

TRUMBULL PUBLIC SCHOOLS

Trumbull, Connecticut

DIGITAL DESIGN AND PRINTING

Grades 9-12

Technology Education Department

2019

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Digital Design and Printing
Grades 9-12
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The Trumbull Board of Education will continue to take Affirmative Action to ensure that no persons are discriminated against in its employment.

CORE VALUES AND BELIEFS

The Trumbull High School community engages in an environment conducive to learning which believes that all students will **read and write effectively**, therefore communicating in an articulate and coherent manner. All students will participate in activities **that present problem-solving through critical thinking**. Students will use technology as a tool applying it to decision making. We believe that by fostering self-confidence, self-directed and student-centered activities, we will promote **independent thinkers and learners**. We believe **ethical conduct** to be paramount in sustaining the welcoming school climate that we presently enjoy.

Approved 8/26/2011

INTRODUCTION & PHILOSOPHY

Digital Design & Printing is for creative students who enjoy computer art design. The course will provide students the foundations of computer design using graphics software such as Photoshop, Illustrator, and InDesign. A project-based curriculum will allow students to apply design elements and principles to authentic projects such as logo design, vinyl stickers, screen printing, posters, and T-shirt design. Students will build the foundation for a digital media career during this course.

The course aligns with the mission of Trumbull High School's Technology Education Department. Digital Design and Printing allows students to explore their creative side through the use of technology, and also allows students to develop problem-solving and critical thinking skills that they can use throughout their careers in school and beyond.

COURSE GOALS

The following course goals derive from the 2014 Connecticut Technology Education Standards.

- BC.02 Describe and demonstrate the procedures related to workplace and job-site safety, including personal protective equipment, machine safety, and material handling practices.
- GDT.01 Discuss developments and individuals relating to the history of the graphics and design industry and explore emerging trends and technologies.
- GDT.04 Examine the professional and ethical issues involved in the graphic design industries.
- GDT.05 Identify and apply the elements of design.
- GDT.06 Identify and apply the principles of design.
- GDT.08 Identify and apply the principles of design to layout.

- GDT.10 Demonstrate knowledge of concept image creation and manipulation.
- GDT.13 Identify and apply the design process.
- GDT.15 Identify and produce files utilizing different digital formats.

The following course goals derive from the 2016 International Society for Technology in Education Standards.

ISTE Innovative Designer (Standard 4) Students use a variety of technologies within a design process to identify and solve problems by creating new, useful, or imaginative solutions.

ISTE Creative Communicator (Standard 6) Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats, and digital media appropriate to their goals.

COURSE ENDURING UNDERSTANDINGS

Students will understand that . . .

- basic elements and principles of design can be leveraged to create and print a variety of designs using technology, including vector-based images and raster-based images.
- different types of images can be laid out and combined to create digital designs.

COURSE ESSENTIAL QUESTIONS

- What is digital design, and why is it important to communicate visually?
- What is involved in creating a good design?
- Why are some programs better than others in digital design?

COURSE KNOWLEDGE & SKILLS

Students will be able to . . .

- use technology to create digital designs.
- create vector-based images.
- manipulate raster-based images.
- lay out and combine different types of images to create digital designs.

COURSE SYLLABUS

Course Name

Digital Design and Printing

Level

Grades 9-12

Prerequisites

None

Materials Required

None

General Description of the Course

Digital Design & Printing is for creative students who enjoy computer art design. The course will provide students the foundations of computer design using graphics software such as Photoshop, Illustrator, and InDesign. A project-based curriculum will allow students to apply design elements and principles to authentic projects such as logo design, vinyl stickers, screen printing, posters, and T-shirt design. Students will build the foundation for a digital media career during this course.

Assured Assessments

- Written assessment based on lab safety procedures (Unit 1)
- Quizzes on unit material (Units 2, 3, 4, 5)
- 8-Bit Me: Illustrator (Unit 3)
- Pen Tool Cartoon Character: Illustrator (Unit 3)
- Frankenstein Mashup: Photoshop (Unit 4)
- Band Flyer: InDesign (Unit 5)
- Magazine Cover: In Design (Unit 5)

UNIT 1

General Lab Safety

Unit Goals

At the completion of this unit, students will:

BC.02 Describe and demonstrate the procedures related to workplace and job-site safety, including personal protective equipment, machine safety, and material handling practices.

Unit Essential Questions

- Why is it important that everyone understands and follows the safety procedures in and around the lab?
- What do I need to know in an emergency situation in the lab?
- What are the different types of Personal Protective Equipment (PPE)?

