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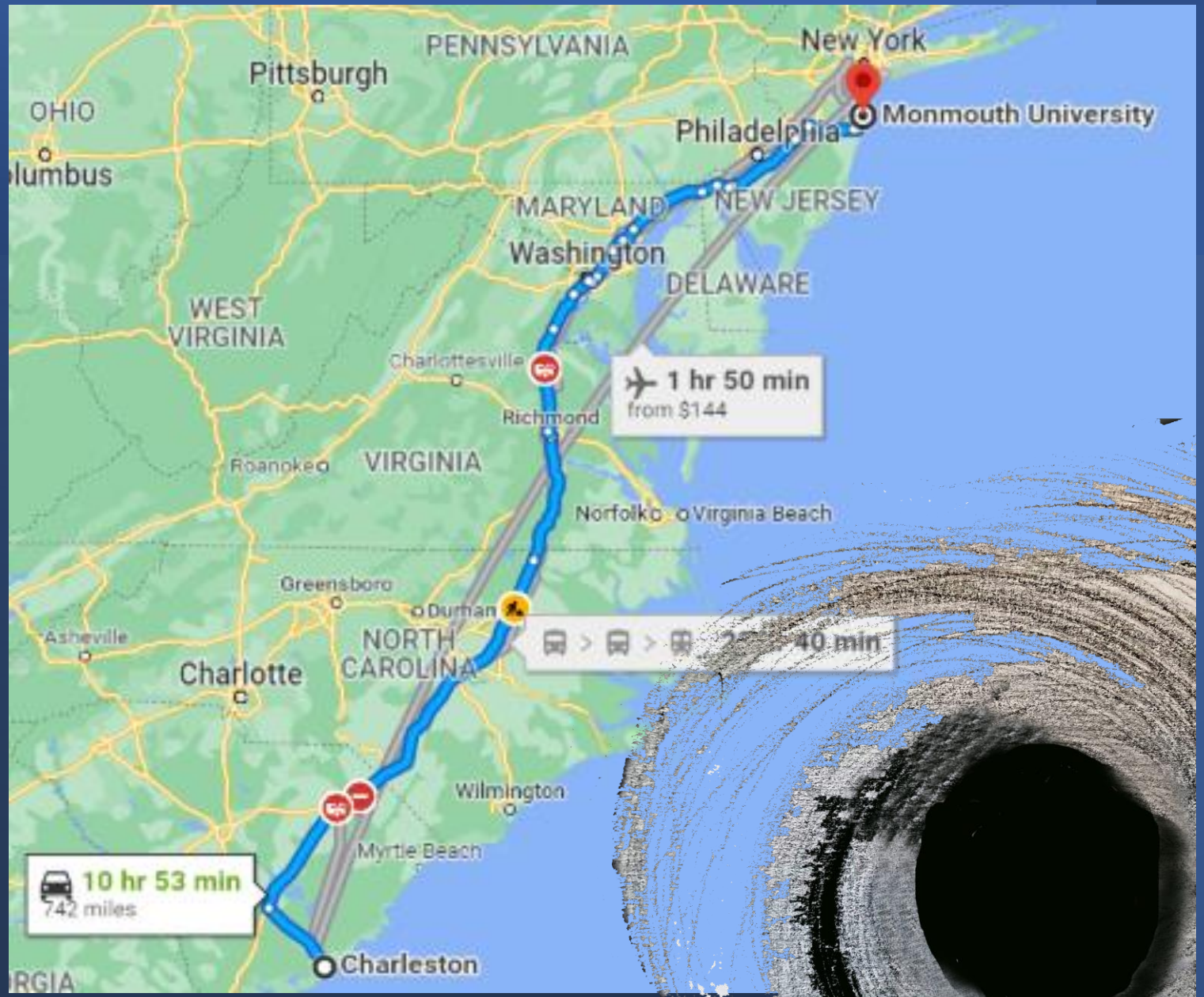
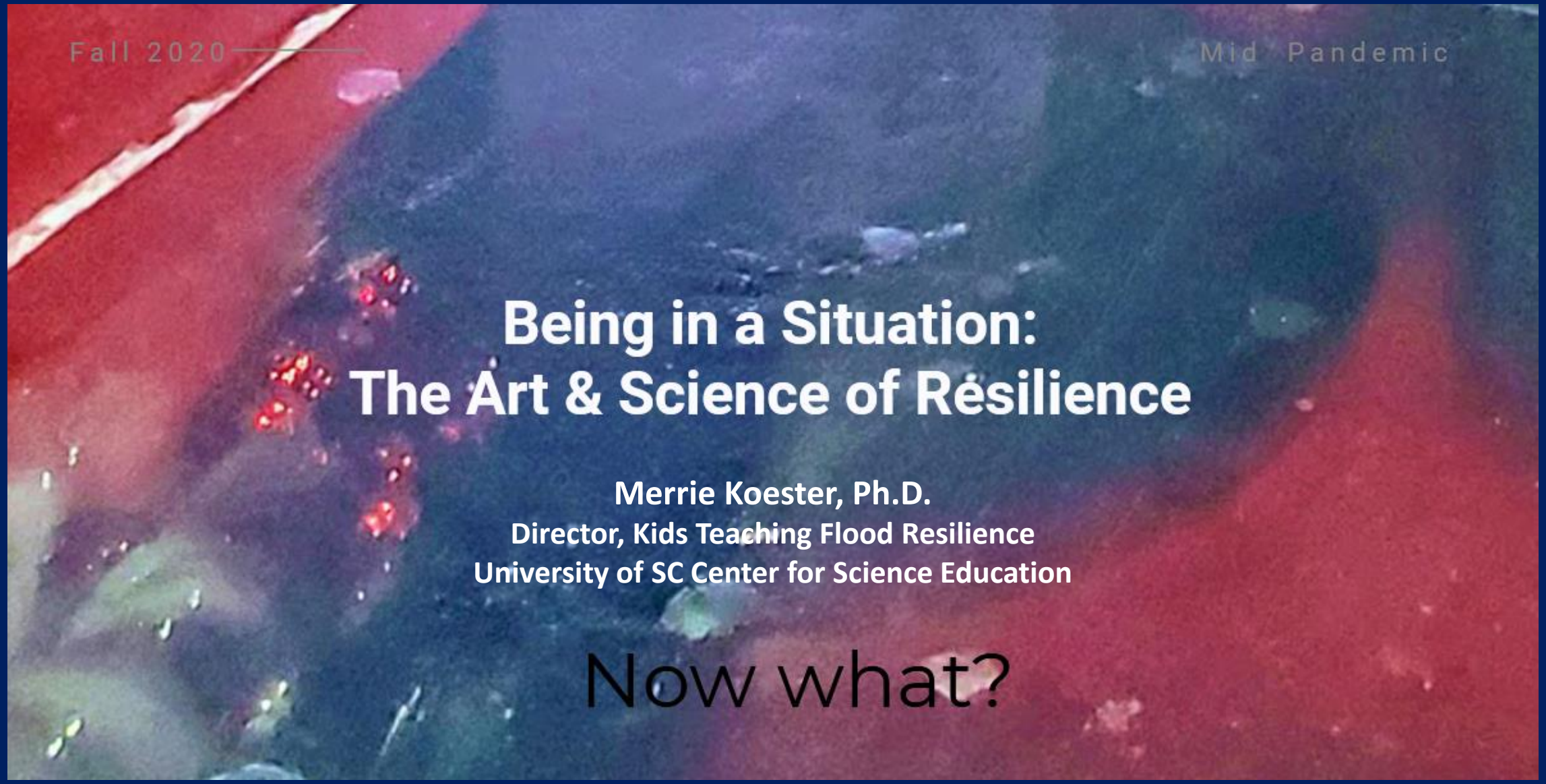




Being in a Situation: The Art & Science of Resilience

Merrie Koester, Ph.D.
Director, Kids Teaching Flood Resilience
University of SC Center for Science Education

Now what?

