

Lesson 17: Developing a Statistical Project

Classwork

Statistical questions you investigated in this module included the following:

- How many hours of sleep do 6th graders typically get on a night when there is school the next day?
- What is the typical number of books read over the course of 6 months by a 6th grader?
- What is the typical heart rate of a student in a 6th grade class?
- How many hours does a 6th grader typically spend playing a sport or a game outdoors?
- What is the head circumference of adults interested in buying baseball hats?
- How long is the battery life of a certain brand of batteries?
- How many pets do students have?
- How long does it take a student to get to school?
- What is a typical daily temperature of New York City?
- What is the typical weight of a backpack for students at a certain school?
- What is the typical number of french fries in a large order from a fast food restaurant?
- What is the typical number of minutes a student spends on homework each day?
- What is the typical height of a vertical jump for a player in the NBA?

What do these questions have in common?

Why do several of these questions include the word “typical”?

A Review of a Statistical Study

Recall from the very first lesson in this module that a statistical question is a question answered by data that you anticipate will vary.

Let’s review the steps of a statistical investigation.

- Step 1: Pose a question that can be answered by data.
- Step 2: Collect appropriate data.
- Step 3: Summarize the data with graphs and numerical summaries.
- Step 4: Answer the question posed in Step 1 using the numerical summaries and graphs.

The first step is to pose a statistical question. Select one of the above questions and write it in the following Statistical Study Review Template.

The second step is to collect the data. In all of these investigations, you were given data. How do you think the data for the question you selected in Step 1 was collected? Write your answer in the summary below for Step 2.

The third step involves the various ways you summarize the data. List the various ways you summarized data for Step 3.

<p>Step 1: Statistical question.</p>
<p>Step 2: Collect data.</p>
<p>Step 3: Summarize the data.</p>

Finally, the fourth step is to answer the statistical question. The answer to the statistical question was the focus of the investigation in each of the lessons. Describing a data distribution in terms of shape, center, and spread or, depending on the shape of the data distribution, calculating the mean or the median of the data often answer statistical questions.

Project (Exploratory Challenge)

Now it is your turn to answer a statistical question based on data you collect. Before you collect data, explore possible statistical questions. For each question, indicate data that you would collect and summarize to answer the question. Also indicate how you plan to collect the data.

Think of questions that could be answered by data collected from members of your class or school or data that could be collected from recognized websites (e.g., The American Statistical Association and the project Census At Schools). Check with your teacher if you are planning to work with data from an outside source such as one of the above websites. Your teacher will need to approve both your question and your plan to collect data before data are collected.

As a class, explore possibilities of a statistical investigation. Record some of the ideas discussed by your class using the following table.

Possible statistical questions	What data would be collected and how would the data be collected?

After discussing several of the above possibilities of a statistical project, prepare a statistical question and a plan to collect data to present to your teacher. After your teacher approves your question and data collection plan, begin collecting the data. Carefully organize your data as you begin developing the summaries to answer your statistical question. In future lessons, you will be directed to begin creating a poster or an outline of a presentation that will be shared with your teacher and other members of your class.

For this lesson, complete the following to present to your teacher:

1. The statistical question for my investigation is as follows:

2. Here is the plan I propose to collect my data. (Include the exact questions you may ask an individual or a clear description of what you plan to measure or count.)

Lesson Summary

A statistical study involves a four-step investigative process:

- Pose questions that can be answered by data.
- Design a plan for collecting appropriate data and then use the plan to collect data.
- Analyze the data.
- Interpret results and draw valid conclusions from the data to the question posed.

Problem Set

Your teacher will outline steps you are expected to complete in the next several days to develop this project. Keep in mind that the first step in developing your project is a statistical question. With one of the statistical questions posed in this lesson or with a new one developed in this lesson, organize your question and plan to collect and summarize data. Complete the process as outlined by your teacher.