

## A Note to All Parents and Educators

from Dr. Koshi Dhingra, talkSTEM founder

I know that you will use the Her STEMLens virtual exhibition and movement in a wide variety of ways. Many of you will come up with new activities and games that will engage your children and students, and I sincerely hope you will share your ideas with the talkSTEM and Her STEMLens community by commenting on the website and/or posting to social media. The exhibition continues from our launch date of February 11, the International Day of Women and Girls in Science, through May 31, and will be refreshed three times - in March, April, and May. There will be lots of opportunities for children to interact with the exhibition, to ask questions, and to discover STEM moments of their own.

In this Educator Resources packet you will find three resources that can be used for a broad range of ages. The goal of the exhibition is to foster STEM identity and to spark STEM questions, grounded initially in the exhibits and later in the child's own environment.

### 1. Student Activities Sheet

This consists of questions you can provide, so that students feel a sense of purpose while they interact with the exhibition – though by all means feel free to add additional questions of your own! Of course, students' thoughts and reactions beyond the questions included in this sheet are also valuable, and I hope you have some fascinating conversations both within and outside of the question structure provided.

*Best for: Upper elementary, middle, and high school*

*For younger children, many of these same questions can be used but will require a facilitated conversation. This may be something you do with a small group, or with a larger whole.*

### 2. Gallery Guide (May, 2021)

This is a detailed list of all images and videos featured in the exhibition from May 7 to May 31. Some examples of ways to use this list include:

- A scavenger hunt, where you can direct students to work in pairs or teams to discover a certain number of exhibits and share their findings with their peers.
- A guide by which to explore the exhibition in stages.
- A reference, to help encourage students write reflections on one of the four galleries or select exhibit pieces.

*Best for: Middle and high school*

*For younger children, this guide is a useful tool, but will require an adult to walk children through the lists and check for understanding.*

### 3. Quest (May, 2021)

This is a fun scavenger hunt for “objects” hidden around the gallery halls that relate to select exhibit pieces. As a hint to both students and teachers, most objects can be found nearby a related submission . . .

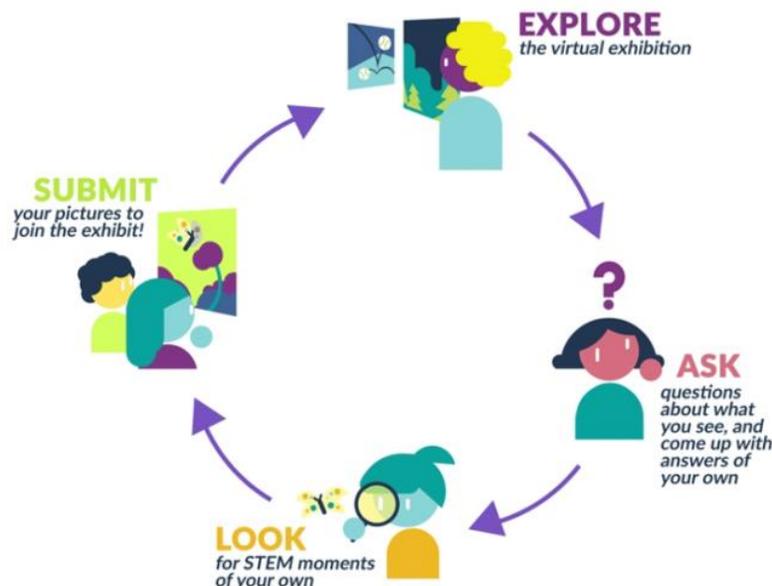
*Best for: Elementary and middle school (although older children might enjoy it as well!)*

## Her STEMLens, a virtual exhibition

Take a walk through the four galleries in the exhibition:  
Art, Food, Outdoors, and Sports & Fitness.