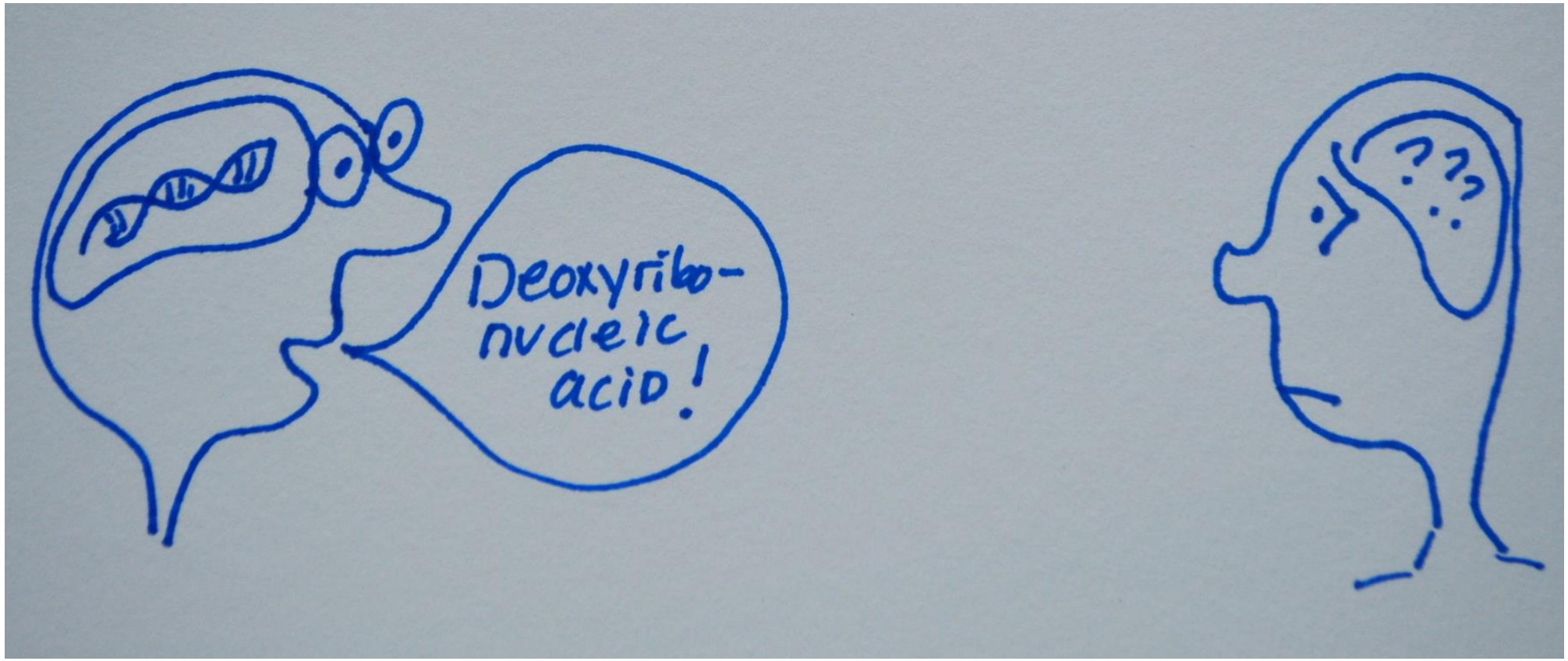
Human beings ARE because they are in a SITUATION.

Paulo Freire

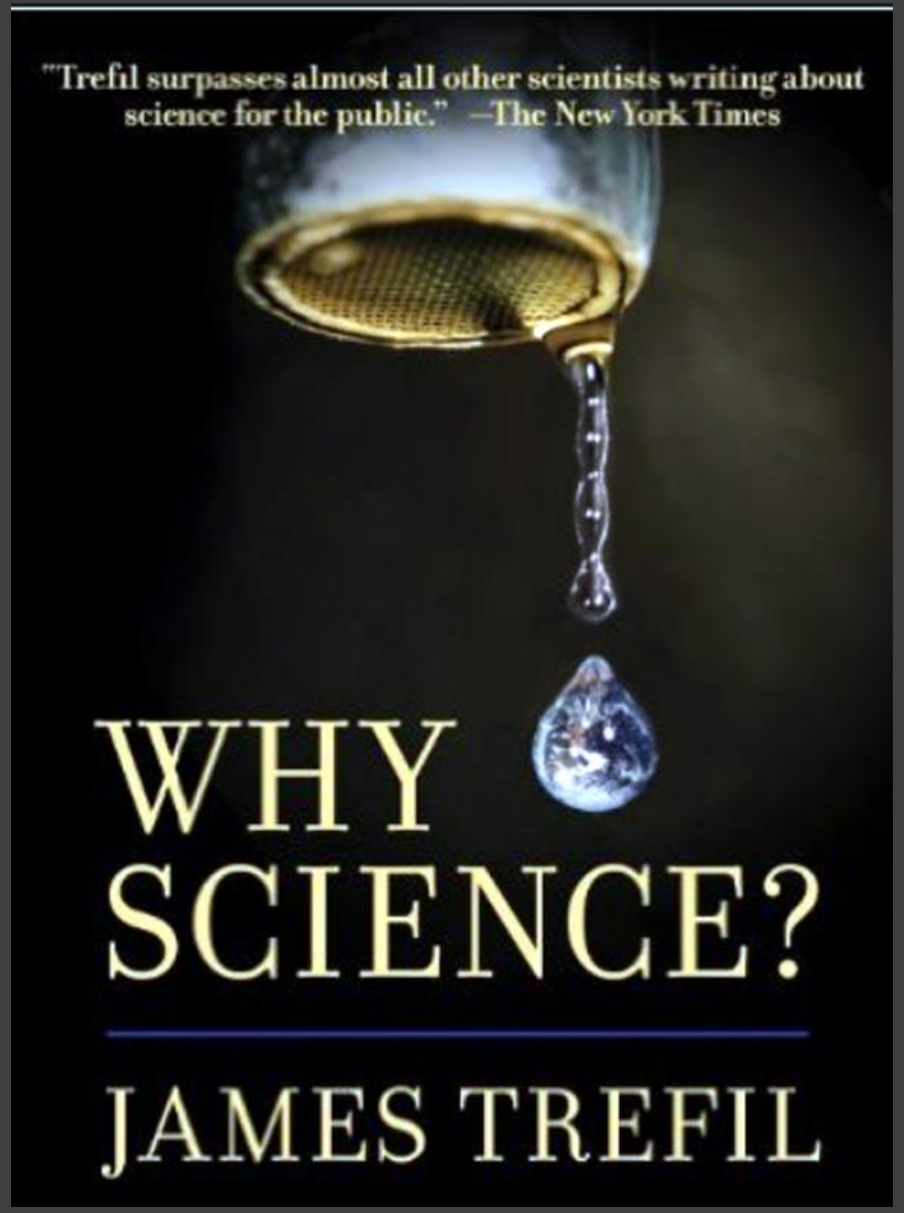
What counts as a *CAPITAL S* SITUATION?

What counts as a *lower case s* situation?

What is happening here?



THE GREAT TURN OFF to Science



Learning science is something students do, not something that is done to them.

National Academies of Sciences, Engineering, and Medicine. 1996. National Science Education Standards. Washington, DC: The National Academies Press. https://doi.org/10.17226/4962.

A SCIENCE-ILLITERATE CITIZENRY IS A CAPITAL S SITUATION!

Science Literacy

- **Scientific literacy means that a person can ask, find, or determine answers to questions derived from curiosity about everyday experiences.**
  - ***CAPACITY*(mk)**
- **It means that a person has the ~~ability~~ to describe, explain, and predict natural phenomena.**
- Source National Academies of Sciences, Engineering, and Medicine. 1996. National Science Education Standards. Washington, DC: The National Academies Press. https://doi.org/10.17226/4962

EDUCATIONAL VULNERABILTY

What you DON'T KNOW can cause you, your friends, & family HARM!

