

# INDUSTRIAL SECTOR

## INDUSTRIAL ELECTRICIAN

### 2D / 3D ELECTRICAL INSTALLATION

#### CHALLENGE :

##### Women in Industrial: Meet Stephanie Mclean

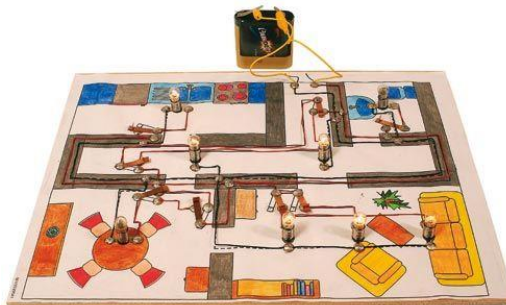


Stephanie is a licensed 309A Electrician. She is super passionate about educating youth, especially young women about the electrical trade. Stephanie has partnered with Toronto Community Benefits Network (TCBN); a nonprofit organization that provides mentorship to individuals wanting help navigating the skilled trades. As well as giving youth and their families awareness about various skill trades.

**What is an Electrician :** An Electrician – Construction & Maintenance plans, assembles, connects, installs, repairs, inspects, tests, verifies, and maintains electrical systems in various settings (i.e. residential, commercial, institutional, industrial). Electrical systems include heating, lighting, power, communication, control, security systems and renewable energy and energy storage systems.



#### CHALLENGE DETAILS



For this challenge students will have the opportunity to learn how a simple circuit works and be able to “wire” a house. Students will have the option to choose between a 2D or 3D model of their house. The aim of this challenge is to introduce students to wiring which electricians do on a regular basis.

**Related Skills Ontario Contests:** Electrical Installations (Secondary / Post Secondary)

## CHALLENGE MATERIALS

- LED Lights \*available on Amazon
- Battery packs \*available on Amazon
- Crocodile clips and Wire \*available
- Cardboard / bristle board
- Markers / Paint / Pencil Crayons
- Scissors
- Tape (either masking tape or scotch tape)

## CHALLENGE GUIDELINES

1. Students must create a design plan for their electrical installation. If students are creating a 2D design, the design plan should be designed like a blueprint and include measurements, room locations, walls, door locations, etc. If students are creating a 3D design, their design plan must include measurements (height/width), where the door and windows will be located, and where the lights will be located. Students must also include the materials they will use, and their name.
2. Before students create their 2D or 3D design, they must create a simple circuit, using as many lightbulbs as they wish to light up their house. To create a simple circuit students can use the following resource: <https://www.science-sparks.com/terrific-scientific-circuits-for-key-stage-2/>
3. Students must take a picture of their simple circuit before installing it into their 2D or 3D design.
4. Once students have created their simple circuit, they can build their 2D or 3D designs, making sure their structure matches their design plan.
5. Once completed, students must display their 2D or 3D builds and take a picture of their finished products.

In addition to completing the challenge, students must complete all other requirements to be eligible for a chance to win a prize! Teacher’s are permitted to submit and upload student submissions.

## RESEARCH GUIDELINES

Students are required to complete a research component for this challenge. Students must:

- Pick a skilled trade career of choice in the construction / industrial / service / motive power sector
- Provide a description of what that career is (3 – 5 sentences)
- Identify the average salary
- Identify tech classes that studnets can take to help prepare for that skilled trade career
- Identify college programs offered for that skilled trade career
- Identify why that skilled trade is important (i.e. is it in demand?)

**\*\*BONUS:** Students have the opportunity to receive bonus points if they can:

- Identify a famous tradeswomen, who they are, and what they did/do (either a pioneer in the industry or current); OR
- Identify an invention created by a women in that industry, what it is, what it does and how it made a difference to every day life (i.e. creating a receipe book)

## SCORING/JUDGING

**There are AMAZING prizes to be won and EACH CHALLENGE has first, second, and third place prizes! See website for more details!**

Submissions will be marked based on the following criteria:

| Judging Criteria  | Points    |
|---|-----------|
| <p>Design:</p> <p>Were student's names included? [individual or team of two (2)]</p> <p>Was a design provided?</p> <p>Was the design neat and easy to follow?</p> <p>Was the design creative?</p> <p>Did the design include dimensions?</p> <p>Were all materials used listed?</p> <p>Do the lightbulbs light up?</p> <p>Are there more than one lightbulbs used?</p> | 10 points |
| <p>Build:</p> <p>Did the final project match the design?</p> <p>Was the project neatly constructed?</p> <p>Was the project decorated?</p>   | 10 points |

|  |           |
|--|-----------|
| Decorations:   | 5 points  |
| Was the outlined theme followed?<br>Was there a variety of decorations used?<br>Were the decorations appropriate?  |           |
| Research:  | 10 points |
| Was a skilled trade career listed?<br>Was there a description of the skilled trade provided?<br>Was an average salary noted?<br>Was there a local college noted?<br>Was there a list of tech classes noted?<br><br>BONUS: Was there a famous tradeswomen identified? |           |
| Photo:   | 5 points  |
| Was the entire project clearly shown in the picture?   |           |

**Challenge Total Marks: / 40 points**

## How to Submit

To submit your project, go to <https://www.skillsontario.com/idg> click the button called “Submit Your Project”. You will be brought to a website where you must fill out all required information and upload your projects. Teachers can submit on behalf of their students.

Submissions can be a photo of the completed project, with student’s name (First name, and first letter of last initial).

Skills Ontario will directly email the winners using the email address provided with the submissions. A complete listing of the winners will be made available at <https://www.skillsontario.com/idg> on November 3, 2023.