

Benchmarks – Indicators – Mapping

Industrial Tech I

Beginning Drafting

1. **Understand and explain the purposes for studying drafting. (VI, VII) (August)**
CE, CS, GE,
 - A. Identify various careers that utilize drafting. (wt)
 - B. List possible education requirements. (wt)
 - C. List skills required of people in drafting. (wt)
 - D. Give examples of where blueprints are used. (wt)

2. **Point out, explain, and demonstrate the use of the various drafting tools. (I, II, IV, V, VI) (August) CS, LS**
 - A. Identify the name and explain the purpose of each drafting instrument. (to, pt)
 - B. Complete various drafting techniques using the drafting instruments. (ws, to, pt)

3. **Understand and demonstrate the various drafting techniques. (I, II, III, IV, V, VI) (August, September) CS, HOTS, LS**
 - A. Measure and lay out lines using the various architect scales. (ws, pt)
 - B. Draw vertical, horizontal, and angle lines using instruments. (ws, pt)
 - C. Draw arcs and curves using instruments. (ws, pt)
 - D. Produce geometric constructions using instruments. (ws, pt)
 - E. Utilize lettering techniques used in drafting. (ws, pt)
 - F. Draw the various lines used in drafting. (ws, pt)
 - G. Utilize the correct methods for dimensioning. (ws, pt)

4. **Understand and demonstrate various types of drawings. (I, II, III, IV, V, VI) (September, October) CS, HOTS, LS**
 - A. Complete 3-view drawings. (ws, to, pt)
 - B. Complete Isometric drawings. (ws, to, pt)
 - C. Complete Perspective drawings. (ws, to, pt)

Infused Areas

CE = career education
GE = global education
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HOTS = higher order thinking skills
MCGF = multicultural gender fair
LS = learning skills
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Assessments

ws = worksheet
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to = teacher observation
pt = performance test

Resources: Drafting instruments, paper, text books, #6 pencils, erasers, eraser bags, drawing blocks.

Beginning Woods (Hand Tools)

- 1. Explain the career possibilities associated with woodworking. (VII)**
(October, November) **CE, GE**
 - A. List occupations that utilize hand wood tools. **(wt)**
 - B. Explain possible educational and training requirements. **(wt)**
 - C. Explain possible skills needed for woodworking industry. **(wt)**

- 2. Explain and demonstrate the safety rules associated in woodworking with the various hand tools. (I, II, VI)** (October, November) **CS, LS**
 - A. Follow the shop and tool safety rules. **(ws, wt, to, pt)**
 - B. Identify and correctly use the right tool for the job. **(to)**
 - C. Practice good housekeeping. **(to)**

- 3. Demonstrate equipment and tool maintenance procedures. (I, II, VI)**
(October, November) **CS, HOTS, LS**
 - A. Inspect and recognize when cutting and boring tools need sharpened. **(to, pt)**
 - B. Clean and store equipment and tools properly. **(to)**

- 4. Demonstrate the techniques used in woodworking with hand tools by producing a product. (I, II, III, IV, V, VI)** (November) **CS, HOTS, LS**
 - A. Produce plans for a “Super Clip.” **(ws, to)**
 - B. Produce a “Steps of Procedure” chart. **(ws, to)**
 - C. Complete measuring and layout. **(to, pt)**
 - D. Complete cutting operations with handsaws, chisels, and planes on the “Super Clip.” **(to, pt)**
 - E. Complete boring operations with hand drills on a project. **(to, pt)**
 - F. Complete sanding operations with sanding blocks on the “Super Clip.” **(to, pt)**
 - G. Complete the finishing aspects on the “Super Clip.” **(to, pt)**

- 5. Understand and explain the process of product evaluation. (V, VI) (November)**
CS, HOTS, LS
 - A. Complete an evaluation form grading the various components and processes used in producing a project. **(to)**

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Resources: Text Books, worksheets, hand tools, wood, drafting paper, drawing instruments, safety sheets, safety glasses, evaluation sheets.

