Name: _____ Group: _____ Date: _____

Tech labs

TECH 10

Adhesion and friction of parts

PROGRAMS:	EST, AST
LAB TYPE:	Experiment
CONCEPT:	Adhesion and friction of parts
STUDENT BOOK:	Chapter 13, page 433

GOAL

Compare the adhesion of a shoe on different types of surfaces (ceramic, plastic, metal and wood).

1. What is the independent variable in this lab? _____

2. What is the dependent variable in this lab? _____

HYPOTHESIS

I think that _____

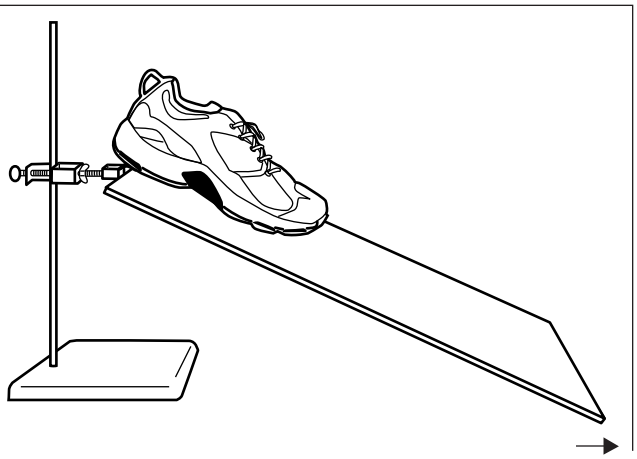
because _____

MATERIALS

- ceramic tile (305 mm × 610 mm [12 in × 24 in])
- piece of polystyrene (305 mm × 610 mm [12 in × 24 in])
- piece of wood (305 mm × 610 mm [12 in × 24 in])
- piece of aluminum (305 mm × 610 mm [12 in × 24 in])
- universal clamp
- retort stand
- ruler
- shoe
- stopwatch

PROCEDURE

1. Firmly clamp one short edge of the ceramic tile in the universal clamp.
2. Attach the other end of the clamp to the retort stand.
3. Set the clamp 300 mm above the base of the retort stand.
4. Place the shoe at the higher end of the ceramic tile.



5. Allow the shoe to slide down the tile. Time its descent and record the result.
6. Repeat steps 4 and 5 two more times.
7. Repeat steps 1 to 6, using the samples of polystyrene, wood and aluminum consecutively.
8. Put away the materials.

RESULTS

Record your results in the table below. Give your table a title.

Title: _____

Type of surface	Results			
	Trial 1 Time (s)	Trial 2 Time (s)	Trial 3 Time (s)	Average Time (s)

ANALYSIS OF THE RESULTS

1. List the test surfaces in order of increasing adhesion for the shoe.

_____

2. Which surface creates the most friction? Explain your answer.

_____

_____

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3. Five main factors can cause variations in the strength of adhesion between two surfaces.

a) What are these five factors?

- _____
- _____
- _____
- _____
- _____

b) Which of these factors did you study in this lab?

_____

4. Compare your results with those of other teams. Are they the same? Explain your answer.

_____

_____

_____

5. If you applied grease to the surfaces and then repeated the trials, would you obtain the same results? Explain your answer.

_____

_____

CONCLUSION

1. What do you conclude from this lab?

_____

_____

_____

2. Was your hypothesis confirmed or not? Explain your answer.

_____

_____

_____

APPLICATION

You are at the bowling alley with a member of your family, and you notice that the lanes are made of varnished wood. Why can you slide so easily on this surface in your bowling shoes?

_____

_____