**Lesson Plan: Hybrid hijinks**

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| *Word* | *Definition* |
| **Artificial selection** | The process of manipulating species’ genomes to favor specific traits; also known as selective breeding | |
| **Chromosome** | The threadlike strand of single long piece of DNA; the molecule that carries instructions for a cell. This strand is wound around proteins known as histones, allowing the DNA to fit inside of a cell. | |
| **Diploid** | Having two full sets of chromosomes; in other words, genetic information from both sperm and egg | |
| **DNA (deoxyribonucleic acid)** | Molecules inside the cells of living things that hold the instructions for how to make and maintain a specific life form | |
| **Egg** | Type of reproductive cell, also known as a gamete; contains half of the genetic information necessary to form a complete organism; associated with the biological female in a parental pair | |
| **Gamete** | A reproductive cell containing half of the genetic material required to produce an individual. In humans, those gametes are an egg and sperm. In plants, they are a pollen grain and ovum. | |
| **Gene** | A sequence of DNA that determines a particular characteristic in an organism. Genes are passed from parents to children, and genes contain the instructions for building proteins. | |
| **Genetic engineering** | The act of tweaking a living thing’s DNA to give the organism certain traits | |
| **Genome** | The complete set of genes or genetic material present in a cell or organism | |
| **Haploid** | Having one set of chromosomes; in other words, genetic information from only a sperm or an egg | |
| **Hybrid** | An organism produced by interbreeding of two animals or plants of different species or of genetically distinct populations within a species. Such offspring often possess genes passed on by each parent, yielding a combination of traits not known in previous generations. | |
| **Meiosis** | A type of cell division that creates sperm in biological males and eggs in biological females; involves two rounds of division, creating 4 haploid cells | |
| **Natural selection** | This is guiding concept underlying evolution, or natural adaptation. It holds that natural mutations within a population of organisms will create some new forms that are better adapted to their environment. That adaptation makes them more likely to survive and reproduce. Over time, these survivors may come to dominate the original population. If their adaptive changes are significant enough, those survivors may also constitute a new species. | |
| **Pollinate** | To transport male reproductive cells — pollen — to female parts of a flower. This allows fertilization, the first step in plant reproduction. | |
| **RNA (ribonucleic acid)** | A molecule that helps cells carry out the instructions in DNA so that cells can make proteins | |
| **Somatic** | A term for cells and things that make up the physical aspects of the human body. They are distinct from things relating to the mind (or psyche) and the body’s reproductive cells (eggs and sperm). | |
| **Sperm** | Type of reproductive cell, also known as a gamete; contains half of the genetic information necessary to form a complete organism; associated with the biological male in a parental pair | |
| **Transcription** | The first step in gene expression: an enzyme copies a selected piece of DNA to create RNA (especially messenger RNA). Both DNA and RNA are made up of building blocks known as nucleotides. | |
| **Translation** | The process of turning the mRNA message into a protein. A cell does this by assembling the appropriate chemical building blocks, known as amino acids. Translation occurs outside of a cell’s inner core, or nucleus. | |