

## MESA Summer Academy: Solar System Mission Possible

### Description

Get a head start on your career in space exploration with MESA's Summer Academy! Students will plan and build remote robots, fly rockets, and learn to code with Sphero robots, while cementing broader concepts from across the math, science, and technology curriculums. The two-week camp will also include field trips and meetings with scientists and space professionals. Each student will participate in collaborative and independent research, and a design-and-build task, all under the guidance of Temple University faculty and counsellors. As a camp, we will form questions, research answers, and discuss what we learn: inquiry learning is a fun and scientifically-sound way to explore this topic, as we share knowledge as a community and work together to explore the science of space.



### Logistics

The program will take place between July 9 and 20, from 9am until 4pm, on Temple University's Main Campus. Student can be dropped off after 8:30am and must be picked up by 4:30pm.

The program fee is \$595. Lunches, program t-shirts, and course materials are included.

Apply before May 1 for an early bird discount of \$50. There is a 10% discount for siblings, and for children of Temple University employees, students and alumni. Limited scholarships are available based on financial need and North Philadelphia residency (located in north of City Hall in Philadelphia).

**Eligibility:** This program is for students currently in grades 5 through 8. Students from North Philadelphia are strongly encouraged to apply.

**Application:** <http://tiny.cc/MESASolarCamp>

**Online Application:** <http://tiny.cc/MESASolarCamp>

**Contact:** Abeer El-Zaher at 215-204-7889 or [mesapa@temple.edu](mailto:mesapa@temple.edu)

**More Information:** Open House on April 28, 9-10am <http://tiny.cc/MESAOpenHouse>



### Next Generation Science Standards

This program is aligned with NGSS Standards MS-ESS1 and MS-ETS1.

### **Learning Objectives**

By the end of the camp, students will:

- Describe and analyze new concepts and problems
- Develop models to investigate these concepts and problems through collaborative and independent research
- Demonstrate newly-gained competencies in procedures and methods from across the STEM curriculum, including coding and scientific design
- Explore a range of STEM fields and their relationship to students' work through discussion with scientists and other professionals
- Identify and discuss current topics in space technologies, including space flight, space exploration, and human needs in space
- Reflect on and synthesize their daily learning experiences

### **Learning Outcomes**

Students will complete a short series of questions at the beginning and end of the program, designed to assess the knowledge gained over the course of the program. Throughout the two-week program, students will work on projects under the direct supervision of Temple University faculty, who will provide guidance and assessment, and who will ensure that each student is challenged and has the tools for success in meeting those challenges.

Differentiated instruction is a fundamental part of the camp's approach to student learning: all elements of the program will include multiple entry and exit points, as well as hands-on activities based around high-interest topics, to ensure the inclusion and success of every student and their individual learning style.

### **Program Structure**

Each on-site day will include the following core components:

- Inquiry Questions: as a group, students examine questions and concepts, and develop ways to examine them
- STEM Investigations: students participate in hands-on activities and experiments to examine key concepts from across the Science, Technology, Engineering, Arts, and Mathematics curriculums
  - Week 1 focuses on topics including magnetism, dark matter, electricity, and atoms
  - Week 2 focuses on engineering and building
- Sphero Coding: students have daily sessions to develop their coding skills
- Reflections: students reflect on their daily experiences, enabling them to continuously synthesize the content and skills covered in the program
- Physical activity: daily swimming sessions

In addition, the program will include field trips to science institutes/museums to further enhance the program's engagement with hands-on scientific exploration (locations to be confirmed).