AP Biology Science Practices

Science Practice 1: The student can use representations and models to communicate scientific phenomena and solve scientific problems

1.1 The student can *create representations and models* of natural or man-made phenomena and systems in the domain.

1.2 The student can *describe representations and models* of natural or man-made phenomena and systems in the domain.

1.3 The student can *refine representations and models* of natural or man-made phenomena and systems in the domain.

1.4 The student can *use representations and models* to analyze situations or solve problems qualitatively and quantitatively.

1.5 The student can *reexpress key elements* of natural phenomena across multiple representations in the domain.

Science Practice 3: The student can engage in scientific questioning to extend thinking or to guide investigations within the context of the AP course

3.1 The student can *pose scientific questions.*

3.2 The student can *refine scientific questions.*

3.3 The student can *evaluate scientific questions.*

Science Practice 5: The student can perform data analysis and evaluation of evidence

5.1 The student can *analyze data* to identify patterns or relationships.

5.2 The student can *refine observations and measurements* based on data analysis.

5.3 The student can *evaluate the evidence provided by data sets* in relation to a particular scientific question.

Science Practice 7: The student is able to connect and relate knowledge across various scales, concepts and representations in and across domains

7.1 The student can *connect phenomena and models* across spatial and temporal scales.

7.2 The student can *connect concepts* in and across domain(s) to generalize or extrapolate in and/or across enduring understandings and/or big ideas.

Science Practice 2: The student can use mathematics appropriately

2.1 The student can *justify the selection of a mathematical routine* to solve problems.

2.2 The student can *apply mathematical routines* to quantities that describe natural phenomena.

2.3 The student can *estimate numerically* quantities that describe natural phenomena.

Science Practice 4: The student can plan and implement data collection strategies appropriate to a particular scientific question

4.1 The student can *justify the selection of the kind of data* needed to answer a particular scientific question.

4.2 The student can *design a plan* for collecting data to answer a particular scientific question.

4.3 The student can *collect data* to answer a particular scientific question.

4.4 The student can *evaluate sources of data* to answer a particular scientific question.

Science Practice 6: The student can work with scientific explanations and theories

6.1 The student can *justify claims with evidence.*

6.2 The student can *construct explanations of phenomena based on evidence* produced through scientific practices.

6.3 The student can *articulate the reasons that scientific explanations and theories are refined or replaced.*

6.4 The student can *make claims and predictions about natural phenomena* based on scientific theories and models.

6.5 The student can *evaluate alternative scientific explanations.*