

SALT LAKE COUNTY STORMWATER COALITION

# WATER SCIENCE & ENGINEERING COMPETITION (WSEC)

[STORMWATERCOALITION.ORG/WSEC](http://STORMWATERCOALITION.ORG/WSEC)



SALT LAKE COUNTY  
STORMWATER COALITION  
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DOWNSTREAM**  
[WWW.STORMWATERCOALITION.ORG](http://WWW.STORMWATERCOALITION.ORG)

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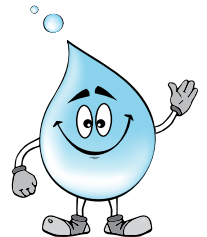
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## **WE NEED WATER FIXES!**

**Without water we would die, so we know that water is very important! But here's the thing—water related environmental challenges are becoming more common.**

**These challenges all have negative impacts on humanity and the earth so we need to put our heads together to create solutions to these water related challenges. We are asking the next generation of scientists and engineers to generate creative solutions to a particular water related challenge. The Salt Lake County Stormwater Coalition is hosting the Water Science & Engineering Competition (WSEC) to engage 6, 7 and 8<sup>th</sup> grade students with these challenges in a competition for solutions. To compete, you will need to adopt the methods of scientists and engineers, investigating interactions among systems and organisms to evaluate and design solutions to preserve human and environmental health, biodiversity, and ecosystems.**



## YOUR CHANCE TO MAKE A DIFFERENCE

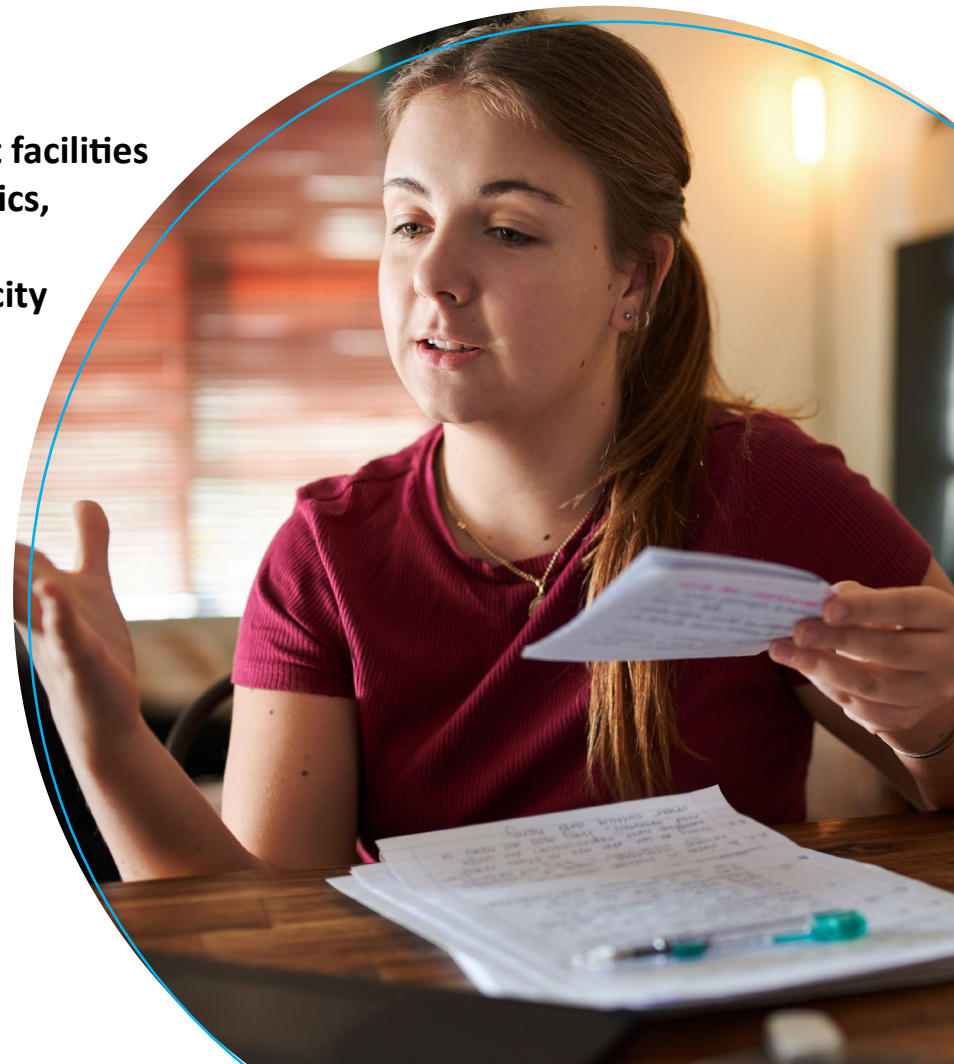
The Water Science and Engineering Competition is aimed at solving environmental challenges with a link to water, which we know is vital for our future! Here's how:

