

20th Anniversary

Solar Cup
2022

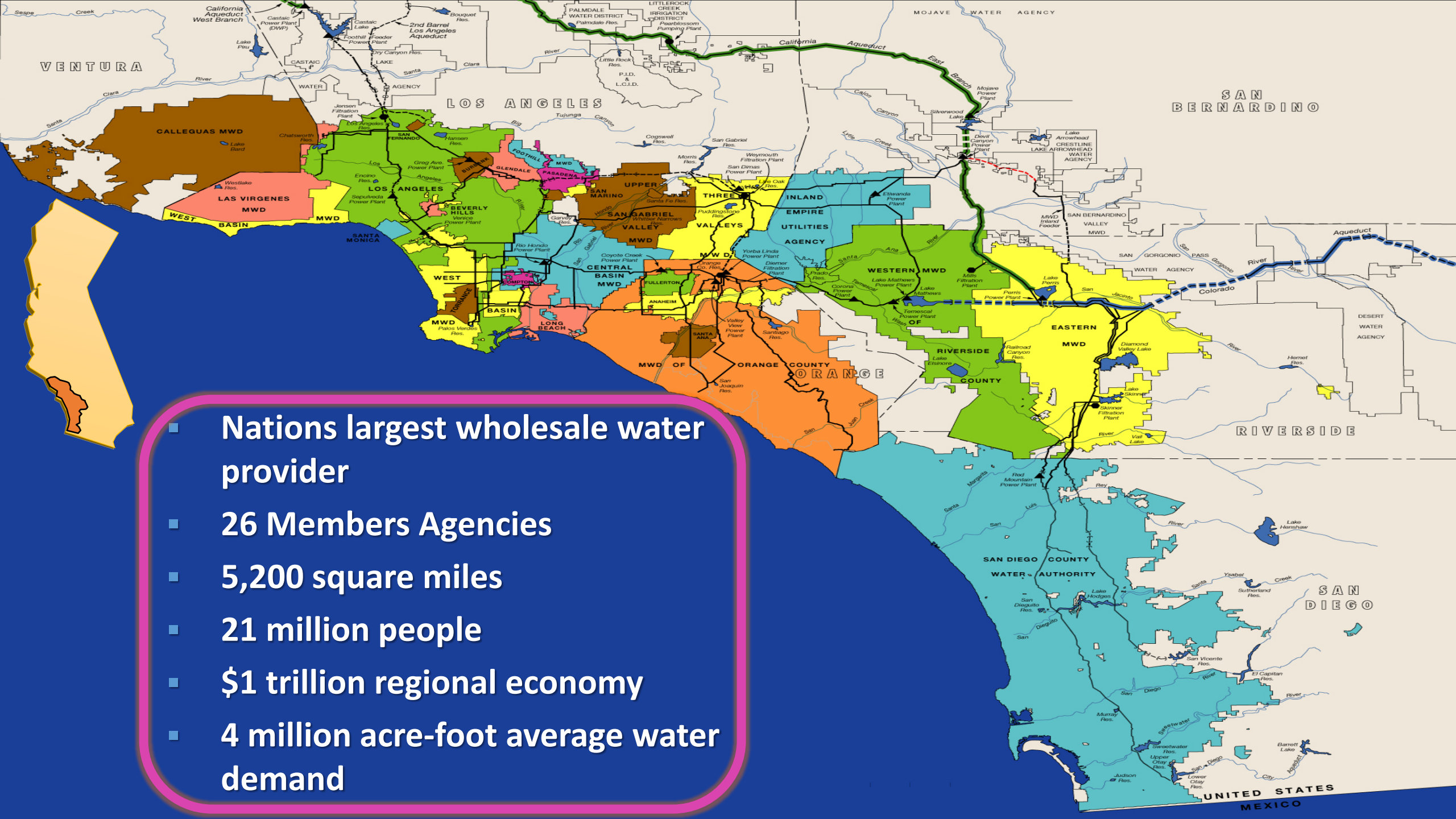
CUPTM 2022



Solar Cup Project Team

- Julie Miller Kalbacher ~ Solar Cup Coordinator
 - Metropolitan Water District
- Joseph Chavez
 - Metropolitan Water District
- Royetta Perry
 - Metropolitan Water District
- Yvette Martinez
 - Metropolitan Water District
- Chuck Oravec ~ Technical Support
 - Occidental College
- Tyler Valdes
 - SEI





