



PISGAH
ASTRONOMICAL
RESEARCH
INSTITUTE

Homeschool Day at PARI

Friday, April 30, 2010

<u>Time</u>	<u>Grade Level</u>	<u>Program</u>	<u>Location</u>
9:30 – 10:00	All	Check-in	CAB - Lobby
10:00 - 10:45	K-2	Colors of Earth	CAB –MMR
	3-5	Ocean Motion, Part I	CAB -- Downstairs Lab
	6-8	Orienteering	CAB -Control Room
	9-12	Stars of Lewis and Clark	Building 3 - StarLab Planetarium
11:00 – 11:45	K-2	Hemispheres	CAB – MMR
	3-5	Lunch	Cafeteria
	6-8	Stars of Lewis and Clark	Building 3 - StarLab Planetarium
	9-12	Lunch	Cafeteria
12:00 – 12:45	K-2	Lunch	Cafeteria
	3-5	Stars Around the World	Building 3 - StarLab Planetarium
	6-8	Lunch	Cafeteria
	9-12	Earth Observation, Part I	CAB – MMR
1:00 – 1:45	K-2	Stars Around the World	Building 3 - StarLab Planetarium
	3-5	Ocean Motion, Part II	CAB –Downstairs Lab
	6-8	Tracking Winds	CAB –MMR
	9-12	Earth Observation, Part II	CAB -- Control Room
1: 45 -- 2:00	All	Certificate distribution	Last class location
2:00	All	Departure	



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Welcome to Homeschool Day at PARI – We hope that you and your children enjoy your day and find it very educational.

Basic Information:

Parents/Chaperones: No child may attend a program unaccompanied by a responsible parent/chaperone. If you have more than one child in your family/group who are in different grade level groups and will be going to different programs at the same time, you must have a parent/chaperone for the child(ren) going to each program. Groups must have at least one parent/chaperone for each four children. There is no charge for parents/chaperones. Exceptions will be made for high school age students, when younger children are part of the same group.

Restrooms: Restrooms are available in The Cline Administration Buildings (#1), The StarLab Building (#3) and the Cafeteria (#29).

Accessibility: All facilities are handicap accessible.

Lunch in the Cafeteria (Building 29): You and your children may use the cafeteria to eat your lunch. Soft drinks are available for \$.60 from the machine in The Cline Administration Building. We also suggest that groups participate in the Galaxy Walk during their lunch hour or visit the image gallery in the Cline Administration Building.

Photographs: Photographers will be documenting the activities of Homeschool Day at PARI throughout the day. Photographs will be used by PARI for our web site, brochures and possible publicity. If you are not interested in having your child photographed, please let the photographer or a PARI staff member know before their picture is taken.

Program Evaluation: At the end of the day, please complete the Program evaluation form online. This will help us to improve our future programs for homeschoolers.

PARI Teaching Staff:

Dr. Michael Castelaz – Science Director
Dr. Bob Hayward – Astronomer/Educator
Christi Whitworth – Education Director
Ralph Patterson – Science Educator

If you have any questions, ask for Dr. David Clavier, Vice President of Administration and Development.

Contact Information: For additional information contact Dr. Dave Clavier at e-mail dclavier@pari.edu or telephone 828.966.4097.



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Grades K-2

Colors of Earth

Students will make believe they are space travelers and have found the third planet from the Sun. The space travelers carefully observe and record the colors of the planet. Their observations will be used to explore the Earth's land, plant, and ocean surface features.

Hemispheres

Students will identify the hemispheres of the Earth, as well as the continents and oceans associated with each of these. The association with astronomy and special observatories in the world will also be discussed. Leading to the concepts of latitude and longitude lines around the globe.

Stars Around the World

People around the world see stars in their sky. Do they see the same stars? If they do, do they always draw the same star pictures, i.e., constellations? We will look at the night sky through the eyes of Native Americans and people in Africa, Asia and Central America. We will learn how our geography, i.e., where we live, affects the constellations we see in the sky and how our culture gives us the star legends we tell about them.



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Grades 3-5

Ocean Motion, parts I & II

Earth's oceans are the greatest influence on global climate. Only from space can we observe our oceans on a global scale and monitor changes in ocean currents and heat storage. Students will study ocean temperature and deep currents through hands-on activities and images from satellites like TOPEX/Poseidon.

Stars Around the World

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Grades 6-8

Orienteering

Students will travel around campus to find specific locations and gather markers that they visited those places. This hands-on opportunity to use topographic, scaled and unscaled maps will help students see the helpful ways images from above can lead to knowledge about the surface of the Earth.

Stars of Lewis and Clark

President Thomas Jefferson tasked Meriwether Lewis and William Clark with making a map of the new Louisiana Territory the United States had just purchased from Emperor Napoleon of France. Today that would be simple; just use photographs from space and tie them into the GPS (Global Positioning Satellite) system. But, how did these explorers do it in the first decade of the eighteenth century?

We open the lesson with a brief review of the Lewis and Clark expedition. We then view the night sky as seen by the ancient Greeks. After all, the Captains had to be able to recognize at least the most prominent of the constellations in each season in order to locate the nine stars they used for navigation.

Next, we break down the measurements into two areas: latitude and longitude. Lewis and Clark measured their latitude by measuring the altitude of the North Star and the noontime Sun. We will discuss the rotation of the earth and the special place of Polaris in navigation. We also discuss the seasons and the changing altitude of the Sun as the seasons progress. To calculate longitude, Lewis and Clark took observations of the angles between the Moon and the nine navigational stars. Thus, we must understand how the Moon moves through the nighttime sky.

Wind

Wind is air flowing across the Earth's surface. Winds are created by differences in atmospheric pressure that force air to flow from zones of higher pressure to zones of lower pressure. On the Earth's surface, the differences in pressure are the result of unequal heating of the surface by solar energy. The resulting wind patterns are primarily the result of both the change in pressure and the rotation of the Earth. Students will use images from the NASA QuikScat satellite to explore global wind patterns.



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Grades 9-12

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Earth Observation: Water Clarity and Algae Blooms.

Students will use images from the Sea-viewing Wide Field-of-view Sensor (SeaWiFS) to monitor chlorophyll concentrations, an indicator of Algae blooms, near major river systems connected to our watershed. SeaWiFS is an instrument on the Orbview-2 satellite for studying ocean characteristics like chlorophyll concentration and water clarity. Students will also be shown how to make backyard observations which can be used in parallel with the satellite observations.