# NEW YORKTSATE BUCATION DEARTMENT MIDDLE LEVELAGEER AND ETCHNICAL EDUATION

TECHNOLOGYD@CATION

THE DESIGNED WORLD

Z & K Z D dd 12/02/3

Updated5-2023

### 2. AGRICULTURAL AND RELATED BIOTECHNOLOGIES

#### STUDENTS WILL:

- a) Describe how technologiesimpact resource needs for food production for large populations
- b)

- Analyze transportation systems and subsystems that need to function together for control, propulsion, and guidance
- c) Describe howgovernment and safety regulations impact transportation system development and operation
- d) Describe the multiple processes and how they connect to make a transportation system operate efficiently

#### 6. MANUFACTURING TECHNOLOGIES

#### STUDENTS WILL:

- a) Describe or demonstrate how manufacturing processes convert natural or raw materials into products
- b) Demonstrate manufacturing processes to design products, gather resources, use tools to separate, form or combine materials for a finished product
- c) Classify manufactured goods either durable or nedurable
- d) Demonstrate manufacturing processes for product designing, development, production (making), and servicing of products
- e) Describe how materials are located then harvested, extracted, or mined for manufacturing purposes
- f) Descibe how products are marketed, distributed, and sold to consumers

#### 7. CONSTRUCTION TECHNOLOGIES

#### STUDENTS WILL:

- a) Examine the impact of building laws, codes, convenience, cost, and function contribute to the design of a structure
- b) Demonstrate howfoundations anchor and support structures
- c) Demonstrate how elements of tension and compression work together in a strut(t(86 0.9Tw -26 m82.67 I(o)2.1 1.

#### HEALTH, SAFETY, AND WELLNESS

#### FOOD PRESERVATION

Students investigate ways that food, such as fruit and vegesable preserved through drying. Students design and test a food dehydrator that is either solar powered or uses a safe heat source such as a light bulb. Students test and evaluate drying times, product quality, food thickness, and water mass loss.

#### PROBLIE SOLVING AND INNOVATION

#### **DESIGN A SMALL HOUSE**

Students develop plans for a small house to scale that has a kitchen, eating area, sleeping area, and bathroom. Students design for space efficiency and comfort and develop a scale model of the home to better isualize and communicate the form and function for the house. Design considerations include low cost, efficiency, and ability to be transported to different locations.

#### SUSTAINABILITY

#### MANUFACTURING FOR SUSTAINABILITY

Students develop a product for product that can be produced from recycled or sustainable materials. Students develop working drawings, a production plan, materials lists, and a list of required tools. The class forms a production line based on the production plan, focusing on how productionwaste can be reduced or eliminated. Students plan the lifecycle of the new product through manufacture, sale, use, and disposal. Consider products such as bird feeders, plant starting containers, puzzles, home aides, or organizational products.

#### STANDARD 3A: UNIVERSAL FOUNDATION SKILLS

Students will demonstrate mastery dfd foundation skills and competencies essential for success in the workplace

#### COMMON CAREER TECHNICAL CORE STANDARDS

#### CAREER READY PRACTICES

- 1. Act as a responsible and contributing citizen and employee
- 2. Apply appropriate academic and technical skills
- 3. Attend to personal health and financial wbbing
- 4. Communicate clearly and effectively and with reason
- 5. Consider environmental, social, and economic impacts of decisions
- 6. Demonstrate creativity and innovation
- 7. Employ valid and reliable research strategies
- 8. Utilize critical thinking to make sense of problems and persevere in solving them
- 9. Model integrity, ethical leadership, and effective management
- 10. Plan education and career paths aligned to personal goals
- 11. Use technology to enance productivity
- 12. Work productively in teams while using cultural global competence

### INTERNATIONAL TECHNOLOGY AND ENGINEERING EDUCATION ASSOCIATION

- Standard 14: Students will develop an understanding of and be able to select and use medicaltechnologies.
- Standard 15: Students will develop an understanding of and be able to select and use agricultural and related biotechnologies.
- Standard 16: Students will develop an understanding of and be able to select and use energy and power technologie
- Standard 17: Students will develop an understanding of and be able to select and use information and communication technologies.
- Standard 18: Students will develop an understanding of and be able to select and use transportation technologies.
- Standard 9: Students will develop an understanding of and be able to select and use manufacturing technologies.
- Standard 20: Students will develop an understanding of and be able to select and use construction technologies.

### RESOURCES

Disclaimer: Posting of resurces on this form does not constitute an endorsement from the New York State Education Department nor does it imply that the following resources are mandatory or the only ones that can be used. Teachers and administrators ensure that resources align with

#### ENERGY KIDS ENERGY INFORMATION ADMINISTRATION

https://www.eia.gov/kids/index.php

Energy Kids has energy activities for kids and classroom resources for teachers. **Infois**nat available on energy sources, conservation, and history. Student activities and games are available in addition to energy calculators.

#### UNITED STATES DEPARTMENT OF ENERGY

www.energy.gov

The website hastatistics and information on energy sources, consumption, and conservation. There is a section for educators with lesson plans, videos, and student activities.

#### UNITED STATES DEPARTMENT OF TRANSPORTATION

www.transportation.gov

This website contains information on all forms of transportation, including air, sea, and ground transportation. There is a wealth of information and data available along with some videos that would be usable in a classroom.

### INTERNATION TECHNOLOGY AND ENGINEERING EDUCATORS' ASSOCIATION

www.iteea.org

ITEEA is the international organization that represents technology and engineering educators. The organization supports an annual conference pand is hes two journals, Technology and Engineering Educator and Journal of Technology Education. Many resources are available for classroom teachers including Engineering by Design. ITEEA developed and maintains the Standards for Technological Literacy.

# NEW YORK STATE TECHNOLOGY AND ENGINEERING EDUCATORS' ASSOCIATION

www.nysteea.org

NYSTEEA represents Technology and Engineering Educators across New York State. The website includes information on technology content, current developments in Technology and Engineering Education, professional development opportunities, and other resources for technology educators.

# NEW YORK STATE DEPARTMENT OF LABOR: NEW YORK STATE CAREER ZONE

https://www.careerzone.ny.gov

Career Zone is a noost online career exploration and planning tool developed by the New York State Department of Labor. It offers career and education information on thousands of careers,