

HEAVY EQUIPMENT CONSTRUCTION

TRADE LINK: HEAVY EQUIPMENT SERVICE

TEACHER BACKGROUND

Duration: One 45-minute lesson

Grade: Secondary School,
Grades 7-9 trades exploration class.

Group size: Pairs

Setting: Classroom



RATIONALE:

Machines have made the construction of mines, buildings, tilling of farms, harvesting of forests and hauling of materials significantly easier throughout the years. Now, with so much innovation, Heavy equipment mechanics are needed to troubleshoot, adjust, overhaul and maintain equipment in each of those fields. Students will be able to identify machines from each industry and provide general facts about their use and operation.

METHOD:

In this activity, students will be asked to design a manual for someone who is going into the heavy equipment mechanic field. The manual will be designed by gathering information about machines in the construction industry (haul trucks, loaders, back-hoes, bull dozers, etc.). Instructors will provide a base of equipment but will require students to search for and add other machines commonly found in those industries.

MATERIALS:

- Computer with internet access
- Machine brochures
- Books about the industry or equipment

GETTING STARTED:

Heavy equipment mechanics are often responsible for handling multiple forms of heavy-machines from different industries or trades. Being responsible for so much equipment is hard. In this activity, you will research machines in the construction industry, figure out how they work and report common problems with them. This will be compiled in a book that will help a new heavy-duty mechanic do their job more effectively.

ACTIVITY (SKILLS FOR SUCCESS:

Students are given the following details to carry out this assignment:

1. Teacher leads a discussion with the class about what types of machines that they know about and have heard about. Write down common answers (dump truck, bulldozer, excavator, back-hoe, etc.) on a piece of paper. Give insight into what each machine does and discuss its importance to the industry. (Reading, Writing, Communication)
2. Bring students attention to the books and information at the front. Have students read information that will be placed into their book. (Reading)
3. Have students research other machines that they can find from other industries (scoop tram – mining; tractor – farming, etc.) (Digital and/or Reading)

4. Have student write a description or purpose of each machine they find, their useful life, common repairs needed, cost, etc. (Writing)
5. Have students compare a piece of equipment that would have been used between 20 and 40 years ago to equipment used now. Keeping up on new equipment in the industry is an important task that would be used by heavy equipment mechanics. (Reading)
6. Lastly, gives students a hypothetical budget of two million dollars and ask what equipment they would buy to start their own construction business. Discuss why they would buy each item and what that means for repairs and maintenance costs. (Numeracy, Problem Solving)

BRANCHING OUT:

1. Younger students can work towards identifying popular machines and their purpose
2. High school students can work on performing cost-analysis of purchasing equipment vs. leasing equipment as well as troubleshooting annual repairs and costs based on business.

INFORMATION BITE:

In general, heavy equipment mechanics are employed by specialized repair shops and organizations that own or lease heavy equipment used in the construction, mining, forestry, material handling, landscaping, land clearing, agriculture, and transportation industries. Heavy equipment mechanics must interpret work orders and technical manuals, write service reports, keep equipment cleaned, lubricated, and maintained, diagnose faults or malfunctions, adjust equipment and repair or replace defective parts, components, or systems, test repaired equipment for proper performance, and ensure that the work done meets manufacturers' specifications and legislated regulations.

WHAT ABOUT SKILLS FOR SUCCESS

With these kinds of skills worked into the day-to-day activities, reading is a very important essential skill for heavy equipment mechanics to possess.

As technology changes, a successful heavy equipment mechanic is required to review new research and information to be up-to-date on advancements and new trends in the industry. The ability to conduct research and review documents is an important Skill for Success to have mastered.