### 1. Identify a challenge. Some challenges we have identified as possibilities include:

- Climate change impact on water availability and quality
- Extreme weather events like flooding and droughts
- Impaired/polluted waterways
- Widespread eutrophication
- Lack of access to clean drinking water, washing and toilet facilities
- Nonpoint source or polluted runoff, including trash/plastics, pet waste, yard debris
- Rising water demand against a backdrop of growing scarcity
- Impact of Textiles
- Water use efficiency relating to farming and/or industry

### 2. Choose one of the three WSEC Competition Categories:

1. Big Idea- Present a detailed persuasive narrative. Tell about your plan to address your selected challenge
2. Prototype- Design, build, and demonstrate a model of your solution to your water related challenge
3. Experiment- Present your results for at least 2 attempts to mitigate your selected challenge





Some information about projects for each of the WSEC Competition Categories can be found on page 11

3. Next, undertake some research and/or experimentation, observation, writing, designing, drawing, building and/or other format for showing or explaining the challenge and your solution. To enter the competition, you'll upload a video with a maximum time limit of just 6 minutes. You will want to start thinking about budgeting your presentation time. Perhaps, 1 or 2 minutes at most, focusing on the problem and maybe 3-5 minutes talking about your proposed solution.

4. Imagine the work ahead of you. Imagine each of the steps that it will take to put your project together. Next, look at a calendar and make a list of those steps that you will need to schedule. (It's easiest to do this on a paper calendar). Start at the project entry due date of May 7th, and work backward to where you are now—which is, just deciding to do a project. Set a benchmark date for each step along the way, to keep yourself on track. (Hint: If you imagine your project is due 1 or even 2 weeks before the actual due date, you will still be ready to enter on time, even if you fall behind for any reason. (See also- Dates for Your Calendar on page 13)





5. **Locate a camera phone (if you don't have one) and start making practice films. Video of "failed" experiments or things that didn't work out may be important to include in your final entry. Your finished entry must be no longer than 6 minutes. (Hint: check to see how large a file 1 minute of video works out to be using whatever recorder, format, resolution, and other settings you may have available. Remember the finished video file may be up to 1 GB in size.)**
6. **Talk to at least one adult, teacher, parent or guardian, about your idea and your desire to enter the competition. You will need the permission of a parent or guardian to enter. We will reach out to the contact information you provide on the official entry form, in the event that you win.**
7. **Pull your thoughts and supplies together, and begin your work.**





## **FINDING SUPPORT**

### **ONLINE**

**Check out the Stormwater Coalition WSEC Webpage to learn more about project ideas, how to get started, and how to fill out the required WSEC Entry Form to completion.**

**[stormwatercoalition.org/wsec](http://stormwatercoalition.org/wsec)**

### **Afterschool Programs**

With such a lot to learn during the school day, you might be left with unanswered water questions. One way to find out more is to join an afterschool group or club where you can do some further research and have the opportunity to talk about your thoughts with other like minded students.

### **Family and Friends**

Talk to those to whom you are closest. They can be a great help to you for how to balance your time and fit the competition into your routine. Working on your project regularly is a good way to develop self-discipline, make steady progress, and avoid a last minute rush that might tempt you to give up.

Telling those you are close to about your project will help keep you motivated. You can enlist them as thought partners as you work through roadblocks. They might ask how your project is coming along, which could be potentially annoying—but also very helpful!

### **Additional Resources Print and Online**

There are lots of useful printed and online resources to help you develop your knowledge and skills. You could check out YouTube videos that explain or simplify the challenge you have decided to address. You could check to see if anyone else has thought of a solution similar to yours and if so, consider what makes your solution unique or better than any previously posted.

Remember, we want to see your new and creative ideas and work shining through.





