

Sit-up and Mean it

Pillar: Active Living

Division III

Grade Level: 7

Core Curriculum Connections: Mathematics

I. Rationale: A variety of data and statistics are necessary to teach and understand mathematical concepts, so why not make the data meaningful through a collection process that is both active and fun. In this active math activity, students are physically challenged to complete as many sit-ups and other exercises as possible and then mentally challenged to utilize this data when calculating the mean, median, mode, and range of the class's results.

II. Curriculum Outcomes: Grade 7 Mathematics

Statistics and Probability (Data Analysis)

General Outcome:

- Collect, display and analyze data to solve problems

Specific Outcomes:

1. Demonstrate an understanding of central tendency and range by:

- determining the measures of central tendency (mean, median, mode) and range
- determining the most appropriate measures of central tendency to report findings.

[C, PS, R, T]

2. Determine the effect on the mean, median and mode when an outlier is included in a data set.

[C, CN, PS, R]

III. Materials:

- data sheet
- pencils
- mats or soft carpet for performing exercises

IV. Procedure:

1. Pair students up in groups of two and have each student do as many sit-ups, push ups, jumping jacks, leg lifts, etc. as they can possibly perform in one minute.
2. Have partners record each others' scores.

3. Then, have the group of two combine with another group, so that there are four in a group.
4. Using a prepared form as well as the data collected from performing the sit-ups and push-ups, have each group determine the mean, median, and mode of their data.
5. Together, determine the range of the class's results.

V. Assessment Ideas:

1. Check for correct calculations.
2. Using the data from each group, have individual students calculate the mean, median, and mode of data collected from every other group except their own to demonstrate their learning.
3. Have students repeat the activity using other types of movements and then assess whether or not the calculations have been done correctly.

VI. Source:

- lesson idea adapted from the web site PEcentral.org