LESSON PLAN

HOW HIGH CAN YOU JUMP?

Objectives:

The students will understand:

- How to collect data and determine varying outcomes reliant upon the input of information
- That models can be representatives of something else
- Anyone can be a scientist and test hypothesis
- How to calculate central measures of tendency
- The varying speeds at which objects travel and the affect gravity has on objects
- That objects that weigh more typically cannot jump as far as objects that are lighter
- If muscles are used more then they typically can perform better

Standards Assessed:

- Scientific Method
- Collecting Data
- Scientific Inquiry
- Testing Hypothesis
- Models for Representation
- Central Measures of Tendency
- Effects of gravity
- Understanding a push/pull can move an object
- Measuring with non-standard units
- Force and motion
- Muscular system
- Safety procedures

New York Standards:

K: S1.1a, S1.2.3, S1.3, S1.3.2, PS3.1d, PS5.1b, PS5.1c, PE1a, PE1b
1st: S1.1a, S1.2.3, S1.3, S1.3.2, PS3.1d, PS5.1b, PS5.1c, PE1a, PE1b
2nd: S1.1a, S1.2.3, S1.3, S1.3.2, PS3.1d, PS5.1b, PS5.1c, PE1a, PE1b
3rd: S1.1a, S1.2.3, S1.3, S1.3.2, PS3.1d, PS5.1b, PS5.1c, PE1a, PE1b
4th: S1.1a, S1.2.3, S1.3, S1.3.2, PS3.1d, PS5.1b, PS5.1c, PE1a, PE1b
5th: S1.1.2, S1.2a, S1.2b, S2.2b, PS5.1d, PS5.2a, PE1a, PE1b
6th: S1.1.2, S1.2a, S1.2b, S2.2b, PS5.1d, PS5.2a, PE1a, PE1b
7th: S1.1.2, S1.2a, S1.2b, S2.2b, PS5.1d, PS5.2a, PE1a, PE1b
8th: S1.1.2, S1.2a, S1.2b, S2.2b, PS5.1d, PS5.2a, PE1a, PE1b

Materials:

- How High Can You Jump Exhibit
- Data Collection Card

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HOW HIGH CAN YOU JUMP?

Procedures: The student will stand on the pad and wait for the directions on the screen which tell them to jump. The directions will tell them to wait for green, and then it will proceed to count down from 3 to 1. Once the countdown is complete, then they jump. The screen will tell them how high they were able to jump. Once back in the classroom the discussion needs to include graphing the student's height they were able to jump and then using the graph to determine the central measures of tendency. Measuring the height they were able to jump is not a standard form of measurement. The class also needs to discuss why some students can jump higher than others based on their size or athletic ability and what would happen if students practiced jumping everyday, would it increase their ability to jump higher. There are also certain safety procedures that need to be followed when participating in this exhibit. Jumping when not used to jumping could result in injury. If we lived on a planet without any gravitational pull, what would be the result if a person was to jump? In addition, how much force has to be exerted to be able to jump a certain height. How accurate is this exhibit as a model for representing

how it would be to jump during an actual basketball game while trying to make a basket and what other factors would come into play such as trying to jump around other players.

Independent Practice: The exhibit is completely independent.

Assessment:

- The student will write their outcome on their post-teaching card
- Teacher observation of participation in classroom discussion

Modifications (Special Education Students):

Special education students may need assistance in knowing where to stand. They may also need assistance with watching the screen and knowing when to jump. They may also need help with writing the height down on their data collection card.

Extensions (Gifted Students):

If gifted students are successful in jumping, then they can write down all the heights after 3 times and use the central measures of tendency to write down the mean on their data collection card, and then find the median and the mode.

Generalization to other Subjects:

Collecting empirical data and measuring can be generalized to math.