Sea Level Rise
STRATEGY

Kids Teaching Flood Resilience

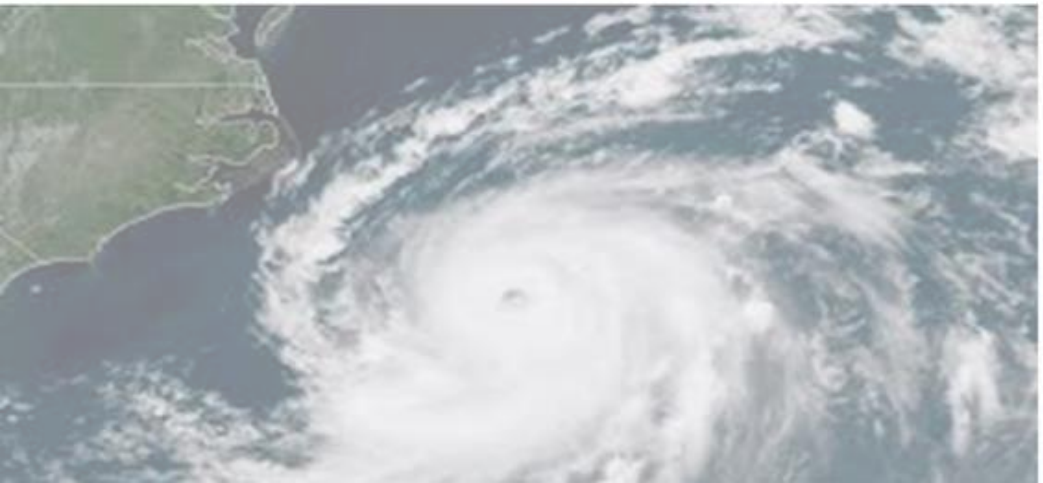
IMAGINE

The <u>Kids Teaching Flood Resilience</u> project meets an important Charleston *Sea Level Rise Strategy* goal:

Develop clear and immediate communication to enhance public safety.

Traditional approaches to public education directed at hazard risk mitigation are largely ineffective.

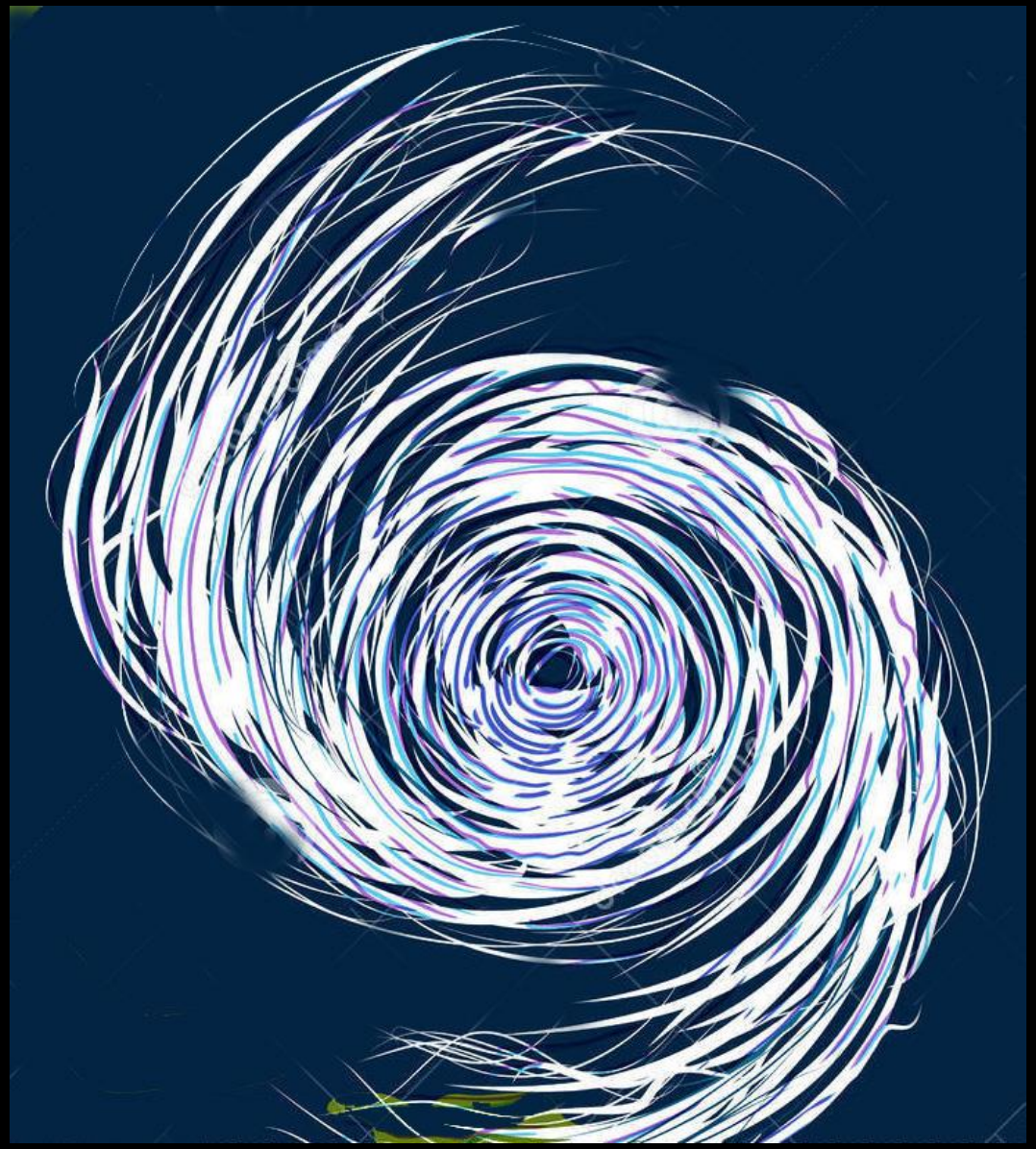
GET READY!!!



NDPTC
NATIONAL DISASTER PREPAREDNESS TRAINING CENTER
UNIVERSITY of HAWAI'I®

RESEARCH CLAIM

When personal and community
PROBLEMS
arise out of
SITUATIONAL VULNERABILITIES,
they are often preceded by
a set/series of
KNOWABLE systemic conditions
or events (happenings)
THAT CAN BE EFFECTIVELY
COMMUNICATED BY YOUTH!



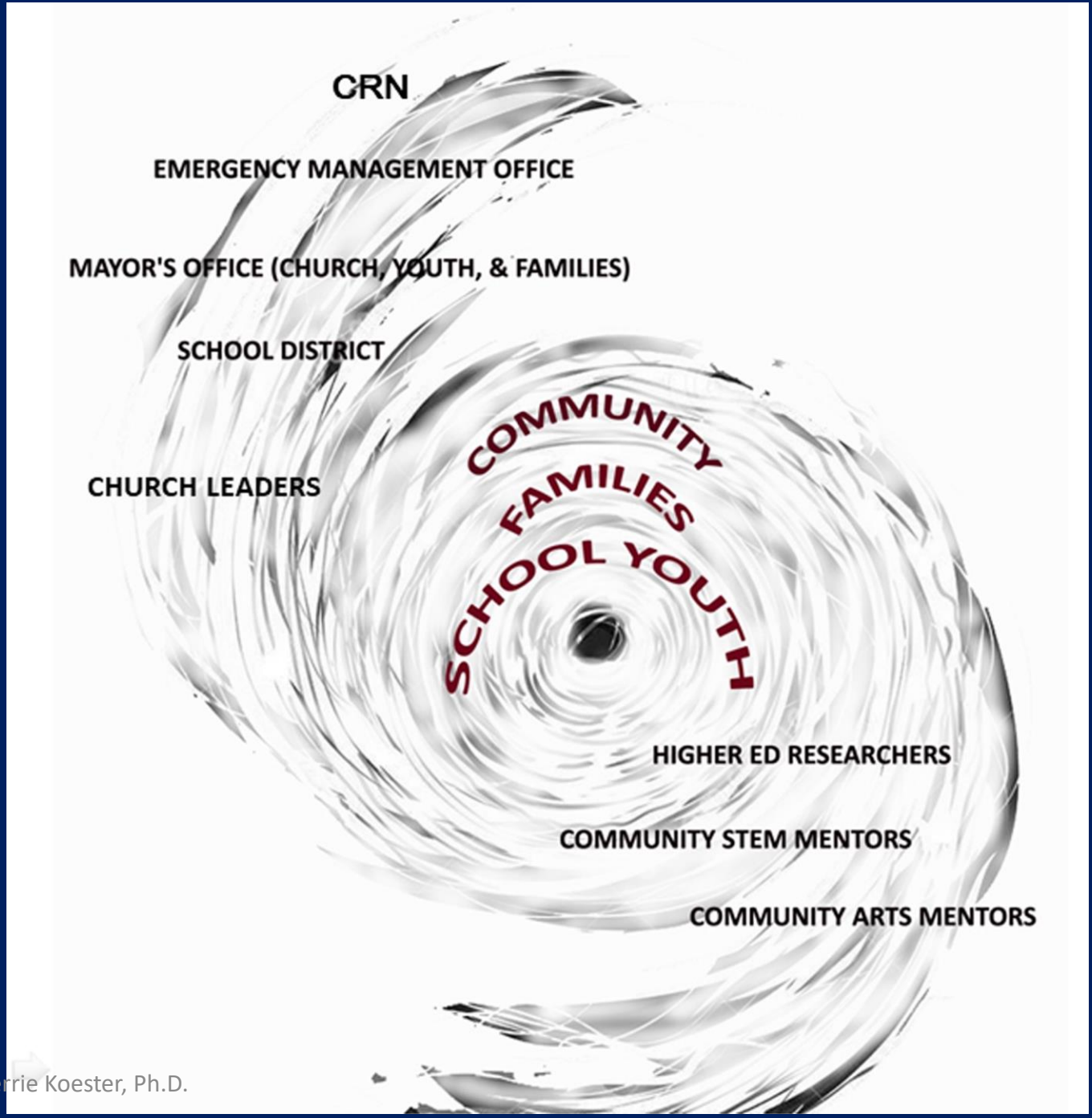
Imagine an
EDUCATIVE
RESILIENCE
GENERATING
SYSTEM

