



State Hygienic Laboratory at the University of Iowa

Advancing Public Health Workforce Priorities in Iowa

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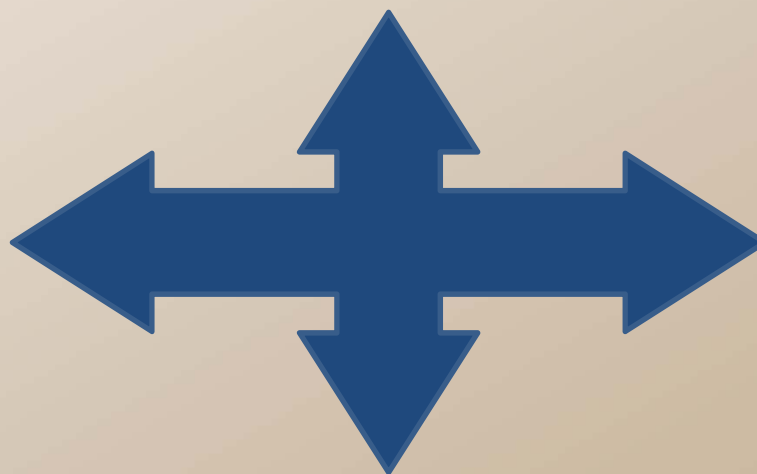


