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| Instructional Plan | | **Instructor:** |  |
| **Course:** | Beginning Welding | | |
| **Unit:** | Shop Safety | | |
| **Lesson:** | Lesson 2: Operating Stationary Grinders | | |
| **Estimated Time:** | 80 minutes | | |
| **Standards or Competencies:** | | | |
| PST.02.02. Operate machinery and equipment while observing all safety precautions in AFNR settings.  CRP.01.01. Model personal responsibility in the workplace and community.  CCSS.ELA-LITERACY.SL.9-10.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. | | | |
| **Objectives:** | | | |
| *SWBAT…complete the stationary grinder safety test, according to shop safety guidelines reviewed in class, with 100% accuracy.*  *SWBAT…operate the stationary grinders according to shop safety guidelines reviewed in class with 100% accuracy.*  *SWBAT…evaluate their peer’s usage of stationary grinders using each category in the rubric complete with feedback.*  *SWBAT…reflect on their learning based on self and peer use of the stationary grinders by completing a reflection questionnaire.* | | | |
| **Equipment & Supplies:** | | | |
| Sticky Notes  PPE   * Safety Glasses * Long hair tied back * No loose sleeves * Close Toed Shoes * Coveralls/Overalls * Hearing Protection   Various Sizes of Metal  Vice Grips  Copies of Checklist (1 for each student)  Stationary Grinder Safety PowerPoint  Stationary Grinder Safety Study Guides  Stationary Grinder Safety Tests  Stationary Grinders | | | |
| **References & Resources:** | | | |
| Sample Photos:  <https://www.familyhandyman.com/tools/power-tools/bench-grinder-basics/>  <https://hackaday.com/2013/06/19/using-an-angle-grinder-as-a-bench-grinder/>  <https://healthyhandyman.com/best-bench-grinder-guide/>  Feller, B. Stationary Grinder Safety Study Guide and Test. Meridian High School. 2019. | | | |
| **Situation:** | | | |
| This lesson will be taught in the shop. There are 7 students total. There is 1 student with a 504 that requires extra time/chunking for tasks and additional reminders as needed.  **Student Grouping**: Students will be grouped based on skill sets for stronger peers to support peers who may need additional help or are more comfortable vs. nervous in shop settings. | | | |

| **Language Demands** | |
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| **Identified Language Demands** | **Planned Language Supports** |
| Evaluate (Function) | Teacher demonstration of how to evaluate  Description of checklists used to evaluate |
| *Vocabulary*: stationary equipment, portable equipment, wheel, vice grips | Lecture distinguishing the vocabulary words.  Opportunity to ask questions about the check sheet and vocab |
| Discourse: Students will write out a reflection on the back what they learned from themselves or their peer performance.  Students will share with the class what they learned. | Peer notes on what to improve on or what they did well.  Being able to look back at the checklist they were evaluated with. |

| **Student Voice** | | |
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| **Student** | **Evidence** | **Student Tasks** |
| Learning Targets | Exit Slip—Sticky Note | Students will rate how they graded themselves about achieving the learning objectives on a scale 1-10. |
| Monitoring Learning Progress | Exit Slip | Students will self-reflect about what went well during the class and write down what they need additional support with and what information they believe will help them. |
| Accessing Additional Resources | Notes | Students will have these notes as resources that they have taken of items around the shop to reflect back on as needed. |