Driving questions:

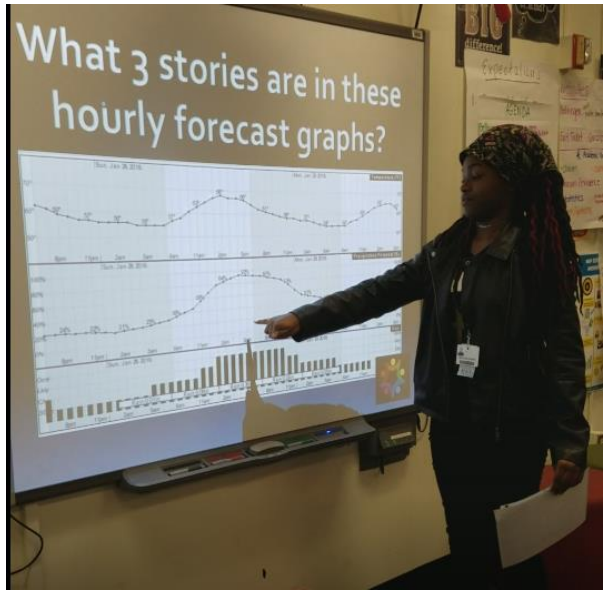
What do *YOU* and *YOUR* organization want/need
to see happen?

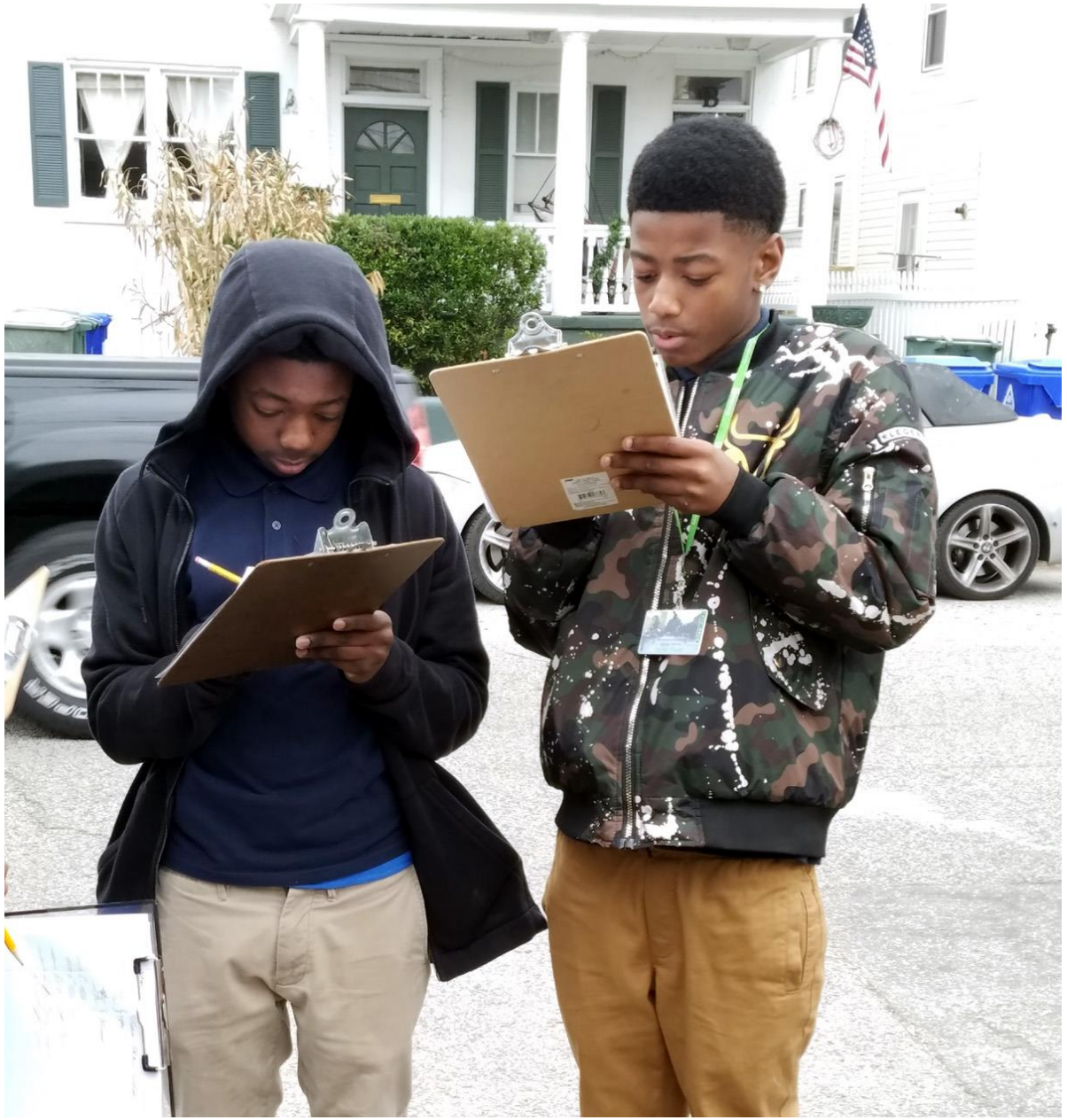
How can being part of this collective work help amplify the goals YOU value, too?

There is a synergistic space of altruistic sharing.

