ethics in research

society affects science

science affects society

9-12

Some scientists and engineers are comfortable working in situations in which some secrecy is required, but others prefer not to do so. It is generally regarded as a matter of individual choice and ethics, not one of professional ethics.

Where a scientist's own personal, institutional, or community interests are at stake, he or she may be as biased as others are.

History often involves scientific and technological developments.

Scientists often cannot bring definitive answers to matters of public debate. There may be little reliable data available, or there may not yet be adequate theories to understand the phenomena involved, or the answer may involve the comparison

When applications of research could pose risks to society, scientists' decisions to participate in that research are based on personal as well as professional ethics.

Progress in science and invention depends heavily on what else is happening in society.

One way science affects society is by stimulating and satisfying people's curiosity and enlarging or challenging their views of what the world is like.

Current ethics in science hold that research involving human subjects may be conducted only with the informed consent of the subjects, even if this constraint limits some kinds of potentially important research or influences the results.

Because science is a human activity, what is valued in society influences what is valued in science.

Funding influences the direction of science by virtue of the decisions that are made on which research to support. Research funding comes from various federal government agencies, industry, and private foundations.

Scientists can bring information, insights, and analytical skills to bear on matters of public concern. Acting in their areas of expertise, scientists can help people understand the likely causes of events and estimate their possible

The strongly held traditions of science, including its commitment to peer review and publication, serve to keep the vast majority of scientists well within the bounds of ethical professional behavior. Deliberate deceit is rare and

Scientists' nationality, sex, ethnic origin, age, political convictions, and so on may incline them to look for or emphasize one or another kind of evidence or interpretation.

6-8

Accurate record-keeping, openness, and replication are essential for maintaining an investigator's credibility with other scientists and society.

Societies influence what aspects of technology are developed and how these are used. People control technology (as well as science) and are responsible for its effects.

Science ethics demand that scientists must not knowingly subject coworkers, students, or community residents to health or property risks without their prior knowledge and consent.

Scientists' personal interests and viewpoints can influence the questions they investigate.

Science can sometimes be used to inform ethical decisions by identifying the likely consequences of particular actions, but science cannot be used by itself to establish that an action is moral or immoral.

In research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefits associated with the research and of their right to refuse to participate. Because animals cannot make

Until recently, women and racial minorities, because of restrictions on their education and employment opportunities, were essentially left out of much of the formal work of the science establishment; the remarkable few who

Some matters cannot be examined usefully in a scientific way. Among them are matters that by their nature cannot be tested against observations.

3-5

Many social practices and products of technology are shaped by scientific knowledge.

K-2

A lot can be learned about plants and animals by observing them closely, but care must be taken to know the needs of living things and how to provide for them in the classroom.