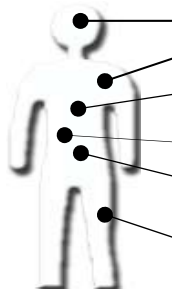


### Topic 5 - When Plans Change

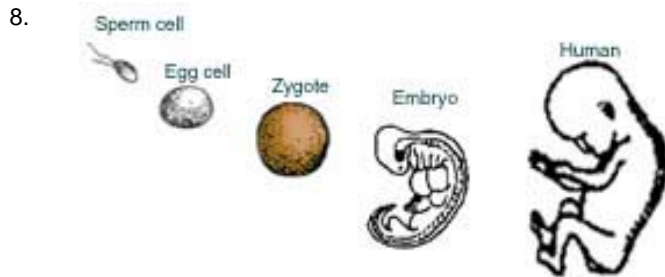
- The chemical blueprint passed on from the parents to the offspring is found in a molecule of the cell nuclei. This molecule is the inherited material responsible for variation. The chemical name for DNA is ...
  - dinitrogen oxide
  - double helix model
  - deoxyribonucleic acid
  - dual nitric acetone
- The DNA molecule is like a ladder twisted into a spiral. The sides of the ladder are the same in all DNA molecules, but the rungs are what make the variations. Each rung pairs up two of the following chemicals: guanine (**G**), cytosine (**C**), adenine (**A**) and thiamine (**T**). The arrangement of these four chemicals creates the code that the cells are able to interpret. This code is called the ...
  - Genetic code
  - M utagen code
  - Variation code
  - Chromosome code
- A section of the DNA molecule for a specific protein that makes up much of the structure of cells and tissues in plants and animals is called ...
  - an atom
  - a gene
  - a nucleus
  - a code
- 46 tightly coiled strands of DNA in humans represent the full compliment of ...
  - gametes
  - sperm cells
  - egg cells
  - chromosomes
- Genes are located in the chromosomes and come in pairs. Each chromosome has numerous gene locations. Both genes in a pair carry DNA instructions for the same thing. Specific characteristic genes occupy matching locations on the two chromosomes. DNA code may not be exactly the same in both locations. Offspring inherit genes from both parents. The genes exist in an array of possible forms that differ as to their exact DNA sequence. These variations in forms are called ...
  - mutations
  - genetics
  - alleles
  - alternates

- Different human cells (*somatic cells*) have different life spans.

	Brain cells	30-50 years	
	Red blood cells	120 days	
	Stomach lining cells	2 days	
	Liver cells	200 days	Replication of the contents of each cell occurs when the cell reproduces.
	Intestine lining cells	3 days	
	Skin cells	20 days	

When a cell divides, each cell ends up with a complete set of chromosomes, identical to each other and identical to the original cell. This process of Mitosis occurs most frequently in ...

- skin cells
  - liver cells
  - intestine lining cells
  - stomach lining cells
- The process of forming gametes occurs in the same way as somatic cells and is called ...
    - Mitosis
    - Meiosis
    - Fertilization
    - Conjugation



This type of sexual reproduction within a species increases ...

- A. **variation**
  - B. **mutations**
  - C. **vulnerability**
  - D. **specialization**
9. Moving pieces of one strand of DNA to other cells is a relatively new technique that has emerged. In the science of genetics, this technique has enabled scientists to create individuals within a species with desirable traits and is called ...
- A. **biodiversity**
  - B. **biomagnification**
  - C. **genetic diversity**
  - D. **genetic engineering**
10. One of the first uses of modern biotechnology was to move a human gene into bacteria. By doing this, bacteria were able to produce as a waste product, large quantities of a drug, used by diabetes patients, called ...
- A. **Aspirin**
  - B. **Insulin**
  - C. **Tylenol**
  - D. **Quinine**
11. Aquaculture is becoming an increasingly important method of mass production fish farming, however, if these 'special' fish make it out into the open ocean, what organisms be negatively affected?
- A. **fishermen and biologists**
  - B. **predator populations**
  - C. **natural fish population**
  - D. **large mammal population**
12. To produce purebred organisms, a breeder would choose purebred parents, those parents whose ancestors have produced only the desired characteristic. If a breeder chooses two different 'true-breeds', then the offspring produced would be a ...
- A. **domestic**
  - B. **mutant**
  - C. **gamete**
  - D. **hybrid**