

Gift Wrapping Science

(Grades 2-5, 1 hour)

Learning Objectives/Outcomes

Students examine different methods of wrapping a box-shaped present to see which is the fastest. Students will understand how to:

- Organize and represent data (Math/science)
- Compare numbers using time (Math)
- Plan and carry out an investigation (Science/engineering)
- Analyze data from tests of an object to determine if it works as intended (Engineering)

Materials

- One box of any size for each student (use during demonstration time)
- Clear tape
- Scissors
- Wrapping paper
- Pen and paper
- Timer

Preparations

1. Gather or create video demonstrations of at least three different gift wrapping techniques for a box-shaped gift. Examples include:
 - a. Japanese gift wrap technique: <https://www.youtube.com/watch?v=BQM8KKP-3Oo>
 - b. Diagonal method: <https://www.youtube.com/watch?v=dYXaxeJBj5k>
 - c. Envelope end method: https://www.youtube.com/watch?v=l_pp-1qu9lg
 - d. Double triangle end technique: <https://www.youtube.com/watch?v=cwGMdiWQ55g>
2. Wrap a present using each selected technique to have on hand as an example.
3. Separate students into pairs.

Lesson

Wrapping gifts is a big part of Christmas preparations for many people, but it can be hard and take a lot of time. The spirit of Christmas is about spending time with loved ones and sharing the gift of giving, not being stressed out with extra work.

Introduction

For this experiment, students will focus on standard gift wrapping with no embellishments to find the fastest way to neatly wrap a present as a way to help their parents save time during the holidays.

1. Show the tutorial for one technique then allow students time to practice that method.
2. Repeat this demonstration and practice time for each selected wrapping method.

Activity

1. Give each pair one box, wrapping paper, tape, scissors, pen and paper, and a timer.
2. Each pair should create a chart to use during their experiments. Examples are listed at the end of the lesson plan. Younger students can use a simple chart while older students can make a complex chart by adding variables to their experiments. Students adding variables will need more wrapping paper, at least one whole roll per pair.
3. Students begin by making a hypothesis about which of the demonstrated techniques will be the fastest and writing it at the top of their paper.

4. Each pair gets one box and pre-cuts equal sized pieces of wrapping paper for each demonstrated method. If you demonstrated all four methods, students cut four equal-sized pieces of wrapping paper.
5. One student in each pair is designated as the timer and the other is the wrapper.
6. Students choose one method to begin with and the Wrapper places their box on the pre-cut paper.
7. The Timer starts the timer and the Wrapper starts wrapping using the chosen method. Although students want to move fast, the gifts must also look neat. When the Wrapper places the last piece of tape the Timer stops time. This number gets written on their chart.
8. Pairs repeat Steps 5, 6, and 7 for each demonstrated wrapping method.
9. Pairs compare times for all three methods to determine which was the fastest.

Sample Simple Gift Wrap Experiment Chart

Younger students can draw a simple chart to keep track of their time for each method.

<u>Method:</u>	<u>Time:</u>

Sample Complex Gift Wrap Experiment Chart

Older students can add in more variables like the time it takes to wrap the gift when the paper is accurately measured ahead of time versus the time it takes when paper size is only quickly estimated. Other variables include changing the person who wraps the gifts or changing the thickness/type of wrapping paper used. This may require an entire roll of paper per pair.

<u>Method:</u>	<u>Pre-Measure Paper:</u>	<u>Time:</u>	<u>Estimate Paper Size:</u>	<u>Time:</u>

Assessment

Discuss results with the entire class. Did everyone find the same method worked best? Why or why not? What variables could make the results different for each pair? Teachers can evaluate each pair's chart, methods, teamwork, and explanation of results.