## JOIN THE COMPETITION

For the official WSEC entry form, visit: [stormwatercoalition.org/wsec](https://stormwatercoalition.org/wsec)

Everything you need to submit is linked to the form. **NOTE: YOU MUST COMPLETE ALL ITEMS IN THE FORM!**

Video entries up to 1GB in size will be accepted through May 7, 2024. **\*No late entries will be accepted.**

Winners will be announced on the Stormwater Coalition Facebook page on May 9, 2024 at 2:00 P.M.

1<sup>st</sup> prize in each of the 3 Categories is a \$100 Amazon Gift Card.

The Grand Prize is a \$100 Amazon Gift Card and Stormwater Coalition Prize Package. One gift card per entry (team entries will split prize). All judges' decisions are final.



## **YOU ARE ELIGIBLE IF:**

- You are in 6, 7, or 8<sup>th</sup> grade during this school year
- You live in Salt Lake County
- You attend public, private, parochial or home school

## **YOU SHOULD DEFINITELY TAKE PART!**

Participating in this competition will help you improve many skills you need for your future life:

- Self-motivation and time management
- Ability to identify and understand local, national and global issues
- Ability to carry out independent research
- Formal, narrative, persuasive writing and report design
- Oral presentation skills

**Note:** Mentioning that you entered this competition would be a great addition to applications for colleges, apprenticeships, or on job applications.





## IDEAS/EXAMPLES OF WSEC COMPETITION CATEGORY POSSIBLE ENTRIES

If you're wondering about the competition categories, here are some examples of possible projects for each category. You are welcome to use one of these, but in no way are these meant to serve as the only possible projects for submission.

**1: Big Idea- Present a detailed persuasive narrative. Tell about your plan to address your selected challenge**

- a. Have you ever seen a TED Talk? Imagine you are giving a 3-6 minute talk, describing a great idea you have to solve a major water challenge. <https://speakupforsuccess.com/create-a-ted-talk/> This site teaches you steps for making a great Ted Talk. Also, go to Ted.com (search thoughtful ways to conserve water, then select Lana Mazareh to see an excellent Ted Talk!
- b. You have just come up with an idea that can save thousands or even millions of lives by conserving—or filtering—or desalinating water. Imagine you have been invited to present your idea to Governor Cox or President Biden.
- c. Consider your video entry as a TV commercial or public service announcement (PSA) that tells people about the environmental water challenge you are passionate about and your idea to address or solve that challenge.

**2: Prototype- Design, build, and demonstrate a model of your solution to your water related challenge**

- a. Use paper, pipe cleaners, popsicle sticks, and other art supplies to make a tiny model of the invention you have thought of to address your chosen water challenge.
- b. Using recycled materials, build a small model that helps people to see how your solution will work. Explain what the recycled materials you've chosen would represent. (i.e. shredded paper could be a garden bed or lawn, while a Styrofoam tray could represent a parking lot. Coffee grounds could depict soil.)
- c. Use a poster-board to draw your invention to address water challenges. Use the poster as a visual aid as you talk about the invention on your video.
- d. You have a great idea and you've built a small model for a product that will solve a major water issue. Now