- Nations largest wholesale water provider
- 26 Members Agencies
- 5,200 square miles
- 21 million people
- \$1 trillion regional economy
- 4 million acre-foot average water demand

Solar Cup 2022 Overview

Theme

One Earth
One Water
All Our Responsibility

Kit Challenges

- Robotic Powered Water Conservation Device
- Electronics
- Solar Panel
- Zero Emission Vehicle

Non-Kit Challenges

- Onshape
- Public Outreach Project
- Career Webinar

Teacher Workshop

- Sustainable Business Teacher Training

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Solar Cup 2022

Tech Challenges Introduction





Four Technical Challenges

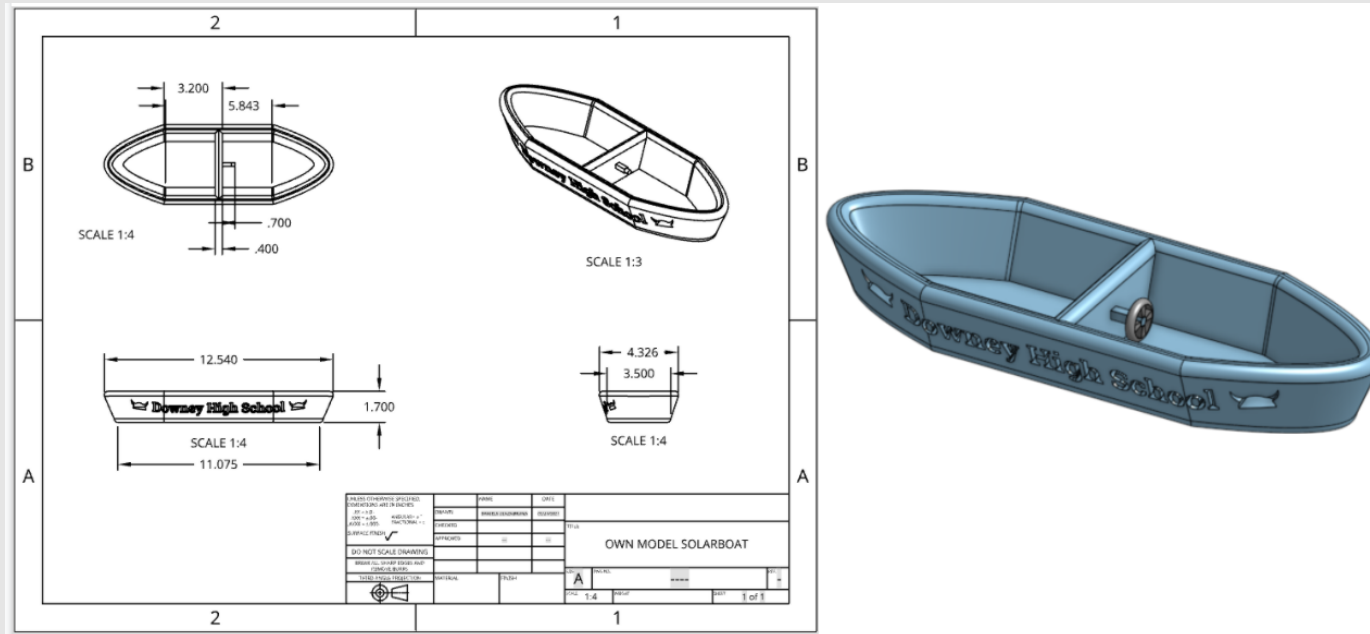
Onshape – 3D Model Building

Robot Powered Water Conservation Device – Designing and programming

Basics of Electronics – Unpacking kit, learning how things work

Solar Panel – Powering a motor and building circuits