Here are some things to do on your own or with a partner as you go on your virtual walk:

1. Select two images or videos in each gallery that stood out for you and discuss why.
2. Pick any two questions that *Her STEMLens* contributors asked and try to answer them or discuss how you would go about coming up with an answer.
3. Pick any two images in each gallery and come up with your own, different questions based upon what you see
4. After viewing our exhibit, how do you think STEM and art are related? How about STEM and food?
5. Can you think of a career that combines
  - both sports/fitness with STEM?
  - both art with STEM?
  - both food with STEM?
  - both outdoors environments (urban, suburban, or rural) with STEM
6. What do you enjoy about seeing the world through a STEM lens?
7. Which room in the gallery was your favorite? Why?
8. SHARE: If you are a girl aged 5-18, would you like to be featured in *Her STEMLens*? We invite you to participate in the #HerSTEMLens movement and we will select new images to feature in our exhibition each month (February-May, 2021). We'd love to see what you share on social media – whether you participate with your family at home, in an afterschool group, or anywhere! Don't forget to tag us and use the #herSTEMLens.

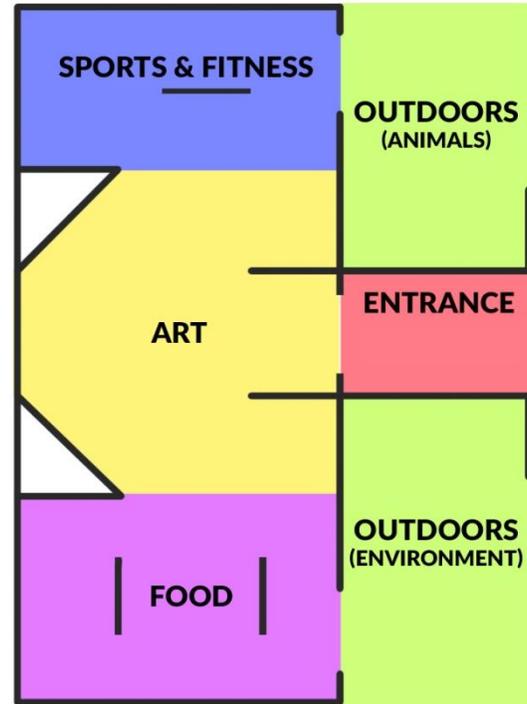


## Her STEMLens May Gallery Guide

The *Her STEMLens* exhibition space is organized into multiple themed galleries – Art, Sports & Fitness, Food, and Outdoors. The pieces in these galleries come from all over the world, from young girls and accomplished women in STEM fields alike.

We've included below a list of all pieces on display in February, with video submissions marked in **bold**, and women in STEM contributors marked with an \* asterisk.

Enjoy touring the exhibition, and be sure to leave a comment or submit your own thoughts and questions by posting on social media using #herSTEMlens – your piece might even show up in our future archives!



Art		
Submitted Pieces		Contributor
<b>1</b>	How many arcs are visible in this structure?	* Submitted by Karishma Kishnani, digital marketing student, London, UK.
<b>2</b>	How many pennies sink a sheet of paper?	Submitted by Astra Zeno of the Young Women's College Preparatory Academy in Houston, TX, on behalf of her students.
<b>3</b>	Has nature evolved to be beautiful, or have we evolved to find it beautiful?	* Submitted by Cassandra McKinney, Executive Director of the Retail Bank, Comerica.
<b>4</b>	When you are oil painting, what are the connections that reveal themselves?	* Submitted by Julie England, mixed media artist.
<b>5</b>	<b>STEAM in design at Solar Prep</b>	<b>Submitted on behalf of the Solar Preparatory School for Girls, Dallas ISD, by Assistant Principal Jennifer Turner.</b>
<b>6</b>	How does a ballpoint pen work?	Submitted by Astra Zeno of the Young Women's College Preparatory Academy in Houston, TX, on behalf of her students.
<b>7</b>	How much dirt does it take to build a house?	* Submitted by Marion L. Jackson, founding principal of the West Dallas STEM School with ISD
<b>8</b>	How does an archway's shape affect the sounds that are amplified/reverberated by it?	Submitted by @isabellakendro1 on Twitter.
<b>9</b>	Cross-generational sharing of STEM	* Submitted by Sonja Bernhardt OAM, Australian technology entrepreneur.

