SOL/AP Requirements

K-5 Activities Booklet

Dessert Cells (Grades 4-5)

- SOL Requirement 5.5: The students will investigate and understand that organisms are made of one or more cells and have distinguishing characteristics that play a vital role in the organism's ability to survive and thrive in its environment.

Soap Membrane (Grade 5)

- SOL Requirement 5.5: The students will investigate and understand that organisms are made of one or more cells and have distinguishing characteristics that play a vital role in the organism's ability to survive and thrive in its environment.

6-8 Activities Booklet

Dessert Cells (Grade 6)

- L.S.2: The student will investigate and understand that all living things are composed of cells.
- BIO.3: The student will investigate and understand relationships between cell structure and function.

Codon Cards (Grades 6-7)

- L.S.12 The students will investigate and understand that organisms reproduce and transmit genetic information to new generations.

DNA Extraction (Grades 6-8)

- L.S.12 The students will investigate and understand that organisms reproduce and transmit genetic information to new generations.

Bean Genes (Grades 6-8)

- L.S.12 The students will investigate and understand that organisms reproduce and transmit genetic information to new generations.

Soap Membrane (Grades 6-8)

- L.S.2: The student will investigate and understand that all living things are composed of cells.

Cell Phases (Grades 7-8)

- L.S.2: The student will investigate and understand that all living things are composed of cells.

9-12 Activities Booklet

DNA Extraction (Grade 9)

- BIO.5: The student will investigate and understand common mechanisms of inheritance and protein synthesis.

Yeast Streak (Grade 9)

- BIO.5: The student will investigate and understand common mechanisms of inheritance and protein synthesis.

Electrophoresis (Grade 9)

- BIO.5: The student will investigate and understand common mechanisms of inheritance and protein synthesis.

Cell Phases (Grade 9)

- BIO.3: The student will investigate and understand relationships between cell structure and function.

Gummy Bear Genetics (Grade 9)

- L.S.12 The students will investigate and understand that organisms reproduce and transmit genetic information to new generations.
- BIO.5: The student will investigate and understand common mechanisms of inheritance and protein synthesis.

Size of Things (Grade 9/Honors)

- L.S.12 The students will investigate and understand that organisms reproduce and transmit genetic information to new generations.

Plasmid Bracelet (Honors)

- BIO.5: The student will investigate and understand common mechanisms of inheritance and protein synthesis.

Primer Design (Honors)

- BIO.5: The student will investigate and understand common mechanisms of inheritance and protein synthesis.

Transformation (Honors)

- L.S.12 The students will investigate and understand that organisms reproduce and transmit genetic information to new generations.
- BIO.5: The student will investigate and understand common mechanisms of inheritance and protein synthesis.

If A, then T (Honors/AP)

- BIO.5: The student will investigate and understand common mechanisms of inheritance and protein synthesis.

RFP Art (Honors/AP)

- BIO.5: The student will investigate and understand common mechanisms of inheritance and protein synthesis.

Plasmid Design (AP)

- L.S.12 The students will investigate and understand that organisms reproduce and transmit genetic information to new generations.
- BIO.5: The student will investigate and understand common mechanisms of inheritance and protein synthesis.

SynBio Ethics (AP)

- L.S.12 The students will investigate and understand that organisms reproduce and transmit genetic information to new generations.
- BIO.5: The student will investigate and understand common mechanisms of inheritance and protein synthesis.

AP Requirements

9-12 Activities Booklet

DNA Extraction (Grade 9)
- Essential Knowledge 3.A.1: DNA, and in some cases RNA, is the primary source of heritable information

Cell Phases (Grade 9)
- Essential Knowledge 3.A.2: In eukaryotes, heritable information is passed to the next generation via processes that include the cell cycle and mitosis or meiosis plus fertilization.

Size of Things (Grade 9/Honors)
- Science Practice 2: The student can use mathematics appropriately.

Plasmid Bracelet (Honors)
- Essential Knowledge 3.A.1: DNA, and in some cases RNA, is the primary source of heritable information
- Essential Knowledge 3.A.1: DNA, and in some cases RNA, is the primary source of heritable information

Primer Design (Honors)
- Essential Knowledge 3.A.1: DNA, and in some cases RNA, is the primary source of heritable information
- Essential Knowledge 3.A.1: DNA, and in some cases RNA, is the primary source of heritable information

Transformation (Honors)
- Essential Knowledge 3.A.1: DNA, and in some cases RNA, is the primary source of heritable information
- Essential Knowledge 3.C.2: Biological systems have multiple processes that increase genetic variation.

If A, then T (Honors/AP)
- Essential Knowledge 3.A.1: DNA, and in some cases RNA, is the primary source of heritable information.

RFP Art (Honors/AP)
- Essential Knowledge 3.A.1: DNA, and in some cases RNA, is the primary source of heritable information

Plasmid Design (AP)
- Essential Knowledge 3.A.1: DNA, and in some cases RNA, is the primary source of heritable information
- Essential Knowledge 3.B.1: Gene regulation results in differential gene expression, leading to cell specialization.

Manual PCR (AP)
- Essential Knowledge 3.A.1: DNA, and in some cases RNA, is the primary source of heritable information

SynBio Ethics (AP)

- Essential Knowledge 3.A.1: DNA, and in some cases RNA, is the primary source of heritable information