Manufacturing Trades 11

At a Glance

NOVA SCOTIA
NOUVELLE-ÉCOSSE

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Manufacturing Trades 11

Prepared by the Department of Education and Early Childhood Development

This is the most recent version of the current curriculum materials as used by teachers in Nova Scotia.

Manufacturing Trades 11

Learners will analyse current and evolving careers, including pathways for diverse groups of people.		
Competencies, Skills, Concepts	**Guiding Questions (IBL)**	**Evidence of Learning (Indicators)**
Competencies ▪ Citizenship (CZ) ▪ Communication (COM) ▪ Personal Career Development (PCD) ▪ Critical Thinking (CT) ▪ Technological Fluency (TF) **Skills** ▪ **Analyse** ▪ Investigate ▪ Compare **Concepts** ▪ Careers ▪ Employment opportunities ▪ Employability skills ▪ Education and career pathways	▪ Why would someone choose to enter the manufacturing trades field? ▪ What potential pathways are available for someone interested in working in the manufacturing trades field? ▪ How do I know what pathway is right to enter the manufacturing trades field? ▪ What is the employment outlook in the manufacturing trades sectors? ▪ What aspects of working in the manufacturing trades field would you find challenging? ▪ What interests and skills do you have to work in the manufacturing trades? ▪ What interests/skills do you want to develop further ? ▪ How is your daily life impacted by the manufacturing trades? ▪ Where do you see the manufacturing trades in your community? ▪ What does it mean to be certified in the manufacturing trades in Nova Scotia? ▪ What are the pathways to certification in Nova Scotia? ▪ What potential barriers exist to a career in manufacturing trades? ▪ What resources can I leverage to support a career in manufacturing trades?	▪ Investigate the roles and responsibilities of various manufacturing trades careers, including entrepreneurial opportunities (COM/PCD/CT/TF) ▪ Compare labour market information including current and future opportunities for employment, trade's needs, and salary scales (COM/PCD/CT/TF) ▪ Analyse the essential skills necessary for a range of manufacturing trades careers (CZ/COM/PCD/CT) ▪ Analyse personal suitability for careers in the manufacturing trades (CZ/COM/PCD/CT) ▪ Compare different types of manufacturing (welding/fabricating, pipe fitting, sheet metal) (COM/PCD/CT/TF)

Learners will evaluate employability skills necessary for manufacturing trades related careers.		
Competencies, Skills, Concepts	**Guiding Questions (IBL)**	**Evidence of Learning (Indicators)**
Competencies ▪ Citizenship (CZ) ▪ Communication (COM) ▪ Personal Career Development (PCD) ▪ Critical Thinking (CT) ▪ Technological Fluency (TF) **Skills** ▪ **Evaluate** ▪ Analyse ▪ Apply **Concepts** ▪ Employability skills ▪ Work records ▪ Technology	▪ What essential skills are necessary for someone to be successful in the manufacturing trades? ▪ What employability skills are crucial for tradespersons? ▪ What types of businesses in Nova Scotia employ manufacturing trades persons? ▪ What types of technology are currently being used by manufacturing businesses in Nova Scotia? ▪ What is the opportunity for entrepreneurship in manufacturing trades? ▪ What businesses in Nova Scotia employ manufacturing tradespersons?	▪ Investigate how technology changes in manufacturing trades (CZ/COM/PCD/CT/TF) ▪ Analyse personal development of employability skills (CZ/COM/PCD/CT) ▪ Investigate businesses of personal interest, including opportunities for entrepreneurship (COM/PCD/CT/TF) ▪ Apply personal management and teamwork skills (CZ/COM/PCD/CT)

Learners will implement applicable workplace health and safety practices and procedures.		
Competencies, Skills, Concepts	**Guiding Questions (IBL)**	**Evidence of Learning (Indicators)**
Competencies ▪ Communication (COM) ▪ Personal Career Development (PCD) ▪ Critical Thinking (CT) ▪ Technological Fluency (TF) **Skills** ▪ **Implement** ▪ Evaluate ▪ Analyse ▪ Investigate **Concepts** ▪ Safety certifications ▪ Jobsite safety ▪ Environmental safety	▪ What PPE is required in a manufacturing trades environment? ▪ Why is it necessary to establish safe operating procedures (SOP) in the workplace? ▪ What precautions are in place to ensure that businesses are following safe operating procedures (SOP)? ▪ What types of safety training exist for manufacturing trades careers? ▪ What are my rights and responsibilities in the workplace? ▪ What do i do if I am aware or see unsafe practices in the workplace? ▪ How do I report unsafe practices? ▪ What are potential consequences of not following safety procedures?	▪ Evaluate safe operating procedures associated with required tools and other equipment (COM/PCD/CT/TF) ▪ Implement safety training that could be expected in a workplace setting (COM/PCD/CT/TF) ▪ Implement the safe use of personal protective equipment, materials, tools and equipment (COM/PCD/CT/TF) ▪ Implement safety testing for individual manufacturing tools and equipment (COM/PCD/CT/TF)

