



## **UNIT ONE: Science Skills**

- **Chapter 1 Measurement**
- **Chapter 2 The Scientific Process**
- **Chapter 3 Mapping Earth**



## **Chapter Two: The Scientific Process**

- **2.1 Inquiry and the Scientific Method**
- **2.2 Experiments and Variables**
- **2.3 The Nature of Science and Technology**



## Section 2.3 Learning Goals

- **Examine the importance of ethics in scientific research and reporting.**
- **Discuss examples of how science helps to solve problems.**
- **Consider the role of engineering in scientific and technological advancements.**



## 2.3 The Nature of Science and Technology



- Truthful reporting is the most important tradition of science.
- Scientists often write a report of their experiments and submit it to a scientific journal.

## 2.3 The Nature of Science and Technology

- **Technology is the application of science to meet human needs and solve problems.**
- **Technology arises from a need for things to be done better.**

### TECHNOLOGY



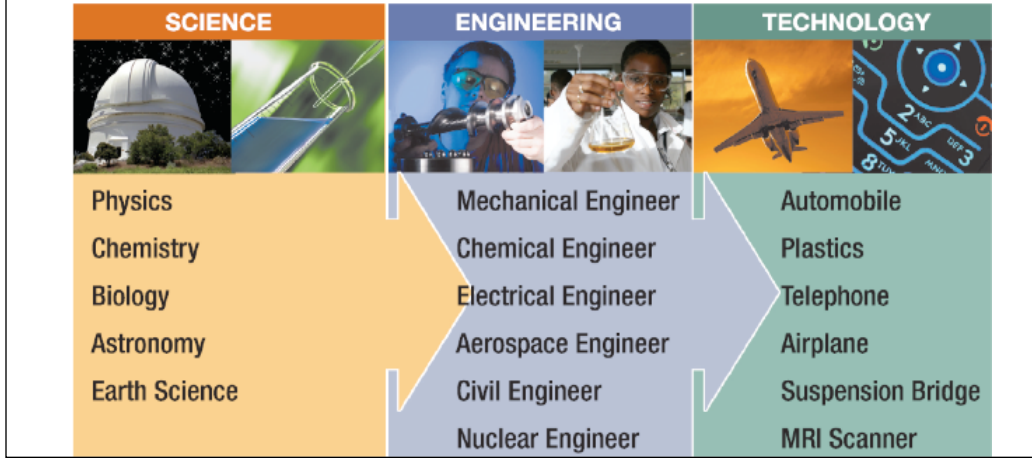
### SCIENCE

Automobile  
Plastics  
Telephone  
Airplane  
Suspension Bridge  
MRI Scanner

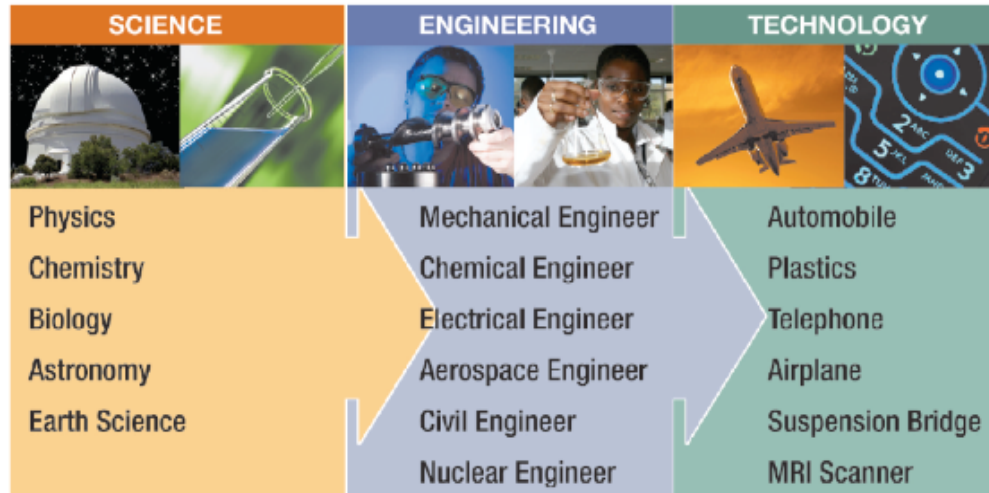


## 2.3 Science and Technology

- People who design technology to solve problems are called **engineers**.



# Science, Engineering, and Technology



## 2.3 The Nature of Science and Technology

### Engineering Cycle



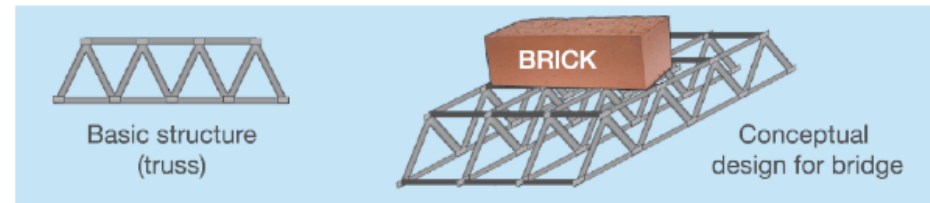
- The engineering cycle consists of:
  1. designing a prototype
  2. building a prototype,
  3. testing a prototype, and
  4. evaluating a prototype.
- The best inventions go through the cycle many times, being improved each cycle until all the problems are worked out.





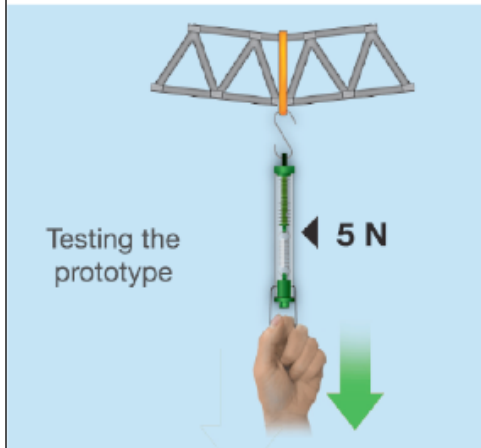
## 2.3 Engineering cycle

- **Your idea is called a conceptual design.**



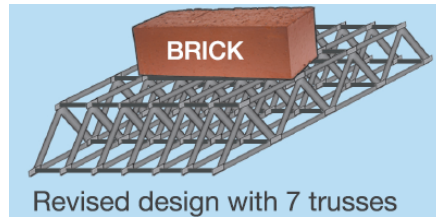


## 2.3 Prototypes and testing



- Your next step is to build a prototype and test it.
- A prototype is a working model of a design that can be tested to see if it works.

## 2.3 Evaluation



- **The evaluation of test results is a necessary part of any successful design.**
- **Testing identifies potential problems in the design in time to correct them.**

## Engineering Cycle



## Ethics in Medical Research



- In 1990, Seldane ranked fifth in new prescriptions dispensed in the United States. It was used to treat allergy symptoms without inducing drowsiness.
- Doctors suspected that an interaction between Seldane and another drug might cause unusual heart rhythms and unexplained fainting.