Home Wiring

By Gregory Mulcair

Out of Class

In Class (Instructor)

In Class (Students)

Begin Here.

Students take a photo of a breaker box, taking note of all the different rooms/areas that are listed therein. They then choose one room/area and pick one electrical device plugged in there, taking a photo of the device and its power rating information.

Students upload their photos into an online collaborative platform, ensuring no other student has posted the same device. If another student has selected the same device, they choose another then repeat.

Individually, students draw a simple circuit diagram for their selected device, calculating the current passing through the circuit when the device is being used. Students upload a photo of their circuit diagram and calculations.

01

02

Instructor assigns students to groups of 3-4 students, based upon the room in which their selected utensil was found.

Students evaluate the circuits posted by each of their teammates, making suggestions for improvement.

As a group, students (a) draw out a circuit for an entire room containing all of their devices and (b) calculate the current used by each device and the total current drawn by the circuit. This is completed directly into the online collaborative platform.

Students check if the total current is above 20 A. If so, they "turn off" (*i.e.*, put a line through) one device and find the new total current. This is repeated until the current is below 20 A.

03

04

Instructor calculates (a) total current and (b) total power consumed by entire home using consumption data posted by each group for all rooms.

As a class, (a) total current used, (b) total power used and (c) the manner in which an electrical meter determines power consumption, are discussed.

05

Individual Work

Work in Groups

Whole Class

Research

Upload

Problem Solving

Discussion

Peer-Review

Bloom's Taxonomy

Remember

Understand

Apply

Analyze

Evaluate

Create