**PROGRAMMA SVOLTO DI LINGUA INGLESE**

**CLASSE 5A EL – A.S. 2024-2025**

**Docente:** Prof.ssa Paola De Dominicis

**Testi in adozione :** AAVV, *Career Path in Technology*, Pearson

Modulo 1 - *ELECTRICAL ENERGY*

Electricity and current

Conductors and insulators

Battery and voltage

Types of batteries

How the battery was invented

**Extra material**

*Shock and Awe: The Story of Electricity* -- Jim Al-Khalili BBC Horizon <https://youtu.be/Gtp51eZkwoI?si=eMC4QAIlN1tgS8Hn>

*Crash Course History of Science. Electricity* <https://www.youtubeeducation.com/watch?v=JoscDcbAjbY>

Modulo 2 – *ELECTRIC CIRCUITS*

A simple electric circuit

Series and parallel

Current, voltage and resistance

Working with electricity

**Extra material**

*Turning off standby power*. <https://lh3.googleusercontent.com/drive-storage/AJQWtBON4P6zeHnVknT--GHH-0CxPbtoy4EB_2lTnPNnfOxyAn8NPnpkgULS7TzCm-eR0nzWHVShJRb3oTFKIks1j1uvI1qAOpoIlCBQCkoWcU861A=w1365-h640>

*The problem of electronic waste* <https://lh3.googleusercontent.com/drive-storage/AJQWtBOZIlQuKlPxno93pyMDwimkgBGdcg2SGQ25SzDaZcv7C7_bwTcRmqukGDyoF2Fjeui7Y8Gf_saEIxOvQ8oe9FpOjY8z2O9NO_skgcY6I6ygIw=w1365-h640>

Electrical Safety Awareness for Non-Electrical Workers. <https://www.youtubeeducation.com/watch?v=ggJo6m8NZtA>

The Basic of Electricity- Electrical Safety Awareness: <https://www.youtubeeducation.com/watch?v=1rumQKprFGM>

Modulo 3 – ELECTROMAGNETISM AND MOTORS

Electricity and magnetism

The electric motor

Types of electric motor

Modulo 4 – GENERATING ELECTRICITY

Methods of producing electricity

The generator

Fossil fuel power station

Fracking and its dangers

Nuclear power station

Controlling a nuclear reactor

Facing climate change

Modulo 5 – DISTRIBUTING ELECTRICITY

The power distribution grid

The domestic circuit

Managing the grid

The transformer

The 2021 Texas power outage

The smart grid

Solar smart installation

Storing energy on the grid

**Extra material:**

Texas power crisis:[**https://youtu.be/kdztNFo13G4?si=-YEXbw0Zu--1ZmmQ**](https://youtu.be/kdztNFo13G4?si=-YEXbw0Zu--1ZmmQ)**;** [**https://youtu.be/Zcrsgdl\_hP0?si=tObR2MKMBZIBb5Kl**](https://youtu.be/Zcrsgdl_hP0?si=tObR2MKMBZIBb5Kl)

Modulo 6 – *ELECTRONIC COMPONENTS*

Applications of electronics

Semiconductors

The transistor

Basic electronic components

Colouring coding of components

Modulo 7 – *ELECTRONIC SYSTEMS*

Internet of things (IoT)

The problem of e-waste

**Extra material:**

What Are Rare Earth Elements <https://www.youtubeeducation.com/watch?v=1iNpON9ckTg>

Rare Earths Crunch. Why we need them and who has them <https://www.youtubeeducation.com/watch?v=cL4YXCKrJJ4>

Rare Earth Elements <https://docs.google.com/document/d/1XvGlUFa6ca4kQvx2JOXeLamG07C-8tQ_3pxm7xMgyOY/edit?usp=sharing>

Modulo 9 – *AUTOMATION*

What is automation

Advantages of automation

Programmable logic controller

Automation in operation: a heating system

Automation at work

**Extra material**

Film: “Modern Times”

About Modern Times :

* *Modern Times*, By Jeffrey Vance <https://drive.google.com/file/d/1lgyL7-vccTODOJeclBW9CJnZP5kHZy0a/view?usp=sharing>
* *Modern Times - short analysis*, <https://docs.google.com/document/d/1UspGRxeZolglWL2LymXyAADhIWebjcijqBkV65X4guo/edit?usp=sharing>

Film: “I, Robot”

**Ed. Civica**

* primo periodo:Working with electricity - Health Literacy
* secondo period: The costs of technology (rare earths, e-waste, etc.).

(**PCTO - didattica orientativa:**

* 4th-year working placement (PCTO), hard and soft skills
* CV and covering letter

Parma 26 maggio 2025

Gli Alunni Rappresentanti L’Insegnante