Beginning Woods (Power Tools)

1. **Explain the career possibilities associated with woodworking. (VII)** (December) **CE, GE,**
 - A. List occupations that utilize power wood tools. **(wt)**
 - B. Explain possible educational and training requirements. **(wt)**
 - C. Explain possible skills needed for woodworking industry. **(wt)**

2. **Explain and demonstrate the safety rules and purpose of power tools in the wood shop. (I, II, VI)** (December) **CS, HOTS, LS**
 - A. Follow the shop and tool safety rules. **(ws, to, pt)**
 - B. Identify and correctly use the right tool for the job. **(to, pt)**
 - C. Practice good housekeeping. **(to)**

3. **Demonstrate equipment and tool maintenance procedures. (I, II)** (December) **CS, HOTS, LS**
 - A. Inspect and recognize when cutting and boring tools need sharpened. **(to, pt)**
 - B. Clean and store equipment and tools properly. **(to, pt)**

4. **Demonstrate the techniques used in woodworking with power tools by producing a product. (I, II, III, IV, V, VI)** (December) **CS, HOTS, LS**
 - A. Produce the plans for a "Candle Holder." **(pt)**
 - B. Produce a Steps of Procedure chart. **(ws, pt)**
 - C. Complete measuring and layout. **(pt)**
 - D. Complete cutting operations with power tools. **(pt, to)**
 - E. Complete boring operations with power tools. **(pt, to)**
 - F. Complete sanding operations with power tools. **(pt, to)**
 - G. Complete the finishing aspects on a project. **(pt, to)**

5. **Understand and explain the process of product evaluation. (V, VI)** (December) **CS, HOTS, LS**
 - A. Complete an evaluation form grading the various components and processes used in producing a project. **(to)**
 - B. Share the evaluation form and reflect with the instructor. **(to)**

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Resources: Safety sheets, safety tests, wood, power tools, drawing instruments, drawing paper, safety glasses, abrasive paper, stain, finish, sprayer

Residential Construction

1. **Explain the career possibilities associated with construction. (VII)** (January) **CE, CS**
 - A. List occupations that encompass construction. **(wt)**
 - B. Explain possible educational and training requirements. **(wt)**
 - C. Explain possible skills needed for construction industry. **(wt)**

2. **Explain and demonstrate measuring and leveling instruments. (I, II, IV)** January **CS, HOTS, LS**
 - A. Set up and use the transit. **(pt)**
 - B. Use a level to show levelness and plumb. **(pt)**
 - C. Correlate the markings on a tape measure with framing. **(pt)**
 - D. Monstrate uses of the carpenter's square. **(pt)**

3. **Demonstrate producing plans for a residential structure according to specifications and codes. (III, IV, V, VI)** January **HOTS, LS**
 - A. Determine style and type of house according to codes and ordinances and lot size. **(pt)**
 - B. Design the rooms wanted in the house. **(pt)**
 - C. Use the architect's scale to draw rough print of the house in 1/4" scale. **(pt)**

4. **Produce footings and foundations for residential structures. (I, II, III, IV, V, VI)** January **CS, HOTS, LS**
 - A. Determine type of foundation to use. (pt)
 - B. Construct footings at 3/4" scale. (pt)
 - C. Construct foundation at 3/4" scale. (pt)
 - D. Reflect and evaluate the process and the product. (to)

5. **Produce the framing aspects of a residential structure. (I, II, III, IV, V, VI)** January **CS, HOTS, LS**
 - A. Construct the floor framing aspect of the house at 3/4" scale. **(pt)**
 - B. Reflect and evaluate the floor framing process and product. **(to)**
 - C. Construct the wall framing aspect of the house at 3/4" scale. **(pt)**
 - D. Reflect and evaluate the wall framing process and product. **(to)**
 - E. Construct the roof framing aspect of the house at 3/4" scale. **(pt)**
 - F. Reflect and evaluate the wall framing process and product. **(to)**

