

Applied Tech Competencies and Standards:

Below are the Competencies and Standards listed by the modules sorted by grade level.

6th Grade: Introduction to Technology & Space and Rocketry.

7th grade: Aerodynamics, Animation, Desktop Publishing, Meteorology & Forecasting.

8th grade: CAD-Computer Aided Design, Digital Photography, Digital Video Editing, Engineering & Stress Analysis.

Introduction to Technology

Impact of Technology

Explore the impact of technology on social and environmental concerns.

ITEA Tech Content Standard 1

Nature of Technology: The Characteristics and Scope of Technology

ITEA Tech Content Standard 15

The Designed World: Agricultural and Related Biotechnologies

ITEA Tech Content Standard 17

The Designed World: Information and Communication

ITEA Tech Content Standard 19

The Designed World: Manufacturing Technologies

ITEA Tech Content Standard 2

Nature of Technology: The Core Concepts of Technology

ITEA Tech Content Standard 20

The Designed World: Construction Technologies

ITEA Tech Content Standard 4

Technology and Society: The Cultural, Social, Economic, and Political Effects of Technology

ITEA Tech Content Standard 5

Technology and Society: The Effects of Technology on the Environment

ITEA Tech Content Standard 6

Technology and Society: The Role of Society in the Development and Use of Technology

ITEA Tech Content Standard 7

Technology and Society: The Influence of Technology on History

ITEA Tech Content Standard 8

Design: The Attributes of Design

ITEA Tech Content Standard 9

Design: Engineering Design

Nature of Technology

Gain an understanding of the nature of technology.

Processes

Explore the processes for the universals of technology.

Technological Contexts

Identify and explore the three categories of the technological contexts for the universals of technology.

Technological Problems

Explore how technological problems are solved.

Technological Processes

Gain an understanding of how the technological processes are developed, applied, and used.

Universals of Technology

Explore the universals of technology.

Use, Manage, and Understand Technology

Explore the importance for people to obtain the ability to use, manage, and understand technology.

Space & Rocketry

Deep Space Objects

Demonstrate a knowledge of deep space objects.

Define Astronomy

Define the science of astronomy, and describe the important events in the history of astronomy.

Early Rocket Pioneers

Identify several early rocket pioneers.

ITEA Tech Content Standard 1

Nature of Technology: The Characteristics and Scope of Technology

ITEA Tech Content Standard 12

Abilities for a Technological World: Use and Maintain Technological Products and Systems

ITEA Tech Content Standard 17

The Designed World: Information and Communication

ITEA Tech Content Standard 18

The Designed World: Transportation Technologies

ITEA Tech Content Standard 3

Nature of Technology: Relationships Among Technologies and the Connections Between Technology and Other Fields

ITEA Tech Content Standard 7

Technology and Society: The Influence of Technology on History

Our Solar System

Describe our solar system.

Rocket Engines

Describe how a rocket engine works.

Space Spin-Offs

Identify some examples of space technology spin-offs.

Space Vehicles/Missions

Describe space vehicles and space missions.

Aerodynamics

Advanced Aerodynamics Topics

Understand some of the more advanced topics in aerodynamics.

Aerodynamics Applications

Identify applications for aerodynamics.

Bernoulli's Principle

Describe Bernoulli's principle.

Describe Airfoil Makeup

Describe the construction of an airfoil, and test and evaluate its performance.

Identify Aerodynamic Forces

Identify and explain the aerodynamic forces which affect motion through a fluid.

Identify Atmospheric Factors

Identify atmospheric factors which influence flight and explain how they are measured.

Identify Flight Pioneers

Identify pioneers in flight.

Identify Flight Vehicles

Identify vehicles that are capable of flight.

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Stability/Control Factors

Describe factors and objects that influence stability and control of an aircraft.

Wind Tunnel Parts

Name the components of a wind tunnel, and describe their operation.

Animation

Animated Videos

Describe the techniques for producing animated videos.

Careers

Discuss the career opportunities in the field of animation.

Computers and Animation

Discuss the computer age of animation.

Creating Animation

Demonstrate how to create a simple animated movie with Flash.

History of Animation

Discuss the history of animation.

