

Body Mass Index (BMI)

Eisenhower Project 2007-2008

Gigi Hepperle, Teacher
Class: 8th Grade Physical Education
Students
West New York Middle School

Using Technology and the Internet to
determine the relationship between
Body Mass Index (BMI) and physical
activity in adolescents

Description of the Environment

The class meets three days per week for 40 minutes per class. There are two computers for use in the Physical Education Office.

Description of the Activity

Students will use height and weight data to determine the BMI of anonymous students.

Students will record and analyze monthly the heights, weights and BMI and the fitness activities of those students during Physical Education Class.

Students will use Microsoft Office to chart this data monthly.

Students will evaluate data to determine if any student's BMI has improved.

Students will summarize the results in an oral discussion.

Objectives

Students will learn how to determine BMI using the Internet.

Students will use the Internet to learn what an acceptable BMI is for an adolescent girl or boy.

Students will use Microsoft Office to enter data monthly.

Students will analyze data, compare it to fitness activities performed in physical education class, and determine if any student's BMI has changed.

Materials/Resources

www.teenhealth.org

One folder for each student

One 3 $\frac{1}{2}$ floppy disk for each student

Scale

Height Chart

Clipboard

Pencils

Ruler

Evaluation

The Spreadsheets will be checked for accuracy. The accuracy and appearance will be graded by Rubric. The students and teacher will have an oral discussion at the end of the Project to discuss conclusions regarding BMI and physical activity.

Getting started

The students in the class varied greatly in height and weight. For this reason, the students and I decided to keep all information anonymous. I assigned each student a letter for the entire Project. I created a Worksheet with the following information at the top:

Student (letter A-O)	M/F	Date of Birth	Height	Weight	BMI
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When the students were weighing and measuring each other, all they had to do was ask the student for their date of birth, and they wrote the appropriate information in the space provided. This activity continued on the 15th of each month. I had a scale and a height chart in my office and the students were weighed and measured one at a time. This also helped ease any apprehension that any students had. Students were weighed and measured with their sneakers off.

Core Curriculum Content Standards

Comprehensive Health and Physical Education - 2.1., 2.6

Computer and Information Literacy - 8.1

Technology Education - 8.2

Mathematics - 4.1, 4.4, 4.5

Consumer, Family and Life Skills - 9.2

Lesson 1

One 40 minute Period

Objectives

Students will understand what BMI is.

Students will understand that BMI is not a complete diagnosis of a person's healthy weight for their height.

Students will understand the different reasons why BMI is not a complete diagnosis.

Students will understand the best way to determine if a person is at their best weight for their height.

Activity

BMI is a number that tells you if you are at a healthy weight, based on your height. It's a good indicator of a person's body fat, but it doesn't tell the whole story. People who have a high BMI may have a large frame or a lot of muscle, and a smaller person may have a small frame but still have too much body fat. It's always a good idea to talk to your doctor about your BMI. Your doctor has tracked your weight over the years and has an idea if you are growing normally.

Materials/Resources

www.teenhealth.org

One folder for each student

One 3 ½ floppy disk for each student

Scale

Height Chart

Clipboard

Pencils

Ruler

Assessment

Questions and Answers and discussion among group and teacher.

Lesson 2

Three 40 minute periods

Objectives

Students will find the website www.teenhealth.org .

Students will enter the appropriate information in the spaces provided.

Students will record the correct BMI on the worksheet.

Activity

There are several ways to calculate BMI. You can go to any website, enter the information in, and it will give you the BMI. It's a good idea to use a teen calculator because the standards are different for kids and teens as well as boys and girls.

Make sure you have the following information:

Height

Weight

Age

Gender

Date of Birth

Date of Measurement

Enter the information just as it asks, then click "calculate BMI". The BMI will be found below. Record it on the worksheet. This information will be entered later.

Materials/Resources

www.teenhealth.org

One folder for each student

One 3 $\frac{1}{2}$ floppy disk for each student

Scale

Height Chart

Clipboard

Pencils

Ruler

Prepared list of students with date of measurement, gender, date of birth, height and weight

Assessment

The teacher will calculate the BMI for each student and compare it to the BMI that the students enter.

Lesson 3

One 40 minute period per week from September through February

Objectives

Students will be able to open Microsoft Excel and create a spreadsheet from the BMI data.

Students will be able to save this data on a 3 ½ Floppy Disk and their "H" drive.

Students will plot the BMI on a chart for each student.

Activity

Open Excel.

Your labels on the top should be:

Student

Gender

Date of Birth

Sept. Height

Sept. Weight

Sept. BMI

Oct. Height

Oct. Weight

Oct. BMI

Nov. Height

Nov. Weight

Nov. BMI

Dec. Height

Dec. Weight

Dec. BMI

Jan. Height

Jan. Weight

Jan. BMI

Feb. Height

Feb. Weight

Feb. BMI

Your first student is Student A, the second is Student B, and so on.
Enter the BMI for the month you are working on. Once each student's BMI

is entered, save it on your floppy disk and your "H" drive. Click File, then, Save As. Open the 3 1/2 floppy drive or your home drive and click Save. This activity will continue monthly until February 13, 2008. When all the data is complete, the students will then plot the BMI of each student on two graphs; one for September and one for February.