Food	
Submitted Pieces	Contributor
10 Why don't oil and water mix?	* Submitted by Karishma Kishnani, digital marketing student, London, UK.
11 Contemplating Grapes	* Submitted by Morgan Merriman, high school chemistry teacher, Dallas ISD.
12 Given these differences in scale, what percentage of the coffee cup with the creamer fill?	Submitted by Min Wang, on behalf of Dallas ISD high school students in the SMU college access program.
13 Why are the cells of a honeycomb shaped as hexagons?	* Submitted by Puja Batra, of Batra Ecological Strategies
14 Why does filling identical glasses with different quantities of water result in each glass having a different pitch?	Submitted by @calliopephysics on Instagram.
15 What is the ideal temperature for cooking?	* Submitted by talkSTEM. Special thanks to Starbucks Community Café in RedBird neighborhood of Southern Dallas and City of Dallas Office of Cultural Affairs
16 What's the difference between Starbucks' nitro brew and a carbonated soda?	* Submitted by talkSTEM. Special thanks to Starbucks Community Café in RedBird neighborhood of Southern Dallas and City of Dallas Office of Cultural Affairs
17 Why do serrations help with cutting some materials but not others?	Submitted by @lfs927 on Instagram.
18 What happens inside a dormant grapevine to prepare for budbreak?	* Submitted by Shelly Wilfong, wine educator, writer, and podcaster. @shelly_wilfong on Instagram.

Outdoors	
Submitted Pieces	Contributor
19 Why do most cats have retractable claws but cheetahs do not?	* Submitted by Lisa Van Slett, Children's Zoo Supervisor at the Dallas Zoo.
20 What is the advantage to having such a long narrow nose?	* Submitted by Sara Bjerklie, Lead Zoologist at the Dallas Zoo.
21 Why do lion cubs have spots?	* Submitted by Lisa Van Slett, Children's Zoo Supervisor at the Dallas Zoo.
22 Why does the moon reflect in the water?	Submitted by Astra Zeno of the Young Women's College Preparatory Academy in Houston, TX, on behalf of her students.
23 Questions in Nature	* Submitted by Jennifer Fee and Victoria Varlack of the Cornell Lab of Ornithology.
24 What engineering solutions protect the coastline?	* Submitted by Lynn McBee, EarthX Board Chair and CEO of the Young Women's Preparatory Network
25 Why is it more important than ever to protect the rainforest?	* Submitted by Madhur Anand, Professor at the Global Ecological Change & Sustainability Laboratory School of Environmental Sciences, University of Guelph
26 Why do some birds like grackles roost together in winter?	* Submitted by Puja Batra, of Batra Ecological Strategies
27 How do carnivorous plants catch and devour their prey?	* Submitted by Puja Batra, of Batra Ecological Strategies
28 How far does Lake Powell wander?	* Submitted by Cassandra McKinney, Executive Director of the Retail Bank, Comerica.
29 How are air bubbles and air pockets formed in the ice of this frozen lake? How are the lines and fractures formed?	Submitted by Maeve Brennan, @MaeveBrennan8 on Twitter.
30 How can I maintain this calmness and happiness even when life feels rushed? What is the science of happiness?	* Submitted by Dr. Koshi Dhingra, CEO of TalkSTEM.

Sports	
Submitted Pieces	Contributor
31 Freediving	* Submitted by Erika Kurt, STEM Education Pioneer and Small World Initiative President. @erikakurt on Instagram
32 Skateboard questions	Submitted by the Math Learning Center, as part of their Math at Home series (mathlearningcenter.org).
33 What is happening in the brain during meditation?	* Submission from Dorsey Standish, Chief Mindfulness Officer at Mastermind Meditate.
34 Muscle Growth	* Submitted by Paul Harsora, MD. @ parul.harsora on Instagram
35 What strategies can be used to maintain good heart variability and mental well-being, even when life is stressful?	Submitted by Sonia Dhingra, high school student class of '21; Williams College class of '26, intern at Center for Brain Health at the University of Texas at Dallas, 2019-20; intern at Mastermind Meditate, 2020-21.
36 Why is the roof this shape?	Submitted by Girls Inc. of Metropolitan Dallas as part of their Create Your Own walkSTEM project.

### Her STEMLens Quest

Can you find the five hidden objects in this month's exhibit?



Grackle



Ballpoint Pen



Bread



Toy House



Reflecting Pool