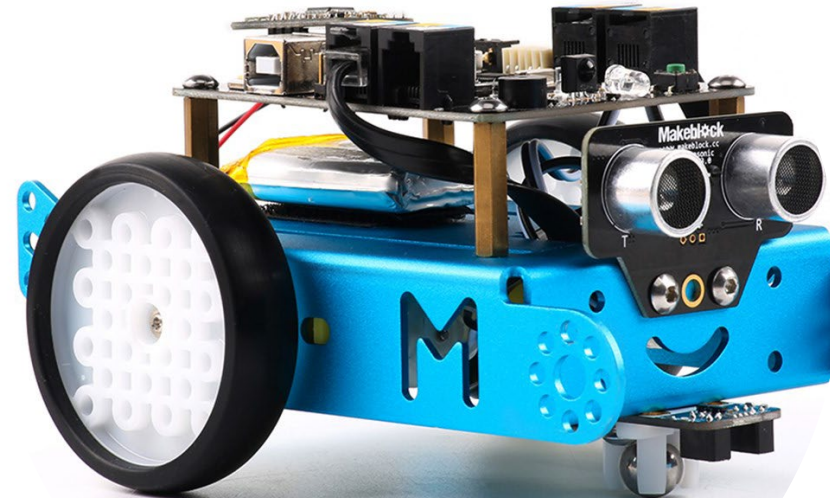
Challenge 1: Onshape



- Onshape is an industry standard 3D CAD program
- Browser based
 - Runs on PC's and Mac's
 - Runs on a Chromebook
- Will use Onshape in two other Challenges
 - Zero Emission Vehicle challenge
 - Robot Powered Water Conservation Device Challenge
- Career Building skills
- Teams can submit more than one response to this Challenge

Robot Powered Water Conservation Challenge

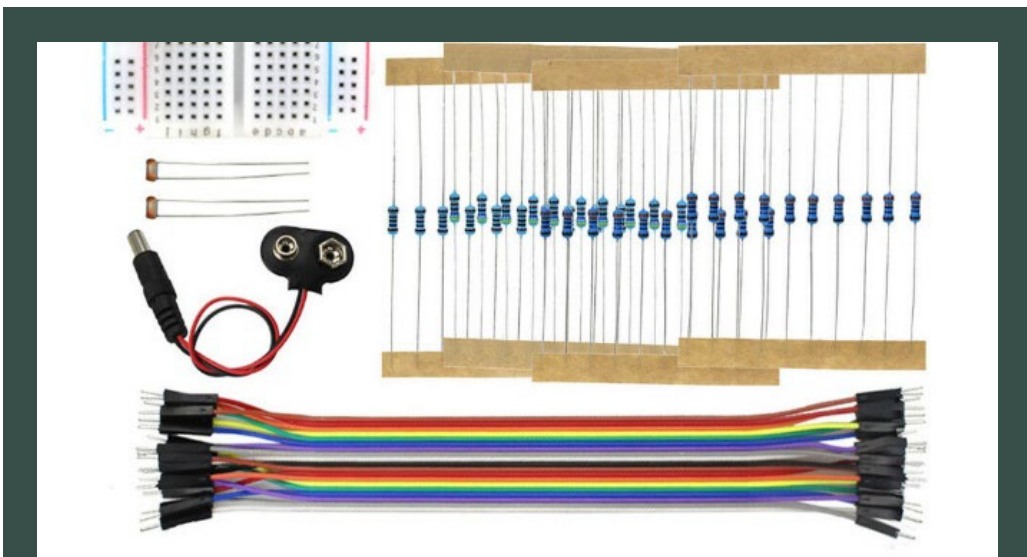
- Brainstorm and design a water saving device that can be powered by a robot
 - Design something that will make it easier for people to save water
 - 3D print the device – Oxy can print the device
 - Attach it to your robot
- Create presentation that explains your devices and incorporates a video of robot
- Teams will submit one response to this Challenge