Scope and Sequence

1. Emergency power shut-offs
2. Fire drill procedures
3. Stay-put procedures
4. Lockdown procedures
5. First Aid kit
6. Eyewash / Shower station
7. Personal Protective Equipment (PPE)
8. Material Data Safety Sheets (MSDS)

Assured Assessments

- Written assessment based on specific lab safety procedures for the class

Resources

Supplemental

- Note-taking sheets related to safety procedures
- Power Tool Institute, Inc. *Power Tool Accidents – They Can Be Prevented.*
https://www.powertoolinstitute.com/pti-pages/videos/safetyvideo_1_powertoolaccidents_eng-youtube.asp. Web.

Time Allotment

- Approximately ½ week

UNIT 2

Introduction to Digital Design

Unit Goals

At the completion of this unit, students will:

- GDT.01 Describe past, present, and future styles in the graphic design field.
- GDT.04 Examine the professional and ethical issues involved in the graphic design industries.
- GDT.05 Identify the applications of color, line, shape, texture, size, and value in samples of graphic work.
- GDT.06 Analyze the principles of balance, contrast, alignment, rhythm, repetition, movement, harmony, emphasis, and unity in samples of graphic work.
- GDT.13 Explain the design process.
- GDT.15 Describe the strengths and weakness of TIFF, EPS, JPG, GIF, PDF, and PNG in a Postscript environment.

Unit Essential Questions

- What is digital design, and why is it important to communicate visually?
- What is involved in creating a good design?
- Why is it important to understand the design process?
- Why are some file formats better than others in digital design?

Scope and Sequence

1. Design styles
2. Basic elements of design
 - a. Color
 - b. Line
 - c. Shape
 - d. Texture
 - e. Size
 - f. Value
3. Basic principles of design
 - a. Balance
 - b. Harmony
 - c. Emphasis
 - d. Unity
4. File formats

Assured Assessments

- Quiz on unit material, with students identifying and analyzing the basic elements and principles of design

Resources

Core

- Visual presentations and digital clips
- Worksheets

Supplemental

- Guided note-taking sheets

Time Allotment

- Approximately 1 week

UNIT 3

Graphics Software 1: Adobe Illustrator

Unit Goals

At the completion of this unit, students will:

- | | |
|--|--|
| GDT.10 | Analyze differences between and appropriate applications of vector-based and bitmap images. |
| GDT.10 ISTE Innovative Designer (Standard 4) | Use a variety of input devices to import photos, images, and other content into Adobe Illustrator. |
| GDT.10 ISTE Innovative Designer (Standard 4) | Practice using different selection tools and techniques to manipulate images with Adobe Illustrator, and incorporate those images into final products. |
| GDT.13 ISTE Creative Communicator (Standard 6) | Apply the design process to generate graphic works using Adobe Illustrator. |

Unit Essential Questions

- What are vector-based images?
- Why Adobe Illustrator? Why is it so important in creating vector-based images?

Scope and Sequence

1. Adobe Illustrator workspace
2. Vector graphics
3. Basic selections
4. Shapes
5. Appearance and fill
6. Pathfinder
7. Pen tool
8. Layers
9. Type and type tools

Assured Assessments

- Quiz on unit material
- Use of Adobe Illustrator to apply unit material to create vector-based images: 8-Bit Me
- Use of Adobe Illustrator to apply unit material to create vector-based images: Pen Tool Cartoon Character

Resources

Core

- Adobe Illustrator
- Visual presentations and digital clips
- Worksheets

Supplemental

- Guided note-taking sheets
- Self-paced student tutorials

Time Allotment

- Approximately 7 weeks

UNIT 4

Graphics Software 2: Adobe Photoshop

Unit Goals

At the completion of this unit, students will:

GDT.10 Use a variety of input devices to import photos, images, and other content
ISTE Innovative into Adobe Photoshop.
Designer
(Standard 4)

GDT.10 Practice using different selection tools and techniques to manipulate
ISTE Innovative images and to apply nondestructive image editing techniques such as
Designer layering and masking with Adobe Photoshop, and incorporate those edited
(Standard 4) images into final products.

GDT.13 Apply the design process to generate graphic works using Adobe
ISTE Creative Photoshop.
Communicator
(Standard 6)

Unit Essential Questions

- What are raster-based images?
- Why Adobe Photoshop? Why is it so important in editing photos?

