

Extension — Material Scientist Challenge

Think like a materials scientist

Ready for a challenge? These questions ask you to think like a materials scientist — designing fair tests and reasoning about why materials behave as they do.

Challenge questions

Q1. In the absorbency test, some groups got different results even with the same materials. Suggest **two** reasons why, and explain how you could make the test *even fairer*.

Q2. Design your own fair test. Choose a different property to investigate — for example, *which material is the strongest?* or *which fabric is the most waterproof?* Write your question, what you would change, measure and keep the same.

Part of my test	My plan
My question	
I will CHANGE	
I will MEASURE	
I will KEEP THE SAME	

Q3. A cup can be made from glass, plastic, metal or paper. For a **toddler's** drink cup, which material would you choose and why? Name at least two properties in your answer.

Q4. Sustainability thinking. Plastic is waterproof, light and strong — but it can take hundreds of years to break down. Suggest one way we could get the useful properties of plastic while being kinder to the environment.

Q5. Big thinking. Engineers sometimes combine materials to get the best of both (like fibreglass, which is glass fibres in plastic). Invent a new combined material for a job of your choice. What two materials would you combine, and what properties would your new material have?

Great materials scientists think about **properties, purpose and the planet** all at once.