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# CW High School
## Metal Fabrication I

1. **Semi-Precision Measurement  (10.00%)**

**Learning Targets**

1.1  **I can demonstrate how to properly use a dial caliper to accurately measure parts with in a tolerance of +or- .002"**

| Learning Target | Descriptor | Definition |
|:---:|:---:|---|
| 4 | Proficient | I can demonstrate how to properly use a dial caliper to accurately measure parts with in a tolerance of +or- .002" |
| 3 | Developing | I can demonstrate how to properly use a dial caliper to accurately measure parts with in a tolerance of +or- .002" while measuring the outside of a part. Measuring inside features and using the depth rod are still difficult. |
| 2 | Basic | I can accurately read a dial caliper that is set for me, but I still get a little confused when using the instrument to measure. |
| 1 | Minimal | I know that it measures objects to the .001" but I don't know how to use it or read it very well. |
| 0 | No Evidence | No evidence shown. |

1.2  **I can demonstrate how to properly use a micrometer to accurately measure parts within a tolerance of +or- .0005"**

| Learning Target | Descriptor | Definition |
|:---:|:---:|---|
| 4 | Proficient | I can demonstrate how to properly use a micrometer to accurately measure parts within a tolerance of +or- .0005" |
| 3 | Developing | I can demonstrate how to properly use a micrometer to accurately measure parts within a tolerance of +or- .001" (still working on the forth decimal scale.) |
| 2 | Basic | I can read the first three decimals from the board or on paper, but it don't get the fourth decimal scale and/or how to use the micrometer. |
| 1 | Minimal | I know that micrometers are twisted in and out to measure and I know that they come in sets of 1" increments, but I do not understand how to read them. |
| 0 | No Evidence | No evidence shown. |

2. **Turning  (30.00%)**

**Learning Targets**

2.1  **I can identify and demonstrate the proper safety techniques for operating a metal lathe.**

| Learning Target | Descriptor | Definition |
|:---:|:---:|---|
| 4 | Proficient | I can identify and demonstrate the proper safety techniques for operating a metal lathe. |
| 3 | Developing | I can identify and demonstrate most of the proper safety techniques for operating a metal lathe. |

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| Learning Target | Descriptor | Definition |
| --- | --- | --- |
| 2 | Basic | I can identify and demonstrate some of the proper safety techniques for operating a metal lathe. |
| 1 | Minimal | I understand what a lathe is and some of the parts. |
| 0 | No Evidence | No evidence shown. |

**2.2  I can describe the proper turning techniques used on an engine lathe and calculate the proper turning feeds and speeds for given materials and tooling.**

| Learning Target | Descriptor | Definition |
| --- | --- | --- |
| 4 | Proficient | I can describe the proper turning techniques used on an engine lathe and calculate the proper turning feeds and speeds for given materials and tooling. |
| 3 | Developing | I can describe the proper turning techniques used on an engine lathe or I can calculate the proper turning feeds and speeds for given materials and tooling but I can not do both. |
| 2 | Basic | I can describe basic turning techniques, but not facing or angled cuts. |
| 1 | Minimal | I can describe how to set up a part and turn the machine on. |
| 0 | No Evidence | No evidence shown. |

**2.3  I can demonstrate proper turning techniques for roughing and finishing two different diameters separated by a square shoulder, using high speed steel tool bits, while maintaining the tolerances defined on a given print.**

| Learning Target | Descriptor | Definition |
| --- | --- | --- |
| 4 | Proficient | I can demonstrate proper turning techniques for roughing and finishing two different diameters separated by a square shoulder, using high speed steel tool bits, while maintaining the tolerances defined on a given print. |
| 3 | Developing | I can demonstrate proper turning techniques for roughing and finishing two different diameters separated by a square shoulder, using high speed steel tool bits, but the part was not within tolerance. |
| 2 | Basic | I can demonstrate proper turning techniques for roughing and finishing two different diameters , but I have trouble properly turning a square shoulder. |
| 1 | Minimal | I can demonstrate how to load a part into a three jaw chuck and face the the end smooth. |
| 0 | No Evidence | No evidence shown. |

**2.4  I can demonstrate loading a part, calling up a program, and executing a program on a turning centers.**

| Learning Target | Descriptor | Definition |
| --- | --- | --- |
| 4 | Proficient | I can demonstrate loading a part, calling up a program, and executing a program on a turning centers. |

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| Learning Target | Descriptor | Definition |
|---|---|---|
| 3 | Developing | I can demonstrate two of the following: loading a part, calling up a program, and executing a program. |
| 2 | Basic | I can demonstrate one of the following: loading a part, calling up a program, or executing a program. |
| 1 | Minimal | I can turn on the machine, but I get lost when I try to figure out what to do next. |
| 0 | No Evidence | No evidence shown. |

3.  Milling  (30.00%)

**Learning Targets**

3.1  I can identify and demonstrate the proper safety for vertical milling machine operating procedures.

| Learning Target | Descriptor | Definition |
|---|---|---|
| 4 | Proficient | I can identify and demonstrate the proper safety for vertical milling machine operating procedures. |
| 3 | Developing | I can identify and demonstrate most of the proper safety for vertical milling machine operating procedures. |
| 2 | Basic | I can identify and demonstrate some of the proper safety for vertical milling machine operating procedures. |
| 1 | Minimal | I understand what a vertical mill is and I can identify some of the parts. |
| 0 | No Evidence | No evidence shown. |

