Caldwell University Lesson Plan (CULP)

Teacher: Zarah Ahmad   **Grade:** 7th   **Date:**

Day: Friday   **Subject:** Math   **Time:** 1:11-1:53

Identify Learning Segment (Unit Plan):

Escape Room on Integers

New Jersey Student Learning Standards (NJSLS):

1. **Content area standard**

CCSS 7.NS.A.2
Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
CCSS 7.NS.A.1
Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
CCSS 7.NS.A.2
Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
CCSS 7.NS.A.2c
Apply properties of operations as strategies to multiply and divide rational numbers.
CCSS 7.NS.A.2d
Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
CCSS 7.NS.A.3
Solve real-world and mathematical problems involving the four operations with rational numbers.

6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation

Central Focus:

There's been an invasion! Aliens have landed on earth and it's up to you students to save the world! In this end-of-unit, escape room Integer review, students will review math topics covered throughout this unit. Students will answer riddles, puzzles, word problems in order to unlock the escape box. There will be 7 different locks that will be used to send the aliens back to their moon. This lesson is sure to be out of this world!

Learning Target (Objective):
Students will: Review content covered throughout the integer unit of study while unlocking puzzle codes in order to escape from the alien invasion!

Academic Language:

Language Function: Students will be able to solve the escape room in their groups without helping other groups.
Bloom's Taxonomy Level: Support, assemble, organize, solve, discuss, and recall.

Language Demands:
   Syntax: Students will need to know the answer to the following types of questions:

- Is -3 greater than 3? Can you give me some everyday examples to verify your answers?
- Do you understand the difference between the symbols > and < ?
- Is being 'in debt' positive or negative?

Vocabulary:
multiplying, dividing, fractions, ordered pairs, negative numbers, opposite pairs, real quantities, number line, rational numbers, x-y graph.

Discourse:
   1. Tell me what you _____ about opposite pairs? (know)
   2. Tell me what you _____ __ _____ about Integers? (want to know)
   3. Tell me what you _____ about what is included when dividing fractions? (learned)

Language Support: Escape Room

Children with Special Learning Needs		
Learning Needs	Number of Children	Supports, Accommodations, Modifications
ELL	5	Provide instructions and questions in their native language

Instructional Strategies:

Opening:
- Greet students and give students time to settle into their seats.
- I will state the objective and tell students that today they will each be in randomized groups once they pick out a marble from the bucket and will have the block period to escape.
- I will state that we all handed in our projects as our unit test for Integers but to have a fun learning day where they have to come together as a unit and use their knowledge to break out of their escape room.

Presentation:
- There are 5 different groups each with the same escape room.
- There is a box with a lock, once that lock is open inside that box is a little box with seven different locks on it.
- The students are given eight different riddles, puzzles, and equations to solve each one of these opens a lock
- The riddles, puzzles and equations open a lock but they are not labeled.

Guided Practice:
- Solve the following (each letter is a digit): COW × COW = DEDCOW (opens green lock)
- There are 2 trees in a garden (tree "A" and "B") and on the both trees are some birds. The birds of tree A say to the birds of tree B that if one of you comes to our tree, then our population will be the double of yours. Then the birds of tree B tell to the birds of tree A that if one of you comes here, then our population will be equal to that of yours. Now answer: How many birds in each tree? (open red locks)
- How can I get the answer 24 by only using the numbers 8, 8, 3 and 3. You can use add, subtract, multiply, divide?
- Last month I sent off for one of those kits which you can use to make your own Christmas cookies. The kit contained: Three colours of hat: Red, Yellow and Blue. Four types of novelty: toy car, spinning top, magnifying glass and miniature hair brush Four different types of joke slip. All the other parts were the same type. The kit contained enough bits for 50 cookies. Can I make each cookie different from all the others?
- Find the code! It has 6 different digits. Even and odd digits alternate (note: zero is an even number). Digits next to each other have a difference greater than one. When we break the code into three sets of two-digit numbers, then the first and middle are a multiple of the last. What is the code?
- Tim saw that his oven digital clock was showing 1:23, and noticed that each number was one higher than the number to its left. He wondered: of all the different clock times from 0:00 to 12:59, how many are like that? And what exactly are those clock times? Can you help Tim out?
- This is a Magic Square. This means that the numbers add up to the same total in every direction. Every row, column and diagonal should add up to 111. But there are some numbers missing! Fill in the missing numbers. They are all different.
- What is the missing number?

Closure:

- Celebrate those who broke out first, they get a prize of a free homework pass or extra credit
- Who enjoyed this escape room activity?
- What puzzle was hard to break out of?

Assessment:

Formative:
I.Teacher observations, monitoring and adjusting, check for understanding, correcting answers.
I.Exit escape room sheet will be turned in to instructor
.

Individual Measurability:
I.Each student will participate in solving task 1 so that the teacher can observe and check for understanding
I.Teacher will also monitor and adjust when necessary
I.Teacher can also see if and where students are still confused

Summative:
Students will be given choices for final projects for which a rubric will be provided.

Academic Language:
integer, multiplication, number line, division, negative, positive, addition, subtraction,

Planned Support/
ELL (English Language Learner)
Content:
1.Present the content to this student in his/her native language in order to allow the student to participate fully in the activity.
Process: 1.Student will join the group in solving the math problems.   Directions are in his/her native language.   The process for learning will be the same as with English-speaking students.

Product:

1. Student will solve the Escape Route riddles after he/she has unlocked all of the puzzle locks.

Technology: Smartboard, breakoutedu.com