

**BLANDY**  
EXPERIMENTAL FARM



University  
*of Virginia*

# SCHOOLYARD SURFACES IN OUR WATERSHEDS

NSTA DECEMBER 12, 2019  
SEATTLE, WA

# WHO ARE WE?

## Blandy Experimental Farm, University of Virginia

Field ecology research station

State Arboretum of Virginia



**EMILY FORD**

LEAD ENVIRONMENTAL EDUCATOR

**LILLIAN LEDFORD**

ENVIRONMENTAL EDUCATOR

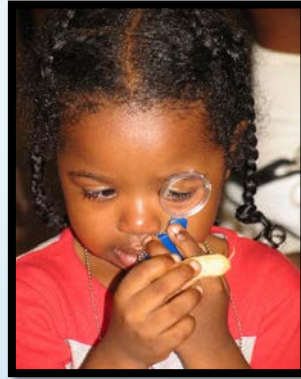
# UNIVERSITY OF VIRGINIA'S BLANDY EXPERIMENTAL FARM AND THE STATE ARBORETUM OF VIRGINIA

**OUR MISSION:** TO INCREASE  
UNDERSTANDING OF THE NATURAL  
ENVIRONMENT THROUGH RESEARCH  
AND EDUCATION.

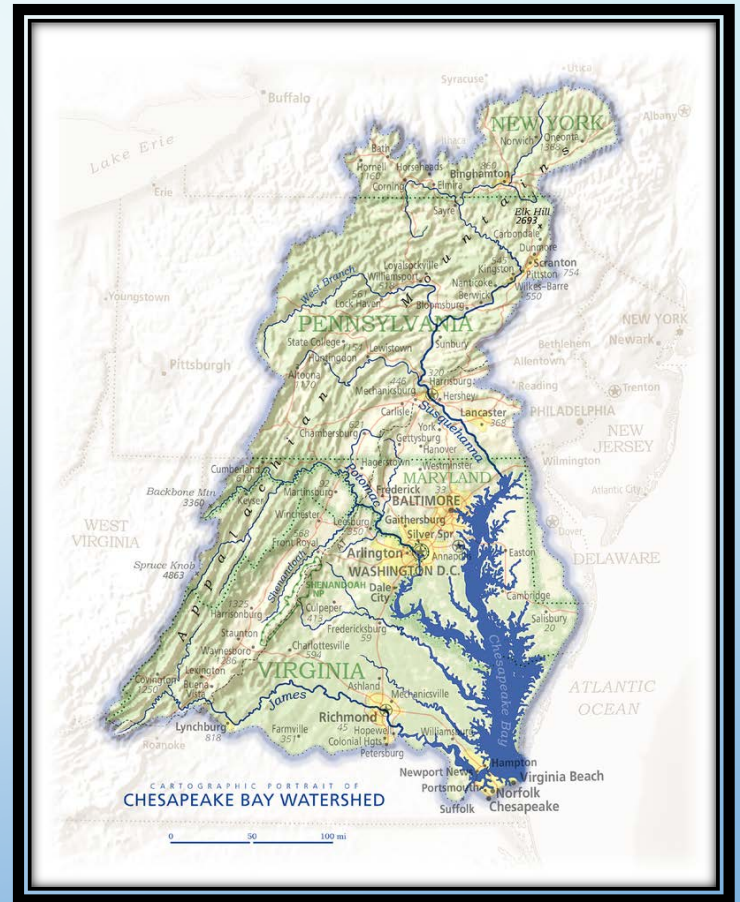


# EDUCATION OUTREACH

- HANDS-ON, OUTDOOR EXPERIENTIAL FIELD INVESTIGATIONS
- >7000 PREK-12 STUDENTS PER YEAR
- INQUIRY PROGRAMS
- CORRELATED TO STATE AND NATIONAL STANDARDS
- FIELD-BASED STEM LEARNING
- TEACHER PROFESSIONAL DEVELOPMENT WORKSHOPS




