

Lesson 1: Introduction

Identify iDO, who we are, why we are there.

Introduce community bench project

- Show diagram of the process and deliverables
- Materials that will be used
- Tools that will be used
- Skills that will translate into the industry

PPT Introduction: What is a community?

Foundational Standards Met:

- **AME 3.1**
 - Know the personal qualifications, interests, aptitudes, knowledge, and skills necessary to succeed in careers.
- **AME 3.2**
 - Understand the scope of career opportunities and know the requirements for education, training, and licensure.

Lesson 2: Community Brainstorming

Exercise: Work within groups to brainstorm what community means to each team member.

- Create sketches to visually represent each student's concept of community.
- Present and discuss sketches with group members.
 - Answer any questions posed, by other group members and mentors, about the communities presented.

*Homework: Consider the community with which you identify and list its attributes, attitudes, beliefs, and appearance.

- Write one paragraph discussing your community and identify the elements that make it your community.

Foundational Standards Met:

- **BTC 2.0 Communications**
 - **2.3 Written** and Oral English Language Conventions
 - Students must write a brief statement and description of their community and what elements make it their own.
 - **2.4 Listening** and Speaking
 - Students must communicate their sketching concepts about their community and field questions about their ideas.
- **AME 5.0 Problem Solving and Critical Thinking**
 - **5.1 & 5.2**
 - Students must sketch thumbnails of the elements that create their community in a way that can effectively communicate their ideas.
- **AME 10.0 Technical Knowledge and Skills**
 - **10.10**
 - Use of sketching as a critical element of the creative process.

Lesson 3: Continuation of Brainstorming/ Moving Sketches to Digital Format

Exercise: Work individually to explore and define the communities to which each student belongs or identifies.

- Search the Internet, books, or magazines, to gather images that represent each student's concept of community.
- Use Adobe Photoshop or an 8.5" x 11" sheet of paper to create an image map/photo montage of each student's community themes.
 - Students must use selection tools, i.e. *lasso tool*, to select the needed elements from within the image and cut and past those elements into their image map/photo montage.
- Present student image maps/photo montages to the class in order to discuss a variety of different communities and explain how they are defined by the students.

Demo:

Presentation on the use of Photo Shop in the design industry, and how brainstorming sketches can be translated into a photomontage.

Foundational Standards Met:

- **BTC 1.0 Academics**
 - **1.4** Visual and Performing Arts
 - **2.2** Students must create a photo montage/image map expressing their concept of community.
 - **2.6** Students must create a photo montage/image map to address their concept of community.
- **BTC 2.0 Communications**
 - **2.4** Listening and Speaking
 - Students must communicate their community concepts that were developed through their photo montages/image maps.
- **AME 4.0 Technology**
 - **4.2** Students must use image resources to create an image map/photo montage.
 - **4.4, 4.7** Students must use Adobe Photo Shop to create an image map/photo montage.

- **4.5, 4.6** Students will receive a presentation on the application of Adobe Photo Shop in the design industry.
- **AME 5.0 Problem Solving and Critical Thinking**
 - **5.3** Students must determine what images best represent their community or best represent elements of a community.
- **AME 10.0 Technical Knowledge and Skills**
 - **10.10** Students must use Adobe Photo Shop to create an image map of their community.

Pathway Standards Met:

- **MDA Pathway:**
 - **A1.2:** Specific applications of VPA creative expressions standards for visual arts at the Proficient Level (grades 9-12):
 - **2.3** Students must use Adobe Photo Shop to manipulate images in order to create an image map/photo montage.
 - Advanced Level:
 - **2.6** Students must use images to create and image map/photo montage that effectively communicates their community concept.

Lesson 4: Design Development

Exercise: Present students with 2D orthographic sketches of the community bench structure in order to provide them with a better understanding of how their design will incorporate into the larger bench.

Exercise: Students will select certain images, from their image maps, that relate closely to one another or share the same theme. From these selections, create a 9"x 9" document in Adobe Illustrator and import the selected images into the new document. Once the images are imported, create a new layer within the document and use the pen tool, stroke, fill, as well as other Illustrator tools, to create an abstract concept of the selected images.

Demo: Introduce Adobe Illustrator

- Presentation on the use of Adobe Illustrator in the design industry.

Demo: Creation of a new document set at 9"x 9" in Illustrator.

