DESIGNING LEARNING TASKS

Name of Curriculum: BSCS Biology

STEP 1: IDENTIFY OPPORTUNITIES IN THE CURRICULUM

Lesson and Page Numbers:

On a scale of 0 to 14
Ch 5 p.# 182-88

What is the learning goal?

To understand the difference between how living & non-living substances respond to addition of acid or base.

What data will students either be given or collect to analyze?

1. Collect pH levels of various household substances.
2. Collect pH levels as you add acid to water.
3. Collect pH levels as you add base to water.
4. Repeat steps 3 & 4 as add acid & base to cell homogenate.

What scientific principle will students use to link their claim and evidence?

Living things are able to regulate the internal environment of cells, and non-living things are not able to regulate.

STEP 2: DESIGN COMPLEXITY OF THE LEARNING TASK

For each of the following characteristics consider how simple or complex you want the learning task to be depending on the needs of your students.

What question will you ask students?

Do ~~non~~ living things respond to changes in environment in the same way non-living things do, when environment is disrupted by changing pH?

What specific data will you either provide students or have students collect?

Collect pH measurements
(See below)

How much data will you have students analyze?

water ⇄ pH w/ acid 0, 1, 2, 3, 4, 5, 10, 15, 20, 25, 30 drop
pH w/ base "

potato ⇄ same as above

What variation of the framework do you want students to include in their response?

For example – complexity of the evidence, complexity of reasoning and inclusion of rebuttal

Variation #2 & #3 would be appropriate.

Variation #1 I feel like just gives credit for attempting each category, doesn't hold students accountable for understanding.

variation #4 is probably too ~~skill~~ sophisticated for my students.

STEP 3: CREATE CLASSROOM SUPPORTS

Do you want to include any type of visual representation in your classroom? If yes, describe or sketch the representation.

		Example How do we know that bacteria have evolved?
Claim	A statement that answers the question	We know because bacteria are becoming resistant to antibiotics
Evidence	Scientific data that supports claim. - Appropriate - Sufficient	• Before 1940 & penicillin there were 0% resistant • By 1945 5%. • By 1950, 55%, 1990, 80%.
Reasoning	Justification for why evidence supports claim	Before penicillin, 1st Antibiotic, no bacteria were resistant. Over time, the # has increased, showing they evolved b/c fittest will live to pass on resistance genes. Less fit will die.

Do you want to provide students with curricular scaffolds? If yes, draft the scaffolds below.

Consider – content specific, generic or combination AND level of detail to include

Prior to doing an investigation, answer sample MCAS Questions, using the 4 pt answer categories (0, 1, 2, 3, 4) to analyze student work to practice CER.

Go back & apply CER to previous experiments we've done.

Provide CER graphic organizer for evy open response question we answer.