# MWEE CONNECTIONS



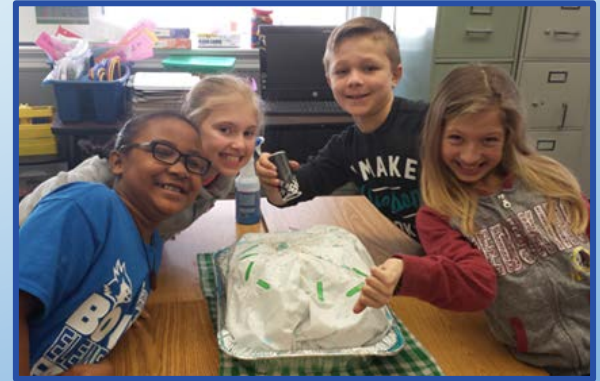
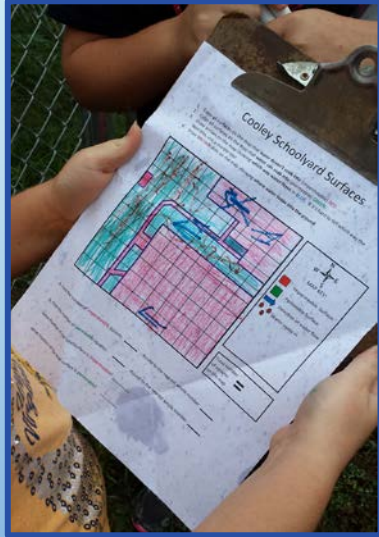
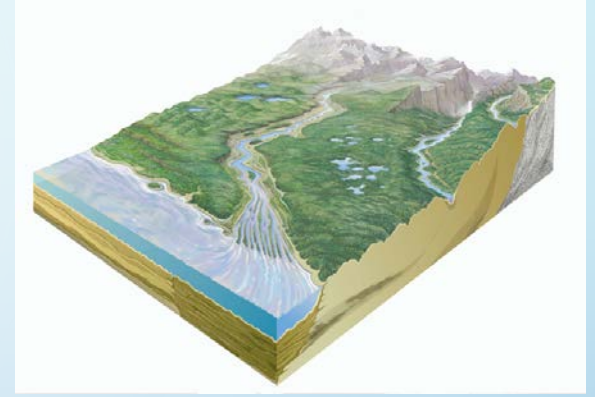


# LAND ACKNOWLEDGEMENT

WE WOULD LIKE TO ACKNOWLEDGE THAT WE ARE GUESTS IN THIS WATERSHED, LOCATED ON THE TRADITIONAL AND UNCEDED LAND OF THE FIRST PEOPLE OF SEATTLE, THE DUWAMISH (DKHW DUW'ABSH) PEOPLE PAST AND PRESENT, AND HONOR WITH GRATITUDE THE DUWAMISH AND THE LAND ITSELF.