- Demonstrate an example of creating an abstract concept from images using the pen tool, stroke, and fill, among others.

Example: In figures 1 and 2 on the next page: a student has created an image map with elements that represent where he lives, where he grew up, what he likes to do for recreation, his patriotism, and his taste in music. From this he created an abstract version of these elements in Illustrator.

Concept Review and Selection:

- Each student will individually review their community concept and layout with the instructor on an ongoing basis as determined by the general student body's pace.
- If not approved, revise and refine design using the available computer tools.
- Informal ongoing evaluations will occur during work sessions until the layout is approved.
- If student's work is approved, they may move forward to construction of full-scale foam core proof of concept.

Foundational Standards Met:

- **BTC 1.0 Academics**
 - **1.4** Visual and Performing Arts
 - **2.1, 2.2, 2.6** Students must select elements from their image maps in order to create an abstract concept of their community. With this selection, students must take into consideration their concept and layout.
- **AME 3.0 Career Planning and Management**
 - **3.1** Students will receive a presentation on Adobe Illustrator and its applications in the design industry.
- **AME 4.0 Technology**
 - **4.4** Students must use Adobe Illustrator to develop abstract community concepts.
 - **4.5** Students will receive a presentation on Adobe Illustrator and its applications in the design industry.
 - **4.7** Students will learn how an image can be converted into an abstract element or concept and still communicate the same idea.
- **AME 5.0 Problem Solving and Critical Thinking**
 - **5.1, 5.2, 5.3** Taking into consideration, total concept, placement, and layout, students must use images from their image maps to create an abstract concept of their community. They must submit their concepts for review and revise as necessary.
- **AME 10.0 Technical Knowledge and Skills**
 - **10.10** Students must use Adobe Illustrator to create abstract concepts of their community.

Pathway Standards Met:

- **MDA Pathway:**
 - **A1.2:** Specific applications of VPA creative expressions standards for visual arts at the Proficient Level (grades 9-12):
 - **2.1** Students must use images from their image maps to create abstract forms in order to represent their community while taking into consideration concept and layout.

- **2.3** Students must use Adobe Illustrator to create abstract concepts of select images from their image maps.
- Advanced Level:
 - **2.6** Students must use images from their image map to create abstract forms in Adobe Illustrator that effectively communicate their community concept.

Lesson 5: Full-scale Modeling/Proof of Concept

Exercise: Students will print out their 9" x 9" Community Tiles from Illustrator and transfer the images to a 9" x 9" foam core tile using the methods as instructed to them through lecture. Students must then model their design in foam core using colored paper and other foam core cutouts as necessary to create layering and add visual interest to the layout.

- Students will use Xacto knives and other cutting material as instructed to accomplish their designs.
- Students must test the execution of the revised design in the foam core model tile. If execution is not successful, revise the design to better fit the materials and add production process.
- Designs will be reviewed by instructor. If requested, students must revise their design as necessary until approved by instructor.
- Students must present their final approved proof of concept to the class for feedback and critique. Students must describe their concept and give reason for certain design decisions.

Demo:

Demonstrate how to transfer layouts from paper to foam core.

Demo:

Demonstrate how to safely and effectively use design tools:

- Xacto knife
 - Clean cutting
 - Proper cutting surfaces

Demo:

Let the students know that it is OK to revise their layout during the proof of concept phase. Give a live demonstration of possible revisions that can be done.

Example: In figure 1 on the next page: a student is creating a foam core proof of concept, communicating her community theme of baking, using colors and layers to create contrast.

Foundational Standards Met:

- **BTC 1.0 Academics**
 - **1.4** Visual and Performing Arts
 - **1.0, 2.1, 2.2, 2.6** Students must translate their computer created community concepts to a physical 3D model in foam core using set materials to create layering and visual interest.
- **BTC 2.0 Communications**
 - **2.4** Listening and Speaking
 - **2.1** Students must present their final approved proof of concept to the class for feedback and critique. Students must describe their concept and give reason for certain design decisions.
- **BTC 5.0 Problem Solving and Critical Thinking**
 - **5.1, 5.3, 5.4, 5.5** Students must translate their computer created community concepts to a physical 3D model in foam core using set materials to create layering and visual interest. When not approved by instructor, students must refine 3D models as necessary until final approval is given.
- **BTC & AME 6.0 Health and Safety**
 - **6.2** Students will be instructed in the safe use and maintenance of Xacto knives and other cutting tools.
- **BTC 10.0 Technical Knowledge and Skills**
 - **10.3** Students will be instructed in the proper use, storage and allocation of materials and will be expected to use their space efficiently.
 - **10.7** Students must take into consideration the attributed of good design when developing their 3D models.
- **AME 1.0 Academics**
 - **1.1** Mathematics
 - **1.2** Students must create a full-scale proof of concept model of their community tile.
- **AME 5.0 Problem Solving and Critical Thinking**
 - **5.1, 5.2, 5.3** Students must translate their computer created community concepts to a physical 3D model in foam core using set materials to create layering and visual interest.

