

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

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

Using the Engineering Design Process

A Define the goal of a challenge. V.A

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

C Evaluate viable solutions. V.C

D Select a solution. V.D

E Plan the model or prototype. V.E

F Produce a model or prototype. V.F

G Assess the design. V.G

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

I Communicate the results. V.I

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

Examining Systems (Optional)

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

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

Identifying the Contexts of Technology and Engineering

A Identify contexts of technology and engineering. VII.A

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

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

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

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

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

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

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

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