

SciVentures: Our Air, Our Water, Our Homes

July 15-19, 2013 and July 22- 26, 2013

Center for Educational Excellence, Chapel Hill, NC



UNC
MOREHEAD PLANETARIUM
AND SCIENCE CENTER



Presented by the MOREHEAD PLANETARIUM AND SCIENCE CENTER
with the UNC CENTER FOR ENVIRONMENTAL HEALTH AND SUSCEPTIBILITY

Come explore your environment and investigate environmental health factors through this weeklong, hands-on summer camp! Discover different effects of the environment, in our bodies, where we live and even in the world around us. Through hands-on activities, you'll learn about the spread of contaminants in communities and homes and ways to prevent them. You will leave this camp with a stronger understanding of the positive impacts we can make on human health by addressing certain hazards in our air, water and homes!

Monday, July 15 & 22:

Introduction to Environmental Health

9:00AM **Welcome and Introductions**

9:30AM **Making Environmental Health Connections**

We will begin our investigation into environmental health by demonstrating how our environment and human health are interconnected using examples of environmental exposures in our everyday lives. Adapted from *Making Global Connections* Activity, Facing the Future

10:45AM **Environmental Health Risk Assessment**

Individually you will identify and rank perceived risks of technologies, environmental hazards, and activities. Then you will be able to compare and contrast your rankings with other campers and with risk experts to see how perceived risk can vary. Adapted from *Risk and Ranking* Activity, Project Learning Tree

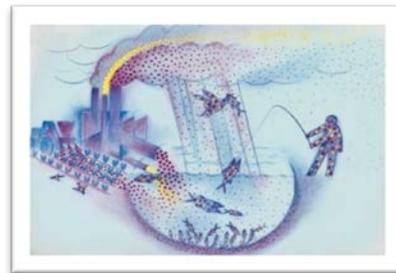
11:20AM **Demonstrating Susceptibility**

As a group, we will discuss factors that influence individual susceptibility to contaminants and examine how the dose makes a difference in the effects of exposure. Adapted from *Tox-in-a-Box*, University of Washington

11:50AM **Lunch**

12:50PM **Spread of Contaminants**

When pollutants like mercury are introduced into the environment and enter the food chain, humans can be exposed to the contaminant through consumption of contaminated fish or wildlife and may experience a number of negative health effects. We will each calculate our own estimated mercury



intake to learn how we might be exposed to this contaminant in our daily lives. Mercury Calculator available at <http://www.nrdc.org/health/effects/mercury/calculator/start.asp>

1:15PM

Biomagnification Game

Mercury increases in concentration as it moves up the food chain in a process called biomagnification, which we will demonstrate in this role-playing game. Adapted from *Deadly Links*, Project Wild

2:00PM

Handwashing Investigation

Once we have gained a better understanding of how contaminants spread and how personal choices can affect our risk of exposure in the previous activities, we will then be able to discuss possible ways to reduce exposure to potential health threats. One possible way to reduce exposure to contaminants is through handwashing. To determine the most effective handwashing method, we will split into groups and experiment with different techniques. Adapted from HOPE Partnership

3:00PM

Blog Setup and Posting

3:50PM

Daily Wrap Up and Departure

Tuesday, July 16 & 23: *Our Water*



9:00AM

Introduction to Water Quality and Our Health

9:15AM

Understanding Watersheds with an EnviroScape

We will begin our investigation into water quality and health by studying watersheds. A watershed is the area of land where all of the water that is under it or drains off of it goes into the same place (EPA). Human activity affects watersheds in many ways, which we will examine in more detail using a hands-on EnviroScape model.

10:30AM

Water Quality Lab

To determine the water quality of a local stream, Bolin Creek, we will collect and identify the macroinvertebrates found in the water. The group will then explore possible reasons the water is healthy or unhealthy and try to identify potential sources of water pollution.

12:15PM

Lunch

1:15PM

Water Muddle Up and Clean Up

We will explore how land use affects water quality using models of water contamination and will learn about some clean up techniques that are being employed at hazardous waste sites in North Carolina. Adapted from *There Is No Point to This Pollution*, Healthy Water, Healthy People

2:15PM

Poison Pump

In small groups, you will decipher clues to solve how a mysterious illness spread through 19th century London. We will then discuss why a clean water supply is important to public health. Developed by Project Wet

3:15PM

Blog Posting

3:50PM

Daily Wrap Up and Departure



Wednesday, July 17 & 24:

Our Air

9:00AM **Introduction to Air Quality and Our Health**

9:30AM **LEGO Modeling Pollution**

Using LEGO bricks, we will build air pollutant molecules in order to understand components of our atmosphere and kick off our exploration into air quality and health. We will then discuss potential health effects of exposure to common air pollutants and ways to reduce both the production of and exposure to air pollutants. Developed by the Mind and Hand Alliance of the MIT Edgerton Center



10:15AM **Travel to Cogeneration Plant**

10:45AM **Tour of Cogeneration Plant**

We will be guided along an exciting tour of the Cogeneration Plant to learn about how the plant efficiently produces both steam and electricity to be used on UNC's campus by burning coal, and how the plant has recently taken steps to become more sustainable by testing more environmentally friendly fuels.