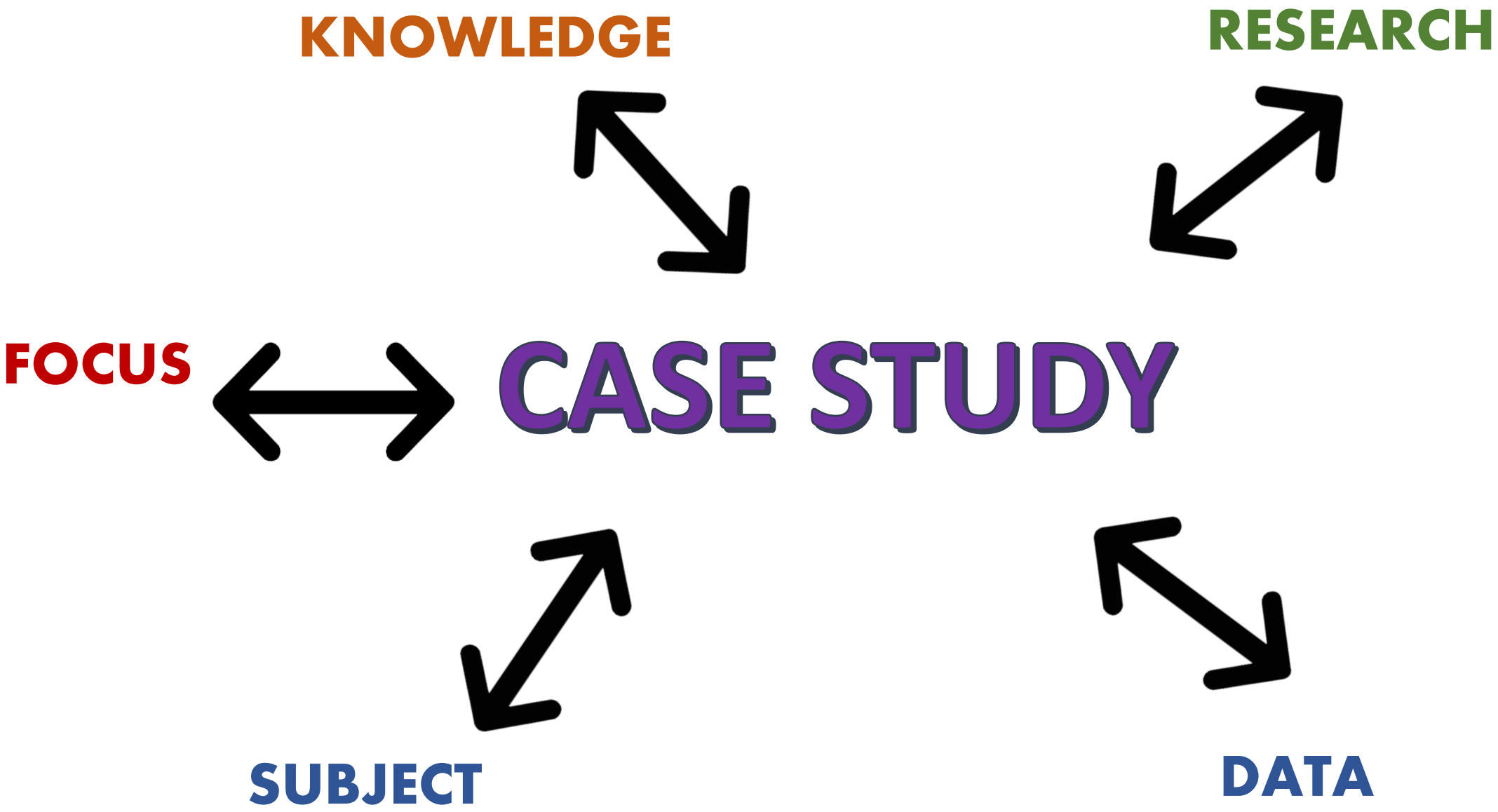


ENERGY IS THE CAPACITY TO DO WORK!



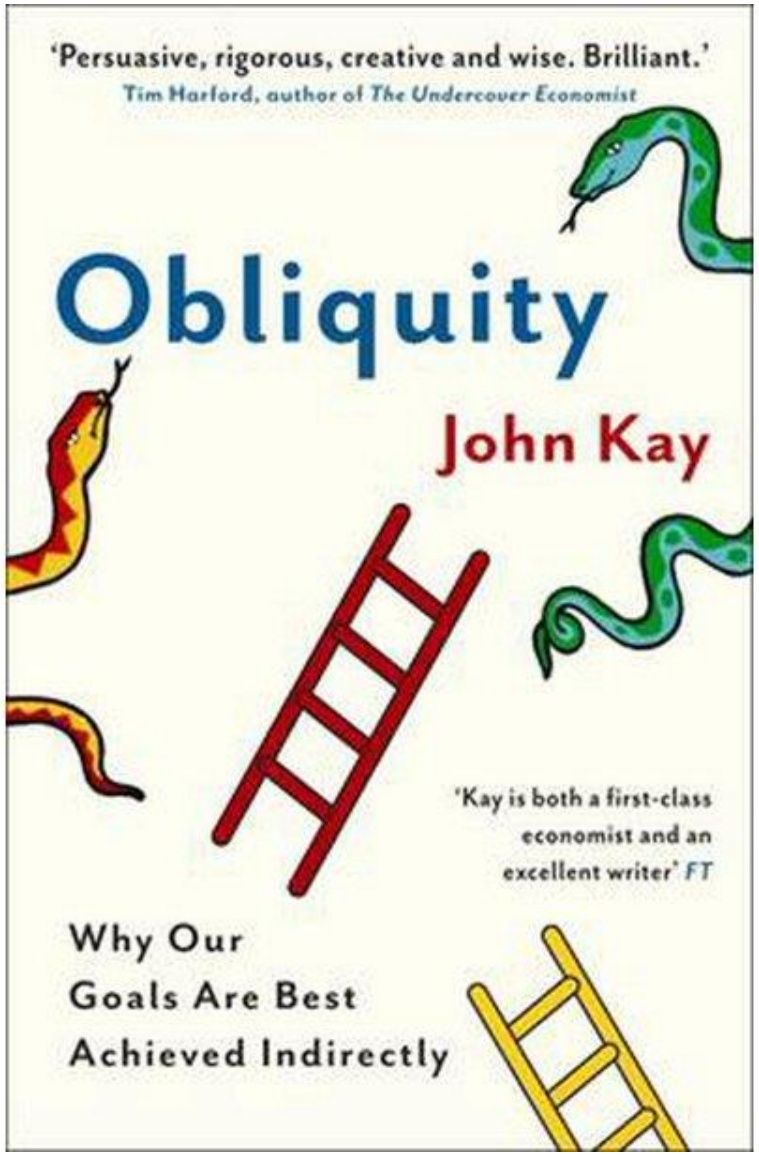


RESEARCH METHODS



Pearls of Wisdom

- Iteration and experience lead us to the best principles of analysis.
- In obliquity, we learn about the STRUCTURE of a problem AS we solve it.
- While it seems sensible to plan everything before you start, mostly you can't!
- Oblique approaches rely on a toolkit of models and narratives, rather than any simple or single account.



We make our choices from a limited range of options.

The notion of a "best" solution may itself be misconceived.

