



Onshape Challenge

Due Date:

Tuesday, February 22, 2022

Welcome to the Onshape Challenge

For this Challenge, students will use a cloud-based online software package called Onshape to build some 3D models. Students can access Onshape using PCs, Macs or Chromebooks.

Onshape was selected because it is very easy to learn. Students that learn to use Onshape will have professional grade CAD capabilities to list on their resume as they move into careers. Onshape has applications in many industries including cabinet making, augmented reality, medical device creation to video game creation.

Using this software to create models will allow you to turn your models into .STL files which can then be 3D printed. We will use this same program for the Robot Powered Water Conservation Device Challenge, which will have a 3D printing segment. This software will also be part of the Zero Emission Vehicle Challenge.

Challenge Requirements

- Sign up for the free Student Plan of Onshape
- Practice using Onshape the tutorial videos
 - Students will submit their best tutorial design to Metropolitan for evaluation
 - Teams will earn the points for from the submission that earned the highest number of points
- Onshape Final Model Options~ Choose **one** of the options listed in that section
- Submit work to Julie Miller Kalbacher at jamiller@mwdh2o.com. See details on what to submit in Work Submission section

Document It ~ Extra Credit

Use video or photos to document your work. Get creative. Examples include a time-lapse video of you conducting the challenge, a selfie with the finished product, or a self-narrated video about your work. Metropolitan may post selected submissions on our social media accounts to promote Solar Cup and the work students are doing. Be sure to avoid profanity and inappropriate or copyrighted images or music. For a required media release, and upload instructions contact Julie Miller Kalbacher at jamiller@mwdh2o.com. You also may post your videos and photos on your own social media account, or your school's account. Be sure to tag Metropolitan at @mwdh2o and use the hashtag #SolarCup. Students that turn in a signed media release and upload their finished product to their school folder can earn up to 100 extra points. The more creative your idea, the more points you will earn.

Scoring

- Students will **earn up to 25 points** for the submitting a screenshot of their best model created using the tutorial videos
- Students will **earn up to 200 points** for submitting a screenshot and short explanation of their final model
 - Each model should include dimensions
 - Be sure to include your name and your school name on your files that you send to Julie
 - Final models will be awarded points for:
 - **50 points for creativity**
 - **50 points for narrative explaining model**
 - **25 points for clarity of drawing**
 - **25 points for how well their model met the theme they chose**
 - **50 points for the originality of their design**

Part One ~ Onshape Sign up

- Set up a free account on Onshape.com
- Along the top of the screen, click on "Request a Trial"
- On the top of the form, click on "Get a Free Student Plan" to set up your free account
- You are now ready to begin learning to make 3D models

Part Two ~ Onshape Tutorials

- Use this link to find a series of tutorials on how to use Onshape: [Beginner Tutorial 1/5 – Onshape 3D CAD – Creating Sketches and Objects – YouTube](#)
- Complete as many of the tutorials as you feel that you need to be able to design your 3D model
 - Try the examples in the tutorials to get the hang of how to use the software before making your model.

- Start simple, don't make your initial models too intricate. You can always design more elaborate models if time permits.
- First make it work, then make it pretty.
- Submit your best tutorial model for evaluation

Part Three ~ Final Model Options

- **Option One**
 - Students can choose to create a model of a vehicle that will be used in the future, say 2050
 - The vehicle will be used to haul materials or merchandise
 - The vehicle will be used to move people from one place to another
 - Include a short narrative explaining the model vehicle you created and why you selected this option
- **Option Two**
 - Students can choose to create a model of an invention that would help them as high school students
 - The invention would help them with their academics
 - The invention would help them complete a chore they have at home
 - Include a short narrative explaining how your invention works and why you selected this option

Part Four ~ Work Submission

- Submit work for evaluation to Julie Miller Kalbacher
 - Include your screenshot of your tutorial model
 - Include screenshot of your model from Option 1 or Option 2
 - Include your short narrative
 - Email the files to Julie Miller Kalbacher at jamiller@mwdh2o.com
 - Make sure to include your name and your school name