

Each participant must register with a separate form. Space is limited. Participants will be notified **BY EMAIL** of acceptance on a first-come, first-served basis. Registration is limited to girls in grades 5-8 or equivalent.

Participant Name: \_\_\_\_\_

Home Address: \_\_\_\_\_

Mailing Address (if different): \_\_\_\_\_

Home Phone: \_\_\_\_\_ Cell (or other) Phone: \_\_\_\_\_

Grade (circle one): 5 6 7 8 Age: \_\_\_\_\_ T-shirt size: YM YL AS AM AL AXL

Where do you go to school? \_\_\_\_\_

Email address (primary contact means): \_\_\_\_\_

**Session Color Group Preference**

List your top three session color groups in order of preference (see attached pages for descriptions). All three blanks **must** be completed. Every effort will be made to place participants in one of their top color choices; however, this is not guaranteed.

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_

**Snacks and lunch will be provided:**

If you have any allergies, dietary restrictions, or special needs, please let us know: \_\_\_\_\_

**Emergency Contact Information (REQUIRED)**

Parent/Guardian Name: \_\_\_\_\_ Relationship to child: \_\_\_\_\_

Phone: \_\_\_\_\_ Email address: \_\_\_\_\_

Other Emergency Contact Name and Phone: \_\_\_\_\_

**Disclaimer: In order to participate, both the consent and assent forms must be signed and returned.**

Parent/Guardian Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Please answer the following questions to the best of your ability.**

How interested are you in STEM? A ton Some A little

What past STEM-related activities have you participated in (what and when)? \_\_\_\_\_

Specifically, have you attended a past Seeding Your Future event (what and when)? \_\_\_\_\_

Do you feel like you are able to do science and math? Yes No

Do you feel like you understand why STEM is important? Yes No

How interested are you in doing STEM for a career? A ton Some A little

What excites you about STEM? \_\_\_\_\_

If you have any questions, contact the conference organizers at [seedingyourfuture@gmail.com](mailto:seedingyourfuture@gmail.com) or visit [seedingyourfuture.weebly.com](http://seedingyourfuture.weebly.com)

**Registration forms must be received by October 10, 2016. Please mail to:**

Sytil Murphy  
Assistant Professor of Physics  
Shepherd University  
P.O. Box 5000  
Shepherdstown, WV 25443

Sponsored by:



## Seeding Your Future Conference Color Groups

HOW SYFC WORKS: Each participant attends three to four workshops, which are clustered into “color groups.” For example, the ORANGE color group below will attend workshops 3, 14, 17, and 18. Participants rank their top three color group choices on the registration form. Every effort will be made to place participants in one of their top color choices; however, this is not guaranteed. All groups are unique and aim to “seed your future.” Each color group is limited and fills on a first-come/first-served basis. The conference is limited to 125 participants. Workshops are listed in numerical order, not in the order of presentation. Participants will receive an email confirmation indicating their color group. Each participant attends the three to four workshops listed in their color group. Please note that SYFC is an event for middle-schoolers only. We do not have space to accommodate parents. Thanks for understanding.

RED..... 5, 19, 20  
ORANGE..... 3, 14, 17, 18  
DAISY ..... 1, 3, 22  
LIME..... 8, 12, 13  
PINK..... 4, 9, 13, 15

NAVY ..... 2, 5, 6, 7  
PURPLE..... 2, 7, 10, 15  
JADE..... 9, 18, 19  
FOREST..... 5, 11, 17, 21  
MAROON.... 10, 13, 15, 18

