Anno Scolastico 2023-2024

**PROGRAMMA SVOLTO DI LINGUA INGLESE CLASSE**

**V B - AUTOMAZIONE**

Prof.ssa Paola De Dominicis

**Testi in adozione:**

* Libro di testo: Kiaran O'Malley, **Working With New Technology**, Pearson Longman
* Grammatica di riferimento: Andreolli, Linwood, **Grammar Reference New Edition**, Petrini
* Altri Materiali forniti durante l’anno: siti web, articoli online, fotocopie. Esercizi specifici finalizzati alla prova Invalsi sono stati predisposti dalla docente o eseguiti tramite i siti: <http://invalsi-areaprove.cineca.it> , <http://online.scuola.zanichelli.it/invalsi/quinta-superiore>

**A) Working With New Technology** **ELECTRICITY AND ELECTRONICS**

• **Unit 1 “ Electrical Energy”** (capitolo ripreso dal quarto anno)

- Conductors and insulators

- Superconductors

• **Unit 2 “ Electric Circuits”** (capitolo ripreso dal quarto anno)

- Electric circuit

- Types of circuit

- Current, voltage and resistance

- Turning off standby power

• **Unit 3 “ Electromagnetism and Motors”**

- Electricity and magnetism

- Applications of electromagnetism

- Types of electric motor : DC and AC Motors

- Electric cars : advantages and disadvantages

• **Unit 4 “ Generating electricity”**

- Methods of producing electricity

<https://youtu.be/1gLsApOvzYQ?si=JTzBrd31p6mHbXUU>

- Fossil fuels power station

- Protests against fracking

<https://youtu.be/Uti2niW2BRA?si=UCCXTpC2nTqxQ_hD>

- Nuclear power station

- Controlling a nuclear reactor

- Changing our sources of energy

<https://youtu.be/44ovdxOvP_A?si=1Rjy4L_4k8XPBQ-S>

<https://youtu.be/pVbLlnmxIbY?si=vE07sIYJvzwR38z5>

<https://youtu.be/HEYbgyL5n1g?si=7pPtuSiwAOAvf6Zt>

<https://youtu.be/rcOFV4y5z8c?si=yAwX2YORLPzU4MQ1>

• **Unit 5 “ Distributing electricity”**

- The distribution grid

- The transformer

- Managing the grid

- Storing energy on the grid

- How Does the Electric Grid Work?

<https://www.youtube.com/watch?v=38EEmWHI0C8>

**• Unit 6 “ Electronic Components”**

- Applications of electronics

- Semiconductors ( P-type and N-type)

- The Transistor

- Basic electronic components

- Colour coding of components

- Silicon Valley

**• Unit 7 “ Electronic Systems”**

- Conventional and Integrated Circuits

- Amplifiers

-Oscillators

- Surface mounting and through-hole mounting

- The race to build the integrated circuit

- MEMS- Microelectromechanical Systems

- How an electronic system works

- Analogue and digital

- The problem of electronic waste

• **Unit 8 “ Microprocessors”**

- What is a microprocessor?

- How a microprocessor works

- Logic gates

- The man who invented the microprocessor

• **Unit 9 “ Automation”**

- How automation works

- Advantages of automation

- Programmable logic controller

- Automation at work

- Automation in the home

- How a robot works

- Varieties and uses of robots

- Robots in manufacturing

- Artificial intelligence and robots

**Additional Material**

- Visione del film “Modern Times”<https://www.lookmovie2.to/threat-protection/second?t=30b3fb397a2bbb169529d70eafecccbe664f5388>

- Modern Times, By Jeffrey Vance (fotocopia, Classroom)

- Gen Z workers started their careers at a tough time. Will their native AI fluency help them get ahead?, By Elizabeth Bennett18th July 2023, <https://drive.google.com/file/d/1rY5F27nbs0hz-g9y32IorgN6OeBn20_2/view?usp=classroom_web&authuser=0>

- True Love, Isaac\_Asimov <https://goodmanla.weebly.com/uploads/6/1/3/0/61302797/true_love_by_isaac_asimov.pdf>

- Brain chips: the Sydney researchers ‘miles ahead’ of Elon Musk’s Neuralink <https://www.theguardian.com/science/2024/mar/17/neuroscience-research-australia-neuralink-elon-musk-brain-chips>

- Elon Musk says Neuralink has implanted its first brain chip in human [Elon Musk says Neuralink has implanted its first brain chip in human | Elon Musk | The Guardian](https://www.theguardian.com/technology/2024/jan/29/elon-musk-neuralink-first-human-brain-chip-implant)

**B) Ed. Civica**

Pros and cons of Artificial intelligence. Riflessione sulla mozione “Artificial intelligence: AI might exacerbate existing inequalities or create new forms of injustice.” (presentazioni a gruppi o individuali degli studenti)

**C) Didattica orientativa**

- My work experience – Carol (Unit 17, p. 261)

- Riflessione sull’esperienza estiva di PCTO;

- Skills

**D) PCTO**

- Writing a CV and an Application Letter

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