12th Annual

Sustainable Design Challenge

for High School Students

8am-2pm

Tuesday
April 17
2018

Form your team.
Go green.
Get creative.
Explore a career.
Win big.

Student Info Packet

SCARCE

Love Blue. Live Green.
DuPage County Stormwater Management

COOL DUPAGE
BE GREEN SAVE GREEN

THE COUNTY OF DUPAGE
WHEATON, ILLINOIS

SCARCE is excited to announce the 12th annual Sustainable Design Challenge! The 2018 Sustainable Design Challenge will be held 8am-2pm on Tuesday, April 17th 2018 at the DuPage County Complex's Jack T. Knuepfer Admin Building, 421 N. County Farm Road, Wheaton. High school students are challenged to design and construct a sustainable building model. This great STEAM opportunity is open to any DuPage County high school student.

This program invites students to:

- Research, design, and construct a sustainable building model
- Present their project to the public & a panel of judges
- Explore sustainability careers through interaction with architects and engineers working in the field
- Tour the DuPage County campus to learn about sustainable design and infrastructure

How to Participate

Participation is free. Up to ten teams from each high school in DuPage County may participate. Students must register their team online.

Visit www.scarce.org/event/2018sustainable-design-challenge to register

Registration opens February 15th. The **registration deadline is Wednesday, April 4th by 5pm.** *Teams may not participate without online registration.*

Registration is on a first come, first serve basis. Submissions will be followed up with an email notification confirming participation pending a school's team limit hasn't been reached.

Any teams wishing to participate that do not have a teacher sponsoring their project should contact Carrie, carrie@scarce.org, before registering.

This info packet contains the following:

The Challenge

Who: Teams of 2-4 high school students are invited to tackle this challenge.

Goal: Design a building that meets Leadership in Energy and Environmental Design (LEED) criteria for sustainable buildings. Students will be evaluated on their sustainable features and on presentation skills and professionalism (see rubrics).

Students are expected to:

- Build a model of their design
- Create a visual explaining the features of their design (presentation board or computer aided visual)
- Provide 4 copies of written information about their model including:
    - cover sheet (use attached)
    - photo of model
    - summary of sustainable features (see sample)
    - Project Write-Up: detailed written explanation of features
- Display & present their design on April 17th (similar to a science fair)
- Participate in all supplemental programming during the event (tours, talks, career booths)

Each project will be evaluated by at least 2 judges.

Additional details on the project components are provided on page 4.

Recognition & Prizes

All student teams will be notified of their score totals in the weeks following the design challenge. Participation in the supplemental event activities will be taken into account when determining winners. Winning teams and school sponsors will be notified ahead of the awards presentation.

There will be cash prizes for winners of the following categories:

- Best Overall LEED Design: $500
- Best Stormwater Design: $250
- Best Energy Efficiency Design: $250

Awards will be presented at the DuPage County Board meeting on Tuesday, May 8th at 10:00 am in the County Board Chambers on the third floor of the Jack T. Knuepfer Admin Building, 421 N. County Farm Road, Wheaton.

Event Schedule:

On Tuesday, April 17th students are to convene at the Jack T. Knuepfer Admin Building 421 N. County Farm Road, Wheaton starting at 8:00am. The event will conclude around 2pm. The approximate schedule is below.

8:00am-8:55am	Check-In/Set-up: Students & Sponsors/Judges
9:00am-11:15am	Students present models to judges & the public Green Infrastructure Talks
11:30am-2:00pm	Lunch & Exploration Sessions begin in the auditorium Exploration Sessions for participants: Health Department Community Center Tour Green Career Booths – auditorium

**Lunch is provided for judges & participants*
Please bring a reusable water bottle, bottled water will not be provided.

At the end of the event, students must take their models and displays with them. Scores will be tallied and winners will be notified after the event.

Awards will be presented at the DuPage County Board meeting on Tuesday, May 8th at 10:00 am.

Questions or Concerns?
Contact:
Carrie Horak
SCARCE
630-545-9710
carrie@scarce.org
www.scarce.org

Project Guidelines

The outputs of the Sustainable Design Challenge are (1) a sustainable building model, (2) a visual aid, (3) verbal presentation, and (4) a project write-up, detailed below. Successful projects will demonstrate an overall consideration of the three pillars of sustainability: environment, economy and society. Choose a specific location for your project in order to make appropriate decisions in relation to the community.

Projects will be scored by judges using the design and presentation rubrics included in this packet. Further evaluations and decisions will be made by SCARCE staff based on participation and the provided written materials.

(1) Sustainable Building Model

Refer to the Sustainable Design Scoring Rubric for the types of features to consider. The model should attempt to represent as many of the project's design features as possible.

(2) Visual Aid

Create a visual aid to help explain the features of the project. Either a presentation board or a computer-aided visual is acceptable. *Please note: we are unable to guarantee access to an outlet. If a computer is used, come prepared with your laptop fully charged.*

(3) Presentation

Your verbal presentation that will be evaluated by judges using the presentation scoring rubric. Presentations must not exceed 8 minutes in length. Be prepared for questions from the judges during the remaining evaluation time, not to exceed 15 minutes total.