Materials/Resources

www.teenhealth.org

One folder for each student

One 3 1/2 floppy disk for each student

Scale

Height Chart

Clipboard

Pencils

Ruler

Prepared list of students with date of measurement, gender, date of birth, height and weight

Assessment

The teacher will continue to calculate the BMI for each student and each month and compare it to the BMI that the students enter.

Lesson 4

One 40 minute period

Objectives

Students will compare the BMI of each student from September through February.

Students will determine if any student's BMI has either improved or not. Students will discuss among their group what the reasons may be for the change, remembering the fitness activity of each student in Physical Education class.

Students will discuss among the group which outside factors would contribute to a person's BMI (diet at school and at home and participation in any other fitness activities in and out of school).

Activity

We now have 10 months of BMI data. We can look at the data and draw conclusions. We have done 20 sit-ups and 20 pushups for every PE class since September. Has the BMI improved? If it did not improve, why didn't it? What do you think the factors are?

Materials/Resources

www.teenhealth.org

One folder for each student

One 3 ½ floppy disk for each student

Scale

Height Chart

Clipboard

Pencils

Ruler

Prepared list of students with date of measurement, gender, date of birth, height and weight

Completed correct Excel Spreadsheets with BMI listed from September through June

Assessment

Students should come to the conclusion that there are several other factors that contribute to a person's height and weight. Regular exercise is just one way to help improve BMI.

Lesson 5

One 40 minute Period

Objectives

Students will self evaluate their participation in the Project.
Students will discuss what they liked and disliked about the Project.
Students will make any recommendations for any future Projects.

Activity

It's important to be at a healthy weight. People who are overweight as teens increase their risk of developing health problems, such as diabetes and high blood pressure. Being overweight as a teen also makes a person more likely to be overweight as an adult. Also, adults who are overweight may develop other serious health conditions, such as heart disease.

If your doctor thinks your weight isn't in a healthy range, you will probably get specific diet and exercise recommendations based on your individual needs. Following a doctor's diet will work much better than following fad diets. For teens, fad diets or starvation plans can actually slow down growth and sexual development, and the weight loss usually doesn't last.

Assessment

What did you learn from this Project? Did you enjoy participating?
Would you suggest anything different for a future Project?

Attachment 1: Rubric for Assessing BMI Project

Teacher: Mrs. G. Hepperle

Student

CATEGORY	4	3	2	1
Attractiveness	Makes excellent use of font, color, graphics, effects, etc. to enhance the presentation.	Makes good use of font, color, graphics, effects, etc. to enhance to presentation.	Makes use of font, color, graphics, effects, etc. but occasionally these detract from the presentation content.	Use of font, color, graphics, effects etc. but these often distract from the presentation content.
Requirements	All requirements are met and exceeded.	All requirements are met.	One requirement was not completely met.	More than one requirement was not completely met.
Mechanics	No misspellings or grammatical errors.	Three or fewer misspellings and/or mechanical errors.	Four misspellings and/or grammatical errors.	More than 4 errors in spelling or grammar.
Content	Covers topic in-depth with details and examples. Subject knowledge is excellent.	Includes essential knowledge about the topic. Subject knowledge appears to be good.	Includes essential information about the topic but there are 1-2 factual errors.	Content is minimal OR there are several factual errors.

Organization	Content is well organized using headings or bulleted lists to group related material.	Uses headings or bulleted lists to organize, but the overall organization of topics appears flawed.	Content is logically organized for the most part.	There was no clear or logical organizational structure, just lots of facts.
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Attachment 2: BMI Chart from September through February

Student		DOB	Sept. BMI	Oct. BMI	Nov. BMI	Dec. BMI	Jan. BMI	Feb. BMI
A	M	Aug. 94	20.5	20.2	20.8	18.8	19.6	19.6
B	F	Dec. 93	34.1	34.1	33.8	31.5	33	32.4
C	F	Jan. 94	21	20.4	21.9	20.5	21.2	21.8
D	F	Dec. 93	20.7	19.9	20.4	19.6	20.2	20.2
E	M	May 94	17.5	17.4	16.6	15.7	16.5	16
F	M	May 93	21.9	21.6	22.2	21.1	20.8	21.9
G	M	Nov. 93	16.6	17.8	17.6	17.4	17	17.6
H	F	Dec. 93	22.5	23	22.5	23.8	23.6	23
I	M	July 94	25.1	27.4	27.8	25.8	25.7	25.1
J	F	Aug. 94	27.8	30.1	30.1	26.1	27.5	28.3
K	M	Nov. 92	27.8	27.1	27.8	23.5	27.9	26.9
L	F	April 94	22.3	22.3	23.4	23.2	22.7	22.6
M	M	Dec. 93	30	29.2	31.6	30.7	29.8	29.7
N	F	April 94	24	23.2	22.2	23.2	24.9	24.7
O	M	Oct. 92	30.7	34.4	34.7	34.1	33.4	34.3
P	F	Jan. 93	20.7	19.9	21.3	19.1	19.7	20