SAPPHIRE... 5, 13, 14, 20  
GREY..... 10, 15, 16  
BLACK ..... 4, 11, 18, 21  
BLUE ..... 1, 10, 16

### Workshop Abstracts:

- 1. Hooray for DNA!** Presented by: Dr. Carol Plautz  
Learn about the importance of DNA and the cells of your body, then step up to the lab bench and isolate and visualize your OWN DNA!
- 2. Viruses are Sick!** Presented by: βββ  
Want to learn how viruses are transmitted? You will participate in a math based, hands on viral outbreak game to see how diseases can be spread! Afterward, you will hear about various types of viruses and design your own virus to take home!
- 3. Happy Chem-o-ween** Presented by: Dr. Jacquelyn Cole  
Join me in my mad scientist’s lab where we will make ghostly hands, blood, glowing skulls, witch’s brew, and so much more! We’ll even create some slime to take home. Bwah ha ha!
- 4. Electric Play-Doh Sculptures** Presented by: Dr. Jeff Groff  
This workshop will use homemade Play-Doh that conducts electricity to explore principles of electric circuits. Participants will build electric sculptures out of this dough, battery packs, LED lights, and other components.
- 5. Liquid Rainbow** Presented by: Professor Annitsa Spanos  
What makes people float? What causes objects to sink? Learn the answers to these questions and more. Make and take home a liquid rainbow to explain your findings with your family and friends.
- 6. Rock Down to Electrochemical Avenue!** Presented by: Dr. Jordan Mader  
Electrochemistry is the driving force behind batteries, solar cells, and fuel cells. Learn about how these reactions work by transferring electrons from one substance to another. Then, you can create your own work of art using electrochemistry!
- 7. Learning From Data** Presented by: Dr. Ralph Wojtowicz  
Data analysis is used to discover distant solar systems, predict weather patterns, identify business trends, improve health care, introduce friends in social networks and monitor transportation systems. In this workshop we will gain hands-on experience with powerful data analysis tools. We will discuss the history and future of big data.
- 8. The Additive and Subtractive Power of Color!** Presented by: Dr. Sytil Murphy  
Colors are considered to be primary if all other colors can be obtained from them by mixing. In school, you are taught that the primary colors are red, yellow, and blue. However, ink cartridges come in magenta, cyan, and yellow. Which set is primary?
- 9. Dr. Warburton’s Biochemistry Emporium** Presented by: Dr. Robert Warburton  
In the past, Dr. Warburton looked at the digestion of liver and bioluminescence. This year, he couldn’t decide on just one idea. Therefore, this workshop will feature a group of biochemistry inspired experiments.
- 10. H<sub>2</sub>O Catalysis (Science of Bath Bombs)** Presented by: Chemistry Society  
Want to know how catalysis works and the purpose of catalysis in everyday life? Come learn about it in this workshop, then make your own bath bomb by mixing together an acid and base along with chemicals to stabilize the reaction.
- 11. Colorful Chemistry** Presented by: Dr. Dan DiLella  
The color of an object such as a shirt or a ball depends on the materials from which it is made. However, when a chemical reaction occurs, it is often possible to produce colors that are different from the starting materials. In this workshop you will perform several chemical reactions that will often produce surprising color changes.
- 12. Build and Code Your Own Wearable “Smart” Necklace** Presented by: Ms. Tara Echlin  
Build your own wearable smart necklace! Computers are everywhere—learn how they work! Play around with making LEDs light and sounds respond to sound or movement. Get familiar with some basic electronics and coding (or do some advanced exercises if you’re already familiar). Take home a cool craft you’ve made that contains a computer, speaker, buttons and switches, sound, temperature, motion and light sensors, and multicolor LEDs. Impress your friends with your circuit-building and coding skills, and dive into physical computing and the Maker Movement, an intersection of science, technology and art!
- 13. How’s it Growing? Unlock the Secrets in Tree Rings!** Presented by: Dr. Mark Lesser  
Understanding how trees grow is not only remarkable in itself, but offers us all kinds of information about how old a tree is, and what conditions it has been growing in. In this workshop you will learn how to look at tree rings (without cutting the tree down!), and use those rings to figure out how the tree has been growing.

## Seeding Your Future Conference Color Groups

14. **Can You Dig It?** Presented by: Dr. Karen Adams

What does math have to do with unlocking the secrets of King Tut's tomb or finding the Titanic? Join me on this archaeological exploration and discover how to use cool math tricks to piece together the puzzles of the past!

15. **Binary Bracelets** Presented by: Dr. Kathryn Williamson

Did you know computers can only read two numbers—0 and 1? Learn how to read like a computer using “binary.” Make binary bead bracelets encoded with secret messages to take home and share!

16. **High Tower Physics!** Presented by: Dr. Fran Brown

Learn the fundamentals of structural engineering and building design! Build a weight supporting sky tower using principles of mechanical physics.

17. **Water Bugs and Stream Pollution** Presented by: Dr. Peter Vila

We all need clean drinking water and many love playing in streams. But how do you determine if your stream is healthy? Aquatic insects are fascinating creatures and can also be used to detect water pollution problems. Find out why and how aquatic insects are used to detect healthy waters.

18. **Seeing Sounds, Hearing Pictures** Presented by: Dr. Ruth Conley

Did you know that computers allow us to both see and hear sounds? We also use computers to understand and modify sound. In this workshop you will listen to, view, and process sounds on the computer. You'll even make your own audio composition to take home!

