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NORTHWEST EARTH AND SPACE SCIENCES PIPELINE

University of Washington
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Box 351310
Seattle, Washington 98195-1310

August 2020 NESSP Two-Day Teacher Workshop

*Professional Development for Hands-on Virtual NASA STEM Projects
for Middle and High School Students*

When: August 24–25, 2020

Where: Virtual (details to registered participants only)

Register: nwessp.org/programs/pd

Register by: August 10 (to receive free supplies*)

In a time when social distancing is important for student safety, the Northwest Earth and Space Sciences Pipeline's student challenge program offers activities that can be carried out remotely even as students still work collaboratively as teams. Challenge activities support NGSS and Common Core Standards.

Student teams can choose to participate in NESSP's upcoming ROADS on Asteroids challenge — or educators can select individual activities to supplement an existing course. The program also provides students, whether participating in the full challenge or not, opportunities to meet (virtually) with NASA experts.

The August 2020 two-day workshop will cover topics relevant to the ROADS on Asteroids challenge, including: geology, environmental sciences/remote sensing, astrobiology, engineering design, programming, and documenting experimental procedures. No prior experience is needed; additional material will be available online to assist educators and students.

Day 1: *The Mission, the Mission Development Log, and Planetary Sciences*

(All times are in Pacific Time)

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|--|---|
| 8:45 Sign in (required for Clock hours) | 1:30 Field test microscope (Personal experimentation time) |
| 9:00 Introductions; NESSP Staff | 2:00 Add your notes to the Mission Development Log (Personal experimentation time) |
| 9:15 Overview of the Mission | 2:30 Breakout rooms to discuss observations |
| 10:00 Search for signs of life: Methane and carbon dioxide | 3:00 Drone basics |
| 10:15 Break | 3:30 Break |
| 10:30 Field test detectors (Personal experimentation time) | 3:45 Flight Practice including remote sensing (Personal experimentation time) |
| 11:00 Add your notes to the Mission Development Log (Personal experimentation time) | 4:15 Add your notes to the Mission Development Log (Personal experimentation time) |
| 11:30 Breakout rooms to discuss observations | 4:30 Breakout rooms to discuss observations |
| 12:00 Lunch | |
| 1:00 Build your own microscope:
Foldscope | |



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Day 2: Engineering Design and Programming

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- | | |
|--|---|
| 8:30 Sign in (required for Clock hours) | 10:45 Break |
| 8:45 Recap | 11:00 Programming (continued) <ul style="list-style-type: none">• Loop commands• Conditional statements |
| 9:00 Engineering Design: Making your robot and lander | 12:00 Lunch |
| 9:20 Do it yourself build (Personal experimentation time) | 1:00 Use of sensors <ul style="list-style-type: none">• Gyro sensor• Color sensor• Ultrasonic sensor |
| 10:00 Programming for middle and high school students – separate break out rooms for LEGO Mindstorms versus Makeblock mBot Ranger <ul style="list-style-type: none">• Basic Commands• Chaining commands together | 2:00 Landscape Morphology: Geologic processes in a sandbox |
| | 3:00 Finish |

* Supplies

NESSP is able to provide, at no cost to participants, the STEM supplies that will be used in the workshop. To receive your free supplies in time, you must register by **Monday, August 10, 2020**.

Supplies available include:

- Methane detector
- Carbon dioxide detector
- Mini-drone
- Microscope (option of one of the below)
 - [Foldscope](#) (pack of 20)
 - Digital microscope (1)
- [Makeblock mBot Ranger](#) (If you have a LEGO Mindstorms robot you are welcome to use that — the workshop is designed to accommodate both systems.)

Class supply support is also possible for schools with greater than 50% free and reduced lunch (dependent on availability of funding).