



MATERIALS SCIENTIST

JOB DESCRIPTION

Materials scientists study the composition and structure of matter at microscopic level. Using this specialized knowledge, they develop materials with new properties. The silicon chips used in computers, the carbon fiber frames of racing bikes, and the concrete used in skyscrapers have all been developed and tested by materials scientists.



SALARY

Newly qualified scientist ★★☆☆☆

Senior materials scientist ★★★★★

INDUSTRY PROFILE

Good opportunities across a wide range of industries • Industry currently facing a skills shortage • Most jobs with large companies with over 1,000 employees

CAREER PATHS

Material scientists usually specialize in working with one type of material, which will govern their career direction. You could, for example, develop lightweight composite materials for the aerospace industry or environmentally-friendly plastics for food packaging. You can usually focus on research or manufacturing, or move into a management role later in your career.

MATERIALS TECHNICIAN With a high-school degree and strong understanding of science and mathematics, you may find work as a materials technician with a large company. You can then study for a degree while on the job.

GRADUATE You will need a degree in a relevant subject, such as chemistry, physics, or materials engineering. Some employers will expect a higher degree in your chosen area of specialization.



RESEARCH SCIENTIST

Uses an advanced knowledge of physics and chemistry to study the structure of solids, and to design, produce, and test new materials.



MATERIALS SCIENTIST

As a qualified materials scientist, you can work in diverse industries, from metal foundries to nanotechnology—the design and engineering of machines on a microscopic scale.

SKILLS GUIDE



Strong communication skills to articulate new ideas and proposals, and to report findings.



An ability to collaborate with scientists and engineers of various disciplines.



Strong analytical skills to investigate the properties of materials in the laboratory.



Good mathematics and chemistry skills to develop materials.



Practical problem-solving skills to address engineering and manufacturing issues.



PROJECT MANAGER Leads a team of scientists and engineers to develop new materials or the processes for their manufacture. They also monitor progress, assign resources, and liaise with the client.



PRODUCTION SPECIALIST Ensures that materials are made to agreed quality and safety standards at manufacturing plants, and resolves any production problems on site.

Manufacturing companies employ about 41 percent of all material scientists.

RELATED CAREERS

- ▶ **GEOSCIENTIST** *see pp. 148–149*
- ▶ **CHEMICAL ENGINEER** *see pp. 180–181*
- ▶ **AEROSPACE ENGINEER** *see pp. 190–191*
- ▶ **ENVIRONMENTAL SCIENTIST** Researches ways of protecting the environment, and reducing pollution and waste.
- ▶ **INDUSTRIAL ENGINEER** Devises efficient ways of making a product through the best use of materials, machines, workers, and energy resources.
- ▶ **METALLURGIST** Studies the chemical and physical behavior of metals under different conditions. Metallurgists help to test existing products and develop new technologies.

AT A GLANCE



YOUR INTERESTS Engineering • Physics • Chemistry • Mathematics • Information Technology (IT) • Mineralogy • Geology



ENTRY QUALIFICATIONS A degree-level qualification in a subject such as materials science or applied chemistry is required.



LIFESTYLE Researchers work normal office hours; production staff may need to work shifts to supervise costly manufacturing processes.



LOCATION Material scientists may work in a laboratory, an office, or at an industrial plant. They may also have to travel to visit clients.



THE REALITIES Degree programs are demanding and ongoing study is required to keep up with fast-changing technologies.