

Chemistry and materials science

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Read the text and give each passage the suitable title choosing among the following:

- a. Chemistry focuses on fluids, materials science focuses on solids
 - b. Chemistry has a narrower range of materials than materials science
 - c. Materials science focuses on inorganic chemistry
 - d. Materials science has a holistic approach towards materials design
 - e. Materials science is more flexible than chemistry
 - f. Materials science is more interdisciplinary
 - g. The difference between materials science and chemistry
1. Chemistry and materials science are both science fields that require a basic understanding of chemistry, math and physics. There are many sub-fields shared between the two disciplines, such as polymer technology, corrosion, electrochemistry, and nanotube technology. There is a lot of overlap between chemistry and materials science but – as a general rule – the difference is that chemistry focuses on *fluids* while materials science focuses on *solids* and tends to be very hands-on.
 2. Materials science covers a much broader range of topics than chemistry.
 3. Chemists usually focus on material properties at an atomic scale. Materials science focuses on materials at every level – besides the materials the chemists work on, materials scientists may work on metals, semiconductors, and ceramics. Materials science also focuses on understanding the structure of materials, while chemistry focuses more on chemical reactions.
 4. The chemistry in materials science deals with bonding, corrosion, and oxidation. Chemistry majors need a broad knowledge of organic, analytical, and physical chemistry.
 5. Materials science usually focuses on a bulk material (or 2D material) and tries to understand how the arrangement of atoms and bonding gives the material its property. So, when a materials scientist studies diffusion, dissolution, nucleation, grain growth, and precipitate growth, they are usually studying these things in the solid state. When chemists focus on diffusion, precipitate nucleation, and dissolution, they are usually looking at one or more liquids interacting, often with a solid that is dissolved.
 6. A chemist might understand material properties such as biocompatibility, corrosion resistance, and possibly thermal or optical properties of a material. Materials science focuses on all properties of materials – such as strength, hardness, fatigue, magnetism, conductivity, etc. Materials science uses the materials tetrahedron. Materials scientists are involved in a material from start to finish. They consider how a material's processing affects its structure, how the structure affects its properties, and what combination of properties will grant peak performance.
 7. Materials scientists can apply for jobs advertised toward chemists, aerospace engineers, mechanical engineers, electrical engineers, process engineers, petroleum engineers, nuclear engineers, physicists, and more.

(Adapted from <https://mstudent.com/what-is-materials-science-and-engineering-the-definitive-explanation/>)