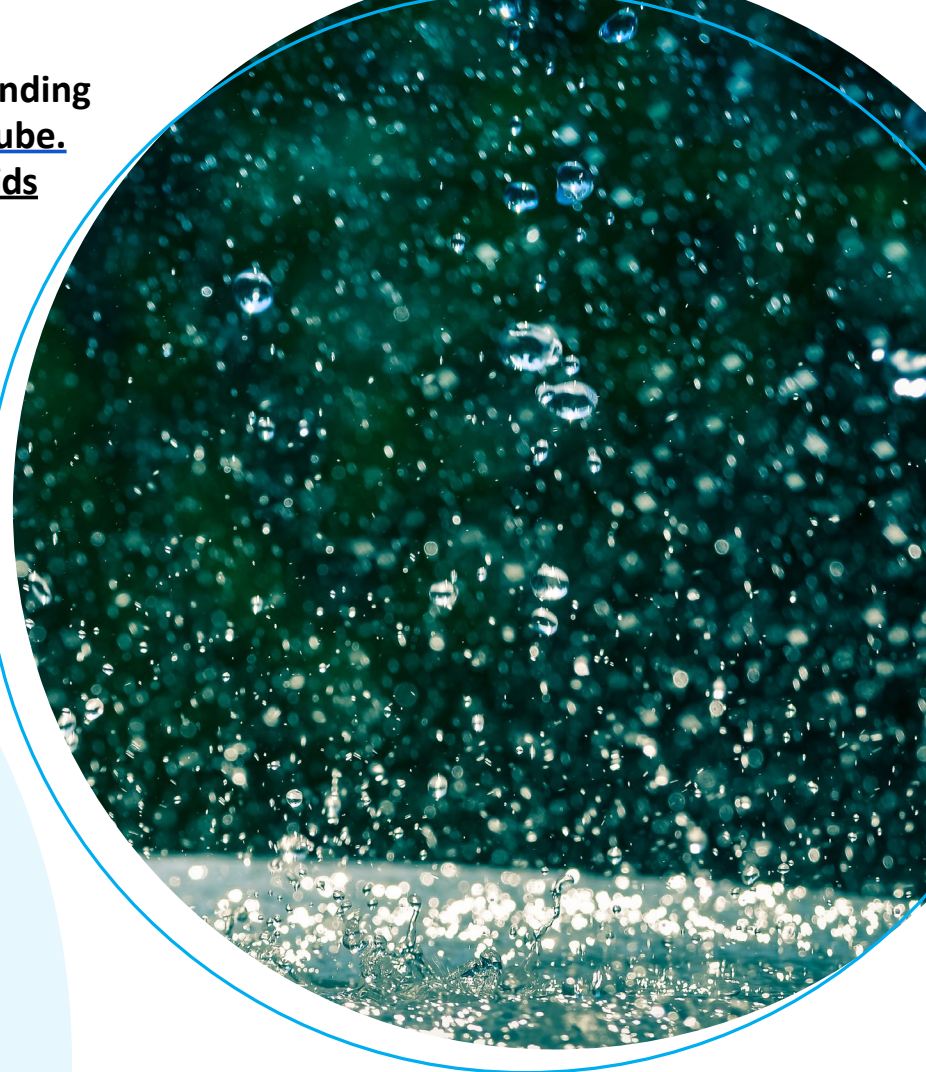
pretend you are going on Shark Tank. Present your idea for funding and development/production/fabrication. [https://www.youtube.com/watch?v=jaQHN\\_tUyFk](https://www.youtube.com/watch?v=jaQHN_tUyFk) (This is a great video that shows kids presenting on Shark Tank!)

3: Experiment- Present your experiment and results for at least 2 attempts to mitigate your selected challenge

- a. Which Filtration Material Leads to the Best Drinking Water?
- b. Algal blooms: How to mitigate the impacts of Eutrophication
- c. Is there a way to clean E.coli and other bacteria from water?
- d. How does a rain garden improve stormwater quality?
- a.

## HOW TO PRESENT/SUBMIT YOUR ENTRY

You'll need to complete the official WSEC Entry Form. The link is #2 on the [stormwatercoalition.com/wsec](http://stormwatercoalition.com/wsec) webpage. You will need to fill it out online. Every section needs to be completed Remember - this will take considerable time to fill this out as well as upload parental permission and your video.





## **THE WSEC ENTRY FORM WILL ALSO PROVIDE YOU WITH THE STEP-BY-STEP INSTRUCTIONS FOR UPLOADING YOUR VIDEO**

**This might seem daunting, but using this structure will help you set out your work clearly, giving it the best chance of success! PLUS - SOMEONE WILL WIN ALL OF THIS \$\$\$ AND IT MIGHT AS WELL BE YOU!!**

### **Dates for Your Calendar**

- **1 week from today- decision made regarding your water challenge and project**
- **Tuesday, May 7, 2024 All SLCo Water Science and Engineering Competition online form completed AND video entry uploaded. NO EXCEPTIONS**
- **Thursday, May 9, 2024 - Winners will be announced on the Salt Lake County Stormwater Coalition Facebook page at 2:00 P.M.**

*Could you be our winner? :)*

**Once you've submitted your project, it will be checked for compliance to:**

- **Submission by permission of your parent or guardian**
- **WSEC Entry Form (completed online) must be 100% complete.**
- **Length of video entry falls under the required time of 6 minutes**
- **Entry submitted on or before the due date May 7, 2024**
- **Grade Level- you must be a 6th, 7th, or 8th grader**



Once confirmed, the project will be assessed by our specialist panel of judges. They will select the winners based on specific points possible in each of the categories:

- Relevance
- Creativity
- Methodology
- Subject Knowledge
- Practical Skills
- Report/Prototype Model/Video Presentation

(See WSEC Official Judges' Criteria Sheet - for specifics on how your entry will be assessed)

Winners in each of the 3 categories and a grand prize winner will be announced on the Salt Lake County Stormwater Coalition Facebook page at 2:00 P.M. on May 9, 2024.