(4) Write-up

**Please print written information double-sided to conserve paper.*

Come prepared with (4) copies of the written information. Use the provided cover sheet for each copy. One will be turned in at registration. Give the remaining copies to the judges during evaluation for reference.

(i) Photo of Model

Include a photo of your model with the write-up that is turned in at registration. Photos are not necessary for the extra copies for use by the judges.

(ii) Summary of features

Include a bulleted list of design features as outlined on page 6 of this guide.

(iii) Report

The project report provides the opportunity to explain your features in greater detail to demonstrate your research and understanding of sustainable design. Reports will be used in combination with the project evaluation scores and participation information to determine winners. Descriptions of features with examples (if applicable) will be weighted more favorably. For instance, if you intend to use local materials, you should provide examples of local materials and their use in the construction.

As part of the report, include 1-2 paragraphs that describe the potential barriers to constructing your building.

Length & Formatting

There is an 8 page limit for the report. Use the Calibri font, size 11, with 1.5 spacing and 1" margins.

Cover Sheet

Team Name:_____

List of Team Members:

_____

_____

_____

Type of Building: _____

School: _____

Project Number:_____

(To be assigned at check-in)

Include:

- ☐ Photo of model
- ☐ Summary of Sustainable Features
- ☐ Report

[Sample] Summary of Sustainable Features

Transportation & Sustainable Sites

Green Vehicles

- Sample feature A
- Sample feature B

Heat Island Reduction

- Feature C
- Feature D
- Feature E

Light Pollution Prevention

- Feature F
- Feature G

Site Development

- Feature H
- ……etc

Continue in this manner for each category on the Sustainable Design Scoring Rubric that you included in your model. Simply name each feature. Provide details in the separate project write-up (see page 4).

2018 Sustainable Design Challenge
Sustainable Design Scoring Rubric
(Adapted from LEED v4 BD+C Project Checklist)

Team Number/Name:	
Judge Name and Company:	
Student Name(s):	

Category	Scoring Criteria	Possible Points	Points Earned
Transportation and Sustainable Sites: (12 possible points)			
	Green Vehicles	3	
	Heat Island Reduction	3	
	Light Pollution Prevention	3	
	Site Development	3	
		12	
Stormwater Management: (9 possible points)			
	Landscaping	3	
	Storage	3	
	Runoff Absorption/Recharge	3	
		9	
Water Efficiency: (6 possible points)			
	Outdoor Water Use Reduction	3	
	Indoor Water Use Reduction	3	
		6	
Energy Efficiency: (12 possible points)			
	Lighting	3	
	Heating/Cooling	3	
	On-site Energy Production	3	
	Energy Usage Monitoring	3	
		12	
Materials and Resources: (6 possible points)			
	Storage and Collection of Recyclables and/or Compostables	3	
	Use of Sustainable Materials	3	
		6	
Indoor Environmental Quality: (6 possible points)			
	Low-emitting Materials	3	
	Air Quality Features	3	
		6	
	Total:	51	

0= Non-existent.
1= Features show minimal effort in research and implementation.
2= Present features show substantial effort in research and implementation.
3= Present features show exceptional effort and innovation in research and implementation.

Judge Notes/Comments:

Flip for Presentation Rubric →

2018 Sustainable Design Challenge
Presentation Rubric

Team Number/Name:

Judge Name and Company:

Student Name(s):

Category	Scoring Criteria	Possible Points	Points Earned
Presentation: (18 possible points)			
	Maintains good eye contact.	3	
	Uses a clear voice.	3	
	Demonstrates good language skills and pronunciation.	3	
	Shows evidence of practice and preparation.	3	
	Each team member contributes to presentation.	3	
	Able to clearly convey key design components to audience.	3	
		18	
Completeness: (15 possible points)			
	Model is professional and complete.	3	
	Uses a visual aid (presentation board or computer aid) in addition to model.	3	
	Visual aid is neat and easy to understand.	3	
	Design concepts can be integrated into a real-world project.	3	
	Project addresses the holistic impact on the environment, society, and economy	3	
		15	
	Total:	33	

0= Non-existent. 1= Partially accomplished. 2= Majority accomplished. 3= Entirely accomplished.

Presentation length should be a maximum of 8 minutes.

Judge Notes/Comments:

Flip for Design Rubric →

[School Name]

Team ID	Team Name	Member 1 Name	Member 2 Name	Member 3 Name	Member 4 Name
#					

Judge 1	
Presentation Score	
Sustainable Design Score	

Judge 2	
Presentation Score	
Sustainable Design Score	

Judge 3	
Presentation Score	
Sustainable Design Score	

Cumulative Score	

Students participated in all supplemental activities:

- ☐ Health Dept Community Center Tour
- ☐ Green Infrastructure Talks
- ☐ Green Career Booths