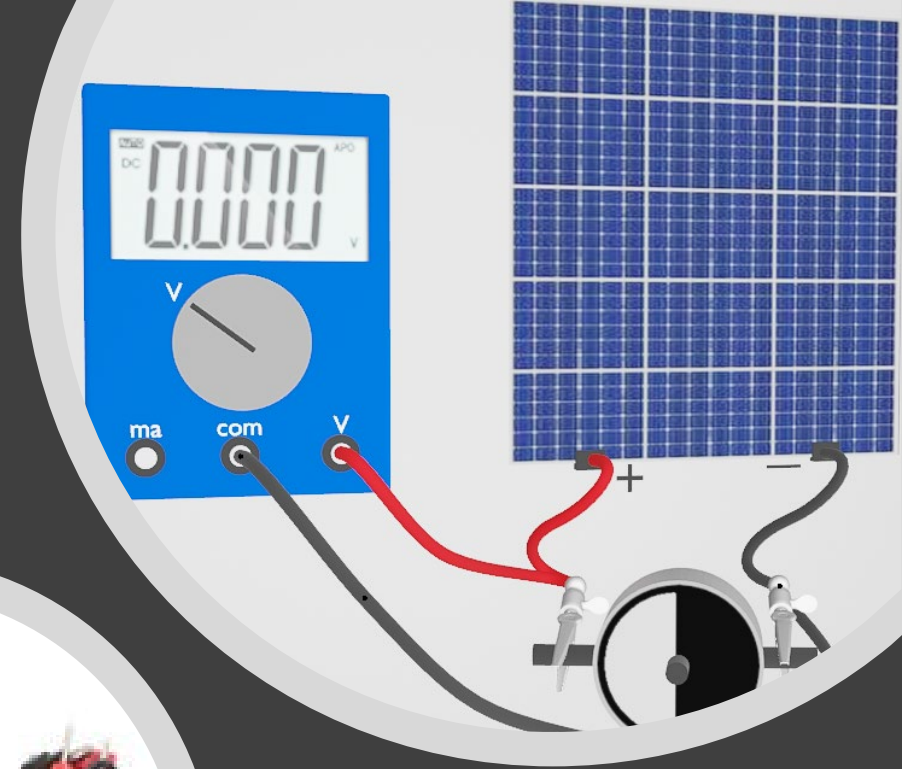
Basics of Electronics Challenge

- Teachers sign up for Kits
- Teams can submit more than one response for this Challenge
- This Challenge will cover:
 - Basic principles of electronics
 - How to use electronics tools
 - Create three different circuits



Solar Panel Challenge

- Teachers will sign up for kits
- Teams can enter more than one response
- Build and measure two solar panel circuits to power a motor
- Reuse one of the solar panels for your zero emission vehicle



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Other Challenges Introduction



