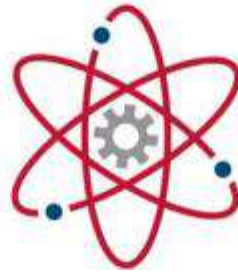


GT

Gateway To Technology



PROJECT LEAD THE WAY

PLTW

What is Technology?

What is Technology?

Technology is comprised of the products and processes created by engineers that meet our needs and wants.



Technology vs. Science

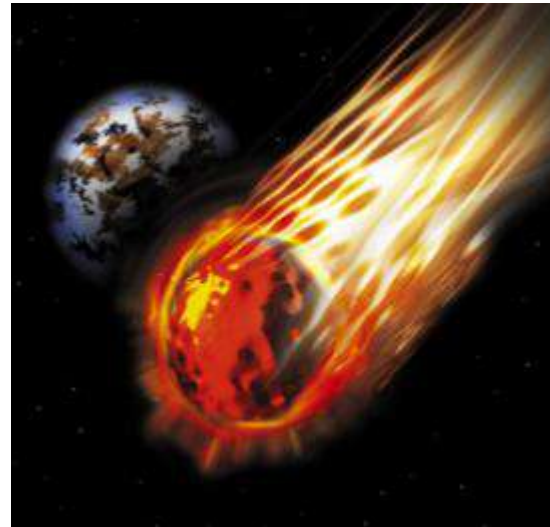
Technology

- Study of our **human-made world**
- Deals with **“what can be”**

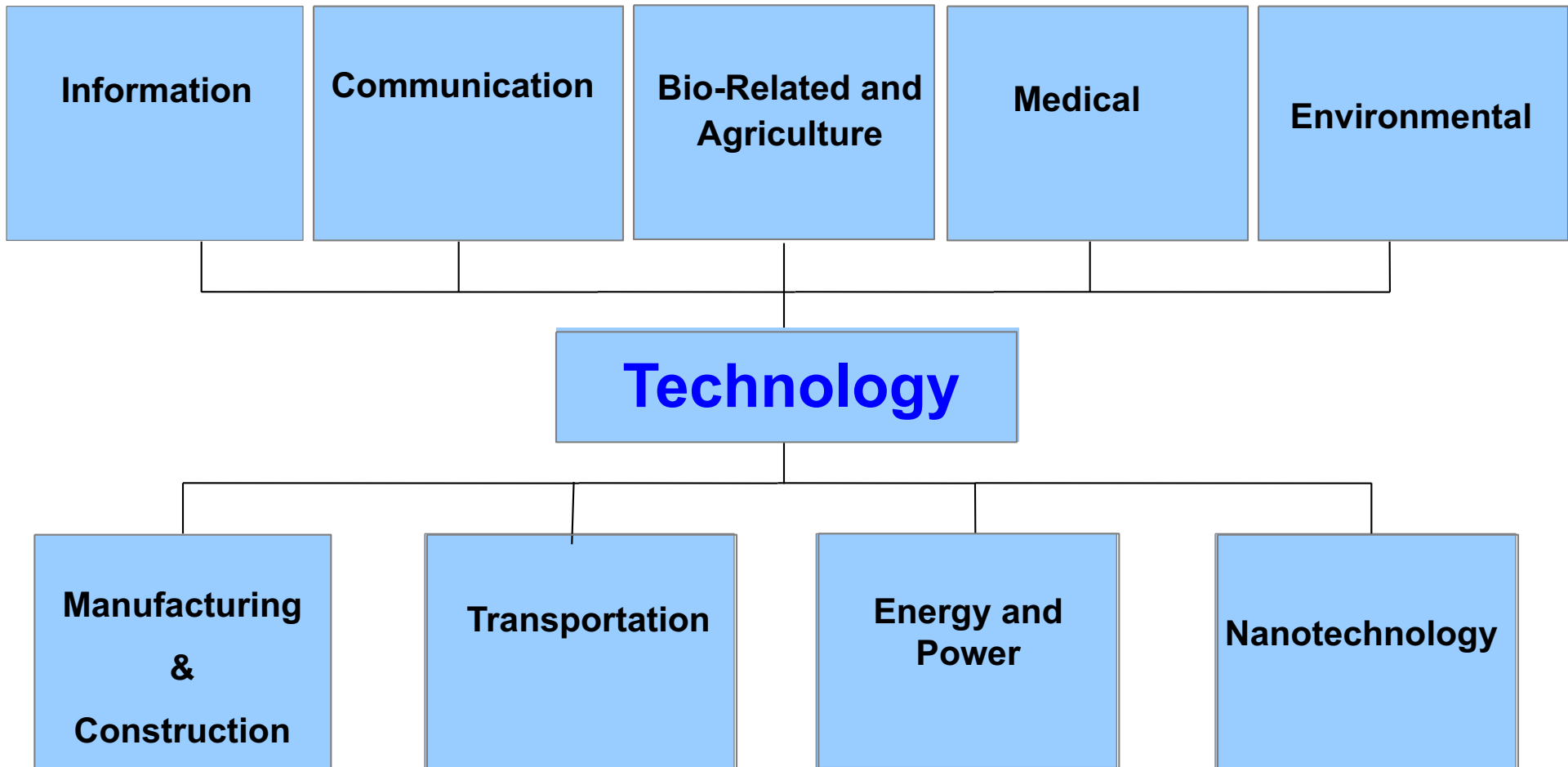


Science

- Study of our **natural world**
- Deals with **“what is”**



How Does Technology Address Human Needs and Wants?



Information Technology

Information Technology allows us to **send signals** around the world.

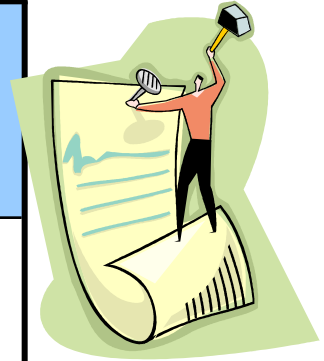
Examples

internet, television, satellite, GPS, cell phones



Effects of Information Technology

<i>POSITIVE EFFECTS</i>	<i>NEGATIVE EFFECTS</i>
<p>INTERNET –Information is stored in a way that can be accessed easily</p>	<p>INTERNET – More difficult to differentiate how reliable source from an unreliable source</p>



Communication Technology

Communication Technology helps with the **giving or exchanging of information**.

Examples

digital cameras, magazines, DVDs, video games



Effects of Communication Technology

POSITIVE EFFECTS

DIGITAL CAMERAS allow you to **edit and print** only the pictures you like

NEGATIVE EFFECTS

COMPUTERS, PRINTERS, & DIGITAL CAMERAS make forgery and **plagiarism** easier



Bio-related Technology

Biotechnology transforms living things into products or new forms of life.

Examples

medicine, genetic engineering, bionics



DNA Replication image from the
Human Genome Project

