Toilet Paper Testing

Extremely effective, this unit forces kids to design their own experiments within certain parameters.

Curriculum/State Standards
7.1.1 Judge whether the differences are trivial or significant.
7.1.2 What people expect to observe often affects what they actually do observe.
7.1.3 Explain why it is important in science to keep honest, clear, and accurate records.
7.1.4 Different explanations can be given for the same evidence.
7.1.8 Explain that technologies often have drawbacks as well as benefits.
7.1.9 Explain how societies influence what types of technology are developed and used.
7.2.1 Find what percentage one number is of another.
7.2.7 Incorporate circle charts, bar and line graphs, diagrams, scatterplots, and symbols into writing.
7.5.4 Describe that the larger the sample, the more accurately it represents the whole.
7.7.1 Explain that the output from one part of a system can serve to control what goes on in the system as a whole.
7.2.8 Question claims based on vague attributes, such as “Leading doctors say ...”
7.3.13 Explain that many substances dissolve in water.
7.4.10 Describe how technologies have dramatically changed how people live and work.
7.4.14 Explain that the environment may contain dangerous levels of substances that are harmful to human beings.

Objectives

Affective
• Students will listen to classmates’ experiment suggestions with respect.
• Students will modify classmates’ suggestions to create the most effective experiment.

Psychomotor
• Students will use tools to correctly manipulate measurement devices.
• Students will conduct all identified experiments.
• Students will construct, write, and carry out all the lab experiments.

Cognitive
• Students will list desirable characteristics for bathroom tissue.
The list will be narrowed down to four characteristics.
• Students will brainstorm and design experiments to test the bathroom tissue.
• Students will select the most effective method of testing the four characteristics.
• Students will critique bathroom tissue advertisements.

Materials
Toilet tissues (four or five brands), weights (pennies, marbles, etc), lab coats, goggles, beakers, rubber bands, tape, cardboard.

Overview
Students list possible tests to conduct, determine how best to test, and write out the lab activities, collect and analyze data.

Possible tests include solubility, softness, thickness, absorbency, cost, wet strength, and dry strength. Students created grading rubrics based on their tests.

This Winning Project Idea Submitted By:
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**Readiness Activity**
Students must learn to think creatively, but logically. It would help if the scientific method had been discussed prior to the unit. Students must have learned to accept everyone’s ideas.

**Strategies/Activities**
1. The students have just been transformed into Consumer Reports laboratory testers. Students will don the appropriate lab coats and goggles. They have been assigned to create reports about which toilet paper is the best.
2. Hand students two sheets of toilet paper. Ask students to brainstorm characteristics of toilet paper that make it the “best”. Write all answers down on the overhead. Possible answers include softness, absorbency, disintegration, cost, thickness, wet strength, size of sheet, number of plies, adherence to skin, size of roll, design of the inner tube, and effectiveness of advertisements.
3. Have students narrow the characteristics down to the six most important. As a class, determine the final four.
4. As a class, determine how to test the six characteristics. As a class, determine which testing procedure the class will use.
5. Allow the students to test the toilet paper one test at a time. Record all results in the board.
6. As a class, discuss the results of all of the tests. Create an overall class ranking just as Consumer Reports does (with the circles colored in various ways).

**Culminating Activity**
Write a Consumer Reports-style report summarizing the findings to be submitted to reviewers (principal and assistant principal) and to Consumer Reports for possible publication.

**Evaluation Method**
My students were evaluated using three rubrics they created.