When not approved by instructor, students must refine 3D models as necessary until final approval is given.

Pathway Standards Met:

- **MDA Pathway:**

- **A1.1:** Specific applications of VPA Artistic Perception Standards for Visual Arts at the Proficient and Advanced Level (grades 9-12):
 - **1.1, 1.4** Students must present their final approved proof of concept to the class for feedback and critique. Students must describe their concept and give reason for certain design decisions.
- **A1.2:** Specific applications of VPA creative expressions standards for visual arts at the Proficient and Advanced Level (grades 9-12):
 - **2.1, 2.4, 2.6** Students must translate their computer created community concepts to a physical 3D model in foam core using set materials to create layering and visual interest.
- **A1.4:** Proficient Level
 - **4.3** Students must present their final approved proof of concept to the class for feedback and critique. Students must describe their concept and give reason for certain design decisions.

Lesson 6: Shop Safety and Wood Working

Exercise: Students will be given two cutting templates consisting of a star with a rectangle located in the center. With this template, students must perform a test in which they will apply each template to individual 4" square pieces of maple plywood and then use various saws to first cut out the star and then cut the rectangle from the center of the star.

- Task 1: Students must use clamps, handsaws, and a power drill to safely and effectively cut out the star and then cut out the center rectangle, leaving the star intact.
- Task 2: Students must repeat the task of cutting out the star and rectangle using power saws such as a Band Saw, Jig Saw, or Scroll Saw.

Demo:

Advise and educate students on shop and tool safety as well as proper shop conduct.

- Use attached list of safety topics and guidelines.
- Hand out Student Permission Slips for use of wood working tools.

Demo:

Introduce tools to be used: demonstrate how they work, how they sound, and proper usage.

- Discuss the most common industry usage of each tool.
- Show footage of veneer production.
- Show footage of bench being cut by ShopBot.

Demo:

Give a live demonstration of how to conduct the exercise.

- Gluing the paper template to the wood.
- How to use the handsaw, drill, and clamps to execute the exercise.

Foundational Standards Met:

- **BTC 3.0 Career Planning and Management**
 - **3.1, 3.2** Students will be exposed to various tool applications in careers.

- **BTC 4.0 Technology**
 - **4.2, 4.4** Students will view a demonstration of the production of wood veneer
 - Students will view the community bench frame cut out by a CNC machine.
- **BTC and AME 6.0 Health and Safety**
 - **6.2** Students must use tools properly and safely as instructed.
- **BTC 7.0 Responsibility and Flexibility**
 - **7.1** Students must conduct themselves in a safe and appropriate manner to promote shop safety.
- **BTC 9.0 Leadership and Teamwork**
 - **9.1, 9.5** Students are expected to work together in the proper and safe use of tools and assist each other as necessary.
- **BTC 10.0 Technical Knowledge and Skills**
 - **10.3** Students must use, store, and allocate materials efficiently, and use space efficiently.

Lesson 7: Final Tile Manufacture

*Students must return a signed permission slip from their guardians allowing them to use wood working tools.

Exercise: Students with an approved proof of concept, and who have finished the saw test, may begin final manufacturing layout on full-scale wood tiles.

Materials will be handed out with an attached Bill Of Materials (BOM). Before students begin manufacturing their tile, they must use appropriate calculations to determine the approximate cost of their individual materials.

Once the students have completed their BOM calculations, they may begin the final manufacturing process of their tile.

- Students must use available handsaws, mechanized saws, power drill, wood files, sand paper, and glues to execute their proof of concept layout in wood.
- Students must consider how color will be incorporated into the design by overlaying contrasting wood veneers into their design.

Demo:

Demonstrate the proper use of the glues need for gluing the maple plywood and wood veneers.