John Kay, obliquity: why our goals are best achieved indirectly

TEACHING METHODS

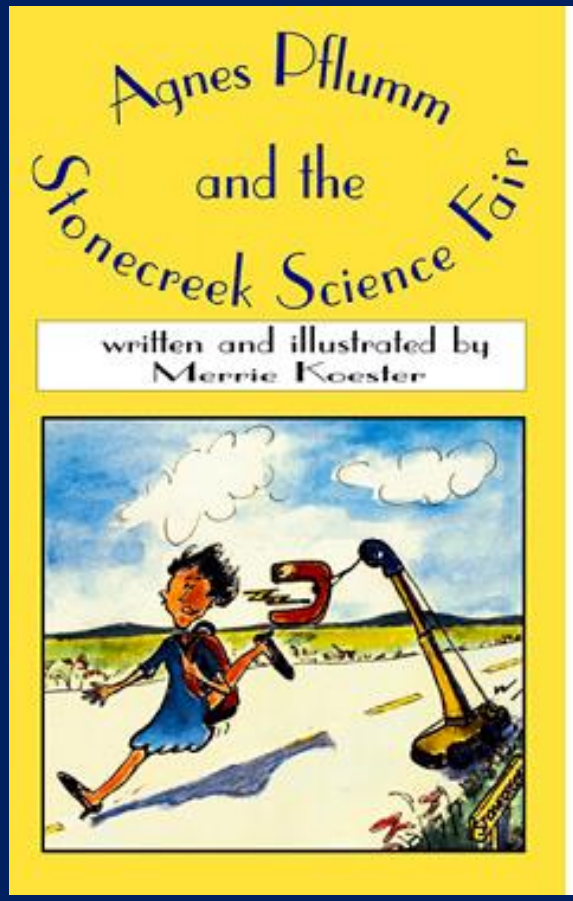
Place-based

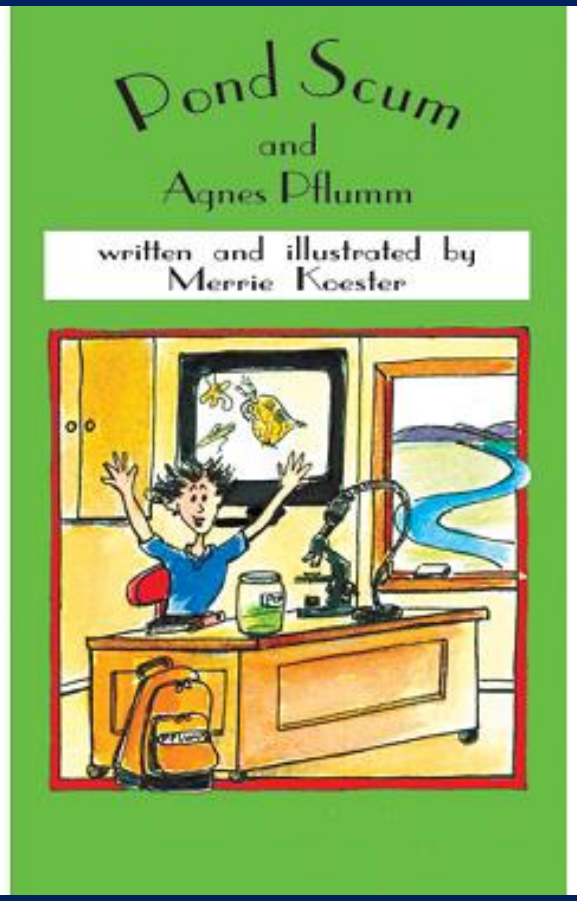
as a Framework for Empowering EDUCATIVE RESILIENCE through Citizen Science

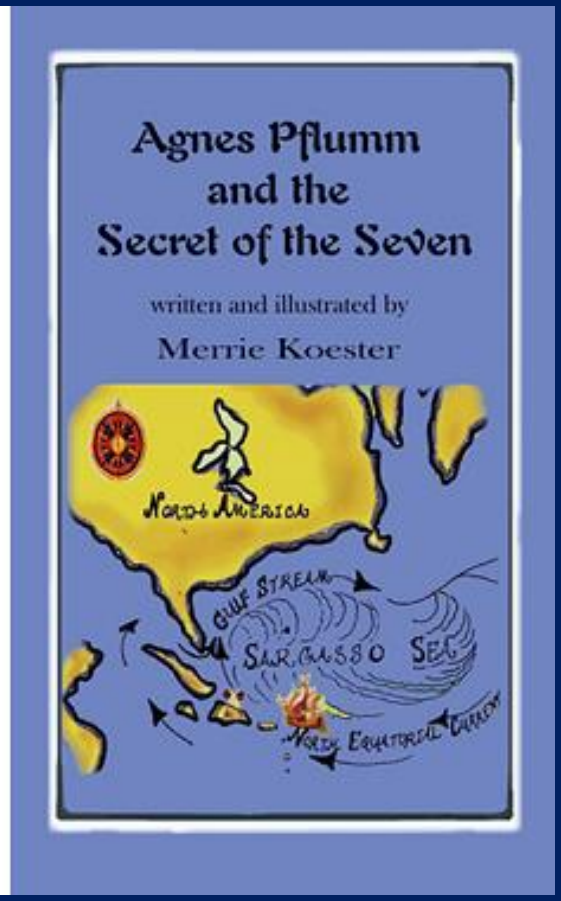
The ARTS put us
in touch with whatever
it is that is beyond us.

Ian McGilchrist

Teaching Middle Grade Science through Story







https://www.agnespflumm.com/

HOME | COURSE | REGISTER | CONTACT | STE[A]M

CSE
Center for Science Education

Project
Draw for Science

MAKING SCIENCE VISIBLE
FOR ALL STUDENTS.

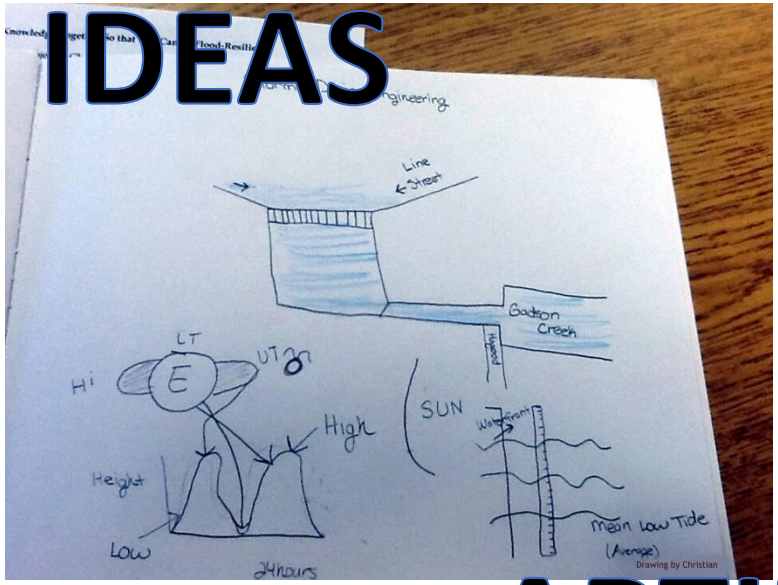
Our conceptual model of STE[A]M includes:

- The belief that the arts connect, communicate, and break down barriers, opening windows to the world.
- STE[A]M as the Art of thinking and making ideas, performances, and other Artifacts, using tools (Technology), Science knowledge, Mathematical reasoning, and design practices (Engineering) in a coordinated manner so that each STE[A]M component complements the others.

https://merriekoester.wixsite.com/project-dfs/steam

STEAM as a ***MAKING*** Process.

IDEAS



PERFORMANCES

ARTIFACTS

Place-based Learning

A form of project-based learning (PBL) that positions and empowers students as resources of knowledge about an authentic problem of place. (Sobel, 2004;Smith,2007)

Project Based Learning has

- 1)a challenging problem or question;
- 2)sustained inquiry;
- 3) authenticity of purpose;
- 4) student voice and choice;
- 5) reflection;
- 6) critique and revision;
- 7) rubric for evaluating the culminating product
- (Source, Buck Institute of Education)

What DO WE AIM to MAKE?

- **STEM-rich**
- **Culturally responsive**
- **Agentic**
- **Hazard risk communication ARTifacts!**

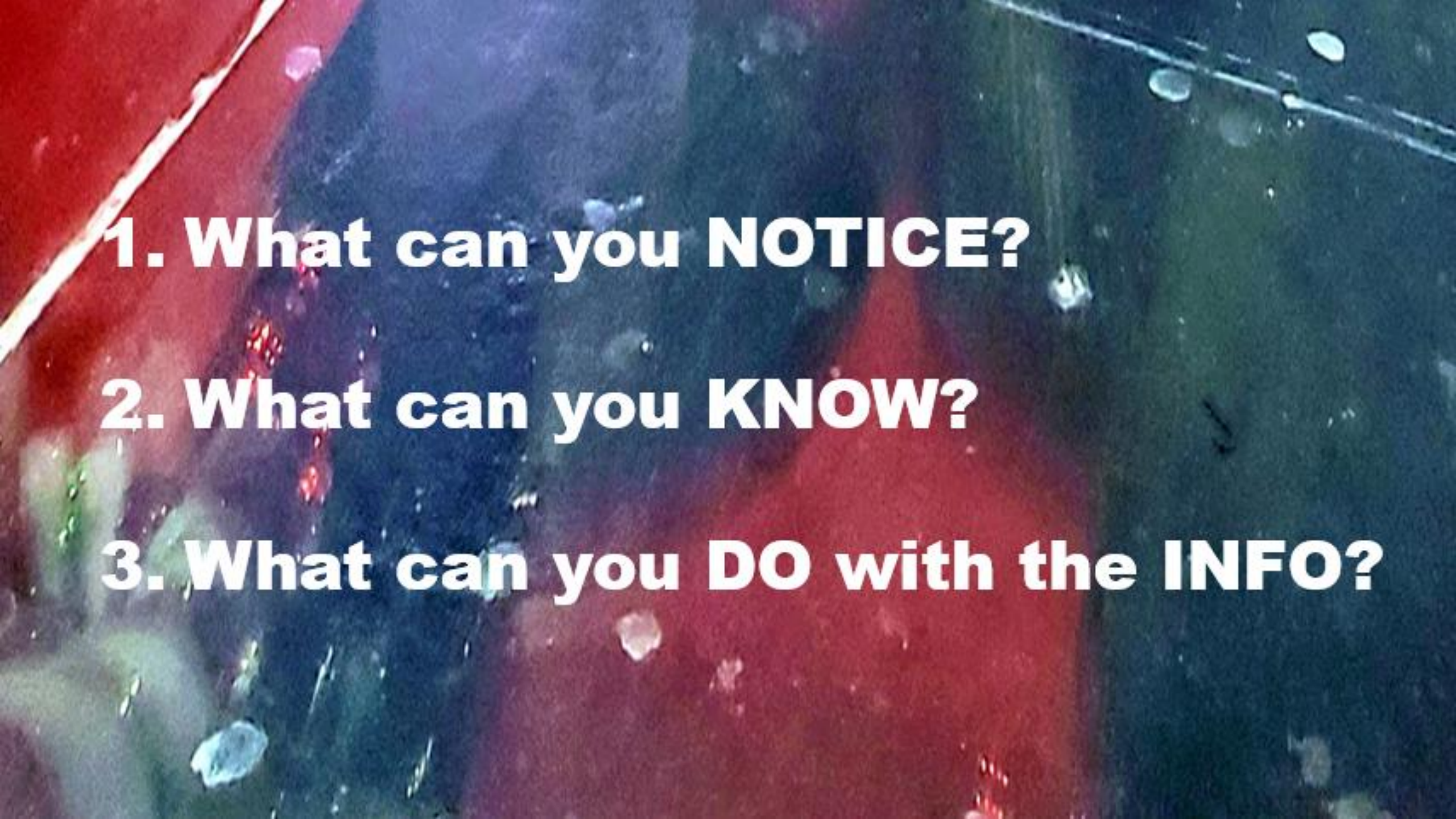
Criteria for effective community resilience development programs

