

Solar Observing in Schools

Teacher Professional Development Day



WELCOME!

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<http://physics.clas.wayne.edu/astronomy/sos.php>

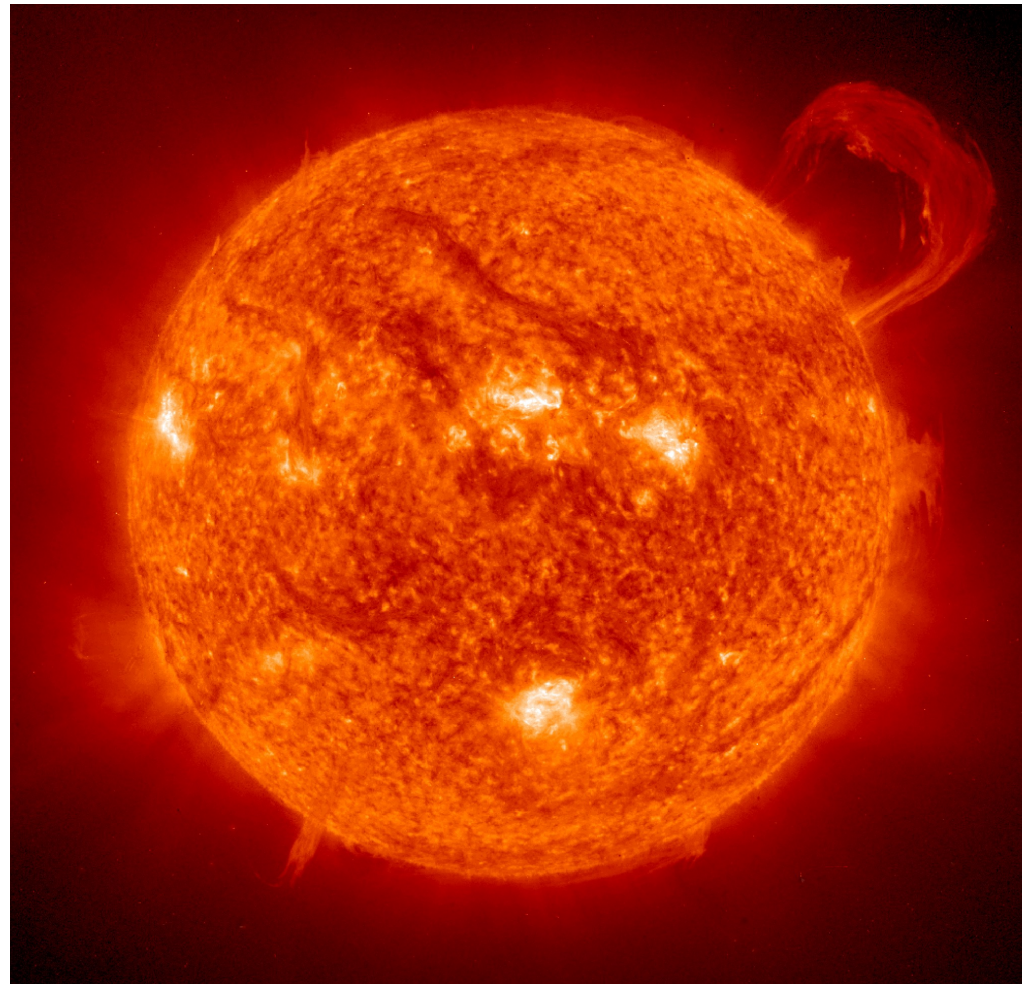
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Why?

- We all understand the importance of recruiting and maintaining a science-educated workforce
- Astronomy plays an important role in getting students interested in STEM fields
- Often a lack of training in astronomy
- Hard (logistically) to do night-time observing in schools - easier to do solar observing!

Goals for today

- Learn about observing the Sun, and be trained how to use the Coronado Personal Solar Telescope
- Get a refresher on material in the curriculum, including:
 - ➔ Planets
 - ➔ Stars
 - ➔ Galaxies and cosmology
- ***Have a chance to ask questions!***



Middle school (8th grade)

Unit question: *What systems are at work in our Universe?*

Focus question: *What is Beyond Earth?*

(Some of the) Teaching objectives:

- Explain the formation of the Universe
- Describe different types of galaxies including the Milky Way
- Identify the objects that make up our solar system

Michigan High School Content Expectation Earth Science

STANDARD E5: THE EARTH IN SPACE AND TIME

Students explain theories about how the Earth and universe formed and evolved over a long period of time. Students predict how human activities may influence the climate of the future.

Today's topics

The Sun & Stars

E5.2A, B, C, D, e, f, g, h

Star and planet formation

E5.3A

Formation and evolution of the
Universe

E5.1A, b, c, d

Today's program

Time	Activity
9:00 - 9:30	Introduction and entrance survey
9:30 - 10:30	The Sun and the lifecycle of stars
10:30 - 10:45	Break
10:45 - 11:00	In-class solar activities and exercises
11:00 - 12:00	Observing with solar telescopes
12:00 - 1:00	Lunch
1:00 - 1:30	Formation and evolution of solar systems
1:30 - 2:00	Formation and evolution of the Universe
2:00 - 3:00	Introduction to the Zooniverse
3:00 - 3:15	Break
3:15 - 3:45	Wonders of the Universe
3:45 - 4:15	Stellar death: white dwarfs, neutron stars and black holes
4:15 - 4:45	Black Holes: the other side of infinity
4:45 - 5:00	Exit survey

Entrance survey

- To measure the effectiveness of today, there is an entrance and exit survey.
- It is **anonymous**, but to match the surveys from the beginning and end of the day please use the randomly assigned ID in your folder