Tech and engineering

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Topic 2

Tech and sustainability

Sustainable development

Effectively use resources available today without compromising the future.

Sustainable technology

They minimise the environmental impact of activities through reusing, recycling, and reducing the use of resources and energy. They contribute towards SDGs.

Technical contributions

- Energetic efficency
    - Sensors can reduce energy consumption.
- Renewable energy
    - They generate clean, reliable energy.
- Environmental control
    - Sensors allow quality checking, and thus improvements.
- Circular economy

- Maximise the reincorporation of materials into the production chain.

- Sustainable product development

  - E.g. nanotech creates more environmental-friednly products.

Tech trends towards the environment

These are only applicable if policies are implemented to regulate them. They are also very dependent on the population's awareness.

- Reneweable energies

  - They reduce greenhouse gases; research is being done into their distribution and storage.

- IoT

  - They optimise the use of resources by means of a more intelligent net of control.

- Blockchain

  - They authenticate immutable registres for processes and products.

- AI

  - They provide resource optimisation and pattern identification for easier decision-making.

- Circular economy

  - The idea of reincorporation is being implemented through e.g. 3D printing.

- Sustainable mobility

  - Electric vehicles, public transport, and shared mobility reduce the environmental impact of transportation.

Sustainable materials

- They don't deplete natural resources.

- Their emissions are lower.

- Their waste is lower.

- They can be reused or recycled.

Types of sustainable materials

- Recyclable, they can be given a different use.

- Biodegradable, they can be decomposed by natural processes.

- Reusable, they can be used again for the same purpose.

- Vegetal, they come from renewable sources that spend less energy and leave less waste.

Pros of sustainable materials

- Water and air are better preserved, because toxins are released less often.

- Energy savings are higher.

- They preserve the environment because they don't deplete natural resources.

- They reduce waste and allow for recycling and reuse.

Woods