# UNDERSTANDING WATERSHEDS



# SCHOOLYARD SURFACES INVESTIGATION

## KEY CONCEPTS:

- ❖ HUMAN IMPACTS
- ❖ RUNOFF
- ❖ EROSION
- ❖ PERMEABLE SURFACE
- ❖ IMPERMEABLE SURFACE
- ❖ STORMWATER MANAGEMENT





# Thank you!

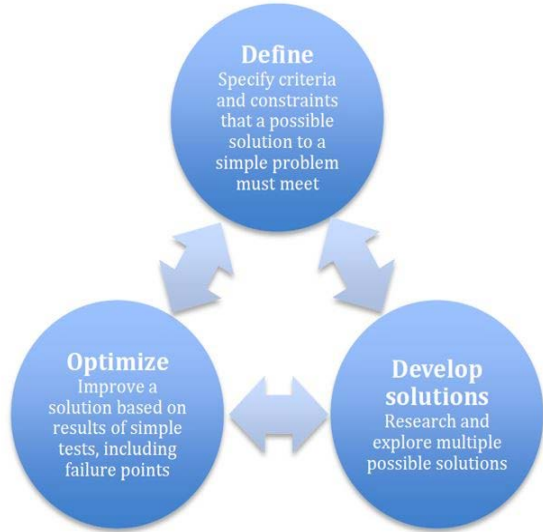


**BLANDY EDUCATION WEB PAGES & RESOURCES**

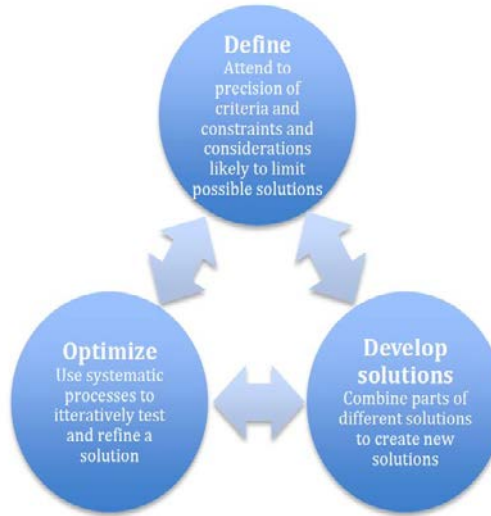
**[HTTP://BLANDY.VIRGINIA.EDU/EDUCATION](http://blandy.virginia.edu/education)**

