



Champion
the Researchers

RESEARCH PROJECT: JOINT REPLACEMENTS

Claire researches novel joint replacements. Her devices help patients who have lost ankle function, either through a fall or a disease such as arthritis.

PUPILS RESEARCH THE PHYSICAL PROPERTIES OF CERAMICS AND OF MATERIALS USED IN JOINT REPLACEMENTS, TO DETERMINE IF CERAMICS COULD BE USED IN JOINT REPLACEMENT MANUFACTURE

Have you ever wondered ...

... why certain materials are used in joint replacements?

Imagine ...

... you work for a company that makes ceramic objects. Your manager asks you write a report recommending whether the company should expand into the medical market. You decide to undertake research into joint replacements to find out what joint replacements are made from, and whether ceramics could be used in their manufacture.

Some things for pupils to think about

- What is ceramic? What properties do ceramics have? What products are made from ceramics?
- What are joint replacements? Who needs them? How do they work?
- What are joint replacements made from? Are they made of different types of material?
- Is ceramic already used to make replacement joints? What properties make it suitable?

Suggestions for supporting pupils

Students must research and select information for themselves. However, they may need some direction from the teacher in order to identify suitable sources of relevant information at an appropriate level. In addition, students may need some direction from the teacher in how to produce a report – formatting, section headings etc.

Possible equipment, materials and resources

Internet access; images of joint replacements; images of different materials and physical examples to cement pupils' understanding; Key Stage 3 and GCSE texts, or equivalent; magazines, such as New Scientist

Useful resources

The National Joint Registry website is a good source of information: <http://www.njrcentre.org.uk/>

Claire has co-authored many papers on the different materials used in joint replacements. The titles can be accessed [here](#).



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