

# Geometry of Life Video Notes

## **Geometry of Life Video Key Facts:**

### **Twin Studies:**

- 1) Scientists found evidence that genes control human personality.

### **DNA & Genes:**

- 1) Scientists used to think that approximately 100,000 genes controlled what a human looks like.
- 2) Following the human genome project, scientists discovered that only 30,000 genes control the make-up of a human.
- 3) DNA is made up of four controlling chemical compounds:
  - a) Adenine - A
  - b) Thymine - T
  - c) Cytosine - C
  - d) Guanine - G

### **Master Genes:**

- 1) Master genes control many other genes.
- 2) For example a single gene controls several genes for making a fly leg.
- 3) Another gene controls where that leg should be placed.

### **Evolution:**

- 1) This theory states that all living things are the result of genetic mistakes called mutations.
- 2) All living things are thought to have developed from a single celled organism as a result of genetic mistakes that have accumulated over millions of years.

### **Huntington's Disease:**

- 1) Started in Lake Mirakiva, Venezuela. Maria Conception Soto died over 100 years ago by this disease, which resulted from a mutation.
- 2) Nancy Wetsler charted the family tree of over 2,000 people to help find the gene controlling this disease.

### **Hemophilia:**

- 1) Considered the royal disease because Queen Victoria carried the defective gene.
- 2) A person with this disorder lacks ability for blood to clot, and can bleed to death easily.
- 2) Factor 8 is the blood clotting protein that Hemophiliacs are missing.

### **Recombinant DNA Technology:**

- 1) Researchers can turn bacteria into chemical factories for human proteins (like insulin, factor 8, cancer, etc.)
- 2) Therefore, bacteria can help us by making proteins that some humans cannot naturally make.