3.2  I can describe the proper machining techniques used on a manual mill and calculate the proper feeds and speeds for given materials and tooling.

| Learning Target | Descriptor | Definition |
|---|---|---|
| 4 | Proficient | I can describe the proper machining techniques used on a manual mill and calculate the proper feeds and speeds for given materials and tooling. |
| 3 | Developing | I can describe the proper machining techniques and calculate proper feeds and speeds, but I am missing some of the details. |
| 2 | Basic | I can describe the proper machining techniques, but I can not calculate feeds and speeds. |
| 1 | Minimal | I can describe how to make some cuts, but I really don't know the proper techniques. |
| 0 | No Evidence | No evidence shown. |

3.3  I can demonstrate the proper milling techniques used on a vertical milling machine and calculate the proper milling feeds and speeds for given materials and tooling.

| Learning Target | Descriptor | Definition |
|---|---|---|

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| Learning Target | Descriptor | Definition |
|:---:|:---:|---|
| 4 | Proficient | I can demonstrate the proper milling techniques used on a vertical milling machine and calculate the proper milling feeds and speeds for given materials and tooling. |
| 3 | Developing | I can demonstrate the proper milling techniques used on a vertical milling machine or I can calculate the proper milling feeds and speeds for given materials and tooling but I can not do both. |
| 2 | Basic | I can demonstrate how to face mill a part and drill holes, but I don't know the difference types of milling and I don't understand feeds and speeds. |
| 1 | Minimal | I can demonstrate how to put a part into a vise, turn on the machine, and move the table. |
| 0 | No Evidence | No evidence shown. |

**3.4  I can demonstrate loading a part, calling up a program, and executing a program on a CNC milling centers.**

| Learning Target | Descriptor | Definition |
|:---:|:---:|---|
| 4 | Proficient | I can demonstrate loading a part, calling up a program, and executing a program on a CNC milling centers. |
| 3 | Developing | I can demonstrate two of the following: loading a part, calling up a program, and executing a program. |
| 2 | Basic | I can demonstrate one of the following: loading a part, calling up a program, or executing a program. |
| 1 | Minimal | I can turn on the machine, but I get lost when I try to figure out what to do next. |
| 0 | No Evidence | No evidence shown. |

4.  **Welding  (30.00%)**

**Learning Targets**

**4.1  I can identify and demonstrate the proper safety procedures for welding equipment and fabrication equipment.**

| Learning Target | Descriptor | Definition |
|:---:|:---:|---|
| 4 | Proficient | I can identify and demonstrate the proper safety procedures for welding equipment and fabrication equipment. |
| 3 | Developing | I can identify and demonstrate most of the proper safety procedures for welding equipment and fabrication equipment. |
| 2 | Basic | I can identify and demonstrate some of the proper safety procedures for welding equipment and fabrication equipment. |
| 1 | Minimal | I can identify the different welding and fabrication equipment and I know that it can be dangerous, but I can not identify the proper safety procedures. |
| 0 | No Evidence | No evidence shown. |

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**2  I can describe the basic welding processes of GMAW and SMAW systems, and explain how each one uses electricity to create heat.**

| Learning Target | Descriptor | Definition |
|---|---|---|
| 4 | Proficient | I can describe the basic welding processes of GMAW and SMAW systems, and explain how each one uses electricity to create heat. |
| 3 | Developing | I can describe the basic welding processes of GMAW and SMAW systems, or I can explain how each one uses electricity to create heat, but I can not do both. |
| 2 | Basic | I can describe some of the features of GMAW and SMAW systems, and I understand that they both use electricity to create heat, but I am not sure how. |
| 1 | Minimal | I know that GMAW is a wirefeed process and SMAW is a stick electrode process. |
| 0 | No Evidence | No evidence shown. |

**4.3  I can produce consistent welds in the flat position using SMAW equipment.**

| Learning Target | Descriptor | Definition |
|---|---|---|
| 4 | Proficient | I can produce consistent welds in the flat position using SMAW equipment. |
| 3 | Developing | I can produce the welds with some minor discontinuities. |
| 2 | Basic | I can produce the welds, but they are not consistent, and/or contain several discontinuities. |
| 1 | Minimal | I can tack together the parts and make a rough bead, but the weld shows severe lack of fusion. |
| 0 | No Evidence | No evidence shown. |

**4.4  I can produce consistent welds in the flat position using GMAW equipment.**

| Learning Target | Descriptor | Definition |
|---|---|---|
| 4 | Proficient | I can produce consistent welds in the flat position using GMAW equipment. |
| 3 | Developing | I can produce the welds with some minor discontinuities. |
| 2 | Basic | I can produce the welds, but they are not consistent, and/or contain several discontinuities. |
| 1 | Minimal | I can tack together the parts and make a rough bead, but the weld shows severe lack of fusion. |
| 0 | No Evidence | No evidence shown. |

**Submitted on 7/14/2019 by Bob Morehead**