Lesson plan by Kendall Smith

Inquiry-based learning using a flipped classroom

Title: “Movement with Math” for 3rd Graders (A physical education lesson with math learning stations)

Goal: Students should develop skill pertaining to using an iPad, Internet videos, running, sportsmanship, data collecting, math skills, and collaboration skills in an inquiry-based flipped classroom activity.

21st Century Skill objectives:

 Creativity and Innovation

 Critical Thinking and Problem Solving

 Communication and Collaboration

 Information, Media, and Technology Skills

 Life and Career Skills

Course of study standards:

 Use digital tools to analyze authentic problems. (Technology 2009 3.11)

 Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. [3-OA1]

 Multiply one-digit whole numbers by multiples of 10 in the range 10 - 90 (e.g., 9 x 80, 5 x 60) using strategies based on place value and properties of operations. [3-NBT3]

 2.) Demonstrate ball control while dribbling with the hand or foot in a stationary position and while traveling within a group.

 11.) Display good sportsmanship.

 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. [3-MD3]

Prior to the lesson:

 Prior to the lesson, the regular education teacher, resource education teacher, and physical education teacher should work collaboratively to develop a lesson involving physical activities and math skills. Introductory knowledge of multiplication facts should be completed. Students should have viewed additional YouTube videos about basketball and using a hula hoop at home. A student inventory will be conducted to find out students’ history with using hula hoops, iPads, and basketball. A review of using a flipchart on the Promethean board will be conducted.

Materials:

Multiplication flash cards/hula hoops/basketballs/red cloth flags/iPads/Promethean board

Grouping information:

 Students will be divided into 5 groups of four. The groups will consists of boys, girls, EL students, different ability levels, etc.

Pre-class video/materials:

 Students should use iPad to view these videos: <https://youtu.be/KzhOOFAMDz4> and <https://youtu.be/q_Vho3xbYdw> . Hula hoops, red flags, and stations should be set up including a basketball, multiplication fact cards, and iPad at each station. A review of using the Promethean board will be done.

Anticipatory set/Introduction (present):

 Explain to the students that they are going to have a big race. It will include hula hoops, basketballs, iPads, multiplication, and running to get a red flag. Explain that the students will be into groups. The group that has all students answer the question correctly, check answer on iPad, use hula hoop, and grab the red flags will win. At the end, they will construct a picture graph on the Promethean board by drawing basketballs.

Guiding questions/scenario (present):

Use the following dialogue with students – Has anyone heard of the Olympics? What are the Olympics? Let’s pretend that we are training to be in the Olympics. We are in the new relay game of the Olympics. We are going to practice our math while learning to do the games. Who remembers using YouTube to watch the football videos? Also, we must watch some YouTube videos on using the hula hoop and dribbling the basketball. I have a sample group that will show us what to do. I’m going to choose four students to help us learn what to do. First, you will go to an iPad station and choose a multiplication fact card. You must yell the answer out to your team members. The next person in line will check the answer using the iPad calculator. If the answer is correct, you must dribble to the hula hoop station. If it is not, you must try another card. When you get to the hula hoop station, you must hula hoop making ten loops around your waist. After that, run to the end of the gym and grab a red flag. Then return to your teammates. The next person in line will then do the activities. Allow the sample group to show the students what to do. Explain the modifications of the lesson to any student that has physical mobility issues. They can walk when needed, or hold the basketball for example.Mrs. Santiago, EL teacher, will be available to translate if needed. When you are finished, we will take turns using the Promethean board. Each group will put information on a flipchart picture graph where number of basketballs drawn represents the number of minutes that it took to complete the entire relay. The student aides will keep a timer for each group. Does anyone have any questions?

Demonstrate how to do the picture graph.

Discuss that misbehavior during the activity will be addressed using our classroom consequences. Positive and helpful behavior will be recognized as well.

Ask for questions.

Announce the group members.

Student activities (apply):

Have the students go to their groups. Allow them time to watch the videos. Announce the time to start. Students complete the activities (math/iPad activity, basketball dribbling, hula hoop activity, flag collection). Call the group back together. Do the Promethean board activity. I will be an observer by directing and encouraging students. I will help with technical difficulties using iPads.

Student presentation (apply):

Students will explain their times using the Promethean board picture graph.

Debriefing/discussion (review):

Announce the winners of the day. Explain that they will do this activity for several days. Encourage the students to study multiplication facts to help their teams’ time. Ask for questions. Allow the students to discuss their activities.

Assessment:

The teacher will observe during the lesson and keep a checklist of possible areas that need to be retaught.

Students will be assessed using the rubric that collects information on how well the students worked together, used the technology equipment, completed the physical activities, worked together to complete the chart and gather information, and to understand the concept of multiplication.

View the rubric on the next page.

Rubric for “Movement with Math” lesson

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Score  | 0 (not at all) | 1 (fair) | 2 (good) | 3 (great job) | 4 (almost perfect) | 5 (perfect) |
| Behavior/sportsmanship |  |  |  |  |  |  |
| Gathered information |  |  |  |  |  |  |
| Technology Use |  |  |  |  |  |  |
| Physical activity |  |  |  |  |  |  |
| Completed math concept |  |  |  |  |  |  |
| Learned independently/ group  |  |  |  |  |  |  |

Resources: APA style 6th edition

Alabama Learning Exchange. (2002). Retrieved from <http://alex.state.al.us/index.php>.

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P21 Partnership for 21st Century Learning. (2002). Retrieved from www. P21.org.

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