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The Flash Interface

Describe/explain the parts of the Flash interface

Desktop Publishing

Design Strategies

Demonstrate how to incorporate design into publications.

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Nature of Technology: The Core Concepts of Technology

Printing with Color Foil

Demonstrate how to create a whole new look for documents by using color foil.

Typography

Define and discuss typography.

Using Desktop Publishing Software

Understand and demonstrate how to use desktop publishing software.

What is Desktop Publishing

Understand and discuss desktop publishing.

Meteorology and Forecasting

Atmospheric Conditions

Identify atmospheric conditions including wind and cloud patterns and describe their impact on the weather.

Equipment Operation

Explain how to operate weather information equipment including weather satellites.

Floods and Droughts

Identify and explain flood and drought conditions.

Impact of Weather on History

Describe the impact of weather conditions on several historical events.

ITEA Tech Content Standard 1

Nature of Technology: The Characteristics and Scope of Technology

ITEA Tech Content Standard 12

Abilities for a Technological World: Use and Maintain Technological Products and Systems

ITEA Tech Content Standard 13

Abilities for a Technological World: Assess the Impact of Products and Systems

ITEA Tech Content Standard 2

Nature of Technology: The Core Concepts of Technology

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ITEA Tech Content Standard 5

Technology and Society: The Effects of Technology on the Environment

ITEA Tech Content Standard 7

Technology and Society: The Influence of Technology on History

Meteorology Terms

Define common terms used by meteorologists.

Severe Weather Patterns

Identify and explain severe weather patterns and their impacts.

Storms and Weather Fronts

Describe how storms form and their relationship to weather fronts.

Weather Forecasting Equipment

Identify equipment used in weather forecasting.

Weather Forecasts/Careers

Explain how weather information is brought together to create weather forecasts, and identify career opportunities in the field.

CAD

Axes, Grids, & Coordinates

Identify and explain axes, grids, and coordinates.

CAD Tools/Terminology

Demonstrate a knowledge of the tools and terminology of CAD.

Creating Basic Shapes

Explain how to create accurate and precise basic shapes on the computer.

Drawing Different Perspectives

Demonstrate how to draw the same object from different perspectives.

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Projections

Demonstrate a knowledge of orthographic and isometric projections.

The History of CAD

Discuss the history of CAD.

Using AutoSketch

Demonstrate an understanding of AutoSketch software.

Digital Photography

ITEA Standard 10: Design

Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.

ITEA Standard 11: Abilities of a Technological World

Students will develop abilities to apply the design process.

ITEA Standard 12: Abilities of a Technological World

Students will develop abilities to use and maintain technological products and systems.

ITEA Standard 13: Abilities of a Technological World

Students will develop abilities to assess the impact of products and systems.

ITEA Standard 14: The Designed World

Students will develop an understanding of and be able to select and use medical technologies.

ITEA Standard 15: The Designed World

Students will develop an understanding of and be able to select and use agricultural and related biotechnologies.

ITEA Standard 16: The Designed World

Students will develop an understanding of and be able to select and use energy and power technologies.

ITEA Standard 17: The Designed World

Students will develop an understanding of and be able to select and use information and communication technologies.

ITEA Standard 18: The Designed World

Students will develop an understanding of and be able to select and use transportation technologies.

ITEA Standard 19: The Designed World

Students will develop an understanding of and be able to select and use manufacturing technologies.

ITEA Standard 1: The Nature of Technology

Students will develop an understanding of the characteristics and scope of technology.

ITEA Standard 20: The Designed World

Students will develop an understanding of and be able to select and use construction technologies.

ITEA Standard 2: The Nature of Technology

Students will develop an understanding of the core concepts of technology.

ITEA Standard 3: The Nature of Technology

Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.

ITEA Standard 4: Technology and Society

Students will develop an understanding of the cultural, social, economic, and political effects of technology.

ITEA Standard 5: Technology and Society

Students will develop an understanding of the effects of technology on the environment.

ITEA Standard 6: Technology and Society

Students will develop an understanding of the role of society in the development and use of technology.

ITEA Standard 7: Technology and Society

Students will develop an understanding of the influence of technology on history.