Final Presentation and Critique:

- After final completion of their community tile, each student must prepare a one-page paper and give a presentation discussing their experience in the development of their community concept. The student must discuss the tools used, their design process, and the final concept developed.

Foundational Standards Met:

- **BTC 1.0 Academics**
 - **1.1 Mathematics**
 - **1.2, 2.8** Students must use appropriate calculations to break down their Bill Of Materials and calculate the approximate cost of their individual materials.
 - **1.4** After final completion of his or her community tile, each student must give a presentation discussing the development of his or her community concept. The student must discuss their design process, and the final concept developed.
 - **2.1, 2.2, 2.6** Students must use available handsaws, mechanized saws, power drill, wood files, sand paper, and glues to execute their proof of concept layout in wood. Students must consider how color will be incorporated into the design by overlaying contrasting wood veneers into their design.
- **BTC 2.0 Communications**
 - **2.3 Written and Oral English Language Conventions**
 - **1.4** Students must write one page discussing their experience in the development of their community concept. The student must discuss the tools used, their design process, and the final concept developed.
 - **2.4 Listening and Speaking**
 - **1.5, 1.6, 2.1** Students must give an oral presentation discussing their experience in the development of their community concept. The student must discuss the tools used, their design process, and the final concept developed.
- **BTC and AME 5.0 Problem Solving and Critical Thinking**
 - **5.1, 5.3, 5.4** Students must use available handsaws, mechanized saws, power drill, wood files, sand paper, and glues to execute their proof of concept layout in wood. Students must consider how color will be incorporated into the design by overlaying contrasting wood veneers into their design.

- **BTC and AME 6.0 Health and Safety**
 - **6.2** Students must use tools properly and safely as instructed.
- **BTC 7.0 Responsibility and Flexibility**
 - **7.1** Students must conduct themselves in a safe and appropriate manner to promote shop safety.
- **BTC 9.0 Leadership and Teamwork**
 - **9.1, 9.5** Students are expected to work together in the proper and safe use of tools and assist each other as necessary.
- **BTC 10.0 Technical Knowledge and Skills**
 - **10.3** Students must use, store, and allocate materials efficiently, and use space efficiently.
- **AME 10.0 Technical Knowledge and Skills**
 - **10.10** Students must use technical applications of the creative process.

Pathway Standards Met:

- **MDA Pathway:**
 - **A1.1** Specific applications of VPA Artistic Perception standards for Visual Arts at the Proficient and Advanced Level (grades 9-12)
 - **1.1, 1.4, 1.1(advanced)** After final completion of their community tile, each student must prepare a one page paper and give a presentation discussing their experience in the development of their community concept. The student must discuss the tools used, their design process, and the final concept developed.
 - **A1.4** Specific applications of VPA Aesthetic Value standards for Visual Arts at the Proficient Level (grades 9-12)
 - **4.1, 4.3** After final completion of their community tile, each student must give a presentation discussing their experience in the development of their community concept. The student must discuss the tools used, their design process, and the final concept developed.

Lesson 8: Application of Tiles

Exercise: Students must work together to decide final placement and layout for their finished tiles. Once final composition has been decided, the students may begin gluing their tiles to the supplied bench back. After the tiles have been glued, the back panel and tiles must be sealed with a finish coat before the panel can be installed.

Demo:

Demonstrate how to properly and safely use wood seal and finish.

Foundational Standards Met:

- **BTC and AME 5.0 Problem Solving and Critical Thinking**
 - **5.1, 5.3** Students must work together to decide final placement and layout for their finished tiles.
- **BTC and AME 6.0 Health and Safety**
 - **6.2, 6.3** Students must use wood finishes in a safe manner and store them properly.
- **BTC 7.0 Responsibility and Flexibility**
 - **7.1** Students must work together in a professional manner to decide the final composition and layout of the tiles. Students must also conduct themselves in the same manner during the application and finishing of the tiles.
- **BTC 9.0 Leadership and Teamwork**
 - **9.1, 9.5** Students must work together in a professional manner and treat each other with respect during the final layout, gluing, and finishing process.
- **BTC 10.0 Technical Knowledge and Skills**
 - **10.3** Students must use, store, and allocate materials efficiently, and use space efficiently.
 - **10.7** Students must apply the attributed of good design to the final layout and composition of the tiles.