Effects of Bio-Related Technology



POSITIVE EFFECTS

Medicine –
Improved **quality
of life**



NEGATIVE EFFECTS

HEALTH –
Side effects
(examples)
nausea
shortness of breath
headaches

Agricultural Technology

Agricultural Technology produces plants and animals for food, fiber, and fuel.

Examples

fertilizer, irrigation, food preservation, controlling weeds, controlling insects



Effects of Agricultural Technology

POSITIVE EFFECTS

FERTILIZERS can
make plants produce
more food per acre

NEGATIVE EFFECTS

FERTILIZERS have
found their way into
ground water, **polluting**
good drinking water



Medical Technology

Medical Technology creates tools to treat disease and injury.

Examples

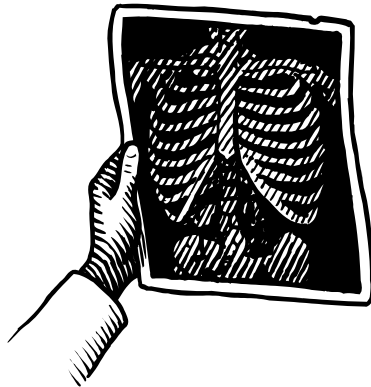
X-rays, lasers, prostheses, ultrasound, medications



Effects of Medical Technology



<i>POSITIVE EFFECTS</i>	<i>NEGATIVE EFFECTS</i>
X-RAYS – Allow for easier diagnoses of injuries.	X-RAYS – Overexposure can cause cancer.



Environmental Technology

Environmental Technology creates tools to **minimize the effect of technology on** the development of **living things**.

Examples ***waste management & recycling,*** hybrid vehicles, conservation,



Effects of Environmental Technology

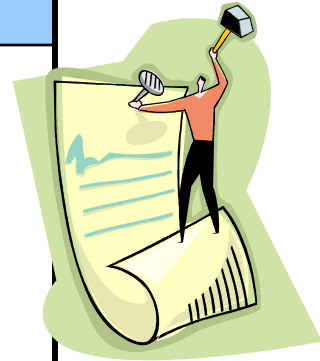
POSITIVE EFFECTS

WASTE MANAGEMENT & RECYCLING – Improves water and air quality



NEGATIVE EFFECTS

WASTE MANAGEMENT & RECYCLING – Disposal of garbage is more **complicated** and **time-consuming**



Production Technology

Production Technology is the ***manufacturing*** of physical ***goods*** on an assembly line and the ***construction of structures*** on a job site.



