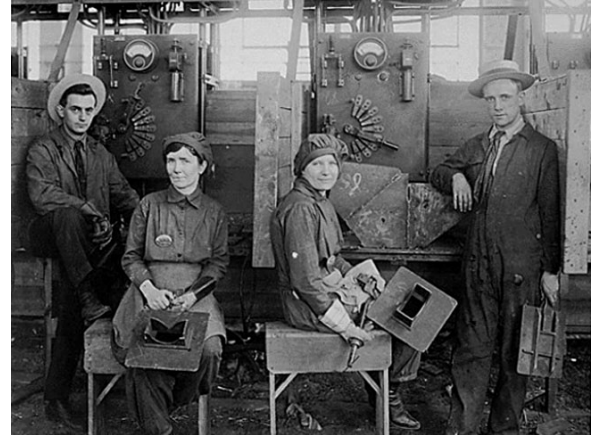


INDUSTRIAL SECTOR - METAL FABRICATION - CARDBOARD TUBE STRUCTURES

CHALLENGE

Women Pioneers in Industrial: Meet Sarah A. Erwin

During the Second World War, hundreds of thousands of women answered the call and took over essential jobs in Canadian and US industries to produce desperately needed war material. Prior to “Rosie the Riveter” era of WWII, there was Sarah A. Erwin. She applied for a job at the Hog Island shipyard, where she was placed in the electrical welding department. She did such an amazing job that 30 more women were hired on to work in the same department.



What is Metal Fabrication?

Metal fabrication is creating structures by the joining, shaping and assembling of metal together. When doing metal fabrication, the most common way of joining is by welding. Welding is the most economical and efficient way to join metals permanently: it is the only way of joining two or more pieces of metal to make them act as a single piece.

Your challenge is to design and construct (or fabricate) a cardboard tube structure using toilet paper (or paper towel rolls). You are to glue (or weld) your pieces onto the back of a 12 inch by 12 inch piece of cardboard creating a unique and creative design.

Related Skills Ontario Contests: Welding, Metal Fabricator - Fitter

Relevant Skills: Planning and design, creativity, attention to detail, organization

[Click here for a full list of all recognized Ontario skilled trades](#)

CHALLENGE MATERIALS

- Toilet paper /paper towel rolls (alternative option: thinly cut strips of cardstock)
- Scissors
- Hot glue gun (have a parent/guardian assist you) or white glue
- Cardboard backing (12in x 12in)
- Paint or spray paint

RULES

1. You must create your design on paper first. The more detailed the plan, the better.
2. The main structure must be composed only of either toilet paper / paper towel rolls or an alternative could be used (see note above).
3. Glue your pieces onto a cardboard backing that measures 12 inches by 12 inches.
4. Paint and decorate your sculpture to make it look like it is metal.
5. **You will need to highlight what empowers you or how you empower others. See full submission details below.**



*This activity is based on the following instructional guide:

https://docs.google.com/presentation/d/1RnFvL40oGn874lb0vGdpWeclvZjr15ij97MMG94LUKQ/edit#slide=id.gb41a6ff654_0_5

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 in the following:

Structure	Points
Structure is completed but not decorated.	0 - 5 points
Structure is completed and neatly put together. Structure has some decorations added.	6 - 10 points
Structure is completed and neatly put together. Structure has some decorations added and some metallic features.	11 - 15 points
Structure is completed and very neatly put together. Structure has decorations added and looks metallic.	16 - 20 points
Total Marks (Total out of 20)	

****REMEMBER, You will need to highlight what empowers you or how you empower others!****

Design Plans	Points
No Plan was provided.	0 - 5 points
A basic design was provided. Features on the structure did not match design.	6 - 10 points
A creative design was provided. Some features on the structure match the design.	11 - 15 points
A creative and intricate design was provided. All features on the structure matched the design.	16 - 20 points
Total Marks (Total out of 20)	

Challenger Total Marks: / 40 points

Submission

Submissions could be videos and/or pictures of your project. **You will need to highlight what empowers you or how you empower others!** This can be done in either voice recordings within a video, or through a written document that is photographed with your project.

Submissions are to be posted on Twitter between September 21st – October 11th. Tag **@skillsontario** and **@SkillsYWI** and use the hashtag **#SkillsIDG2022**. If you do not have Twitter, or are uncomfortable posting, please email your submission to lchester@skillsontario.com.

Skills Ontario will directly message winners on Twitter to let them know they won. If you choose to email your submission, we will reach you through the address you contacted us with. Winners will be publicly announced on **October 21st** on Twitter.