National Public Health Workforce Shortage

250,000 by 2020



New
Sciences



New
Techniques

New Partnerships



Student Mentorship Program



<http://www.shl.uiowa.edu/edtrain/opp/index.xml>

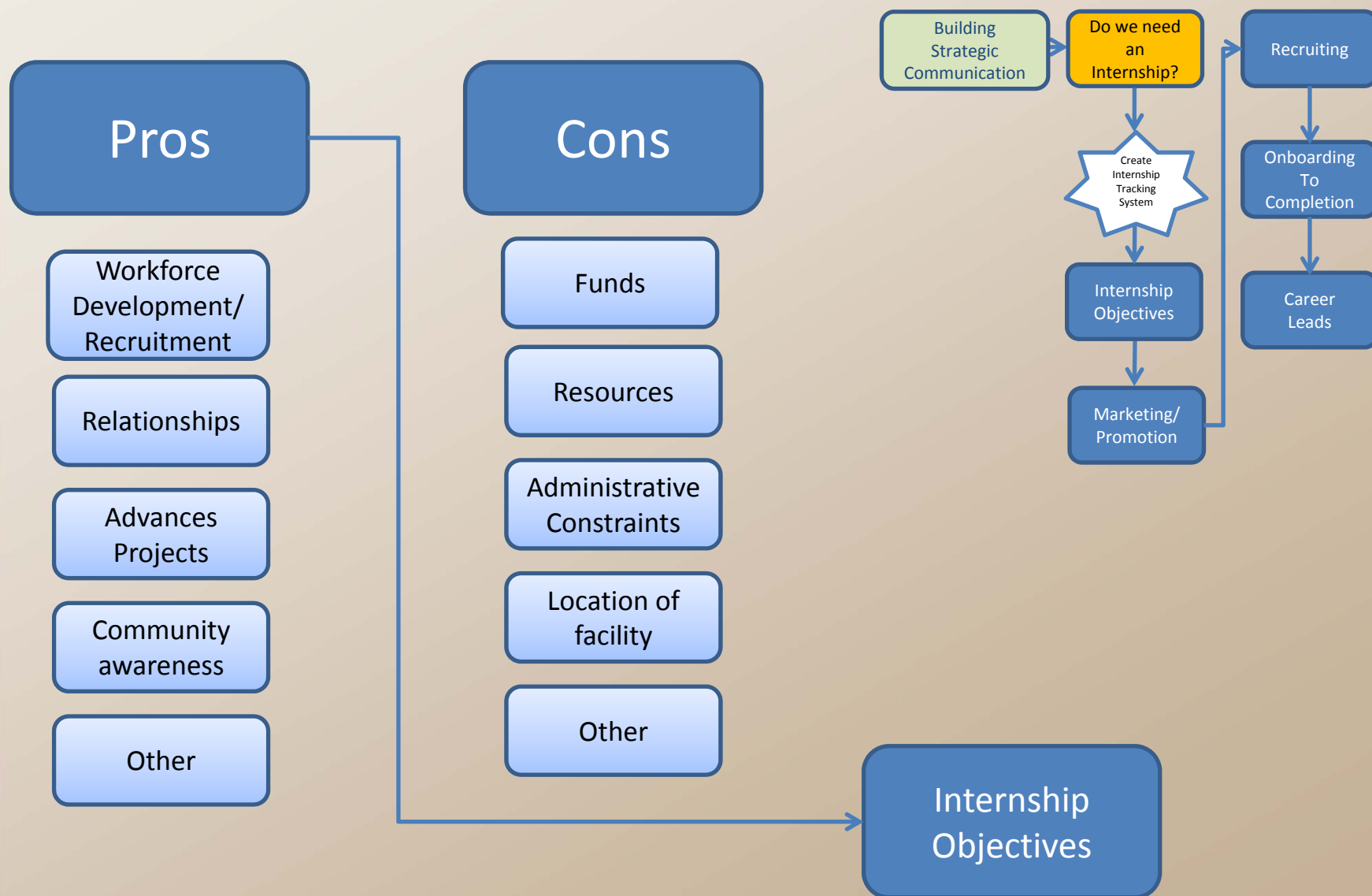


GERMinators with SHL Scientist Stephany Cochran



SHL Scientist John Vargo with student mentee

Do we need an Internship Program?