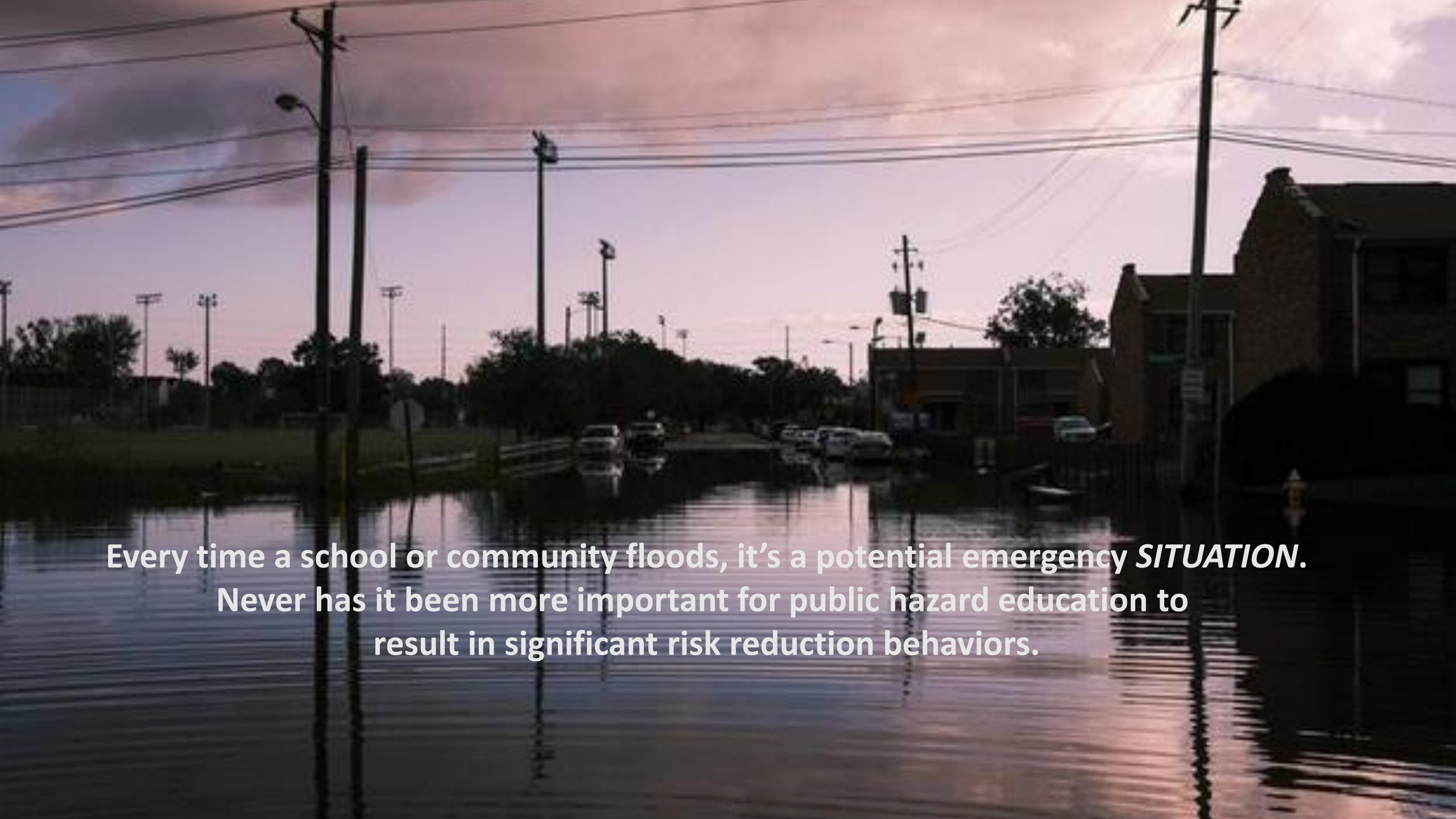
- **A high degree of self efficacy**.
- **Community empowerment**.
- **Problem-focused coping**.
- **A sense of community and commitment to action**.

Paton and Johnston, 2001)

How hurricane-literate are you?

Where are your knowledge gaps?


1. What can you NOTICE?
2. What can you KNOW?
3. What can you DO with the INFO?



Every time a school or community floods, it's a potential emergency *SITUATION*.
Never has it been more important for public hazard education to result in significant risk reduction behaviors.

WE ARE KIDS Teaching Flood Resilience!

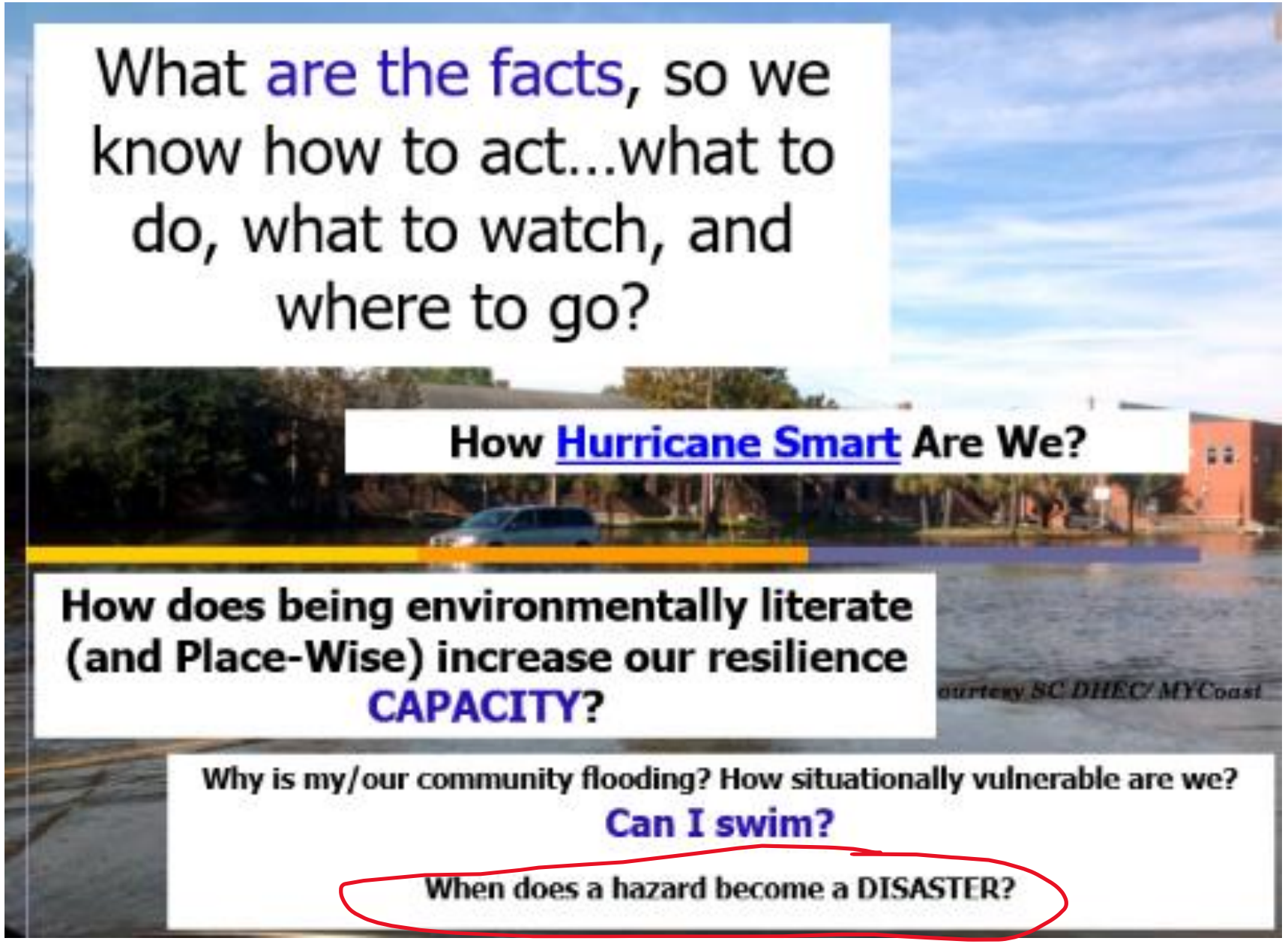
STEAM INNOVATIONS!

