Alabama CTE

Introduction to Career Cluster Technologies

Nature of Technology NT

1 Develop an understanding of the characteristics and scope of technology. NT1

- a Identifying how things that are found in nature differ from things that are human-made in how they are produced and used NT1A
- b Explaining how tools, materials, and skills are used to make things and carry out tasks NT1B
- c Explaining how creative thinking and economic and cultural influences shape technological development NT1C

2 Develop an understanding of core concepts of technology. NT2

- a Identifying a subsystem that operates as part of another system NT2A
- b Describing when parts of a system are missing, it may not work as planned NT2B
- c Illustrating how resources are the things needed to get a job done NT2C
- d Describing how tools are used to design, make, use, and assess technology NT2D
- e Explaining that tools and machines extend human capabilities NT2E

3 Develop an understanding of the relationships among technologies and other fields of study. NT3

- a Explaining how technologies are often combined NT3A
- b Explaining how various relationships exist between technology and other fields of study NT3B

Technology and Society TS

4 Develop an understanding of the cultural, social, economic, and political affects of technology. TS4

- a Summarizing when using technology, results can be good or bad TS4A
- b Explaining that the use of technology can have unintended consequences TS4B

5 Summarize the effects of technology on the environment. TS5

- a Describing how waste must be appropriately recycled or disposed of to prevent unnecessary harm to the environment TS5A
- b Identifying how the use of technology affects the environment in good and bad ways TS5B

Skip to main content

6 Explain the role of society in the development and use of technology. TS6

- a Describing how people's wants and needs change, new technologies are developed, and old ones are improved to meet those changes TS6A
- b Explaining how family, community, and economic concerns may expand or limit the development of technologies TS6B

7 Understand the influence of technology on history TS7

- a Summarizing why people have made tools to provide food, to make clothing, and to protect themselves TS7A

Design D

8 Describe the attributes of design D8

- a Explaining that the design process is a purposeful method of planning practical solutions to problems D8A
- b Recognizing the requirements for a design include such factors as the desired elements and features of a product or system or the limits that are placed on the design D8B

9 Develop an understanding of the engineering design process. D9

- a Identifying how the engineering design process involves defining a problem, generating ideas, selecting a solution, testing the solution(s), making the item, evaluating it, and presenting the results D9A
- b Explaining why when designing an object, it is important to be creative and consider all ideas D9B
- c Describing how models are used to communicate and test design ideas and processes D9C

10 Explain the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving. D10

- a Recognizing how trouble shooting is a way of finding out why something does not work so that it can be fixed D10A
- b Explaining how invention and innovation are creative ways to turn ideas into real things D10B
- c Documenting the process of experimentation, which is common in science, and can be used to solve technological problems D10C

Skip to main content

Abilities for a Technological World TW

11 Apply the design process TW11

- a Collecting information about everyday problems that can be solved by technology, and generate ideas and requirements for solving the problem TW11A
- b Explaining that the process of designing involves presenting some possible solutions in visual form and then selecting the best solution(s) from many TW11B
- c Testing and evaluating the solutions for the design problem TW11C
- d Improving the design solutions TW11D

12 Develop the abilities to use and maintain technological products and systems. TW12

- a Following step-by-step instructions to assemble a product TW12A
- b Selecting and safely using tools, products, and systems for specific tasks TW12B
- c Using computers to access and organize information TW12C
- d Explaining why common symbols, such as numbers and words, are used to communicate ideas TW12D

13 Assess the impact of products and systems TW13

- a Classifying collected information in order to identify patterns TW13A
- b Assessing the influence of a specific technology on the individual, family, community, and environment TW13B
- c Evaluating the trade-offs of using a product or system and decide when it can be used TW13C

The Designed World DW

14 Identify advances and innovations in medical technologies and health care. DW14

- a Recognizing that technological advances have made it possible to create new devices, to repair or replace certain parts of the body, and to provide a means of mobility DW14A
- b Recognizing why vaccines are developed for use in immunization DW14B
- c Explaining how many tools and devices have been designed to help provide clues about health and provide a safe environment DW14C

15 Identify advances and innovations in agricultural and related biotechnologies. DW15

- a Describing how artificial ecosystems are human-made environments that are designed to function as a unit and are comprised of humans, plants, and animals DW15A
- b Recognizing that most agricultural waste can be recycled DW15B
- c Explaining that many processes used in agriculture require different procedures, products, or systems DW15C

Skip to main content

Identify advances and innovations in energy and power technologies. DW16

a Defining energy and power DW16A

b Recognizing that energy comes in different forms DW16B

c Describing how tools, machines, products, and systems use energy in order to do work DW16C

17 Identify advances and innovations in information and communications technologies. DW17

a Identifying the processing of information through the use of technology can be used to help humans make decisions and solve problems DW17A

b Describing how information can be acquired and sent through a variety of technological sources, including print and electronic media DW17B

c Identifying communication technology as the transfer of messages among people and/or machines over distances through the use of technology DW17C

18 Identify advances and innovations in transportation technologies. DW18

a Identifying how the use of transportation allows people and goods to move from place to place DW18A

b Describing why a transportation system may lose efficiency or fail if one part is missing or malfunctioning or if a subsystem is not working DW18B

19 Identify advances and innovations in manufacturing technologies. DW19

a Describing how processing systems convert natural materials into products DW19A

b Explaining that manufacturing processes include designing products, gathering resources, and using tools to separate, form, and combine materials in order to produce products DW19B

c Explaining that the manufacturing enterprises exist because of a consumption of goods DW19C

20 Identify advances and innovations in construction technologies. DW20

a Describing that modern communities are usually planned according to guidelines DW20A

b Explaining that structures need to be maintained DW20B

c Classifying systems used in buildings DW20C

21 Recognize Alabama's sixteen career clusters and associated pathways and their relationship to technology. DW21

a Describing how pathways lead students through secondary and postsecondary training towards a credential DW21A

b Identifying employment opportunities associated with the clusters DW21B

c Explaining employment skills for securing and keeping a job DW21C