



Science Fair Projects

3rd Grade to 5th Grade

Title: Human Body

"Video Games with a Beat"

Stating the Problem - The Big Question

Your project will involve measuring the heart rate of people as they play video games to see if the rate increases, decreases, or stays the same. Write a question that asks exactly what you want to find out from your experiment.

Forming a Hypothesis - A Smart Guess

Will your heart rate increase as you play a video game? Remember that some people find video games more exciting than others. Make a prediction of how you think an individual's heart rate will be affected by playing video games. In one sentence write a hypothesis that states what you think will be the answer to the Big Question.

Planning the Procedure

Why does a person's heart rate increase during some activities and decrease during others? Find out by doing some research on the human heart in the library. There are many books and articles available in the library that explain how the heart works. Find out what makes the heart rate increase. How do the heart and lungs work together? How do you measure heart rate? How are the heart beat and the pulse related? Make a diagram of all the parts of the heart and how the heart works. Make a list of your resources.

In your experiment you will want to measure the change in heart rate. Measure the heart rate before the person plays the video game, during the video game and then again after the game. You measure the heart rate by checking a person's pulse. The pulse is the throbbing of the arteries in response to the beating of the heart. You will need plenty of practice checking pulses. One of the most common places to find a person's pulse is on the inside of the wrist, but this may be difficult while your subject is using his or her hands to play video games. Name some other locations on the body to check a person's pulse. A stethoscope is a helpful instrument to detect heart beats or pulse rates.

Write a detailed step-by-step description of your experiment. Make a list of the materials that will be needed.

This project is from Daryl Vriesenga's book, *Science Fair Projects, Grades 4-6*, Michigan, Schaffer Publications, 1990. The Guide is available on line at: SchooDoodle.com

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"Video Games with a Beat" (continued)

Make a chart or table to be used when recording results similar to the chart below.

Chart

Subject	Male	Female	Age	Video Game	Pulse Before	Pulse During	Pulse 1 Minute After	Comments

Recording Results

"Let the video games begin!" It's time to do your experiment. One of the most important parts of recording the results is to measure the heart rate accurately. Heart rate is usually recorded in beats per minute, but that does not mean that you have to count a person's heart beats for one complete minute. Instead, count the number of beats in ten seconds and then multiply this number by six. For example:

12 heart beats in ten seconds $\times 6 = 72$ heart beats per minute.

Drawing a Conclusion

Before you performed your experiment, you formed a hypothesis that predicted what you would learn about a person's heart rate as the person played video games. Was your hypothesis correct? Write a report that explains what you have learned. In your report include your Big Question, hypothesis, a detailed description of your experiment, the tables that show your results and your conclusion in the form of a paragraph explaining what you have learned.

Display

An attractive display is an excellent way to share your project with others. Your display should include your report, Big Question, hypothesis, results, and graphs that show the change in a person's heart rate.

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