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| **Student Preparation (including overview, link, and interest approach): (15 min)** |
| **Link:** Come up to the board and write down everything you know about shop safety to this point! Have 1 volunteer circle everything that they think applies to grinders with another colored white board marker. Ask students to explain their thoughts.  **Interest Approach:** (3) Grinder Photos, have students evaluate the safe/unsafe parts. Justify their reasoning.  **Overview:** Have students read the objectives and then as the teacher elaborate on the objectives.  Ask students what questions they have about what we are doing today, rate themselves on a scale of 1-10 how confident they feel about accomplishing the objectives, given what they currently know. They will write this on a sticky note and come back to it at the end of class. |

| **Learning Activities** | |
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| **Instructor Directions/Methods** | **Content Outline /Key Points** |
| (10 min) Safety Procedures of Stationary Grinders--PowerPoint  \*students should be taking notes as needed\*\* | Stand to the side when starting, do not use nonferrous metals, on small pieces use vice grips, safety glasses, long hair tied back, no gloves, no jewelry/dangling items, grind on the face (not just in one place), utilize tool rest, etc. If operating incorrectly: power off, unplug, and tell instructor. |
| (5min) Stationary Grinder Demonstration of Usage | Properly show how to use the grinder as described during the lecture. |
| (15 min) Pass out the Stationary Grinder Tests  \*if time, grade as a class and go through any misconceptions/misunderstandings. | Students should complete the mandated safety tests as covered by material in the course.  \*students must complete test corrections prior to being allowed to work in the shop. |
| (5min) Explain the checklist to the Students and how they should evaluate their “peers”. | Evaluate: Do they follow PPE? The proper start-up/shut down techniques? Did they use the operating techniques mentioned in the rubric?  Provide 2 goods, and 1 thing to improve on to their peers. |
| (10 min) Assign partners for each student to watch/evaluate  \*remind students to “switch” and be evaluated by their peers\* | Students should evaluate their peers’ proper steps and provide feedback on things done well and thing to improve on.  Safety glasses, hair tied back, gloves or no gloves, Not using vice grips etc. |
| (5 min-10min) Give time for student reflection/application. | Students should reflect individually about the questions given in the application section (below) and determine what they learned from their experiences. |

| **Application** | |
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| **Instructor Directions/Methods** | **Content Outline /Key Points** |
| Give students time for self-reflection of their learning. Students should write on the back of their checklist.  *What feedback did they receive?*  *What did they learn about their performance?*  *What did they learn from their peers’ performance?* | Expected Responses:  --pre check up on machine before operating  --use vice grips if the metal is too small  --make sure the wheel stops spinning before walking away  --if I am unsure of what to do, I should ask instead of just assuming. |

| **Closure/Summary** | |
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| **Instructor Directions/Methods** | **Content Outline /Key Points** |
| Re-evaluate objectives. Have students redo the intro activity they did at the start of class (on same sticky notes).  Once students are finished, discuss:  *How did you rate yourself at the beginning vs. the end? What changed and why?*  Have students turn in their self-reflection and sticky notes as their “exit tickets”. | On a scale of 1-10 how do they feel that they accomplished the objectives? What changed since the start of the lesson? Why?  Expected Responses:  “I wasn’t confident in my abilities, but now I know”  “If I am unsure, it is better to ask for help.”  “I got to see my peer operate it first so I remembered what to do vs. what not to do.” |

| **Evaluation** | |
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| **Formative** | **Summative** |
| **Teacher will evaluate based student use of notes during the stationary grinder test. (Informal)**  *SWBAT…take notes on the stationary grinder safety lecture to use on the stationary grinder safety test.*  **Teacher will evaluate based on the peer evaluations submitted. (Formal)**  *SWBAT…evaluate their peer’s usage of stationary grinders using each category in the rubric complete with feedback.*  **Teacher will evaluate based on student’s self-reflection papers and discussions. (Informal)**  *SWBAT…reflect on their learning based on self and peer use of the stationary grinders by completing a reflection questionnaire.* | **Teacher will evaluate based on student safety test scores and test corrections. (Formal)**  *SWBAT…complete the stationary grinder safety test, according to shop safety guidelines reviewed in class, with 100% accuracy.*  **Teacher will evaluate based on observation in accordance with safety procedures reviewed in class. (Informal)**  *SWBAT…operate the stationary grinders according to shop safety guidelines reviewed in class with 100% accuracy.* |