In this MUSIC VIDEO, what things are students calling on you to NOTICE, KNOW, and DO?

SITUATION HURRICANE

A Category 3 hurricane is predicted to make landfall, just south of your community at high tide during a full moon. An evacuation order has been issued, and you live in a high flood hazard zone.

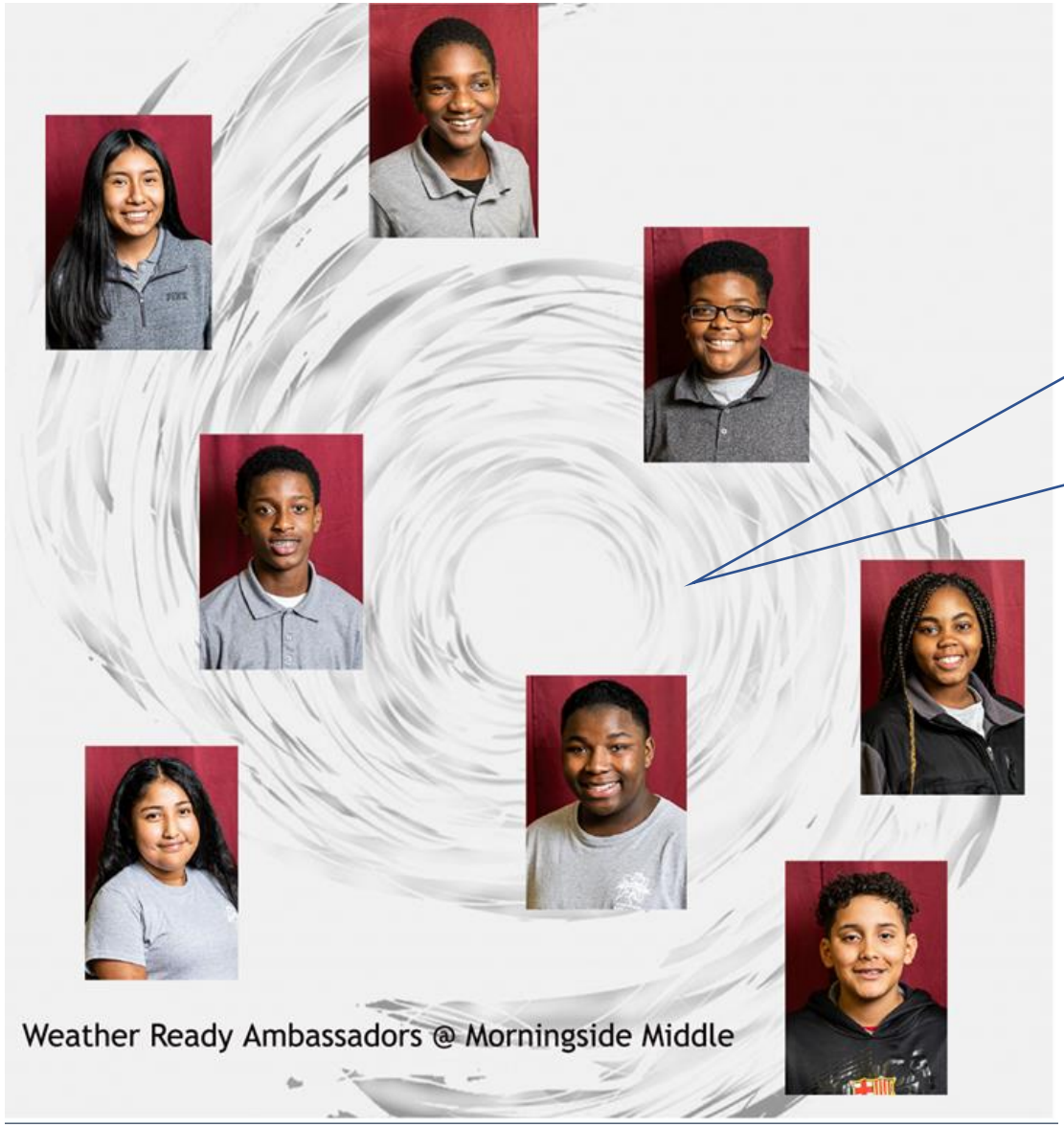
“We’ll be fine. Hurricanes are a day off of school!”



BREAK OUT ROOM FOCUS GROUP

1. What do the film/characters teach you to NOTICE, KNOW,& D0 *before* a hurricane?

2. Critique: How does THIS FILM "WORK" AS AN EFFECTIVE FAMILY-BASED HURRICANE HAZARD RISK COMMUNICATION TOOL?



Do you accept the challenge to GET HURRICANE SMART?

LET’S FIND OUT HOW HURRICANE SMART YOU ARE WITH

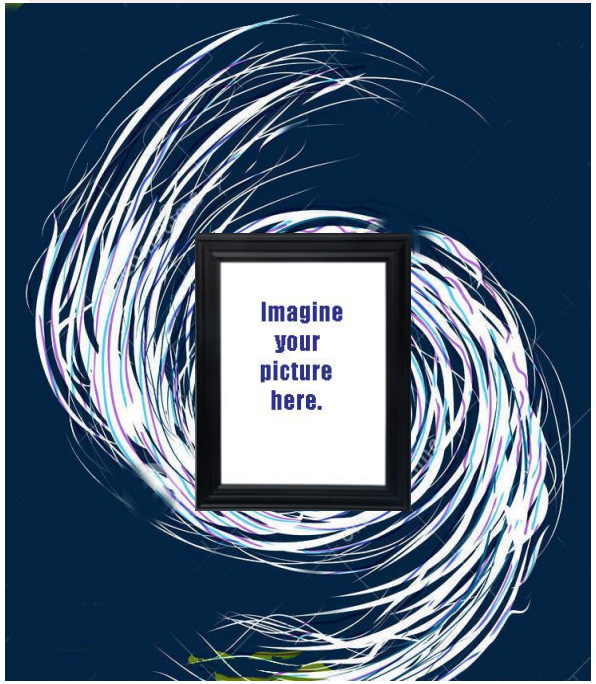
THIS KAHOOT QUIZ!

When does a hazard become a DISASTER?

To be continued…

PD TRAINING

E-CURRICULUM TABLE OF CONTENTS



Please DO reach out.

Please DO use the Kids Teaching Flood Resilience Innovations.

Take creative risks, give yourself grace, and know that your work truly matters!