

FRED HUTCH

Science Education Partnership



## MENTOR BACKGROUND INFORMATION

Thank you for your interest in mentoring a Science Education Partnership Teacher. Science teachers impact hundreds of students every year and your support can make a real difference.

### KEY DATES FOR MENTORS 2017

<b>May 20</b>	Opening Day Introductory Meeting [3 hrs in afternoon]
<b>July 13-19</b>	Summer Session – teachers join you in your lab [5 weekdays]
<b>July 26</b>	Poster Session – culmination of summer program [2 hrs]

### RESPONSIBILITIES

- Together with the teacher, decide on a brief hands-on lab research activity for them to conduct [see below for ideas].
- Host a teacher for 5 days in your lab and help direct the teacher’s lab work [this should not be a job shadow].
- Spend time discussing the teacher’s teaching situation, understanding current theories of learning and teaching, and learning about the broader science education context in the US.
- Arrange for your teacher to attend a lab meeting [either your own lab or another lab].
- Attend the Open House/Poster session.
- Participate in program evaluation and provide feedback.
- Keep in contact with your teacher during the school year, be available to serve as a resource and answer questions, and, when feasible, visit the teacher’s classroom.

### LAB RESEARCH ACTIVITY

Teachers will learn the basics of working with DNA in a 3-day session prior to joining you in the lab. They will have practiced pipetting and gained familiarity with bacterial transformation, restriction enzyme digests, and gel electrophoresis. SEP emphasizes hands-on learning so please give your teacher the opportunity to participate actively in experiments.

For example, they could do molecular biology procedures such as plasmid mini-preps, ELISAs, or PCR. It is important that they understand why they are doing the procedures and how those procedures relate to the big picture for your lab or the questions you are exploring.

Many of the past SEP teachers have really enjoyed their immersion in a research lab—participating in the bench science, interacting with the group members, and attending lab meetings to learn how scientists interact, discuss different experimental approaches, and make sense of their findings.

### **LEARNING FROM YOUR TEACHER**

SEP is committed to the idea that both scientists and science educators are professionals with much to learn from one another. We hope that you will use this opportunity to learn about strategies for teaching scientific ideas as well as learning more about education in general.

The new Next Generation Science Standards [NGSS] are based on a three-part framework that interweaves big themes [“cross cutting concepts”], specific core content or discipline-specific knowledge [“disciplinary core ideas”], and common inquiry-related practices used in science and engineering [“science and engineering practices”]. Washington is one of many collaborating states adopting NGSS in setting learning performance standards and expectations for each grade level. You may wish to familiarize yourself with these standards by visiting <http://www.nextgenscience.org>. SEP provides a unique opportunity for teachers to learn about how science practices are enacted in authentic lab research settings, and to reflect on the implications for their own classrooms.

#### NGSS Science and Engineering Practices

1. *Asking questions [for science] and defining problems [for engineering]*
2. *Developing and using models*
3. *Planning and carrying out investigations*
4. *Analyzing and interpreting data*
5. *Using mathematics and computational thinking*
6. *Constructing explanations [for science] and designing solutions [for engineering]*
7. *Engaging in argument from evidence*
8. *Obtaining, evaluating, and communicating information*

#### NGSS Crosscutting Concepts

1. *Patterns*
2. *Cause and effect: Mechanism and explanation*
3. *Scale, proportion, and quantity*
4. *Systems and system models*
5. *Energy and matter: Flows, cycles, and conservation*
6. *Structure and function*
7. *Stability and change*

## OVERALL PROGRAM SCHEDULE 2017

**mid-April**     **Mentors select teachers from the applicant pool.** Mentors can choose to host either one or two SEP teachers in the lab. Mentors can also arrange for the teacher to work with multiple people in the lab as long as there is one point person responsible for the overall experience.

**May 20**     [Saturday] Opening Day workshop with all cohort teachers in the Fred Hutch Teaching Lab [B1-076]. Teachers will spend the day learning the basics of micropipetting plus the use of selected kits loaned to teachers. **Mentors arrive in the late afternoon [for about 3 hrs] to meet individually with teachers and discuss goals for the summer lab days. Please make prior arrangements with SEP and the teacher if you are not available this day.** Please bring a snack to share with the whole group, plus an article [Scientific American or similar] for your teacher to read. You will receive a reminder message about attending this session at the beginning of May.

**May-June**     Try to make an additional contact with your teacher before the Summer Session. If possible, visit your teacher's classroom to observe and/or help with a class before school ends. Past mentor scientists have found this to be a valuable, eye-opening experience!

**July 10-26**     SEP Summer Session: Details depend on host site

- **July 10, 11, 12** teachers work in the Fred Hutch Teaching Lab with Lead Teachers and SEP staff
- **July 13, 14, 17, 18, 19** teachers work in the lab with their mentor scientists [Thurs-Fri, then Mon-Wed]
- **July 20, 21, 24, 25** teachers work in the Teaching Lab to prepare materials for use in their classrooms
- **July 26** Open House and Poster Session [open to the public]

### CONTACT INFORMATION FOR SEP

Jeanne Chowning, Director  
206 667-667-6292  
jchownin@fredhutch.org

Caren Brinkema, Special Projects  
206 667-4487  
cbrinkem@fredhutch.org

Group e-mail for SEP: [sep@fredhutch.org](mailto:sep@fredhutch.org)  
SEP lab phone: 206 667-4487

Lab/office location and mailstop: A1-023 [Weintraub building, South Lake Union Campus]  
**Visit our website at <http://www.fredhutch.org/sep>**