Internship Program

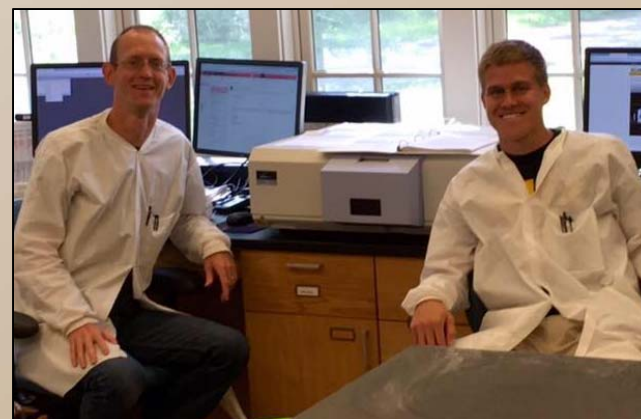


<http://www.shl.uiowa.edu/edtrain/internships/index.xml>



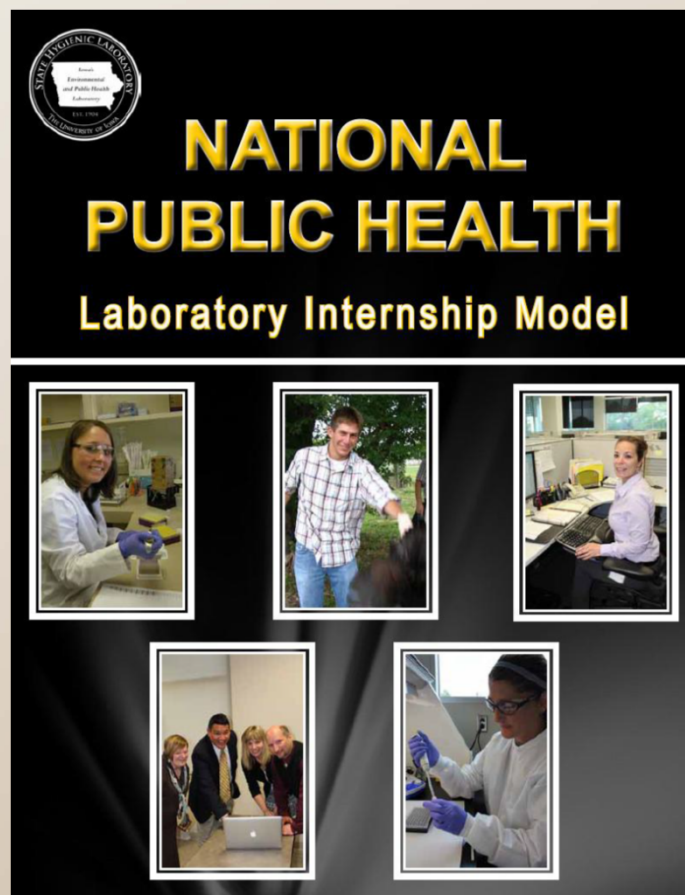
Interns and Practicum Students

Student	Focus Area	Location	College
Peggy Douglas	Micro	Coralville	UI College of Public Health
Reid Senesac	Molecular	Coralville	UI College of Public Health
Shima Ebed	Newborn/Maternal Screening	Coralville /Ankeny	UI College of Public Health
Ravish Patel	Process Improvement	Coralville	UI College of Public Health
Adrijana Pusnik	Process Improvement	Coralville	UI College of Public Health
Sarah Ischer	Lab Safety	Coralville	UI College of Public Health
Kaitlyn Daugherty	Rad Chem/Environmental	Coralville	University of Iowa
Mackenzie Stump	Enivironmental	Ankeny	Simpson
Dana Bohan	Environmental	Ankeny	Simpson
Kyle Read	Environmental	Lakeside	Wartburg
Joe Pugh	Microbiology	Coralville	St. Olaf College
Wesley Hottel	Molecular	Coralville	University of Iowa
Chelsea Hicks	Records	Coralville	UI College of PH
Kathleen Andruch	Microbiology	Coralville	UI College of PH
Zoe Muehleip	Public Policy	Ankeny	Simpson
Bianca Rodriquez	Education, Training, Professional Development	Coralville	University of Iowa





National Internship Model

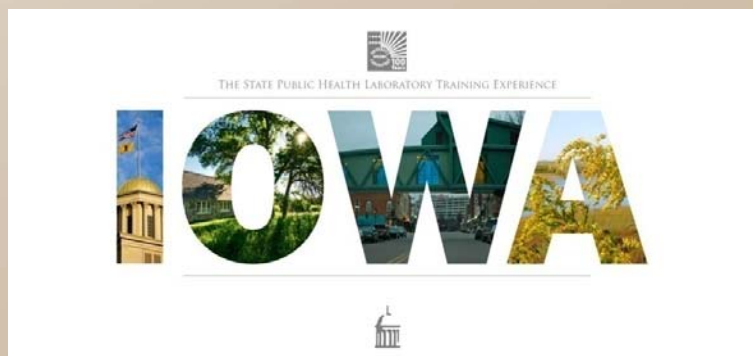
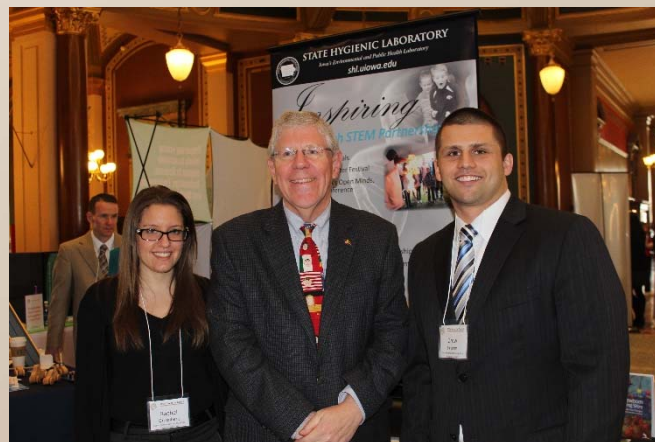


<http://www.shl.uiowa.edu/edtrain/tools/index.xml>

https://www.aphl.org/MRC/Documents/2012May_National-Internship-Model-VALT-final-web.pdf#search=national%20internship%20model

Fellowships

- Total Fellows – 29
 - 23 CDC/APHL Emerging Infectious Disease Fellows
 - 3 CDC/APHL Environmental Fellows
 - 2 CDC Public Health Associate Fellows
 - 1 ASM International Fellow





Fellowships

- APHL-CDC
 - Infectious Diseases Laboratory Fellowship
 - Environmental Public Health Lab Fellowship
 - Antimicrobial Resistance Fellowship
 - Bioinformatics Fellowship
 - Newborn Screening Fellowship
 - <https://www.aphl.org/fellowships/Pages/default.aspx>
- CDC
 - Public Health Associate Program (PHAP)
 - <https://www.cdc.gov/phap/index.html>
 - Laboratory Leadership Service (LLS) Fellowship
 - <https://www.cdc.gov/lls/index.html>

Job Shadow/Tours





Online K-12 Classes

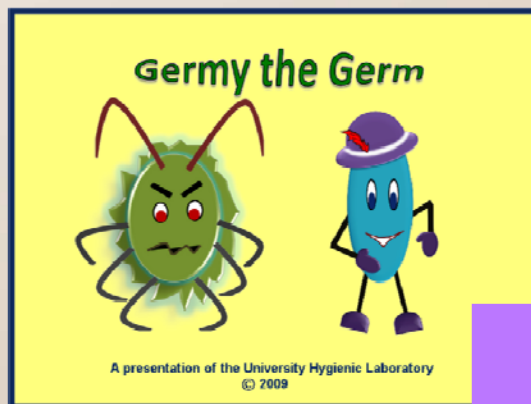


Newborn Screening: Growing up with PKU



An interactive presentation by the State Hygienic Laboratory -
Iowa's public health & environmental laboratory

