**UNIT “H”**

**Heredity and Reproduction**

1. Observe physical traits reflected by genetic information by explaining how hereditary information is located in the chromosomes.

1. Use Punnett squares to determine the genotype and phenotype of offspring.
2. Show the sequence of the cell processes of mitosis and meiosis and the outcome.
3. Develop a logical argument that supports or does not support genetic engineering, cloning, or artificial selection.
4. DNA is located in chromosomes within the cells of living things and carries genetic information to be passed to future generations.
5. Punnett squares can be used to determine the probability of phenotypes and genotypes.
6. Sexual reproduction requires the process of meiosis. Asexual reproduction requires the process of mitosis.
7. Specific ways that biotechnology impacts society, individuals, and the environment. cloning, artificial selection, and genetic engineering.

trait, physical traits, DNA, fertilization genetics, Punnett square, gene, genotype, heredity, chromosome (x and y),\* allele, phenotypes, allele, dominant, recessive, homozygous, heterozygous, pedigree, phenotypes, genotypes, alleles, incomplete Punnett square, probability, meiosis, mitosis, chromosomes,, chromatids, centrioles, nucleus, asexual reproduction, sexual reproduction, \*budding, \*binary fission, haploid gametes, spores, crossing over, independent assortment chromatids, centrioles, nucleus, biotechnology, cloning, genetic engineering, artificial selection, ethics

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**Vocabulary:**

*State Standards:*

**SC.7.L.16.1** *Understand and explain that every organism requires a set of instructions that specifies its traits, that this hereditary information (DNA) contains genes located in the chromosomes of each cell, and that heredity is the passage of these instructions from one generation to another.*

**SC.7.L.16.2** *Determine the probabilities for genotype and phenotype combinations using Punnett Squares and pedigrees*

**SC.7.L.16.3** *Compare and contrast the general processes of sexual reproduction requiring meiosis and asexual reproduction requiring mitosis.*

**SC.7.L.16.4** Recognize and explore the impact of biotechnology (cloning, genetic engineering, artificial selection) on the individual, society and the environment.

**KNOW**

*Students will know and describe that:*

**DO**

*Skills that the students can demonstrate are*

***Essential Question***

**How is genetic information is passed from generation to generation by an organism’s DNA?**

LEARNING LEVELS

|  |  |  |
| --- | --- | --- |
|  | **LEVEL 4**  *Expert* | I can discuss and explain the main ideas with others |
|  | **LEVEL 3**  *Meeting the*  *Goal* | I can explain key ideas and give evidence from the text to support my claims |
|  | **LEVEL 2**  *Almost*  *There* | I can recognize key ideas |
|  | **Level 1**  *Getting Started* | With help, I can define the vocabulary |

What level are you currently at?

What will you have to do to reach the next level?

Are you willing to do it?

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| --- | --- | --- |
| What do I Know | What do I Want to Know | What did I Learn |
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