how to estimate the time it will take to ride the ride.
* Brain storm how to estimate the number of rides they can ride in 2 hours.
* Write scenarios of their own with their table.
* Share the scenarios with another person not in their table.
 |

|  |  |
| --- | --- |
| **Guided Practice:*** Direct students to partner up with their shoulder buddy and list 2 real life situations when estimation and number sense might be used.
* Ask each student to read one example and explain it.
* Listen to students’ responses and comment as needed.
 | * List 2 real life situations when estimation might be used.
* Explain why estimation will be used in their chosen situation.
* Listen to their classmates’ examples.

CALLA – Students will partner up in small group. Teacher will instruct students to use their background knowledge when making estimations.Example: Getting ready for school-how long does it take? |
| **Independent Practice:*** Divide students into groups of 4.
* Direct students to estimate each other’s height and then take actual

measurements.* Observe students as they estimate and take actual measurements.
 | * Estimate group members’ heights in inches.
* Measure group members’ heights with tape measurer.
* Compare their estimated heights to their actual values.

TPR – The teacher squats down and as he/she stands, they say “Height/Tall”.The students mimic the teacher while repeating “Height/Tall”. |
| **Closure:*** Provide the students with clickers
* Put https[://ww](http://www.mathsisfun.com/)w[.maths](http://www.mathsisfun.com/)is[fun.com/](http://www.mathsisfun.com/) numbers/estimation-visual.html on the

projector* Allow the students to read the questions then answer with the clickers.
* Asses the knowledge of the students
 | * Answer the estimation questions on Math is Fun using a clicker

• |

|  |
| --- |
| **Vocabulary*** Estimation – A guess
* Number Sense – Working with numbers
* Manipulatives – Objects used to learn math (objects that can be touched and moved)
* Mental Math – Simple math without the use of paper and pencil
* Quantities – The amount of something (5 apples = quantity of 5)
* Differentiate – The difference between things.
* Six Flags – Amusement Park (Rollercoaster)
* Real Life Situation – It can really happen to you.
* Height – Measurement from head to foot.
* Measurement – The size of length of a something.
 |

|  |
| --- |
| **ELLs Strategies for making vocabulary development comprehensible:**Create a Content Word Wall – The Vocabulary used in this lesson will be listed on the classroom wall prior to beginning the lesson. The teacher will review the vocabulary to the students and continue to refer to the Content Word Wall during the lesson.**ELLs Strategies for application and practice:**Student will use a measuring tape, ruler, and other tools to take measurements of height and distance.Quantities will be taken using hands on materials.Problems will be solved in cooperative groups. |

**Options:**

**Lesson Cycle**

**Lesson Title/Topic: 7th Grade Social Studies**

**Concept: Technology, Past and Present**

**Standards/Rationale: 113.19(b)(20)(A)**

**Compare types and uses of technology, past and present**

|  |  |
| --- | --- |
| **Learning Target:** The student will create a presentation informing citizens of Galveston (circa 1900) of the oncoming hurricane, using 3 or more sources of technology. | **Assessment:** Video Presentation |
|  |  |

**Materials:** PowerPoint, Hurricane Sound Effects, iPhone, Video of Galveston Hurricane

|  |
| --- |
|   |
| **Lesson Cycle:** **(Direct instruction)**  |

|  |  |
| --- | --- |
| **The teacher will:** | **The student will:** |
| **Focus/Mental Set: 3-5 Minutes** As Students are entering classroom, a video is displaying images of cities, before and after a natural disaster along with news reports of meteorologist warning citizens. Examples include New Orleans, San Francisco, Fort Worth, and Moore, Oklahoma.  | Observe video  Accommodation: Provide seating at front of class. Provide reminders to stay on task.**SIOP (Building Background)** – Teacher will instruct students to write in their journal about a time that they were scared because of the weather (thunderstorm),Ask students question, “How did you know that bad weather was coming?”. Have students share what they wrote in journal. |
| **Teacher Input:**Ask questions to student(s):* What do the images have in common?

Answers include; *destruction, photos are before and after images, natural disasters.** What is different about the images and news reports?

Answers include; *different time periods, different types of technology used, and different locations.** What are the characteristics of a Natural Disaster?