ITEA Standard 8: Design

Students will develop an understanding of the attributes of design.

ITEA Standard 9: Design

Students will develop an understanding of engineering design.

LV Standard 10: Digital Darkroom

Explore the digital darkroom and Quick Fix tools.

LV Standard 11: Photography as Communication

Examine how to use photography as a form of communications.

LV Standard 12: Project Creativity

Focus on creativity by using an organized plan to complete projects.

LV Standard 13: Lighting Effects

Explore the use of lighting and its effect on photographic subjects.

LV Standard 14: Capture Emotion

Capture an emotion and experiment with lighting.

LV Standard 15: Cropping and Image Size

Examine what happens to the image size when it is cropped.

LV Standard 16: Visual Elements

Explore visual elements and their impact on photography.

LV Standard 17: Histogram

Examine the information provided in a histogram.

LV Standard 18: Lighting Levels

Experiment with the lighting levels in a photograph.

LV Standard 19: Image Editing

Use a variety of selection tools to further edit an image.

LV Standard 1: Improve Composition

Use basic photographic concepts to improve the composition of your shots.

LV Standard 20: Environmental Impacts

Complete the Environmental Impacts activity.

LV Standard 21: Photographic Viewpoints

Explore the many photographic viewpoints of a subject.

LV Standard 22: Camera Angles

Examine various camera angles.

LV Standard 23: Other Views

Discuss eye-level, bird's-eye view, and worm's-eye view.

LV Standard 24: Extreme Close-up Photography

Examine extreme close-up photography and complete a macro mode activity.

LV Standard 25: Blur and Sharpen Masks

Experiment with Blur and Sharpen Masks.

LV Standard 26: Work with Layers

Work with layers in Elements.

LV Standard 27: Show Depth in Images

Explore various techniques to show depth in images.

LV Standard 28: Examine Perspective

Examine focal length, depth of field, and perspective.

LV Standard 29: Focusing Techniques

Use focusing techniques to highlight the foreground, background and middle ground of an image.

LV Standard 2: Record Digital Images

Record digital images using a digital camera.

LV Standard 30: Inserting Text Layer

Insert a text layer in your project.

LV Standard 31: Create a Digital Montage

Create a digital montage.

LV Standard 32: Create Your Portfolio

Document your work, print your photos, and insert all of your documents in your portfolio.

LV Standard 33: Careers

Complete a careers activity.

LV Standard 3: Saving Digital Images

Download, organize, transform, and save digital images using photo editing software.

LV Standard 4: Prepare Portfolio

Prepare a portfolio of your work.

LV Standard 5: Displaying a Digital Image

Examine how a digital image is created and displayed.

LV Standard 6: Additive Color System

Discuss the Additive Color System.

LV Standard 7: Resolution vs. File Size

Examine the importance of resolution and file size in a digital image.

LV Standard 8: How the Digital Camera Works

Analyze how a digital camera works.

LV Standard 9: Ethical Issues

Discuss ethical issues involved in image manipulation.

Digital Video Editing**An Edit Session**

Explain how to organize an edit session and assemble a completed video presentation.

Audio Editing

Identify audio editing techniques used in video production.

Basic Concepts

Describe the basic concepts of video editing.

Equipment Operation

Demonstrate a knowledge of digital video editing equipment operation.

Shots and Composition

Demonstrate an understanding of basic cinematic concepts including camera shots and composition.

Titles and Credits

Explain how to create titles and credits for a video production.

Video Editing Careers

Identify career options and educational requirements in video editing.

Engineering and Stress Analysis**Buckling**

Differentiate buckling as applied to a beam from compression.

Elongation and Compression

Apply Young's Modulus to elongation and compression.

Equilibrium

Describe equilibrium.

Force and Area

Understand and define force and area.

Hooke's Law

Identify and explain Hooke's Law, tension, and compression.

Hooke's Law and Young's Modulus

Define and compare Hooke's Law and Young's Modulus.

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Shear and Torsion

Compare shear and torsion.

Strain and Deflection

Relate strain and deflection to stress.

Tension and Compression

Explain direction as it affects tension and compression.

Types of Materials

Identify the different types of materials used in industry.