Manufacturing Technology

Manufacturing changes natural or synthetic materials into usable products.

Examples: ***automobile factories***, clothing factories, food factories



Effects of Manufacturing Technology

<i>POSITIVE EFFECTS</i>	<i>NEGATIVE EFFECTS</i>
AUTOMOBILE FACTORIES – Creates high quality vehicles at a lower cost	AUTOMOBILE FACTORIES – Noise and air pollution

Construction Technology

Construction Technology builds structures that support loads and protect us from the environment.

Examples: ***residential construction (homes)***, bridge construction, road construction



Effects of Construction Technology

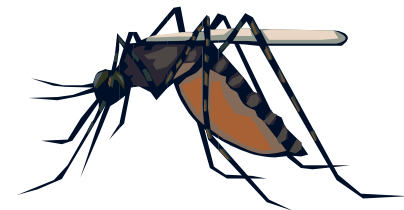
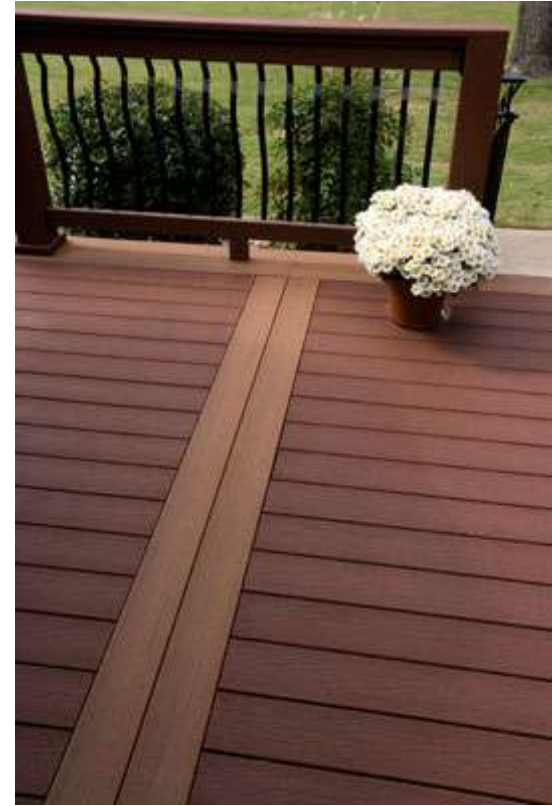
<i>POSITIVE EFFECTS</i>	<i>NEGATIVE EFFECTS</i>
RESIDENTIAL CONSTRUCTION (HOMES) – provides shelter	RESIDENTIAL CONSTRUCTION (HOMES) – Can produce noise pollution, debris, traffic problems, hazardous conditions



Materials Technology

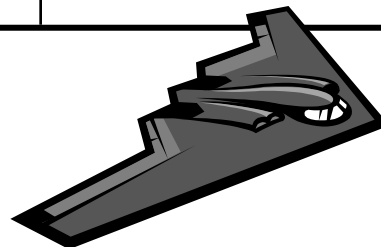
The development of materials with outstanding combinations of mechanical, chemical, and electrical properties that make other advances possible.

Examples: ***BpA free plastic***, asbestos insulation, Mosquito repellent clothing, artificial skin grafts for burn victims, advanced building materials such as composite decking



Effects of Materials Technology

<i>POSITIVE EFFECTS</i>	<i>NEGATIVE EFFECTS</i>
BPA FREE PLASTIC – free of Bisphenol A (BpA) which has been shown to cause nerve damage when in contact with drinking water	NEW MATERIALS – more expensive





Transportation Technology



Transportation Technology Provides a way for people, animals, products, and materials to be **moved from one location to another.**