Answers include; *loss of life, loss of property, created by nature.* Instruct students to create a Venn Diagram comparing 9/11 and Hurricane Katrina.Play PowerPoint of the Galveston Hurricane of 1900 include sound effects of a sea port and the winds of a Hurricane.Final Slide will display the question, “Why were so many live lost in the Galveston Hurricane of 1900.Introduce structure StandUp-HandUp-PairUP* Start Time (10 sec.)
* Call time

 Ask Students:If you had to experience an Earthquake or Hurricane, which would you choose and why?Can we take a magical 8 ball and shake it to predict Natural Disaster? If not, what can we do? Explain forecasting to students. What technological invention of today would have had the greatest impact on the people of Galveston, Tx on September 6, 1900, two days before the Hurricane? | * Discuss the questions.
* Give answers
* Create Venn Diagram

Accommodation:Provide partial Venn Diagram to the student. Have student list two additional examples to the Venn Diagram. \*Accommodation: Read examples listed in the Venn  Diagram to the student.* Discuss Venn Diagram

Accommodation:Provide word bank to the student that provides:Definition of Natural Disaster, Forecasting.Examples of technology used for forecasting weather.\*Accomodation:Read definitions and examples to the student.**TPR –** Teacher can model what being in an Earthquake make look like by shaking and losing footing as if the earth was shaking. Teacher can model what it looks like to be in high wind – the effects of a Tornado or Hurricane.* Stand up and walk around the room as if they were in an Earthquake.
* Pair up with closest person.
* Give answers
 |
| **Guided Practice:**Ask question, “What other types of technology that we have today, could have saved the people of Galveston”.* Observe and help students
* Suggest Technology that would be beneficial. (Examples include radar, satellites, cell phones, social media, air planes, radio, weather apps, and television)
 | * RoundTable
* Write one answer on a piece of paper and pass it to the person on their left. The next person is to do the same when given the piece of paper. **3-5 Minutes**

\*Accommodation:Student lists examples independently and shares answers with the group.* Students discuss answers
* Students return to their original seats.

  |
| **Independent Practice:*** Divide students into teams of four.
* Have them create a 5-10 minute

presentation as if they traveled back in time to Galveston, TX. on September 6, 1900.* Inform students that they are meteorologist from the present and are to give a lifesaving information to the community using 3 or more sources of technology. (Examples: iPhone, Weather Apps, Airplanes)
* Let team members assign rolls to play in video. (reporters, cameraman, special effects)
* Observe students and assist if needed.
 | **CALLA** - Teacher provides a video of a weatherman giving a forecast in the student’s native language.  Teacher also provides a video of a weatherman giving a forecast in English. Teacher points to his/her head and says “think”, and points as looking across the class and says, “observe”.Students compare and discus forecasting, technology, and weather conditions.* Form teams of four.
* Share answers from previous Round Table Structure
* Create concept of video and assign rolls to portray. (cameraman, reporters, special effects)
* Make 5-10-minute presentation as if they traveled back in time to warn the citizens of Galveston in 1900 using at least 3 sources of technology. (Examples: iPhone, Weather Apps, Airplanes)

Accommodation (For Both):Assign student to be the cameraman  position or special effects artist. Assist students with presentation.  |
| **Closure:**Play a bloopers reel of weathermen reports.  | Watch and laugh |

|  |  |
| --- | --- |
| **Options:** |   |
| ***Enrichment:***Invite a local meteorologist to visit the class and discuss technology that is used today to forecast the weather. Example: Rick Mitchell and the Channel 5 Thunder Truck. | ***Reteach:***Group teams of 4 together.Compare the technology used for the first moon landing to the technology used in a classroom. Give students the option of using technology used for the first moon landing or technology used in today’s classroom?Discuss and compare answers. |

**Modifications/Correctives:**

|  |  |
| --- | --- |
| ADHD Student: Have student list only two examples in Venn Diagram.\*Dyslexia Student: Do not grade spelling on turned in work. Do not grade based on neatness of work. |   |

**Vocabulary**

|  |
| --- |
| * Natural Disaster
* Earthquake
* Hurricane
* Tornado
* Meteorologist
* Forecasting
* Technological Invention
* Presentation
* Venn Diagram
 |