© 2010, State Hygienic Laboratory at The University of Iowa



Germ the Germ

A presentation of the University Hygienic Laboratory
© 2009



Edible Aquifers

A "hands-on" science course
presented by the
University Hygienic Laboratory



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FREE DOWNLOAD

K-12 Courses Online
State Hygienic Laboratory
at The University of Iowa
uhl.uiowa.edu

Newborn Screening: Growing up with PKU

Grades 5 - 8



Germ the Germ
Grades K - 3

Edible Aquifers
Grades 3 - 6



Sponsored by AHEC
Area Health Education Center
Southeast Iowa

<http://www.shl.uiowa.edu/edtrain/tools/index.xml>

DID YOU SEE THAT?



<http://www.shl.uiowa.edu/edtrain/tools/playdidyouseethat.xml>



Iowa Governor's STEM Advisory



**GREATNESS
STEMS
FROM IOWANS**

GOVERNOR'S STEM ADVISORY COUNCIL

dedicated to building a strong STEM education foundation for all Iowans



<https://www.iowastem.gov/>

Who are STEM Leaders in Your State?

- APHL-CDC National STEM Recruitment Project
- STEM Contacts Across the Nation
 - <http://tiny.cc/STEMNation>



Far right- Dr. Jeff Weld, STEM Leader for Iowa



Governor Kim Reynolds with Teacher Extern at SHL



iExploreSTEM Festival



A big thank you to our sponsors
for supporting the first annual iExploreSTEM!

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iExploreSTEM is co-produced by the Iowa Mathematics & Science Education Partnership (IMSEP) and the State Hygienic Laboratory at The University of Iowa.

The Iowa Mathematics and Science Education Partnership is a state-funded initiative led by the University of Northern Iowa in partnership with Iowa State University and The University of Iowa. IMSEP's goals are to improve mathematics and science performance of Iowa students; to prepare more high-quality mathematics and science teachers for Iowa's schools; and to promote statewide collaboration and cooperation. For more information regarding IMSEP, go to iowamathscience.org.

The State Hygienic Laboratory is Iowa's environmental and public health laboratory. The Laboratory serves all 99 counties, providing infectious disease testing and surveillance, environmental monitoring, and newborn and maternal screening. Facilities are located at the University of Iowa's Research Park campus in Coralville, in the Des Moines suburb of Ankeny and at the Lakeside Lab in northwestern Iowa. For more information about the laboratory and its programs and services, visit iowahlab.org.



Sunday, September 18, 2011
1 - 5 p.m.

State Hygienic Laboratory
UI Research Park, Coralville

Welcome to
iExploreSTEM!

Your program for fun.



<https://iexplorestem.org/resources>

STEM BEST

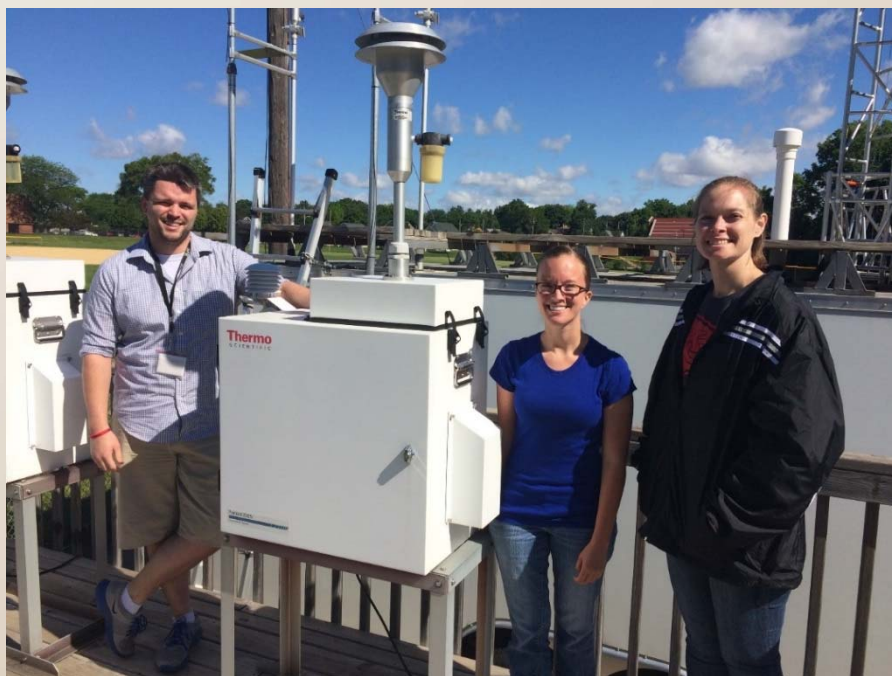
- Iowa STEM Innovator
- A new STEM Best program that has students solving problems for businesses across Iowa



