SBUSD Science

NGSS Transition

2015-2016

Standard

HS-LS3 Heredity: Inheritance and Variation of Traits

Students who demonstrate understanding can:

HS-LS3-1. **Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.** [Assessment Boundary: Assessment does not include the phases of meiosis or the biochemical mechanism of specific steps in the process.]

HS-LS3-2. **Make and defend a claim based** **e genetic variations may result from: (1) new genetic combinations through meiosis,** **during replication, and/or (3) mutations caused by environmental factors.** [Clarificat **n using data to support arguments for the way variation** occurs.] [Assessment Boundary: A **the phases of meiosis or the biochemical mechanism of** specific steps in the process.]

HS-LS3-3. **Apply concepts of statistics and** **variation and distribution of expressed traits in a population.** [Clarification Stateme **f mathematics to describe the probability of traits as it** relates to genetic and environmental factors in the expression of traits.] [Assessment Boundary: Assessment does not include Hardy-Weinberg calculations.]

PEs
Performance
Expectations

The performance expectations above were developed using the following elements from the NRC document, *A Framework for K–12 Science Education*:

Science and Engineering Practices

Asking Questions and Defining Problems

Asking questio **defining problems in** 9–12 build **iences and** progresse **efining, and** evaluating **ble questions**

SEPs

Disciplinary Core Ideas

LS1.A: Structure and Function

- All cells contain genetic information in the form of DNA molecules. Genes are regions in the **ontain the** instructions **the formation** of proteins. **HS-LS3-1)**

DCIs

Crosscutting Concepts

Cause and Effect

- Empirical evidence is required to differentiate between cause and correlation and **ut** specific cau **S3-** 1),(HS-LS3

CCCs

Previous Current and Goals: Elementary

- Promote and support high quality science instruction at all levels - district, sites, and classrooms
- Teachers deliver high quality science instruction as evidenced in student work and classroom observations.
- Inform and engage parents in building depth of understanding for supporting science teaching and learning.
- Intentional utilization of community resources.
- Regular and systematic evidence that science program goals and objectives are being met.

Previous & Current Year Goals: Secondary

Understand the “What” of NGSS and progress towards establishing a “guaranteed” curriculum

- What does 3-D learning look like?
    - SEPs, DCIs, CCCs → All assessable by PEs
- What are the changes in content?
- What new skills do my students need? What new skills do teachers need?
- What “counts” as evidence of student learning?
- Recommend to the SBUSD board for approval an integrated 6-8 scope and sequence.

Grades 7-12: How will we reach our goals?

- Each grade level or subject area agreed to work on two performance expectations (PEs) this year for our district PLC meetings.
- Teachers will use the results of PEs to drive discussions on student and teacher learning of NGSS.
- This process will lead to the understanding needed to build and assess CFAs for Year 2.

What about testing?

The CDE has identified three phases of implementation and testing:

- Awareness (2013–2015)
- Transition (2015–2016)
- Implementation (2016–2017)
- Pilot Test Spring 2017
- Field Test Spring 2018
- Operational Test Spring 2019

Where should teachers be this year?

- Teaching a mixture of old and new curriculum.
- Trying out new units for NGSS.
- Anticipate that some new activities may not go as planned:

Anyone who has never made a mistake has never tried anything new.

- Albert Einstein