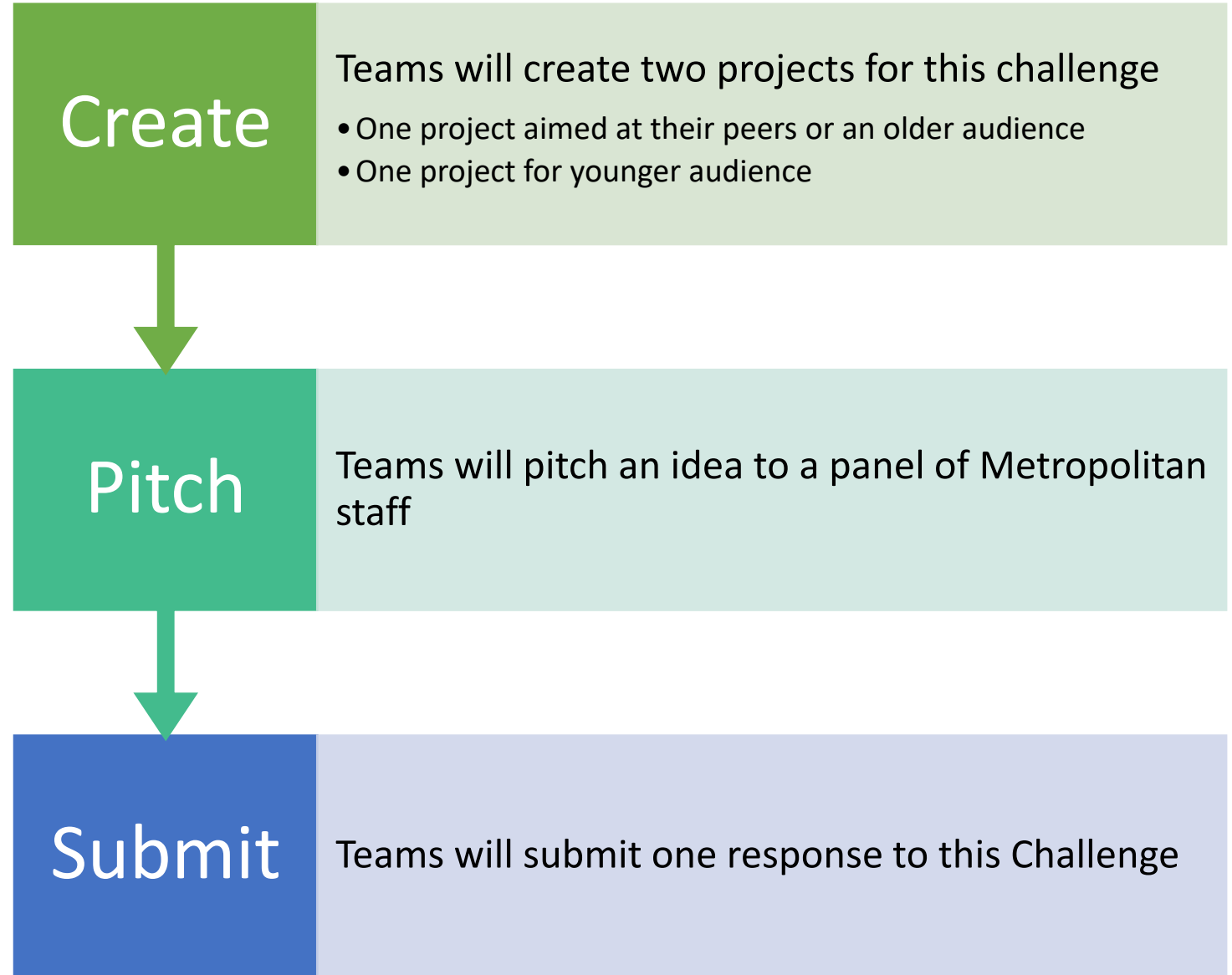


[Water and Energy Green Career Webinar](#)

Green Careers Webinar / Challenge

- **SEI: Building Leaders for a Resilient World is partnering with So Cal Edison on creating content for Solar Cup 2022**
- **Will host a webinar discussion with a panel of water and energy professionals**
- **Students will learn resume and interview prep skills**
- **Schools can submit more than one response to this Challenge**

Public Outreach Project Challenge





Zero Emission Vehicle Challenge

- Teams will design a Zero Emission Vehicle from a kit
- The vehicle will earn points for the load their vehicle can haul
- The vehicle will earn points for how fast they can travel.
- Teams can submit one response to this Challenge

Sustainable Enterprise Teacher Training

[Sustainable Enterprise Teacher Training](#)

