

Afterschool Lesson Plan Database

Lesson Plan

Digital Smiles

Subject:	Technology
Grade span:	4 to 6
Duration:	4-6 sessions, 45 to 60 minutes each

Contributed by:



[SEDL](#)

This lesson was excerpted from the [Afterschool Training Toolkit](#) under the promising practice: [Gathering and Sharing Information](#)

Description:

In this lesson, students use yarn and metric rulers to measure the lengths of their smiles. They record measurements in an electronic spreadsheet, analyze the data to discover such things as who has the biggest smile and the group's average smile size. They present their findings, using digital pictures to enhance their presentations. This activity provides an opportunity to connect to the day school curriculum in several academic areas, including science, math, and literacy.

Learning Goals:

- Learn the research steps of gathering, analyzing, and presenting data
- Use a metric ruler to accurately measure length (in centimeters and millimeters)
- Use technology tools to record and analyze data
- Create charts that explain resulting data
- Understand "mean," "median," and "mode" (for upper elementary and middle school)

Materials:

- Digital still cameras
- Metric rulers, yarn, data-collection worksheet
- One computer with an electronic spreadsheet application
- One computer for every two students (optimal), with a word-processing application; several computers may be shared during the writing activity
- A projector, large-screen display, or interactive whiteboard (if available) may be used to display data as it is gathered and analyzed
- Digital video camera to document the activity (optional)

Preparation: Instructors should determine students' computer and camera skill levels and select appropriate technology tools. Instructors should also have basic computer skills, including familiarity with digital cameras, electronic spreadsheets and calculation formulas, and word-processing software.

- Assemble materials
- Test and practice camera functions
- Review electronic spreadsheets and word-processing software functions
- Prepare an electronic spreadsheet that will be used to compile the data
- Rehearse the activity at least once

What to Do:

Engage students

- Ask the following series of questions and discuss their responses. How big is your smile? Who has the biggest smile? How can we measure and then compare the smiles of everyone in the group? How could we describe the length of something (that is, units of measure)?
- Explain that the students are going to become "researchers" to learn more about children's smiles. Ask what they think they will discover. For example, do girls or boys have bigger smiles? Do older children have bigger smiles than younger children?
- Explain that to find the answers, they will need to collect and analyze some "data."
- Present the steps, and mention that they are basically the same for all researchers and scientists who are interested in finding out about things. Elaborate on the steps as necessary.
 1. Ask a question
 2. Collect data
 3. Analyze data
 4. Interpret results
 5. Present results
 6. Share what is learned and plan next steps
- You can write the steps on chart paper or on the board and point out the steps as the activity progresses.

- Explain that students will work in pairs to measure their smiles and then use computer technology to compare collected data. Introduce metric measurements, including "centimeters" and "millimeters," as well as the measuring tool they will use.

Collect data

- Using a piece of yarn, have each student measure his or her partner's smile straight across from corner to corner.
- Transfer the yarn to a ruler and record measurements onto a worksheet or directly into the computer in both centimeters and millimeters. You may choose another unit of measure if desired.
- Have each student take a picture of his or her partner's smile.
- If you wish to document the activity to share with other instructors or parents, ask one or two students to operate the video camera. (optional)

Record and analyze the data

- Discuss how to create an electronic spreadsheet. Decide how to set up the rows and columns of the spreadsheet and assign names to each. Discuss calculations and formulas.
- Have teams enter their members' data into the spreadsheet.
- Once data are entered, show the data table of all students' smiles and ask who has largest smile, who has smallest smile, and how many have the same size smile.

Introduce spreadsheet capabilities

- Introduce the term "average" and how it is computed.
- Show how the electronic spreadsheet application can automatically figure the average. If appropriate, introduce the terms "mean," "median," and "mode."
- After collecting your data, use the graphing capacity of your spreadsheet program, or enter your data into this free graphing tool, <http://nces.ed.gov/nceskids/graphing/>

Interpret the data

- Discuss findings and make charts from the data.
- Ask each student to write an account of the activity and include a digital picture and the metric measurements of their smile.
- E-mail findings to an older class and ask it to analyze the smile data of the younger students. (optional)

Present the results

- Share stories, pictures, and smile data.
- Evaluate the successful completion of each student's work.
- If problems are evident in data collection or analysis, this can be a valuable learning opportunity. Emphasize that this happens in real science experiments, too.

Evaluate (Outcomes to look for):

- Understanding that collecting and analyzing data helps scientists and others answer questions
- Understanding that electronic spreadsheets can assist in data collection, analysis, and presentation
- Familiarity with measuring tools and their use, units of measure, and (for older students) statistical terminology

Standards:

Click this link to see additional [learning goals, grade-level benchmarks, and standards](#) covered in this lesson.

This lesson plan was printed from the Afterschool Lesson Plan Database hosted by SEDL's National Partnership for Quality Afterschool Learning.

Online at: <http://www.sedl.org/afterschool/lessonplans>