



Introduction to Technology

Unit 1, Lesson 1

Big Idea

- ◆ **ENGR-EET-1: Students will examine the nature of engineering & technology.**
- ◆ **ENGR-EET-2: Students will evaluate the impacts of engineering & technology on Society**

Critical Knowledge/Elements

- ◆ Define engineering & technology
- ◆ Compare the relationship of math and science to engineering
- ◆ Assess the impacts of technological products and systems

Essential Question



What are “Technology” and “Engineering” and how do they affect us?

Word Wall

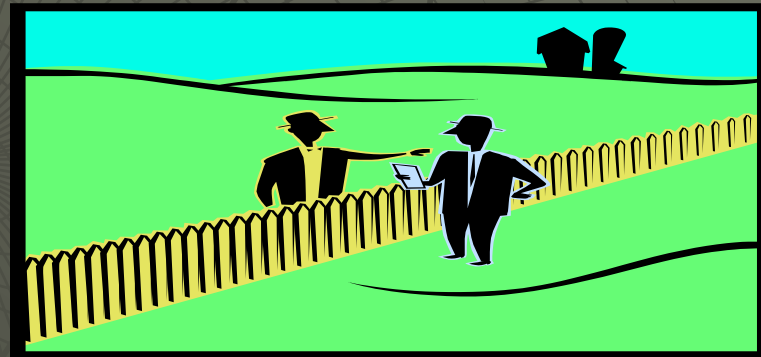
- ◆ Technology
- ◆ Engineering
- ◆ Science
- ◆ Reliable Source
- ◆ Unreliable Source
- ◆ Desirable Outcome
- ◆ Undesirable Outcome

What is technology?



On a sheet of paper, write your definition for technology and give 3 examples.

Compare your definitions
with your neighbor.



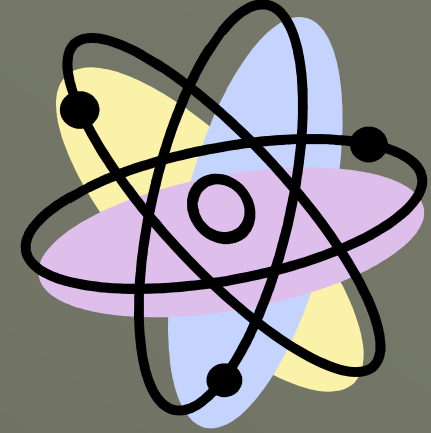
Now, let's look at your definitions and place your examples into categories.



◆ Technology – Human innovation in action.

- Applies problem-solving strategies to solve real-world problems.
- Focus is on the human-made world.
- Uses the design process to develop solutions.
- Knowledge and skills deal with creating, using, managing, and assessing technology.





Simply put:

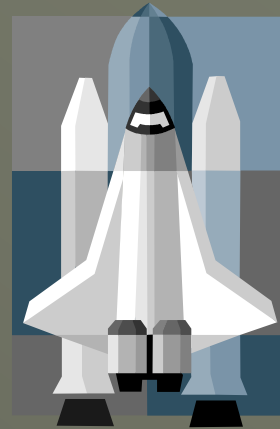
“Technology is the use of knowledge to turn resources in to goods and services that extend our capabilities.”

Worksheet: What is Technology

Science & Engineering

On a sheet paper, write the terms "science," and, "engineering."

You will be locating 2-3 different definitions for each.



But, before you begin, let's look a reliable and unreliable sources.

Reliable and Unreliable Sources of Information



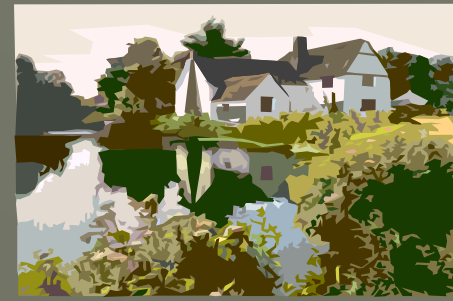
- ◆ Reliable sources are ones that come from reputable sources such as encyclopedias, referred magazines, textbooks, educational websites, and others.
- ◆ Unreliable sources tend to be personal in nature, such as personal websites, opinion newsletters, and others. It is not that these sources are bad, but the information may be distorted or not all the facts given accurately.

Now, let's look up the definitions for Science and Engineering.



