
Discipline-Based Professional Teaching Standards For Teachers Of Science

I. Science Nature and Content

Science teachers understand the main ideas of their disciplines and the processes by which scientific data is collected and theories are built. Key domains of knowledge are as follows:

- for teachers of *biology* – evolution, diversity and unity of life of earth, molecular and cellular biology, ecology and genetics;
- for teachers of *chemistry* – atomic, molecular and nuclear structure of matter, matter and energy transformations, chemical reactions and organic chemistry;
- for teachers of *earth science* – earth history and dynamics, earth's composition and natural resources, meteorology and astronomy;
- for teachers of *physics* – forces and motion; energy transformations; the nature of light, sound, electricity and magnetism; thermodynamics; and the nature of matter; and
- for teachers of *general science* – basic principles and concepts of the physical, life and earth sciences.

II. Science Logic and Construction of Knowledge

Science teachers understand the various forms of scientific inquiry and create opportunities for students to develop independent, creative and critical scientific reasoning.

III. Science Context and Applications

Science teachers understand the significance of scientific literacy in a modern society and create opportunities for students to apply their knowledge, solve problems, examine science-related issues and construct informed and carefully reasoned opinions.

IV. Students' Diversity

Science teachers search for science materials and teaching strategies that encourage students with diverse abilities, interests and backgrounds to actively participate in the learning of science.

V. Learning Environment

Science teachers develop science learning communities in which teacher and students ask questions, seek information and validate explanations in various thoughtful, creative and cooperative ways.

VI. Instructional Resources

Science teachers use available time, materials, equipment and communication technologies in a safe environment to support students' scientific investigations.