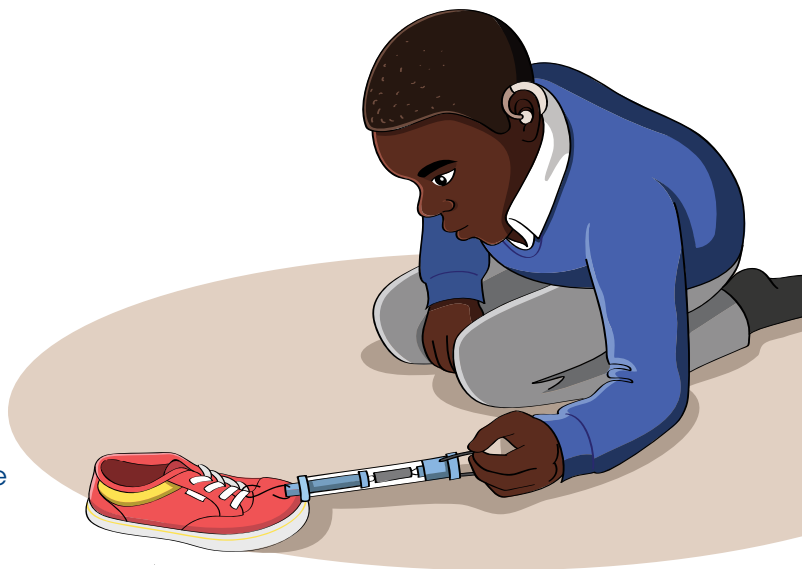


Get a grip

When you play tennis, it's important that your shoes grip the court. **Friction** is the force that controls the amount of grip that shoes have.

This investigation will help you find out which kind of shoe has the best grip.

- Work in a group, taking turns with the tasks.
- You will need a force meter. This measures force in newtons (N). Attach the force meter to each shoe and pull them across the table.



Write down how much force was needed to pull each shoe in the table below.

Type of shoe	Force needed to pull it across a table top (newtons)	Describe or draw the sole of the shoe (or the material used).
e.g. School shoe		

Answer these questions

1. Which shoe needed the most force to pull it across the table?

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2. What gives the shoes different **grip**?

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3. Which shoe is best for tennis and why? (Use the word **friction** in your answer.)

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4. Using the squared paper, plot your results on a simple **bar graph**.

5. Here are some further investigations to try, if you have time.

- a. Find out how the same shoe grips different surfaces.
- b. Does the size of the shoe matter in this test? Compare different sizes of the same shoe type.
- c. Does the weight of the shoe matter?

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Useful vocabulary

shoe • sole • force meter • friction • flat • thick • light • heavy
• strong • weak • flexible • plastic • rubber