<https://www.facebook.com/WeAllLiveDownstream>

One Grand Prize winner, determined by highest score from any category, will receive a \$100 Amazon Gift Card and Salt Lake County Stormwater Coalition Prize Package, including a t-shirt, umbrella, water bottle, Droplet figure, and much more! In the event of a tie, judges will determine the winner. All judges' decisions are final. Additionally, \$100 Amazon Gift Card prizes will be awarded to the top scores in each category. The entry that receives the Grand Prize may also be the winner in one of the categories.

The three winning entry videos will be posted on the SLCo Stormwater We All Live Downstream YouTube Channel and the stormwatercoalition.org website, and the SLCo Stormwater Coalition Facebook, Instagram, and Twitter feeds.

While we know only a limited number of entries will receive awards, we really do wish you the best of luck in developing an awesome project! Don't forget, you can all be proud to help grow enthusiasm among our friends, families and schools, regarding the importance of water quality. You all have the ability to have a vital impact in protecting one of our most precious resources, water, because - we all live downstream!





# SLCO STORMWATER COALITION WSEC JUDGING CRITERIA

Student(s): \_\_\_\_\_

Project Name: \_\_\_\_\_

Judge Number: \_\_\_\_\_

**Absolute Priorities (Without ALL of these, this entry will NOT be evaluated)**

\_\_\_\_\_ WSEC Entry Form 100% Completed

\_\_\_\_\_ Video entry fell under the time limit of 6 minutes (less than 1 GB)

\_\_\_\_\_ Entry was submitted no later than May 7, 2024.

**Competitive Priorities (Each category will be rated on a scale of 10, for a maximum total of 60)**

\_\_\_\_\_ **Relevance - in the terms of science, the environment, and society:**

- Does the project target an important challenge in the water environment?
- Is the project scientifically relevant? Can the scientific level be related to basic applied research and can the results be directly applied or implemented?
- Can the project contribute to the improvement of the quality of environment and/or people's quality of life?
- Does the project propose innovative solutions to unsolved problems?
- Does the project increase the awareness of water issues?
- Does the project integrate environmental and societal issues?

\_\_\_\_\_ **Creativity - Does the project show creativity in relation to:**

- **Posing a problem**
- **Solving a problem**
- **Analyzing the data**
- **Experimenting or investigating**
- **Mediating and making the affected parties aware of the problem?**

\_\_\_\_\_ **Methodology**

- **Is there a clearly defined idea on which a result can be achieved?**
- **Is the problem well defined?**
- **In what way has the methodology been limited?**
- **Has the work been planned accordingly?**
- **Is there adequate information upon which to draw conclusions?**
- **Are there any new questions or suggestions for continued research?**

\_\_\_\_\_ **Subject Knowledge**

- **Is the student familiar with literature and ongoing research in the field?**
- **What sources has the work been based on?**
- **Is the list of references satisfactory? Have the references really been studied?**
- **To what extent have sources of popular science been consulted?**
- **Is the author familiar with the topic dealt with in his/her work?**
- **Is the author knowledgeable of ongoing research and terminology in the field?**
- **Is the author familiar with alternative solutions?**



\_\_\_\_\_ **Practical Skills**

- **Did the student make the exhibit themselves?**
- **Did they carry out the measurements, etc?**
- **What help was provided by parents, teachers, professionals, etc?**
- **Did the student take advantage of materials available at school?**
- **Where was the equipment for the exhibit obtained? Was it self-made?**
- **How well have available techniques been used?**

\_\_\_\_\_ **Report/Prototype/Video Presentation**

- **Did the student present the work in a proper and informative way (written, verbally, and graphically through the exhibit?)**
- **Is the content of the work well structured?**
- **Is the level of text, illustration, diagram, and language within the report/presentation sufficient?**
- **Is the display visually appealing, are there any special qualities or personal touches?**
- **Is there a relationship between the display and text material?**

\_\_\_\_\_ **Total Score**

**Judge Signature** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Comments:**

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