# ENGINEERING DESIGN PROCESS-NGSS

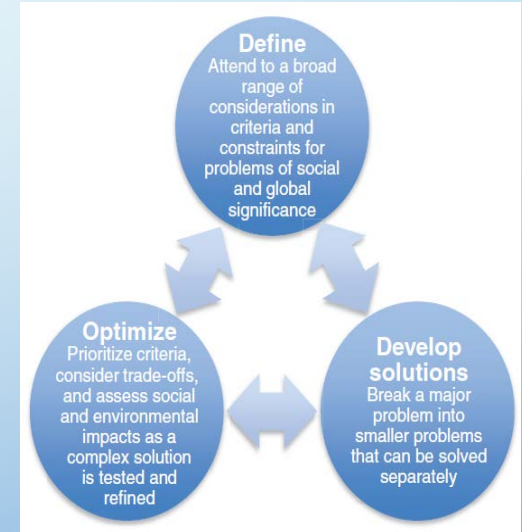
Grades 3-5



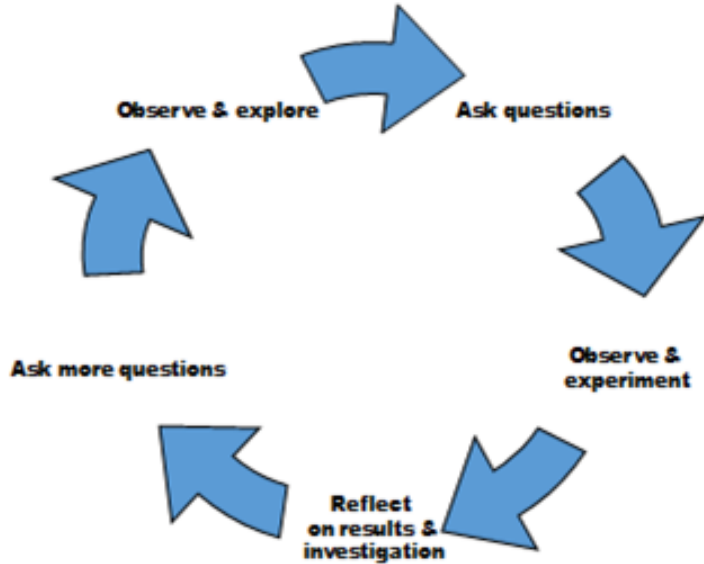
Grades 6-8



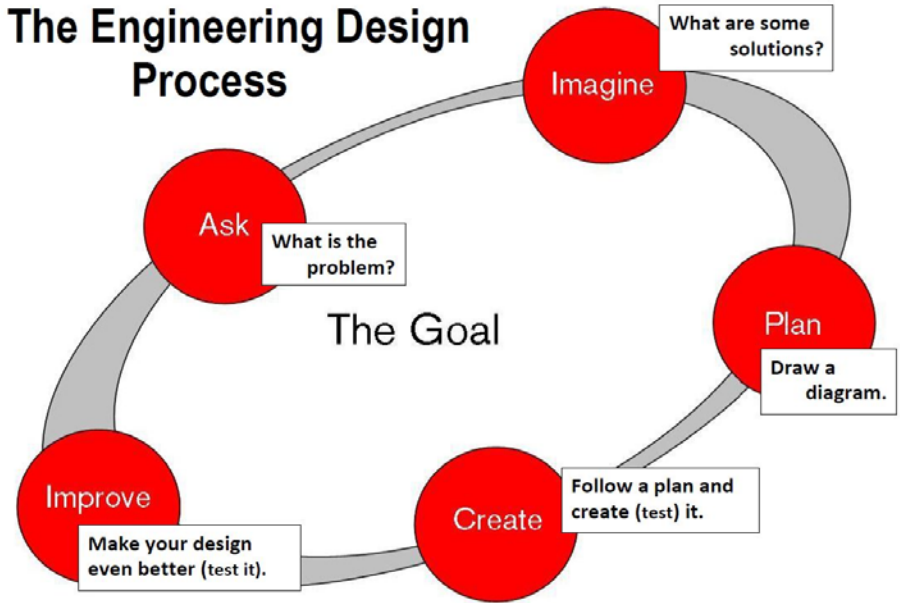
Grades 9-12



# Scientific Inquiry Process



# The Engineering Design Process



Credits: Engineering is Elementary, Museum of Science, Boston

# ENGINEER TO SOLVE A PROBLEM

**TRIAL 3:** DESIGN, BUILD, AND TEST A SYSTEM TO MITIGATE THE IMPACTS OF WATER RUN-OFF FROM YOUR ROOFS.

Use the  
same model  
from Trial 2.



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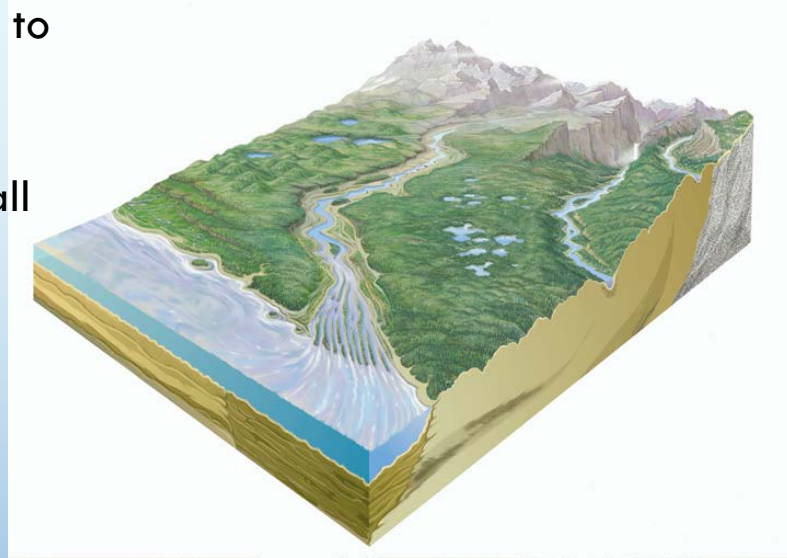
# MWEE CONNECTIONS

**Issue Investigation.** Roof model activity can be used to investigate an issue.

Student Questions: What happens to the water that fall on my roof? The roof at school?

Students create an action project based on these questions.

The roof model activity could be the engage piece to **Stewardship and Civic Action** empower students to adapt and apply the knowledge they have constructed through investigation. As students develop a claim, identify solutions, design plans, and take informed



# REFLECTION

1. DOES THIS INVESTIGATION INTEGRATE CONTENT AREAS? IF SO, WHICH CONTENT AREAS?
2. Can this investigation be extended to include additional content areas?
3. Why integrate content areas?
4. What instructional strategies promote integration?

Learning without reflection is a waste. Reflection without learning is dangerous.

*Confucius*

# KEY INVESTIGATION QUESTIONS



1. HOW DO OUR BUILDINGS IMPACT THE WATER CYCLE?
2. WHAT CAN WE DO TO LESSEN THE IMPACTS OF ROOFTOP WATER RUN-OFF?