The Three Spheres of Sustainability

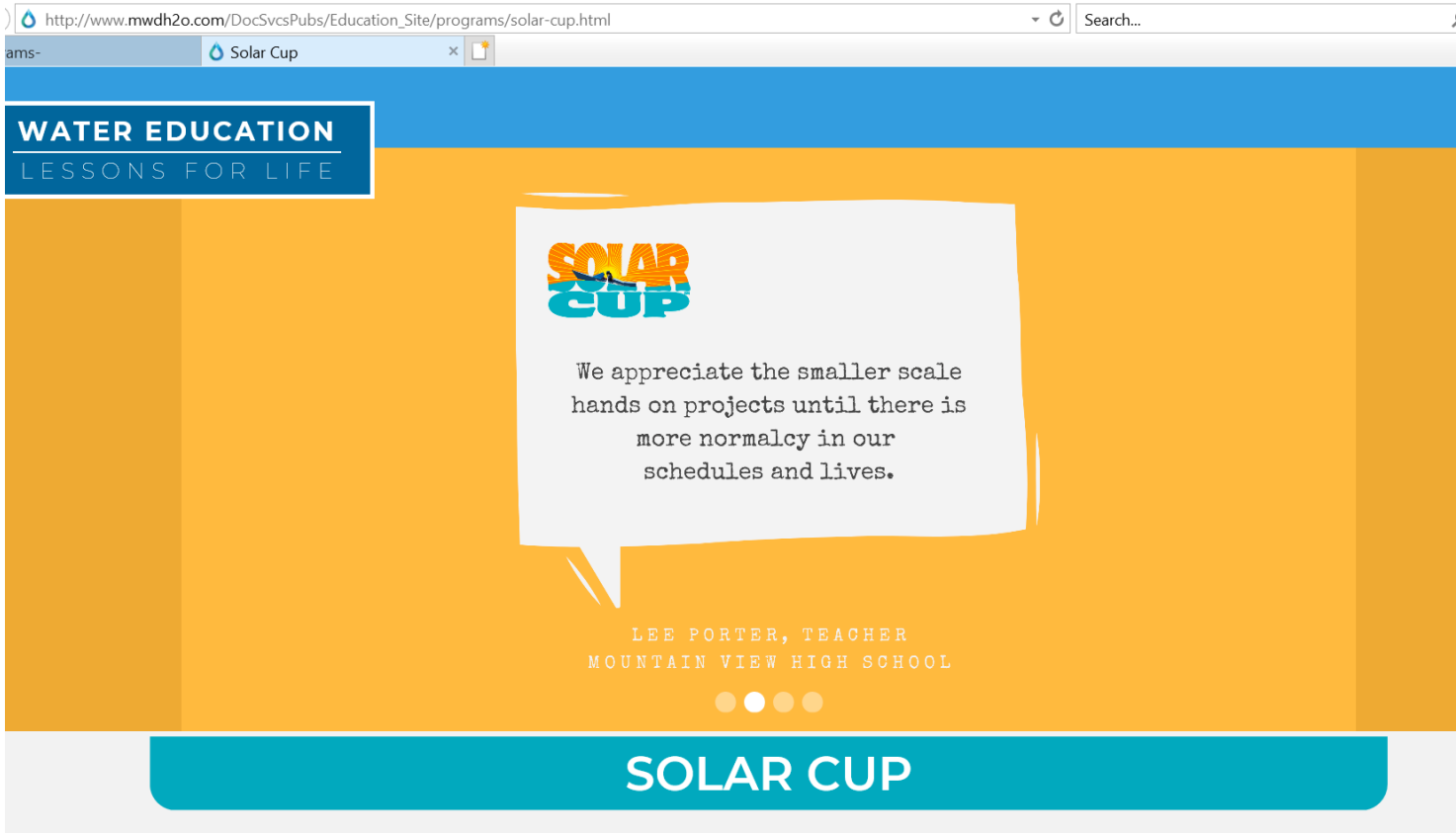


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Program Details





MWD Solar Cup Webpage

- **Challenges will be posted** on the MWD Solar Cup webpage

www.mwdh2o.com/solarcup

- **New Challenges:** Teachers will be notified via email
- **Deadlines:** Challenges will have due date listed on them
 - Fine line between procrastination and life interfering with deadlines
 - Contact Julie with deadline concerns

Solar Cup Scoring


Each Challenge will have points attached to various activities

- We will evaluate all the work turned in
- Award team the highest points earned from their students

We will have some items that are extra points

- “Document It” section of each Challenge is optional
- These will be evaluated and kept separate from overall scores
- Students will be able to earn awards for these categories

Teams will earn awards for the work they do in their division



Solar Cup 2022 Celebration

MWD will host a virtual celebration recognizing student achievements

Will select a date and time that works for most

Awards will be distributed based on scores teams earned on Challenges

