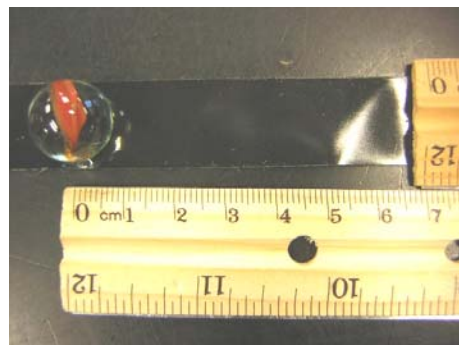


Teacher Notes-“Which Tape Is Stickiest?”

This activity is not only fun, it teaches about constants and variables, and also gives students experience creating a line and bar graph.

Materials per group of students:

- Wooden ruler with channel down the middle (for the marble to roll down)
- Another ruler (to measure marble distance with)
- At least 2 different kinds of tape
- Marble
- Scissors



Procedure:

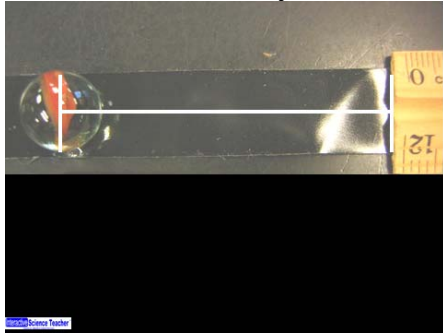
1. If you're using the PowerPoint (see last page), start it now. It introduces students to the activity, guides them through the kinds of variables with notes, and shows how to keep track of the data and turn it into a graph.
2. Cut strips of the first kind of tape into 18 inch long pieces.
3. Attach tape to the underside of ruler so the tape is sticky side up.
4. Prop up the other end of the ruler with a textbook. You now have a ramp. You'll also want to tape the ruler to the book, and the end of the tape to the table top. Doing all this will keep wrinkles from forming and interfering with the marble rolling.
5. Roll the marble down the middle channel of the ruler. It will come to a stop on the sticky part of the tape.
6. If the marble keeps rolling off the tape, cut another strip of tape and lay the two side by side (so they're double-wide).
7. Record how far the marble goes on the sticky tape on the student handout (see the last page) or on their own paper. Make sure everyone is clear where you begin measuring from (the end of the ruler) and where you are measuring to (the middle of the marble).
8. Yes, there are some variables to pay attention to- where the marble is released from, how much the marble is handled (that puts oil on it). Demonstrate the effect of dirty hands: handle a marble with your hands, roll it down the ruler and note its stopping place on the tape. Now clean it off (with your shirt) and set it on the ruler again, this time handling it as little as possible. This time it might stop several centimeters shorter! Noting that the average distance the marble rolls between 2 different kinds of tape may be just 2 centimeters, this is more than your margin of error!

*Make sure you do this as a demonstration for the class so they are aware of this issue, and so they can see you model proper technique from beginning to end.

9. Ask how many times they should roll the marble- just once? (NO!) Multiple times.
10. Allow students to work with just one kind of tape at a time. Initially give them the first kind of tape they need. When done, they come get the next kind from you.
11. Discuss with them how many times would be good to roll the marble (hint- not once).
12. Stress that the only thing that should change throughout the experiment is the kind of tape, *and nothing else*. In a good science experiment you only change 1 variable.
13. After 15-20 minutes students should be done with their testing. They can now turn their data into a line graph and a bar graph. Use colored pencils for a nice touch.
- 14.

Come back and visit InteractiveScienceTeacher.com to upgrade this lesson with:

PowerPoint- lead your students through the lesson click-by-click

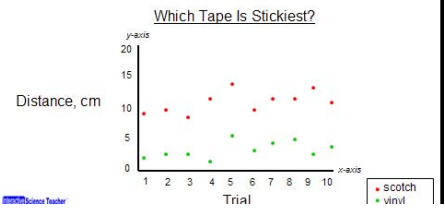


Which Tape Is Stickiest?

- **Variable**-something that varies
 - Kind of tape
 - Slope of ruler
 - How fast the marble is released
 - Where the marble is released from
- **Independent Variable:** the variable you change
 - Kind of tape
- **Constant**-variables you *do not* change
 - Slope of the ruler
 - How fast the marble is released
 - How much dirt and oil is on the marble
 - Where the marble is released from

Which Tape Is Stickiest?

1. A line graph shows 2 variables. Create a line graph that shows every trial for both tapes.



Student Handout

Which Tape Is Stickiest?

- _____
- _____
- _____
- _____

Data