Data Nugget Professional Development Workshop

Scientific Data in Schools: Measuring the efficacy of an innovative approach to integrating quantitative reasoning in secondary science

July 20-21, 2017
BSCS, Colorado Springs CO

http://datanuggets.org/study

Thursday, July 20th

8:30-9:00 **Breakfast and coffee served**

9:00-9:30 **Introductions, review agenda, discuss goals, icebreaker activity**

9:30-10:45 **Quantitative practices in the biology classroom**
- ***Activity 1:*** Review definition and importance of quantitative reasoning
- ***Activity 2:*** Case study analysis and discussion

10:45-10:55 **Break**

10:55-12:15 **What are Data Nuggets?**
- ***Activity 3:*** Complete a Data Nugget
- History of Data Nuggets and pedagogical themes

12:15-1:00 **Lunch**

1:00-2:00 **The process of science**
- **Activity 4**: Mapping the process of science in a Data Nugget

2:00-2:30 **Hypotheses**
- Address student misconceptions
- Discuss importance of the hypothesis in the process of science

2:30-2:40 **Coffee and snack break**

2:40-4:15 **Information on Data Nugget study**
- Study design and schedule
- Submitting logs, student responses, and other materials
- Review “20 pack” of Data Nuggets and “authentic alternatives” lessons

4:15-4:30 **Final thoughts for the day**

Friday, July 21st

8:30-9:00 **Breakfast and coffee served**

9:00-10:20 **Exploring data with statistics and graphing**

- Central tendency and variation in data
- Performing calculations - rates, percentages, and models/equations
- Independent vs. dependent variables
- Choosing a graphical representation and constructing a graph
- BSCS Identify and Interpret (I^2) strategy
- Observational vs. experimental studies (correlation vs. causation)

10:20-10:30 **10 minute break**

10:30-12:15 **Supporting claims using scientific data as evidence**

- Discuss the CER method of constructing scientific explanations
- Teaching CER intentionally with the scaffolding tool
- ***Activity 5:*** Evaluating student explanations
- Using the CER tool in the context of a Data Nugget

12:15-1:00 **Lunch**

1:00-2:15 **Asking good questions**

- ***Activity 6:*** Make just one change
- Making connections to the process of science
- Helping students to think like scientists and develop their own questions

2:15-3:20 **Getting the most out of Data Nuggets**

3:20-3:30 **Coffee and snack break**

3:30-4:15 **Planning for Data Nuggets in your classroom**

- Selecting Data Nuggets for your course
- Reviewing “authentic alternatives”
- Consulting with Data Nuggets team and expert teachers

4:15-4:30 **Final thoughts**

- Review goals
- Final teacher questions
- Post survey