Resources:

www.kidshealth.org

www.teenhealth.org

www.rubistar4teachers.org

Reflections on completing an Eisenhower Project

Since I am a teacher at the Middle School, I have had the pleasure of viewing Eisenhower Projects on display at #1 School in May. I have always been impressed with the quality and variety of these Projects. Last year, as I was walking around looking at them, I thought to myself, "I can do one of these".

I have always been interested in BMI (Body Mass Index). When I weigh and measure my students in September they ask me "Am I at the right weight for my height?" I have shown them the physical chart that I have and also had a few students use the TeenHealth.org website to determine their BMI. I also tell them that it is not a complete diagnosis and they should discuss concerns with their doctor.

In June, I spoke to one of the 7th Grade students at length about the possibility of her class completing a Project. When I showed her the website and the Eisenhower Application, she responded, "that's hot!" When I figured out that "hot" was "good", we decided to go ahead and attempt a Project in September.

Once a month the girls weighed and measured everyone in the class, one student at a time. I was very concerned about the embarrassment factor, but the students were terrific. There was not one incident of any remark towards any other student.

It took me awhile to get organized. It always seemed as if there was something that I couldn't find when the girls needed to work. Also, I had the data on 2 different pages, which made it take longer for them to get and record their information.

I'm glad I completed this Project. It was refreshing to teach something other than my usual Physical Education lessons, and I enjoyed working with the girls and getting to know them better. We have had many interesting discussions about weight, body image, eating right and exercising. I hope this made an impact not only for the present but for the future as well.



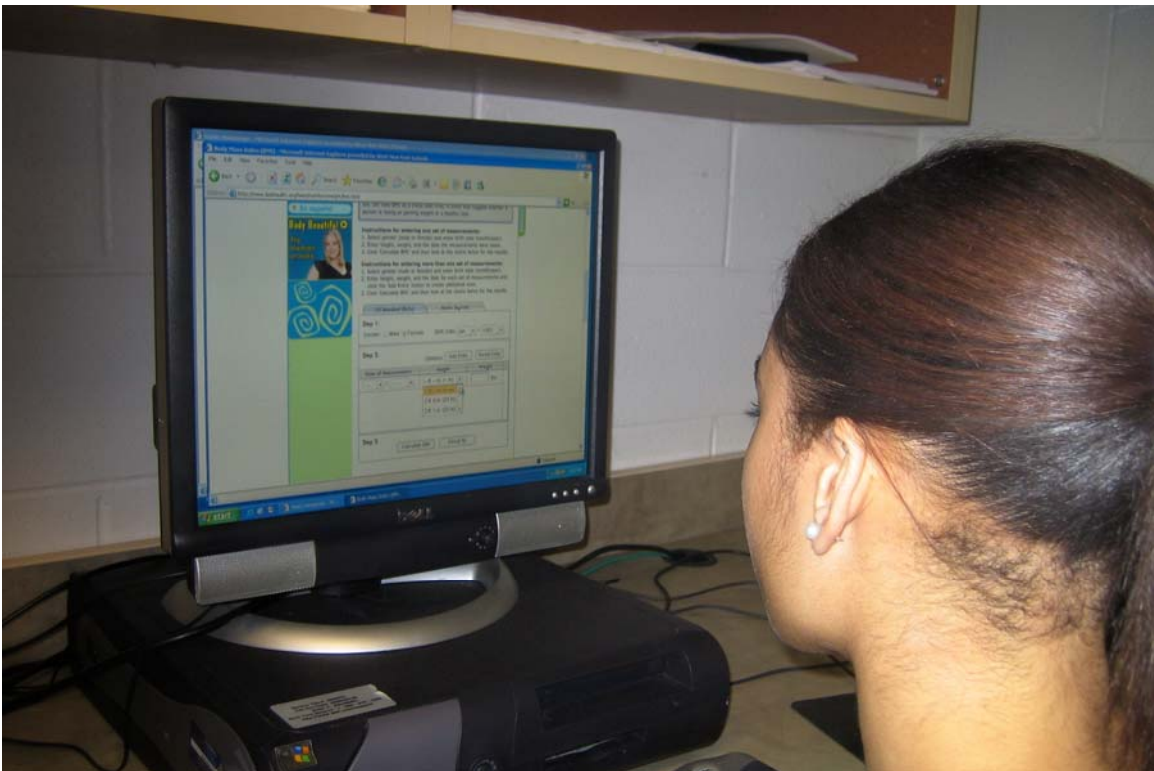
Measuring Height...



And Weight



Recording Data



Working with the TeenHealth.org Website