Examples

Flight – airplane, rocket, space shuttle

Land – **car**, train, subway, automobile, bicycle

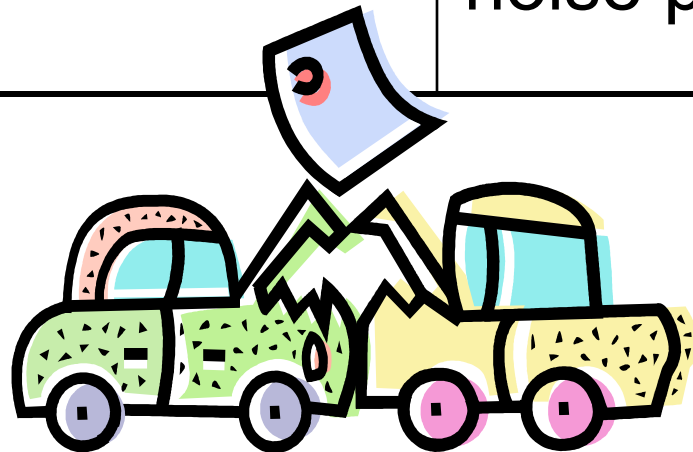
Water – commercial, cruise ship

Non-vehicle – conveyor belts, pipelines



Effects of Transportation Technology

<i>POSITIVE EFFECTS</i>	<i>NEGATIVE EFFECTS</i>
CARS- Ability to travel long distances faster and easier	CARS- Accidents, air pollution, and noise pollution



Energy and Power Technology

The use of **renewable** and **nonrenewable** energy sources to create usable power (often electricity) for our homes, transportation, businesses, and factories.

Examples: *wind energy*, **hydroelectrical energy**, **solar energy**, **tidal power**, **geothermal energy**, **nuclear energy**, **oil (gasoline/diesel)**, **coal**, **natural gas**



Effects of Energy and Power Technology

<i>POSITIVE EFFECTS</i>	<i>NEGATIVE EFFECTS</i>
WIND ENERGY –free without air pollution	WIND ENERGY –noise pollution and visually unappealing

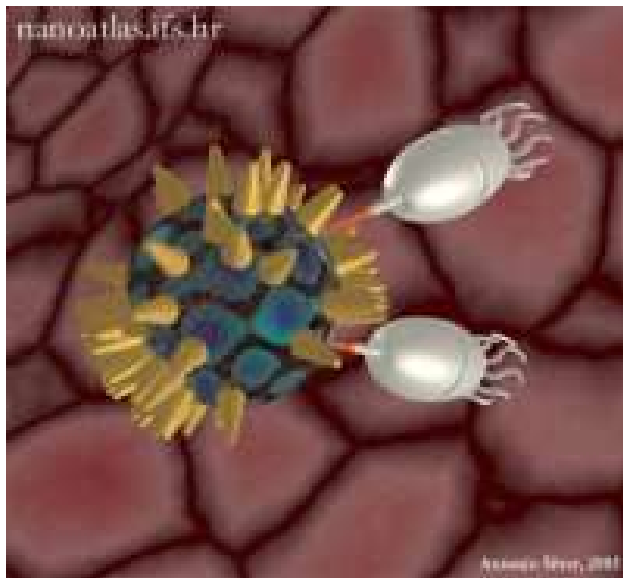


Nanotechnology

Nanotechnology is manipulating materials on an atomic or molecular level.

Examples

implanted sensors, Nanobots, molecular manufacturing



Effects of Nanotechnology



POSITIVE EFFECTS

IMPLANTED SENSORS

Continuously sense and adjust medical treatment

NEGATIVE EFFECTS

IMPLANTED SENSORS

Impede privacy

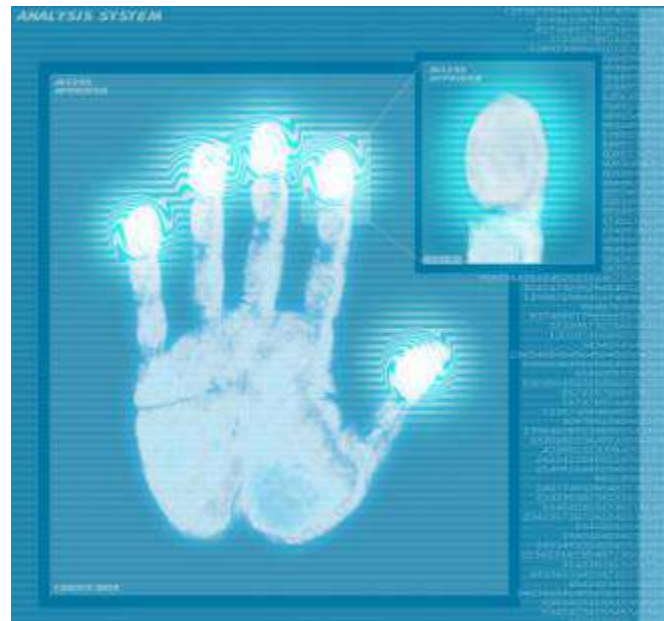


Image Resources

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