# Pre-Lab Information

Purpose Plan an investigation to examine how heart rate changes during and after an exercise is performed for two different periods of time.

Time Approximately 60 minutes

Question How does heart rate change during and after an exercise is performed for two different periods of time?

Hypothesis In the space below, develop a hypothesis that will test the question.

Summary In this experiment, you will work with a partner to measure each other’s heart rate before and after exercise. You will start by determining each other’s resting heart rate. Then, you will do an exercise for a specific amount of time, measure each other’s heart rate afterward, and then determine each other’s recovery period. You will then repeat this procedure with the same exercise but for a longer period of time. You will choose the type of exercise performed during the experiment as well as the two durations of time.

# Safety

* Make sure that all behavior in the lab is purposeful.
* When exercising, wear gym shoes.
* Be respectful of others and their personal space as you perform your experiment.
* Report all accidents—no matter how big or small—to your teacher.

# Background Information

It is time to get you thinking about the effects of exercise on heart rate. The experiment you will devise should examine the changes in heart rate after an exercise is performed for two different periods of time. You and your partner will need to determine each other’s heart rate before and after exercise as well as each other’s recovery period. Your teacher will let you know what materials are available. You and your partner should plan your investigation around these.

To find your heart rate, use the tips of your index and middle fingers to press lightly over the blood vessels in your wrist or neck. Depending on the individual, sometimes one area is better for feeling pulse than the other. Count your pulse for ten seconds. Multiply the number of pulses by six to find your number of beats per minute.

# Lab Procedure

Here is an outline of the steps you should follow to plan your investigation for this lab. Later in the guide, you will have space to develop your ideas, collect data, analyze and discuss results, and draw conclusions.

1. **Determine the types of data you will gather and the tools of measurement you will use to collect the data.**

How will you gather data for your experiment? If gathering quantitative data, you may want to devise a table in which you can record your results in an organized manner. Also, consider how you will record any qualitative or descriptive data in addition to your numerical results. You should use a pencil to record data.

1. **Devise an experiment to examine the effects of exercise on heart rate for two different periods of time.**

Develop the main steps and describe how you will run the experiment. Your teacher will guide you on what materials are available for your experiment.

1. **Stop. Have your teacher sign off on Steps 1 and 2 before you continue the investigation.**
2. **Gather materials and set up your experiment.**

Now that you know what you will do, gather the necessary items. Besides the objects you will experiment with, make sure you have the necessary equipment to take measurements. If you are working with lab partners, make sure each person knows his or her role in running the experiment. Check your setup and make sure everything is in order before you proceed.

1. **Run your experiment.**

As you proceed with your experiment, make sure you record all the necessary data and, if working in groups, the role each student performed during the experiment. Make sure all elements of your experiment are complete. Do not forget to clean up when you are done!

1. **Use the High School Lab Report Guide to write your lab report.**

# Examine the effects of exercise on heart rate for two different periods of time.

1. **Determine the types of data you will gather and the tools of measurement you will use to collect the data.**

Make a list of the type of data you plan to collect. If gathering quantitative data, you may want to devise a table in which you can record your results in an organized manner.

1. **Devise an experiment to examine the effects of exercise on heart rate for two different periods of time.**

Write the steps of your experiment.

1. **Stop. Have your teacher sign off on Steps 1 and 2 before continuing the investigation.**
2. **Gather materials and set up your experiment.**

Gather the necessary items and equipment. If you are working with lab partners, make sure each person knows his or her role in running the experiment. Document the roles here.

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| --- | --- |
| **Student Name** | **Role** |
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1. **Run your experiment.**

Record your data and observations in the space below. Do not forget to clean up when you are done!

**Step 6: Use the Lab Report Guide to write your lab report.**