19. **Robotics Grab Bag** Presented by: Mr. Bill Von Alt

Do you think robots are cool? Want to learn how to build and program them? In this workshop, you will be able to explore robotics and get an introduction to the concepts needed to successfully train a robot to complete a task.

20. **Exploring West Virginia** Presented by: Shepherd Environmental Organization

We will introduce you to Graphical Information Systems (GIS) software through an exploration of the “Mountain State.” GIS can be used to make maps (even ones like Google Maps!), study ice caps, learn about pollution trends, animal migrations, plan responses to natural disasters, look at planetary features, and can even be used to study disease transmission and spread. Recently, GIS was used to map Mars to indicate areas that might have the presence of water.

21. **Electrolyte challenge! How good is your sports drink?** Presented by: Dr. Katherine Burton

The makers of sports drinks spend tens to hundreds of millions of dollars advertising their products each year. Among the benefits often featured in these ads are the beverages' high levels of electrolytes, which your body loses as you sweat. In this science project, you will compare the amount of electrolytes in a sports drink with those in orange juice to find out which has more electrolytes to replenish the ones you lose as you work out or play sports. When you are finished, you might even want to make your own sports drink!

22. **Digital 3D and Physical Output** Presented by: Professor Christian Benefiel

This workshop will explore the potential for digital 3D modeling, and a variety of physical output options. It will include a variety of 3D processes, and will focus on laser cutting and engraving of materials such as wood and plastic. The 3D software, hardware and materials, and computers for the class will be provided.

## Parental Consent Form

The Seeding Your Future Conference is a one-day event aimed at increasing middle-school aged girls interest in topics related to math and science. On the registration form and during the conference, participants will be asked to complete surveys for the purpose of evaluating conference activities and interest level in math and science. Participants may also be photographed or video-taped during the conference. Survey responses, photographs, and videos may be used by the conference organizers and funding agencies for the purposes of evaluating this year's conference, professional presentations on the conference, and/or promotional materials.

Because the participants are minors, in order for the conference organizers to be able to use the responses and images/videos of the conference participants, both parental consent and assent from the minor are needed. This form, which follows federal guidelines, provides parental consent for participation in the research and promotional aspects of the conference. Declining to allow participation in these aspects does not prohibit participation in the conference.

**Study Name:** Seeding Your Future Conference

**Aim of Research Project:** Evaluate and promote the Seeding the Future Conference, evaluate participant interest level in science and math.

**Experimental Procedures:** Participants will complete surveys throughout the conference evaluating conference activities. Participants will also be video-taped and/or photographed.

**Study Duration:** All activities associated with this study will be completed as part of the conference.

**Number of Participants:** 150

**Alternate Procedures:** None.

**Confidentiality:** All information provided will be kept anonymous upon publication or presentation. However, identifiable features, like faces, may be present in the photographs and videos. Your inclusion in this research is voluntary. For further information about this research project and your rights within it, please contact Dr. Sytil Murphy at [smurphy@shepherd.edu](mailto:smurphy@shepherd.edu) or 304-876-5782.

Your participation involves no foreseeable risks and no direct benefits to you. In the event of a research related injury, please contact Dr. Larry Daily, IRB chair (304-876-5297).

- I agree to allow the conference organizers to use my child's responses and images for the above purposes.
- I do not agree to allow the conference organizers to use my child's responses and images for the above purposes.

\_\_\_\_\_  
Parent/Guardian Name (print)

\_\_\_\_\_  
Parent/Guardian Signature

\_\_\_\_\_  
Date

**Any questions regarding your rights as a research participant may be addressed to the Shepherd University Institutional Review Board (Dr. Larry Daily, IRB Chair, 304-876-5297). All research projects that are carried out by investigators at Shepherd University are governed by the requirements of the University and the Federal Government.**

## Participant Assent Form

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Because the participants are minors, in order for the conference organizers to be able to use the responses and images/videos of the conference participants, both parental consent and assent from the minor are needed. This form, which follows federal guidelines, provides the attendee the opportunity to assent to participation in the research and promotional aspects of the conference. Declining assent to participate in these aspects does not prohibit participation in the conference.

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- I do not agree to allow the conference organizers to use my responses and images for the above purposes.

\_\_\_\_\_  
Participant Name (print)

\_\_\_\_\_  
Participant Signature

\_\_\_\_\_  
Date

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