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Resources: Wood, blueprints, scales, hot melt glue guns, glue sticks, nail gun, table saw, sanders, worksheets, transit, level, tape measures, carpenter's square, chalk line, utility knives, safety glasses

Beginning Metals

1. **Explain the career possibilities associated with the metals industry. (VII)** (April) **CE, GE**
 - A. List occupations that encompass metals. **(wt)**
 - B. Explain possible educational and training requirements. **(wt)**
 - C. Explain possible skills needed for the metals industry. **(wt)**

2. **Explain and demonstrate the safety rules associated with metalworking. (I, II, VI)** (April) **CS, HOTS, LS**
 - A. Follow shop safety and housekeeping rules. **(to)**
 - B. Follow safety rules associated with metal working tools and equipment. **(to)**
 - C. Inspect and recognize maintenance problems with metalworking tools and equipment. **(to, pt)**

3. **Produce a toolbox out of sheet metal. (I, II, III, IV, V, VI)** (April) **CS, HOTS, LS**
 - A. Make a reference chart containing the procedures for building the toolbox. **(ws)**
 - B.** Study and successfully explain the plans for the toolbox. **(to)**
 - C. Complete layout of pieces on sheet metal. **(pt)**
 - D. Cut and form sheet metal pieces. **(pt)**
 - E. Fasten sheet metal pieces. **(pt)**
 - F. Prime and paint tool box. **(pt)**
 - G. Fasten toolbox hardware. **(pt)**
 - H. Reflect and evaluate the process and the toolbox. **(to)**

4. **Produce a cold chisel using the forge. (I, II, III, IV, V, VI)** (April, May) **CS, LS, HOTS**
 - A. Make a reference chart containing the procedures for the hardening process. **(ws)**
 - B. Cut raw stock to proper length. **(pt)**
 - C. Gather and situate materials and tools in logical set-up. **(pt, to)**
 - D. Safely and efficiently ignite and adjust the forge. **(pt, to)**
 - E. Carry out the hardening process. **(to, pt)**
 - F. Reflect and evaluate the process and the chisel. **(to)**

5. **Produce an aluminum project using the foundry. (I, II, III, IV, V, VI)** (May) **CS, LS, HOTS**
 - A. Make a reference chart containing the procedures for the foundry process. **(ws)**
 - B. Select a pattern and create the mold. **(to, pt)**
 - C. Gather and load scrap aluminum into foundry. **(to, pt)**
 - D. Safely and efficiently ignite and adjust the foundry. **(to, pt)**
 - E. Safely and efficiently pour the molten aluminum into the mold. **(to, pt)**
 - F. Safely and efficiently break mold apart and finish product. **(to, pt)**
 - G. Reflect and evaluate the process and the product. **(to)**

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Beginning Metals (Continued)

6. Practice the various processes used to cut metal. (I, II, III, IV, VI) (May) CS, HOTS, LS

- A. Make reference charts for procedures when using the Plasma Cutter and Cutting Torch. (ws)
- B. Safely and efficiently use the Plasma Cutter. (to, pt)
- C. Safely and efficiently use the Cutting Torch. (to, pt)
- D. Reflect and evaluate the processes used to cut metal. (to)

7. Practice the various processes used to join metal. (I, II, III, IV, VI) (May) CS, HOTS, LS

- A. Make reference charts for procedures when using the Arc, Mig, and Oxyacetylene welders. (ws)
- B. Safely and efficiently use the Arc Welder. (to, pt)
- C. Safely and efficiently use the Mig Welder. (to, pt)
- D. Safely and efficiently use the Oxyacetylene Welder. (to, pt)
- E. Reflect and evaluate the processes used to join metal. (to)

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Resources: Welders, Oxyacetylene stations, Plasma cutter, forge, foundry, sheet metal equipment and tools, welding rod, metal, aluminum, 1/2" square stock, spot welder, rivet guns, pop rivets, foundry patterns and forms, sand, welding gloves, welding aprons, safety glasses, welding helmets, tongs, pliers, 5 gallon water bucket, safety handouts, information sheets, evaluation sheets.