Learners will plan a construction project including the use of manufacturing trades' related documents and drawings.		
Competencies, Skills, Concepts	**Guiding Questions (IBL)**	**Evidence of Learning (Indicators)**
Competencies ▪ Communication (COM) ▪ Personal Career Development (PCD) ▪ Critical Thinking (CT) ▪ Technological Fluency (TF) **Skills** ▪ **Implement** ▪ Investigate ▪ Evaluate **Concepts** ▪ Blueprint drawings and symbols ▪ Scale drawings ▪ Layout and pattern development ▪ Spatial perception	▪ How does design influence the choice of tools and materials in the manufacturing process? ▪ Why are drawings needed to effectively communicate a construction idea? ▪ What different types of drawings may be required to to construct a project? ▪ What symbols are reflective of welding processes? ▪ Why are symbols used in drawings? ▪ What skills for reading a drawing are transferable from manufacturing trades to other trades?	▪ Interpret manufacturing drawings (COM/PCD/CT/TF) ▪ Scale manufacturing-related drawings (COM/PCD/CT/TF) ▪ Apply spatial perception through orthographic and isometric projection (COM/PCD/CT/TF) ▪ Estimate length, area, and volume (COM/PCD/CT/TF) ▪ Implement template development (COM/PCD/CT/TF)

Learners will apply various manufacturing trades related systems of measurements in calculations.		
Competencies, Skills, Concepts	**Guiding Questions (IBL)**	**Evidence of Learning (Indicators)**
Competencies ▪ Communication (COM) ▪ Personal Career Development (PCD) ▪ Critical Thinking (CT) ▪ Technological Fluency (TF) **Skills** ▪ **Apply** ▪ use **Concepts** ▪ Spatial awareness ▪ Estimation ▪ Measuring systems	▪ Why are multiple systems of measurement used in manufacturing trades? ▪ What layout and measurement tools are frequently used in the manufacturing trades sector? ▪ What factors need to be considered when choosing a measuring tool?	▪ Use applicable layout tools for manufacturing trades (COM/PCD/CT/TF) ▪ Use applicable measurement tools for manufacturing trades (PCD/CT/TF) ▪ Apply imperial measurement system (PCD/CT/TF) ▪ Apply metric measurement system (PCD/CT/TF)

Learners will implement the safe use of tools and equipment during the construction process.		
Competencies, Skills, Concepts	**Guiding Questions (IBL)**	**Evidence of Learning (Indicators)**
Competencies ▪ Communication (COM) ▪ Personal Career Development (PCD) ▪ Critical Thinking (CT) ▪ Technological Fluency (TF) **Skills** ▪ **Implement** ▪ compare ▪ select ▪ use **Concepts** ▪ Hazard assessments ▪ Safe operating procedures ▪ Compound gas Procedures ▪ Cold metal forming	▪ What factors need to be considered when determining safe handling procedures for tools/ materials? By-products? ▪ Why might different materials require different steps for handling? ▪ Why might different tools require different steps for handling? ▪ How do you know which processes or procedures to follow?	▪ Compare different types of welding materials, processes, and properties (COM/PCD/CT/TF) ▪ Select the best materials for a job (PCD/CT/TF) ▪ Use applicable tools for the job (PCD/CT/TF) ▪ Implement safe handling of materials and by-products (PCD/CT/TF)

Learners will implement proper procedures to store and maintain tools, equipment, and products.		
Competencies, Skills, Concepts	**Guiding Questions (IBL)**	**Evidence of Learning (Indicators)**
Competencies ▪ Citizenship (CZ) ▪ Communication (COM) ▪ Personal Career Development (PCD) ▪ Creativity and Innovation (CI) ▪ Critical Thinking (CT) ▪ Technological Fluency (TF) **Skills** ▪ **Implement** ▪ Apply **Concepts** ▪ Tool and equipment storage ▪ Tool and equipment maintenance ▪ Sustainability	▪ Why is it important that regular maintenance procedures are in place? ▪ Why is it important to maintain an orderly workplace? ▪ How do lock out/tag out procedures contribute to a safe workplace? ▪ How does proper planning contribute to less material waste? ▪ What factors need to be considered when moving tools? Materials? By-products? ▪ What factors need to be considered in maintaining and repairing tools and equipment?	▪ Implement inspections, repairs and maintenance on equipment and tools where applicable (PCD/CT/TF) ▪ Implement applicable recording, storing and safety procedures (PCD/CT/TF) ▪ Apply lockout, tagout procedures (PCD/CT/TF) ▪ Apply safe, effective, and sustainable procedures when moving, storing, assembling and disassembling materials and by-products (PCD/CT/TF) ▪ Implement sustainable processes to re-enter components into the manufacturing system (CZ/PCD/CT/TF)

Learners will construct a manufacturing trades project.		
Competencies, Skills, Concepts	**Guiding Questions (IBL)**	**Evidence of Learning (Indicators)**
Competencies ▪ Communication (COM) ▪ Personal Career Development (PCD) ▪ Creativity and Innovation (CI) ▪ Critical Thinking (CT) ▪ Technological Fluency (TF) **Skills** ▪ **Construct** ▪ implement ▪ use ▪ plan ▪ apply ▪ evaluate **Concepts** ▪ Quality Control ▪ Finishing techniques ▪ Efficient material use	▪ How do the materials used impact the order of assembly? ▪ Why is material choice an important part of the planning process? ▪ How might the tools and equipment available impact the planning process? ▪ What considerations need to be taken before applying finishes? ▪ What safety practices and procedures are applicable to your construction project? ▪ What criteria will be considered in evaluating your project?	▪ Construct a product to specifications and acceptable standards (PCD/CI/CT/TF) ▪ Implement applicable and safe manufacturing trades processes (PCD/CT/TF) ▪ Use a procedural guide (COM/PCD/CI/CT/TF) ▪ Plan appropriate order of assembly (PCD/CT/TF) ▪ Apply finishing techniques and quality control checks (PCD/CT/TF) ▪ Evaluate the process and final product in relation to the planned design (COM/PCD/CT/TF)