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**Composite Materials**

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**Acknowledgement**

Mr John Gibson is a highly regarded educator and engineer. John taught Industrial Arts at a number of high schools before taking a position at Sydney Teachers’ College, then University of Sydney. He had an engineering education consultancy and has extensive experiencing working with NESA on Engineering Studies syllabus development and the HSC examination committee. The STEM Industry School Partnerships (SISP) Program asked John for his responses to the iTeachSTEM topic discussion questions. SISP is grateful to John for submitting these example discussion responses.

# Discuss the reasons why composite materials are used in brake pads.

* composite materials are a cost-effective method of using the different properties of different materials in the one application
* using fibreglass as an example: glass fibres absorb strong forces whilst the resin, when cured, adds toughness
* vehicle brake pads, epoxy/glass composites, carbon-fibre composites, sintered bronze bearings, concrete, carbide cutting tools are products of this process
1. **What manufacturing methods are used to form composite brake pads?**

For metal based components, the process is termed **sintering**, but more generally **powder metallurgy**.