Scope and Sequence

1. Adobe Photoshop workspace
2. Raster graphics
3. Basic selections
4. Adjustment panel
5. Toolbar tools
6. Basic photo corrections
7. Layers
8. Masks

Assured Assessments

- Quiz on unit material
- Use of Adobe Photoshop to apply unit material to create raster-based images:
Frankenstein Mashup

Resources

Core

- Adobe Illustrator
- Visual presentations and digital clips

- Worksheets

Supplemental

- Guided note-taking sheets
- Self-paced student tutorials

Time Allotment

- Approximately 7 weeks

UNIT 5

Graphics Software 3: Adobe InDesign

Unit Goals

At the completion of this unit, students will:

GDT.08 Create graphic works utilizing grids and templates, and demonstrate layout skills for print collaterals and digital media.
ISTE Innovative Designer
(Standard 4)

GDT.13 Apply the design process to generate graphic works using Adobe InDesign.
ISTE Creative Communicator
(Standard 6)

Unit Essential Questions

- Why Adobe InDesign? Why is it so important in creating documents?
- How can Adobe InDesign be used to combine both vector-based images and raster-based images?

Scope and Sequence

1. Adobe InDesign workspace
2. Designing a document
3. Creating master pages
4. Working with page elements
5. Using graphics

Assured Assessments

- Quiz on unit material
- Use of Adobe InDesign to apply unit material to create documents: Band Flyer
- Final project incorporating Adobe Illustrator, Adobe Photoshop, and Adobe InDesign: Magazine Cover

Resources

Core

- Adobe Illustrator
- Adobe Photoshop
- Adobe InDesign
- Visual presentations and digital clips
- Worksheets

Supplemental

- Guided note-taking sheets
- Self-paced student tutorials

Time Allotment

- Approximately 3 weeks

COURSE CREDIT

One-half credit in technology education
One class period daily for a half year

PREREQUISITES

None.

CURRENT REFERENCE

- Wood, Allan. *The Graphic Designer's Digital Toolkit: A Project-Based Introduction to Adobe Photoshop CC, Illustrator CC, InDesign CC*. Stamford, CT: Cengage, 2015. Print.

ASSURED STUDENT PERFORMANCE RUBRICS

- Trumbull High School School-Wide Problem-Solving through Critical Thinking Rubric (attached)
- Trumbull High School School-Wide Social & Civic Expectations Rubric (attached)
- Trumbull High School School-Wide Independent Learning and Thinking Rubric (attached)
- Digital Design and Printing 8-Bit Me: Illustrator (attached)
- Digital Design and Printing Pen Tool Cartoon Character: Illustrator (attached)
- Digital Design and Printing Frankenstein Mashup: Photoshop (attached)
- Digital Design and Printing Band Flyer: InDesign (attached)
- Digital Design and Printing Magazine Cover: InDesign (attached)

Trumbull High School School-Wide Problem-Solving through Critical Thinking Rubric

| Category/ Weight | Exemplary 4 Student work: | Goal 3 Student work: | Working Toward Goal 2 Student work: | Needs Support 1-0 Student work: |
|---|---|--|--|--|
| Understanding X_____ | Student demonstrates clear understanding of the problem and the complexities of the task. | Student demonstrates sufficient understanding of the problem and most of the complexities of the task. | Student demonstrates some understanding of the problem but requires assistance to complete the task. | Student demonstrates limited or no understanding of the fundamental problem after assistance with the task. |
| Research X_____ | Student gathers compelling information from multiple sources including digital, print, and interpersonal. | Student gathers sufficient information from multiple sources including digital, print, and interpersonal. | Student gathers some information from few sources including digital, print, and interpersonal. | Student gathers limited or no information. |
| Reasoning and Strategies X_____ | Student demonstrates strong critical thinking skills to develop a comprehensive plan integrating multiple strategies. | Student demonstrates sufficient critical thinking skills to develop a cohesive plan integrating strategies. | Student demonstrates some critical thinking skills to develop a plan integrating some strategies. | Student demonstrates limited or no critical thinking skills and no plan. |
| Final Product and/or Presentation X_____ | Solution shows deep understanding of the problem and its components. Solution shows extensive use of 21 st -century technology skills. | Solution shows sufficient understanding of the problem and its components. Solution shows sufficient use of 21 st -century technology skills. | Solution shows some understanding of the problem and its components. Solution shows some use of 21 st -century technology skills. | Solution shows limited or no understanding of the problem and its components. Solution shows limited or no use of 21 st -century technology skills. |

