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 (I²) 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