**Bliss Carman Math Club Lesson Plan**

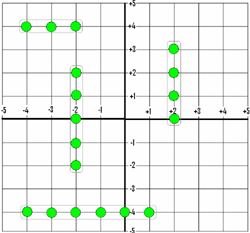
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Thursday, October 11th, 2012

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| **Time** | **Activity** |
| **3:30-3:45** | **Warm Up – Fizz Buzz and Dividing Into Groups** |
| **Purpose:** This activity will allow students to get their brains in math gear, and become comfortable with one another before engaging in more challenging math activities. It will also promote group work and help students collaborate to achieve a common goal. |
| **Curricular Outcomes:** SCO N1 (grade 7) Determine and apply divisibility rules for [...] 5 [...]; SCO N6 (grade 6) Demonstrate an understanding of factors and multiples by determining multiples and factors of numbers less than 100. |
| **Materials Needed:** Answer sheet for facilitator to keep track of correct and incorrect responses (see attached) |
| **Instructions:**  1) Have students sit or stand in a circle.  2) One student begins by saying the number 1, the next student continues the sequence by saying 2, 3,etc.  3) If a number is divisible by 5, the student must say fizz in its place. If a number is divisible by 7, the student must say buzz in its place.  4) If a student fails to give the correct response, the number sequence must be started again. The objective is to get from 1 to 100 by working as a team.  5) If the group is too large, 2 or more teams can be made.  Following this activity, students will be divided into 3 groups using numbered heads |
| **3:45-4:05** | **Station 1 – Cartesian Battle Ship** |
| **Purpose:** To have students recognize that: · a negative number for the first coordinate indicates that the point is to the left of the vertical axis; · a negative number for the second coordinate indicates that the point is below the horizontal axis; · the point at which the axes intersect has coordinates (0,0) and is known as the origin; · the position of a point on a grid can be described by its coordinates; where the first number is the horizontal coordinate and the second number is the vertical coordinate of the point. |
| **Curricular Outcomes:**  **-** (SS8) Identify and plot points in the first quadrant of a Cartesian plane using whole number ordered pairs. - (SS4) Identify and plot points in the four quadrants of a Cartesian plane using integral ordered pairs. |
| **Materials Needed:** 2 labeled grids glued to a sheet of construction paper and folded in half; one for each student (scales can vary to enhance difficulty), different colored markers (see below) |
| **Instructions:**  · Team up students in groups of two. · Provide each player with a game board as well as two different colored markers to keep track of hits and misses. · Have students plot their ships of lengths 3, 4, 5, and 6 on the grid. More can be added for a longer game. The ships must be placed on the intersections of the axis lines, as shown in the image below.  · Each player will take turns firing shots. To fire a shot, the player calls out a Cartesian coordinate. Points need to be called in this (x,y) format. · If the coordinates the firing player has called contains part of a ship, then the defending player must call out "HIT!". Otherwise they call "MISS!". If all parts of a ship are hit, then the player must call out "SUNK". · Play then alternates until one player has lost all parts of all of their ships. |
| **4:05-4:25** | **Station 2 – Order of Operations Card Game** |
| **Purpose:** To get students to practice addition, subtraction, multiplication, division, the order of operations, and mental math in order to develop number sense. |
| **Curricular Outcomes:**  (N3, Grade 6) Demonstrate an understanding of factors and multiples by: • determining multiples and factors of numbers less than 100 • identifying prime and composite numbers • solving problems involving multiples. [PS, R, V]  (N9, Grade 6) Explain and apply the order of operations, excluding exponents, with and without technology (limited to whole numbers). [CN, ME, PS, T]  (N1, Grade 7) Determine and apply the divisibility rules for 2, 3, 4, 5, 6, 8, 9 or 10, and explain why a number cannot be divided by 0. [C, R]  (N6, Grade 7) Demonstrate an understanding of addition and subtraction of integers, concretely, pictorially and symbolically. [C, CN, PS, R, V]  (N7, Grade 8) Demonstrate an understanding of multiplication and division of integers, concretely, pictorially and symbolically. [C, CN, PS, R, V] |
| **Materials Needed:**  -One ten sided die and one percentage die (ten sided, numbered 00, 10, 20, ... , 90) - A pack of cards (remove jokers and face cards) |
| **Instructions:**  1) Get a number between one and one-hundred using percentage dice. 2) Draw five cards. 3) Now the game begins. Have the students take the numbers on the cards and combine them using order of operations with any operations - exponents, multiplication, division, addition, subtraction, etc. The aim is to see how you can combine the numbers from the cards to produce the closest number you can to the number generated in step 1. You must use all five numbers, but you can repeat them if necessary. 4) The first group to come up with an equation with the correct answer gets two points. If no one finds a correct equation, the group who could produce the closest number gets one point.  5) The objective is to earn the most points within the allotted time |
| **4:25-4:45** | **Station 3 – Kenken Puzzles** |
| **Purpose:** To get students to practice addition, subtraction, multiplication, and division of positive integers through pattern recognition. |
| **Curricular Outcomes:** (N6, grade 7) Demonstrate an understanding of addition and subtraction of (positive) integers, concretely, pictorially, and symbolically. (PR1, grade 7) Demonstrate an understanding of oral and written patterns and their equivalent linear relationships. (N7, grade 8) Demonstrate an understanding of multiplication and division of (positive) integers, concretely, pictorially, and symbolically. |
| **Materials Needed:** KenKen puzzle handouts for each student (back up), computer and internet access (kenken.com), projector or smartboard, powerpoint presentation. |
| **Instructions:**  1)   Begin by reviewing basic multiplication, division, addition, and subtraction with your students. Be sure everyone has a good understanding of what positive integers are.  2)   Using a 4x4 kenken puzzle (obtained from kenken.com), explain the terms cage, target number, row and column (see powerpoint).  3)   Explain the kenken rules as follows (using the example grid):  a.       The size of the grid determines the numbers that can be used (ex. 4x4 use 1-4)  b.      No number can be repeated within a single row or column  c.       The numbers in the cage must produce the target number using the operation indicated.  d.      A number can be repeated within a cage as long as it is not repeated within a single row or column  e.       Cages with just one square should be filled with the target number  4)   Have the class work together to solve a basic 4x4 kenken puzzle.  5)      Give each student 15 minutes to explore kenken.com and attempt as many puzzles as they can. For beginners, suggest starting with 4x4 puzzles. After everyone has completed or attempted at least one puzzle, compare answers and strategies. |
| **4:45-4:47** | **Wrap-Up/Assessment – Exit Slips** |
| **Purpose:** To allow students to reflect on what they have learned |
| **Instructions:** Have students assess the activities, which activity did they like best and why, which activity did they like the least and why? |
| **Materials Needed:** Exit slips |

Cartesian Battleship:





Kenken Example

Fizz-Buzz Activity:

Exit Slip:

Which activity did you like the most and why?

What other kinds of math related activities would you have enjoyed?

Resources:

education.com

kenken.com

grades 6-8 curriculum documents



Double Click on the Slide above to access the Powerpoint Presentation.