11:45AM **Return to CCEE**

12:00PM **Lunch**

1:00PM **Understanding Asthma and Making Mucus**

Poor air quality can affect health, including triggering an asthma attack during which the bronchial tubes constrict, swell, and there is excess mucus. We will make our own (fake) mucus and learn more about its role in the body and the effects of over-production during an asthma attack. Developed by the Integrated Environmental Health Middle School Project



1:30PM **Narrowing Airways Race**

During this activity, we will explore triggers that cause asthma attacks and demonstrate how the airways are affected. Developed by the UNC CEHS Community Outreach and Engagement Core (COEC)

2:30PM **Monitoring Air Pollution**

Ken Sexton, UNC Environmental Science and Engineering

The Smog Chamber in the UNC Gillings School of Global Public Health is designed to analyze the effects of ozone on the air quality. Ken Sexton from UNC Environmental Science and Engineering Department, will share with us the work his lab performs to help people and agencies understand the effects of air pollution upon air quality. He will also demonstrate how air pollution can be monitored, particularly how portable monitors are used to detect carbon monoxide and other pollutants.

3:15PM **Blog Posting**

3:50PM **Daily Wrap Up and Departure**

Thursday, July 18 & 25:

Our Homes

- 9:00AM** **Introduction to Healthy Homes: How Healthy Is Your Home?**
We will begin our investigation into our homes and our health by exploring, discussing, and illustrating what we consider to be in “healthy” and “unhealthy” homes.
- 9:30AM** **Matching Asthma Triggers and Solutions**
You will be introduced to some common indoor environmental asthma triggers and work in teams to identify asthma triggers and their corresponding solutions. Developed by the UNC COEC
- 10:30AM** **Studying Dust Mites**
One possible invisible home hazard is dust mites, which can't be seen with the naked eye but may contribute to asthma or allergies. You will all help collect dust samples in the classroom and examine them under a microscope to discover what potential hazards might be hiding. Developed by Discovery Education
- 11:00AM** **Sorting Lead Sources**
You will work together as investigating teams to identify potential sources of lead in our daily lives. Some of the sources of lead will surprise you! Developed by the UNC COEC for the HOPE Partnership
- 11:15AM** **Pest Survival**
In this fast-paced activity, you will discover what all pests need to survive and what people can do to eliminate pests in the home. Developed by the UNC COEC
- 11:45AM** **Lunch**
- 12:45PM** **Uncovering Hidden Hazards**
We will watch and discuss a short video that shows how public health officials assess homes for hazards to help families address poor indoor air quality, pests and pesticides, lead contamination, and certain safety hazards. *Uncovering Hidden Hazards in Your Home*, produced by the UNC COEC in partnership with DPH and the UNC Institute for the Environment
- 1:00PM** **Mock Building Assessment**
We will conduct a mock healthy homes assessment using tools and techniques demonstrated in the video and by Mel Caesar from Orange County Health Department and UNC COEC staff.
- 2:35PM** **Build a Healthy Home**
Drawing on your new knowledge of safe and healthy homes, you will get to plan and then build a model of the healthy home of your dreams using a variety of recycled scrap construction materials.
- 3:15PM** **Blog Posting**
- 3:50PM** **Daily Wrap Up and Departure**



Friday, July 19 & 26:

Our Environment

9:00AM **Introduction to Environmental Health and Our Community**

9:15AM **Travel to the Forest Theater on UNC's campus**

9:35AM **Follow the Dye**

Wendy Smith, Town of Chapel Hill

Wendy Smith, Town of Chapel Hill, will show us how water drainage systems work and why it is important not to dump things into storm drains in our community. The group will conduct an experiment to explore how water travels through the town's drainage system.

11:00AM **Leaving Your Mark**

In this service learning project, you will have the chance to leave your mark on the Town of Chapel Hill! We will empower other community members to help preserve our environment by placing markers on storm drains to remind the people of Chapel Hill that our drains go directly to local water systems.

12:30PM **Return to CCEE**

12:45PM **Lunch**

1:45PM **Building a Healthy Community**

Building on the week of learning experiences and activities, you will all work together to create a model of a healthy community using a variety of recycled scrap construction materials.

3:00PM **Blog Posting**

3:45PM **Closing Wrap Up and Departure**

