

# Introduction to Technology & Engineering (8481)

## Introducing Technology

- A Define technology. I.A
- B Identify historical examples of technology. I.B
- C Identify how technologies have emerged through the use of engineering. I.C
- D Research careers and the technologies used in them. I.D

## Investigating the Effects of Technology

- A Describe how society affects technology and technology affects society. II.A
- B Analyze how an invention or innovation was influenced by its historical context and future need.(Optional) II.B
- C Identify emerging technologies.(Optional) II.C
- D Predict future technological changes. II.D

## Examining Resources of Technology

- A Identify resources used in technology and engineering. III.A
- B Identify the six simple machines that make mechanical technology work. (Optional) III.B
- C Differentiate between types of materials.(Optional) III.C
- D Select materials based on their properties when designing a technology. (Optional) III.D
- E Demonstrate the safe use of a minimum of three tools and/or pieces of equipment as part of the design process. III.E
- F Explain the ethical and moral use of technologies. III.F
- G Demonstrate types of measuring. III.G
- H Create sketches and drawings. III.H

## Designing Solutions

- A Describe the Virginia Department of Education (VDOE) engineering design process. IV.A

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**B Demonstrate the use of an engineering design process.** IV.B

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**Using the Engineering Design Process**

**A Define the goal of a challenge.** V.A

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**B Design a device using criteria and constraints.** V.B

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**C Evaluate viable solutions.** V.C

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**D Select a solution.** V.D

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**E Plan the model or prototype.** V.E

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**F Produce a model or prototype.** V.F

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**G Assess the design.** V.G

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**H Describe how the solution could be improved.** V.H

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**I Communicate the results.** V.I

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**J Use the engineering design process as part of a team.** V.J

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**Examining Systems (Optional)**

**A Illustrate how processes change inputs to outputs in any system.** VI.A

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**B Identify the parts of a system within a device.** VI.B

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**Identifying the Contexts of Technology and Engineering**

**A Identify contexts of technology and engineering.** VII.A

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**B Describe the energy and power context of technology and engineering. (Optional)** VII.B

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**C Describe the medical and health-related technologies contexts of technology and engineering. (Optional)** VII.C

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**D Describe the agricultural and biological technologies contexts of technology and engineering. (Optional)** VII.D

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**E Describe the information and communication contexts of technology and engineering. (Optional)** VII.E

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**F Describe the built environment contexts of technology and engineering. (Optional)** VII.F

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**G Describe the transportation and logistics contexts of technology and engineering. (Optional)** VII.G

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**H Describe the material conversion and processing contexts of technology and engineering. (Optional)** VII.H

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**I Describe the computation, automation, AI, and robotics contexts of technology and engineering. (Optional VII. I**