<http://steminnovator.org/>

STEM Teacher Externship Program

- 16 Teacher Externs since 2011



“I had a wonderful experience and am excited to apply it to my teaching this fall.”

<https://www.iowastem.gov/externships>

STEM Hill Day



Developing Career Pathways

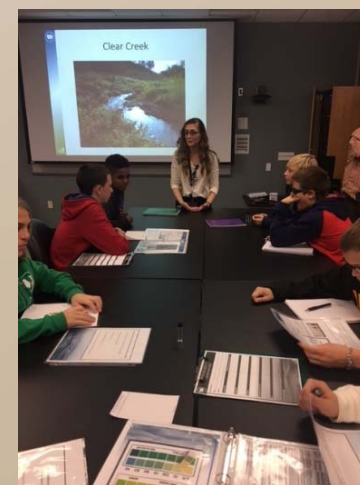
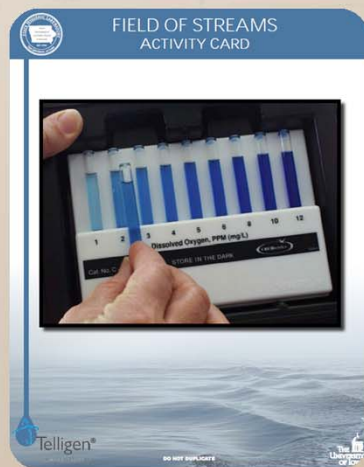
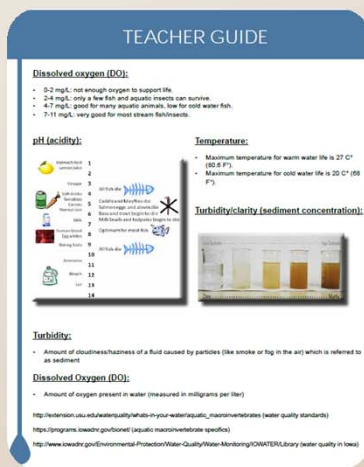
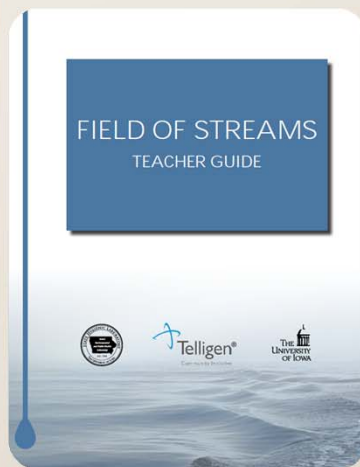




Field of Streams: Water Quality and Career Opportunities

- The *iExplore Laboratory Science* initiative is designed to provide opportunities for **middle level** (grades 6-8) students in the underserved populations in Iowa to both deepen their content understanding in STEM and **explore career opportunities in environmental and public health laboratory science**, through real-world, hands-on laboratory science experiences.
- Funding from **Telligen Community Initiative** is being used to:
 - Increase awareness of the variety of STEM career pathways, with a focus on public health laboratory science careers;
 - Increase opportunities to expose students from rural communities to real-world public health laboratory science experiences; and,
 - Develop an understanding of the relationship between the school science curriculum and the type of work laboratorians do at the State Hygienic Laboratory (SHL) at the University of Iowa as they engage in public health laboratory science careers.

Field of Streams: In Action



Student Engagement Example: Color Chromatography



Color Chromatography

Education is a core tenet of the State Hygienic Laboratory, which is part of the Governor's STEM Advisory Council. Laboratory staff provide training and education programs to teachers and students from all over Iowa. Grab some supplies and have fun with this colorful experiment!

TEACHERS JOIN THE FUN TOO!