Now, let's share your
definitions for Science
and Engineering.





◆ Science – The study of the natural world.

- Applies methods of inquiry to answer questions.
- Focus primarily on natural world.
- Uses the scientific method to propose explanations.
- Focus is on finding out “Why...”the design process to develop solutions.

- ◆ Engineering – A profession that combines science, mathematics, and technology to solve practical problems.



- Solutions gained by study, experience, and practice.
- Requires both judgment and creativity to develop.
- Solutions are evaluated using predictive analysis before construction of a product or system begins.

Relationship of Science, Technology, and Engineering



Microscope

**Created the
device
(Engineering)**

**Used for
scientific
experiments
(science)**

**A
technological
device
(technology)**

Relationship of Science, Technology, and Engineering



**Magnetic
Levitation
Vehicle**

**Created the
device
(Engineering)**

**Suspended
with super
conductors
(Science)**

**A train
(Technology)**

Relationship of Science, Technology, and Engineering



**Hip
Replacement**

**Created the
device
(Engineering)**

**Understanding
of the human
body
(Science)**

**Polymers and
metals are
used
(Technology)**

Relationship of Engineering and Technology to Academic Studies

Understand measurement and mathematical calculations
(Mathematics)

Impacts on society, economy, and politics
(Social Studies)

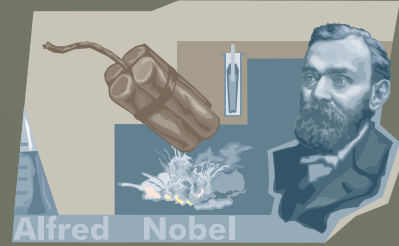
Engineering and Technology



Understand natural world
(Science)

Express ideas and how to use technology
(Language Arts)

Technology's Impact



- ◆ The use of technology affects humans in various ways, including their safety, comfort, choices, and attitudes about technology's development and use.
- ◆ Technology, by itself, is neither good nor bad, but decisions about the use of products and systems can result in desirable or undesirable consequences.
- ◆ Technology has strongly influenced the course of history.

Technology Outcomes

- ◆ Technology has desirable, undesirable, intended, and unintended outcomes.
- ◆ Remember that technology is not “good” or “bad” – it depends on how people use it.



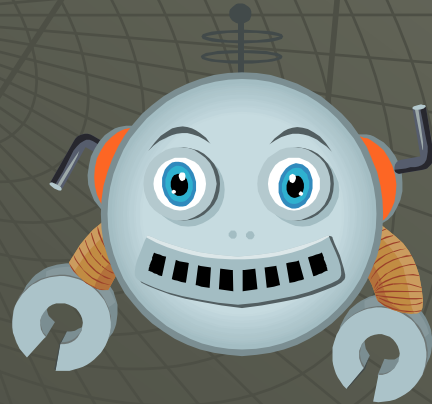
Example: Nuclear Power



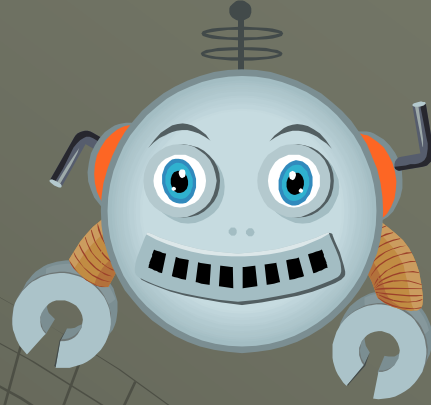
- ◆ *Desirable Outcome* – Beneficial results (more electricity, safer country).
- ◆ *Undesirable Outcome* – Radioactive waste is dangerous or harmful to the environment or individuals (radioactive waste, global danger).
- ◆ *Planned Outcome* – Certain impacts are anticipated initially whether they were good or bad (more jobs, save natural resources).
- ◆ *Unplanned Outcome* – Impacts that are not anticipated occurred, sometimes for the good and sometimes for the bad (harmful effects to the environment, better research data for possible nuclear powered space propulsion).

Now, let's list ten technological products that you encounter on the way to or from school.

Then for each item, identify its desirable or undesirable outcomes .



Worksheet: Technology Encounters"



Discussion of Technology Encounters

Remember: Technology in-and-of-itself is neither good nor bad, but how it is used by people determines the desirable and undesirable outcomes.



Conclusion