

Plastic, Paper, Cloth or Recycled?

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Original Lesson found at <http://illuminations.nctm.org/LessonDetail.aspx?ID=L209>

Subject: Science/Math

Grade Level: 5/6

Description:

Have you ever thought which type of grocery bag is best? Students will gather data, create charts and present their findings to support their choice of grocery bag.

ISTE Standards:

Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information. Students:

- a. plan strategies to guide inquiry.
- b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
- c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
- d. process data and report results.

Critical Thinking, Problem Solving, and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:

- a. identify and define authentic problems and significant questions for investigation.
- b. plan and manage activities to develop a solution or complete a project.
- c. collect and analyze data to identify solutions and/or make informed decisions.
- d. use multiple processes and diverse perspectives to explore alternative solutions.

National Standards:

American Association for the Advancement of Science (AAAS): Science - Grade 5

AAAS.1. The Nature of Science: How science works

1.B Scientific Inquiry

1.B.1. Scientific investigations may take many different forms, including observing what things are like or what is happening somewhere, collecting specimens for analysis, and doing experiments.

American Association for the Advancement of Science (AAAS): Science - Grade 6

12.D Communication Skills

- 12.D.1. Organize information in simple tables and graphs and identify relationships they reveal.
- 12.D.2. Read simple tables and graphs produced by others and describe in words what they show.
- 12.D.3. Locate information in reference books, back issues of newspapers and magazines, compact disks, and computer databases

Objectives:

Students will collect opinions using online forms about choices of grocery bags.
Students will use values collected in online forms to create charts/graphs.
Students will research and present their findings using appropriate technology tools.

Materials:

One example of each type of grocery bag - Plastic, Paper, Cloth, Recycled
Internet Access
Laptops
Online Forms (Google Forms)
Online Sticky Note (Wiffiti)
Online Graph Creator (Kidz Zone, Create a Graph)
Online Whiteboard (Scribblar)
Online Presentation Tools
Online Class Repository
Projector

Procedures:

Before class create an Online Form for students to complete. Students will answer the question prior to class, “What type of bag do you think is best when purchasing groceries?” The results of the form need to be kept for future use.

Introduction:

Before class, create an Online Sticky Note web site to answer the question: “Looking at our online form question, how would you define the word ‘best’?”
Use the Sticky Note web site to discuss their responses to the question. As students answer the question, project the screen for everyone to see. Point out that each of us has a different perspective of what is important. Some students may choose bags because of environmental, economic, strength of bag, or various other reasons.

Activity #1

Students will design a graph using the online site Create a Graph showing the results of our Grocery Form we completed before class. Share the spreadsheet generated from our Google Form to gather the values needed to complete the graph. Email the completed graph to the teacher.

Activity #2

Before class create an online whiteboard (Scribblar) with the following questions. Students should work in small groups to answer the questions. The web site should be displayed during class allowing the students to work in small groups and watch how each answer is formulated.

1. What fraction and percentage of the class believes plastic bags are best?
2. What fraction and percentage of the class believes paper bags are best?
3. What fraction and percentage of the class believes cloth bags are best?
4. What fraction and percentage of the class believes recycled bags are best?

Activity #3

Divide the class into small groups. Each group will be responsible for researching the pros and cons of the topic. Each group will also maintain a shared document allowing group members to share resources they find and determine if the information is valid.

Activity #4

Students will use the research they find to create an online presentation. Students may use whatever technology tool they feel best supports their project. Each project must be posted to the classroom online web site or repository.

Activity #5

After all presentations are posted to the classroom online site, students will view each others presentations. A post-activity online form will be created for students to again answer the question, "What type of bag do you think is best when purchasing groceries?". Hold a short discussion of who changed their mind and why.

Assessment:

Create a rubric assessing project completion and individual elements of the lesson.

Wrap Up:

1. What part of the lesson comes next?
2. What technologies were used?
3. What technologies were most effective?
4. What technologies would be difficult to implement in your school?
5. Additional technologies?
6. What questions/thoughts do you have?