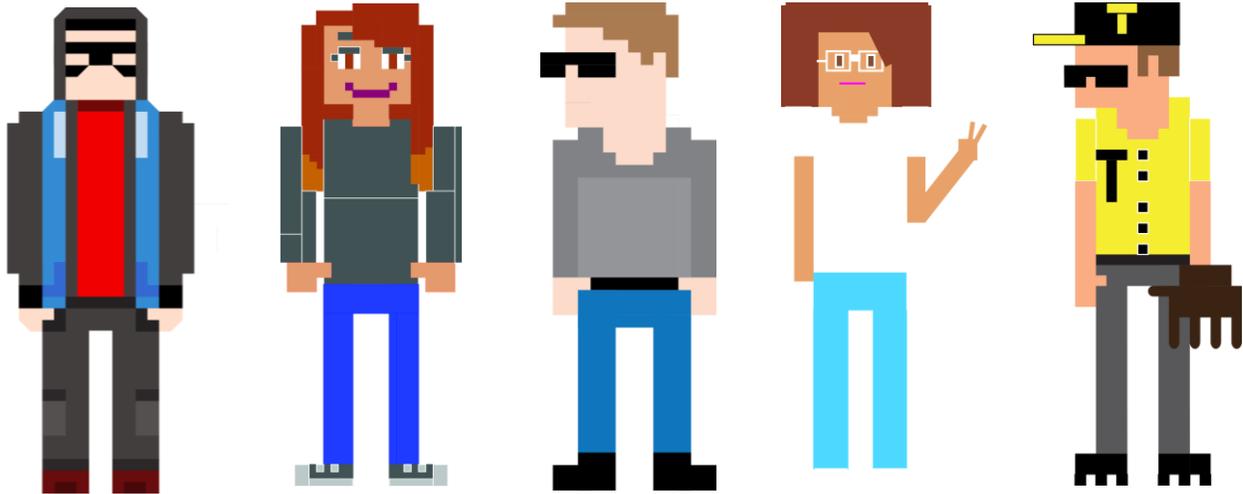
Trumbull High School School-Wide Social & Civic Expectations Rubric

| Category/ Weight X_____ | Exemplary 4 | Goal 3 | Working Toward Goal 2 | Needs Support 1-0 |
|--|---|---|---|--|
| Responsibility for Self X_____ | <ul style="list-style-type: none"> • Highly self-directed • Consistently displays ethical conduct in the classroom and on campus | <ul style="list-style-type: none"> • Self-directed • Displays ethical conduct in the classroom and on campus | <ul style="list-style-type: none"> • Occasionally self-directed • At times displays ethical conduct in the classroom and on campus | <ul style="list-style-type: none"> • Rarely self-directed • Seldom displays ethical conduct in the classroom and on campus |
| Respects Others X_____ | <ul style="list-style-type: none"> • Sensitive and considerate to others | <ul style="list-style-type: none"> • Considerate to others | <ul style="list-style-type: none"> • At times considerate to others | <ul style="list-style-type: none"> • Insensitive to others |
| Practices Interpersonal Skills X_____ | <ul style="list-style-type: none"> • Champions discussions to resolve differences through active listening and offers opinions without prompting in a positive and rational manner | <ul style="list-style-type: none"> • Actively discusses avenues to resolve differences when appropriate, and offers encouraging opinions when prompted | <ul style="list-style-type: none"> • At times, appears indifferent to others, does not seek avenues to resolve differences, and is inflexible in his or her own opinions | <ul style="list-style-type: none"> • Demonstrates intolerance and lacks social interaction skills |
| Cultural Understanding X_____ | <ul style="list-style-type: none"> • Demonstrates a high level of cultural understanding and respect for the uniqueness of others, their practices and perspectives | <ul style="list-style-type: none"> • Demonstrates an appreciation of cultural understanding and respect for the uniqueness of others, their practices and perspectives | <ul style="list-style-type: none"> • Demonstrates little appreciation of cultural understanding and respect for the uniqueness of others, their practices and perspectives | <ul style="list-style-type: none"> • Demonstrates a lack of appreciation of cultural understanding and respect for the uniqueness of others, their practices and perspectives |

Trumbull High School School-Wide Independent Learning and Thinking Rubric

| Category/Weight | Exemplary 4 | Goal 3 | Working Toward Goal 2 | Needs Support 1-0 |
|--|---|---|--|--|
| Proposal X_____ | Student demonstrates a strong sense of initiative by generating compelling questions, creating uniquely original projects/work. | Student demonstrates initiative by generating appropriate questions, creating original projects/work. | Student demonstrates some initiative by generating questions, creating appropriate projects/work. | Student demonstrates limited or no initiative by generating few questions and creating projects/work. |
| Independent Research & Development X_____ | Student is analytical, insightful, and works independently to reach a solution. | Student is analytical, and works productively to reach a solution. | Student reaches a solution with direction. | Student is unable to reach a solution without consistent assistance. |
| Presentation of Finished Product X_____ | Presentation shows compelling evidence of an independent learner and thinker. Solution shows deep understanding of the problem and its components. Solution shows extensive and appropriate application of 21 st Century Skills. | Presentation shows clear evidence of an independent learner and thinker. Solution shows adequate understanding of the problem and its components. Solution shows adequate application of 21 st Century Skills. | Presentation shows some evidence of an independent learner and thinker. Solution shows some understanding of the problem and its components. Solution shows some application of 21 st Century Skills. | Presentation shows limited or no evidence of an independent learner and thinker. Solution shows limited or no understanding of the problem. Solution shows limited or no application of 21 st Century Skills. |

