**Big Question: What makes us…… “*us*”?**

*DNA – RNA – Protein Synthesis – The Cell Cycle - Mitosis*

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| **Learning Targets:** | |
| 1. Illustrate (draw) the basic structure of DNA & a nucleotide 2. Explain how DNA copies itself (replication) 3. Know that some parts of DNA code for traits and other parts do not 4. Explain how DNA is turned into RNA (transcription) 5. Explain how RNA codes for proteins (translation) | 1. Explain the roles of tRNA and mRNA 2. Explain how proteins determine characteristics of living things 3. Know that the end result of the cell cycle is two identical cells 4. List the four phases of the cell cycle and describe what happens in each 5. Explain how cancer is caused by a disruption in the cell cycle 6. Explain the connection between environmental factors and cancer |

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| **Khan Academy –** | | |
| **Due Mon Feb 11** | **Due Fri Feb 15** | **Due Mon Mar 11** |
| - Discovery of the Structure of DNA (A)  - DNA (V)  - DNA Proofreading and Repair (A)  - DNA Structure and Replication Review (A)  - DNA Structure and Replication (Quiz)  - Molecular Structure of RNA (V)  - DNA Replication & RNA Transcription & Translation (V) | - Molecular Structure of RNA  - DNA Replication and RNA Transcription and Translation (V)  - Intro to Gene Expression (Central Dogma) (A)  - The Genetic Code (A)  - Impact of Mutations on Translation into Amino Acids (V)  - RNA and Protein Synthesis Review (A)  - Transcription and Translation (Quiz)  - Codons and Mutations (Q) | - Interphase (V)  - Mitosis (V)  - Cancer (V)  - Cell Cycle and Mitosis Review (A)  - The Cell Cycle and Mitosis (Q) |

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| **Tues – Feb 5 (Hulse gone – district meeting)** |
| * Cell Respiration and Photosynthesis Exam Corrections (must work in groups) * DNA Structure Reading and Questions + Diagrams (15 pts) – *due Monday Feb 11* * DNA Structure and Replication (25 pts) – *due Monday Feb 11* |
| **Thurs – Feb 7 (Hulse gone – district meeting)** |
| * GATTACA (film guide – 10 pts) – (Reflection Question – 10 pts) |
| **Mon – Feb 11** |
| * Notes – Review DNA Structure and Function * Notes - DNA Pairing and Replication * Checkpoint Quiz #1 * DNA Extraction Lab / Intro to Genetic Ethics |
| **Wed – Feb 13** |
| * Notes - Protein Synthesis – Transcription and Translation * POGIL: Protein Synthesis (20 pts) - *due Fri Feb 15* * Challenge: Protein Synthesis Cipher (10 pts) – *due Fri Feb 15* |
| **Fri – Feb 15** |
| * Protein Synthesis – Translation Practice * SNORKS Lab (20 pts) – *due Thurs Feb 21* * Checkpoint Quiz #2 * HW: Cell Cycle Reading and Questions (10 pts) – *due Thurs Feb 21* |
| **Thurs – Feb 21** |
| * Cell Cycle and Mitosis POGIL (40 pts) – *due @ end of hour* * Mitosis Foldable |
| **Mon – Feb 25** |
| * Mitosis under the Microscope Lab (40 pts) – *due @ end of hour* * Cell Cycle and Cancer |
| **Wed – Feb 27** |
| * Review/Wrap Up/”Just in case” Day * Project Selection |
| **Fri – Mar 1** |
| * Project Day 1 |
| **Tues – Mar 5** |
| * Project Day 2 |
| **Thurs – Mar 7** |
| * Project Day 3 |
| **Mon – Mar 11** |
| * Project Presentations |
| **Wed – Mar 13** |
| * Unit Exam |
| **Fri – Mar 15** |
| * Unit Exam Corrections |