Computer and Network Orientation
(Mechanical and Architectural CAD)

Description
In this activity, students will learn about the set-up and use of lab computers and a school network. By grade eight, most students have had access to computers. However, with the use of cell phones and tablets, some students may have never actually logged into school computers and accessed their home drive (network drive). They may not understand how to setup directories to organize and store their files.

Lesson Objectives
The student will be able to:
- Log in
- Understand how a network works (server, client computer)
- Gain access to networks with passwords
- Navigate to a home drive, create directories, and save files

Assumptions
The student will:
- Have a username and password to access the school network
- Not know how to log into a network
- Not know what a home drive on a network is (My Documents)
- Not understand the importance of keeping files organized, nor know how to navigate a network

Terminology
Client computer: a single “user” computer that has access to the network and can connect to the server, access files, access the Internet, and print to a networked printer.

Home drive: a location on the server that is reserved for users (students and teachers) to store their files. Typically the only people that have access to the user’s home drive are the user and a network administrator.

Internet: a system of computers (servers) that link millions of computers together to form a global network of computers that can share information if they “talk” in the same language. This language is called the Internet Protocol. Personal devices brought to school can access the Internet through a wireless router, but are typically not on a school network.
Network: a group of computers that are linked together by wire through hubs and switches, or wirelessly through routers. A school network usually contains a main computer called a server, many client computers that users (teachers and students) use, and many different pieces of hardware such as printers, hubs and switches (Figure 1).

Figure 1—Visual representation of a Web studio network

Network administrator: a person who is responsible for maintaining the server. This person will add/delete or give access to users and enable access to software and printers. If you cannot access the network (login) or a specific printer, the network administrator has restricted your access.

Network hub/switch: a device that connects different devices together (desktop computers, printers, server, router, etc.) so they can “talk” to each other and pass information between them.

Router: a device used to connect networks together. In a school, a router usually connects the server, Internet, wi-fi, and client computers together.

Server: a computer in the school that is the “main” computer that manages software, hardware (printers), and user information (files, passwords, etc.) that other computers (clients) can access from different rooms or parts of the building.

Shared drive: a location on the network that the network administrator sets up for users on client computers to access files that can be commonly shared between them. A teacher might put files in a location under their name for students to access instead of printing out handouts, especially if the students will always have access to the network.
Username: a way that the server recognizes who is logging into the network; what access to give them (end user or administrator, etc.); and where to direct that user to their appropriate home drive and shared drives. A username on every network can vary. Some networks use a first name+last name combination (e.g., johndoe), or just a student identification number associated with the school. Your network administrator can tell you this.

User password: a password that the user sets to limit access to files, email, marks, etc., to only them. A password is not meant to be shared. If you think someone may know your password, change it immediately.

Wi-fi: a wireless way (no wires) to access a network or the Internet.

Estimated Time
30–60 minutes

Recommended Number of Students
20, based on BC Technology Educators’ Best Practice Guide

Facilities
Computer lab installed with CAD software (Google SketchUp, AutoCAD, CADopia, etc.)

Tools
Projector with computer and speakers, Internet access

Materials
N/A

Resources
Contact the network administrator for your school or district to make sure your students can access the school network, Internet, and required software.

Another colleague may have a better understanding of how the network is set up; this may be a dedicated person on staff. Ask your school administration or the librarian.

Networking 101
https://www.youtube.com/watch?v=aQVuZKLtBJg

Authenticating on a network
https://www.youtube.com/watch?v=3JzalEkugkI

Networking devices
https://www.youtube.com/watch?v=ulfNIP_NBHO
**Assessment**

Have students show they have logged in and have created a folder under their home drive for the course.

**Teacher-led Activity**

Use a computer with a projector to demonstrate the following information. Have students follow along.

**Note:** Depending on your network and version of Windows or MacOS, the following information may vary. Ask your network administrator or another colleague to show you any of the following you are unable to find.

1. Demonstrate how to turn on the computer and monitor. Computer labs are all set up differently.

   **Note:** You may have to turn on wall switches before students can turn on their computers and monitors.

2. Computers on a network will always boot up to a login screen. At this point you can have students enter their username and password. This may be the first time that students have done this at the school, especially if they are new to the school or your district has upgraded the network.

   **Note:** Ensure you have talked to your computer network administrator before the class begins to ensure all students have been added to the network as users. If students are new, usually the network administrator has given the user a temporary password. You may want a “dummy” account that students can temporarily access to get started if your network administrator will allow you to have one.

   If this is the first time a student is logging in, ensure he/she changes his/her password. Usually the first time a student logs into the network, the network automatically asks the student to change the password.

3. Confirm everyone in the class has logged in. If not, make sure students enter in their correct username and password by doing it yourself. If correct login does not work, check to make sure the network cable is connected to the computer and to the network. Also try having the student login on another computer. If still no success, give the temporary user and password account you had created for you by your network administrator for this reason (take note of users that cannot login and contact your network administrator to have their accounts fixed for the next class).

4. Once the class is all logged in, navigate to the network (Finder in MacOS, Explorer in Windows).
5. Demonstrate how to find a shared drive on the network. If you have created a folder for your course, show students the folder and explain that all handouts will be available in the folder for students to access.

**Note:** You may want to create a folder under the shared drive where you can add files and handouts for students to access. Ask your network administrator to set this folder up so you can add/delete files, **but** make sure students can only open the files and **not** add/delete or modify the files ("read-only").

6. Demonstrate to students how to find their home drive on the network.

**Note:** The contents in the home drive may already include several directories created by the system.

7. Demonstrate how to create folders in the home drive to keep the students’ information organized. Create a folder named “Youth Explore Trades Skills.”

8. Demonstrate how to find a printer on your network. Do not have students print at this time.

9. Demonstrate how to navigate to the software you are going to use with them.

**Note:** Make sure the software you want to use is installed in the lab you are using. If not, contact the network administrator.

10. Demonstrate how to logout. Explain that logging out is very important because leaving yourself logged in allows the next person who uses the computer to access your files, printers, and the Internet.