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What is Nanotechnology?



One of the pioneers in the field of **Nanotechnology** is the American physicist Richard Feynman, who in 1959 at a congress of the American Physical Society in Caltech, gave the speech "There's Plenty of Room at the Bottom" in which he describes a process that would allow manipulating atoms and molecules individually. In this way, systems could be designed and built at the nanoscale, atom by atom. In this speech Feynman also warns that the properties of these nanoscale systems would be different from those present at the macroscale.

The term "Nanotechnology" was applied for the first time by Drexler in 1986, in his book "Engines of Creation: the next era of Nanotechnology" in which he describes a nanotechnological machine with the capacity to self-replicate, in this context he proposed the term "gray plague", to refer to what would happen if a self-replicating nanobot was released into the environment. In addition to Drexler, the Japanese scientist Norio Taniguchi first used the term nano-technology in 1974, defining nano-technology as the processing, separation and manipulation of materials atom by atom.

Nanotechnology is a type of technology with applications in various fields and which focuses on nanoscale materials and their properties. Nanotechnology therefore works with the nanometer (nm) as a unit of measurement (corresponding to one billionth of a meter). The term nanotechnology is formed from the Greek prefix *vávoς* (nanos).

Examples of nanotechnology

One of the areas in which nanotechnology is applied is the area of food. In food processing there are some examples of nanotechnology such as water purification by means of nanomembranes, refining of already used oil through a catalytic nanodevice.

In food packaging, nanoparticles of elements such as silicon dioxide can be incorporated into packaging materials. In this way, the characteristics of these packaging materials, such as increased heat resistance, are improved.

How is nanotechnology being used today?

Nanotechnology is already benefiting areas such as health care, the environment, the energy industry and national security. Here are just a few examples of how nanotechnology is being used to improve our world: to precisely target cancer cells within the body; to remove pollutants from water in soil and soil; to improve the performance of solar panels; to improve the detection of chemical and biological weapons; and to prevent infection of wounds. Scientists and companies are exploring new ways nanotechnology can help solve societal problems and improve products.

Based on the previous reading, develop the following activity. Connect with a line the concept and the description

1. It is a technology based on applications in various fields with nanoscale Materiale.

Richard Feynman

2. He warned that the properties would be different at the macroscale.

Main tool

3. Applied the term nanotechnology in his book "Engines of creation: the next era of nanotechnology".

Drexler

4. Use of the Nanometer (nm) as a unit of measurement.

Nanotechnology

Part 2- Move the images to the corresponding place.



1-Areas that benefit from nanotechnology.

2-Show examples of how scientists and companies have an impact.

Good Luck!