DIGITAL DESIGN AND PRINTING 8-BIT ME: ILLUSTRATOR



Objective:

- To create an 8-Bit version of yourself using Adobe Illustrator.

Tools:

- Shape Rectangle
- Grid
- Arrange
- Color
- Align

Grading:

Your 8-Bit version of yourself will be graded on the following criteria:

1. Use of tools
2. Use of class time
3. Originality

DIGITAL DESIGN AND PRINTING

PEN TOOL CARTOON CHARACTER: ILLUSTRATOR

Objective:

- To use the Pen tool and Layers of Adobe Illustrator to trace your favorite cartoon character.

Requirements:

- 1 cartoon character traced with Pen tool
- Layers for the cartoon character
- Color in cartoon character

Tools:

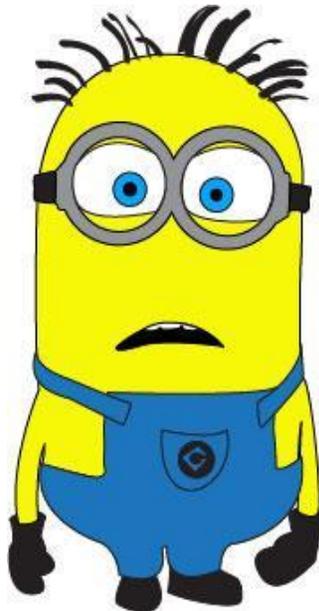
- Layers
- Pen tool
- Stroke
- Fill

Grading:

Your Pen Tool Cartoon Character will be graded on the following criteria:

1. Use of tools
2. Use of class time
3. Originality

Example:



DIGITAL DESIGN AND PRINTING FRANKENSTEIN MASHUP: PHOTOSHOP

Objective:

- To take parts from six different pictures to create a Frankenstein mashup of a new creature using Adobe Photoshop. You can take the head from one, the arm from another, the body from another, etc., to create your new creature.

Tools:

- Selection tools
- Layers
- Layer mask
- Paint Brush

Grading:

Your Frankenstein Mashup will be graded on the following criteria:

1. Use of tools
2. Use of class time
3. Originality

Example:



DIGITAL DESIGN AND PRINTING

BAND FLYER: INDESIGN

Objective:

- Your favorite band has decided to go old-school with their next advertisement. They have seen some of your design work and have hired you to design a flyer for their next show.

Constraints:

The band wants the following information on the flyer, but besides that you have been given creative freedom to design.

- Band name
- Date
- Time
- Location
- Website

Software:

- Use InDesign to design your flyer, and Illustrator and Photoshop to create images for the flyer.

InDesign Tools:

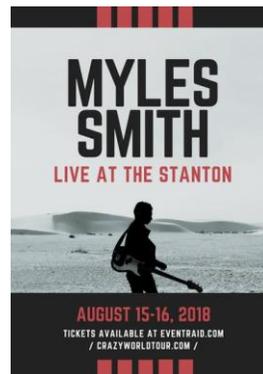
- Rectangle Frame tool
- Shape tool
- Text tool
- Layers

Grading:

Your Band Flyer will be graded on the following criteria:

1. Use of software
2. Use of tools
3. Use of class time
4. Originality

Simple Examples:



DIGITAL DESIGN AND PRINTING

MAGAZINE COVER: INDESIGN

Objective:

- You have been hired to design a magazine cover. Your magazine cover can be based off of an existing magazine. For example, you could use the layout and name of an already published magazine, but design your own photos, titles, and storylines. Or you could create your own magazine totally from scratch, around an interest you have.

Constraints:

Your magazine cover needs to include the following items:

- A background
- A cover photo (you may have smaller photos to show other features included in the magazine)
- A title
- Several storyline titles
- Issue date
- Issue price

Software:

- Use InDesign to design your magazine cover, and Illustrator and Photoshop to create images for the magazine cover.

InDesign Tools:

- Rectangle Frame tool
- Shape tool
- Text tool
- Layers

Grading:

Your Magazine Cover will be graded on the following criteria:

1. Use of software
2. Use of tools
3. Use of class time
4. Originality