A teacher from eastern Iowa performs the chromatography experiment using different supplies at the State Hygienic Laboratory.

THE SCIENCE BEHIND COLOR CHROMATOGRAPHY

- As the water travels up the coffee filter (capillary action) it carries the color pigments with it.
- Different color pigments are carried at different rates and some will travel further than others.
- How fast and how far the pigment travels depends on the size of the pigment molecule and how strongly it is attracted to the coffee filter.
- Some colors will separate because the water carries them at different rates.

HOW CHROMATOGRAPHY IS USED IN THE LAB

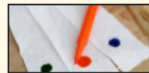
The State Hygienic Laboratory uses the same principles of color chromatography to identify various types of chemicals and pollutants in the environment. Instead of using water, chemists at the lab use gas and liquid to flow through a stationary substance. Just like color pigments, chemical molecules also have specific weights that will travel through a stationary object at different rates.

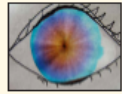
SUPPLIES

- Coffee filter or paper towel
- Water-based markers or gel food coloring
- Sponge (cut to fit in bottom of cup)
- Water
- Plastic cup

PROCEDURE

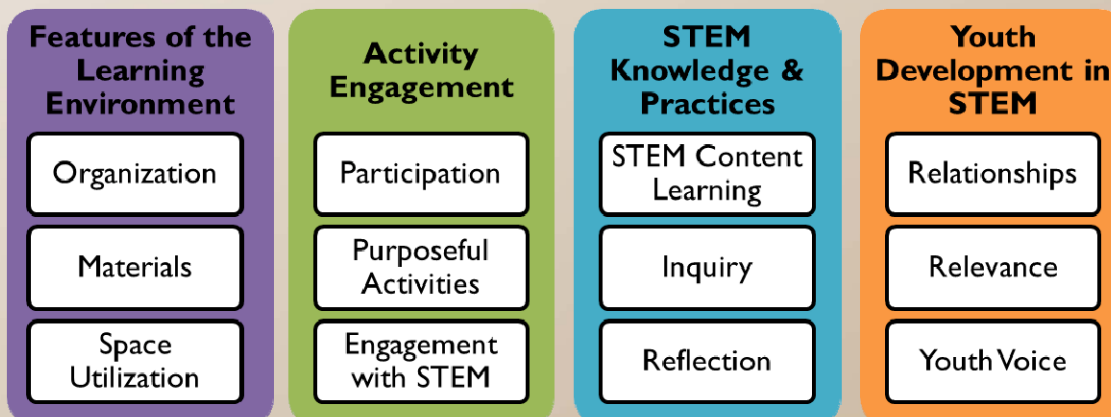
- Place sponge in the bottom of cup.
- Add enough water to come halfway up the sponge.
- Choose markers or food coloring in non-primary colors.
- Decorate the coffee filter.
- Fold coffee filter in half 3 times to make a wedge shape.
- Put the pointed end of the coffee filter in the cup so it rests on the wet sponge.
- Leave it in the cup and watch as the colors start to spread and separate.






Dimensions of Success DoS Observation Tool

- The DoS Observation Tool assesses 12 aspects (or dimensions) of afterschool STEM programming.
- The tool provides a definition for each dimension as well as rating guides (rubrics) for identifying four levels of quality along that dimension.
- In this section, for each of the 12 dimensions you will find 1) key ideas, 2) high- and poor-quality example activities, and 3) a URL for a high- quality activity video.



https://www.thepearinstitute.org/dimensions-of-success?trk=profile_certification_title

Center for the Advancement of Laboratory Science (CALS)





Center for the Advancement of Laboratory Science (CALS)

Center for the Advancement of Laboratory Science:
Your Resource for Education, Training and Professional Events



Center for the Advancement
of Laboratory Science



Brochure and Visitor Guide

<http://www.shl.uiowa.edu/cals/index.xml>



Grants/Funding

- Look at Foundations in your state that align with your goals
 - Telligen Community Initiative
 - Also in Illinois, Oklahoma, Colorado
 - Abbott Fund
 - Roy J. Carver Charitable Trust
- Partner with someone who already has a grant
 - NIH
 - NSF



Parting Words of Wisdom

- Start small but be strategic
- Get involved at the local, state and national level
 - Join APHL
 - Apply to serve on a national committee
- Contact the STEM leaders in your state
- Look for unique partnerships
- Share resources and wisdom

Questions?

Beth Hochstedler

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