**What: Honors Cell Cycle / Stem Cell Project– major assessment grade**

***Your grade will be based on neat, colorful, correct, and complete drawings and information.***

**Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Your project must include the following:**

* **Title page (3):** Your name, date, block, title (Honors Cell Cycle / Stem Cell Project)
* **Page 1 (5):** Cell Cycle vocabulary
* **Page 2 (5):** Drawing of the Cell Cycle Pie Chart showing each phase. (page 281). Indicate the location of the 3 checkpoints (see notes). Label with a few words what each part of the cycle or checkpoint is for.
* **Page 2 (2):** A drawing of a sister chromatid pair (label each sister chromatid and the centromere) (see your notes or page 280)-
* **Pages 3-4 (16):** A labeled drawing of each of the following parts of the cell cycle: prophase, metaphase, anaphase & telophase. Label each part: spindle, centromere, centrioles, nuclear membrane, and sister chromatids. (p. 282-283). Choose the interphase diagram on p.285 to draw.
  + Under each drawing write a neatly written description of what happens during each phase of the cell cycle **(15)**
* **Page 5 (4):** A labeled drawing of a plant cell AND an animal cell undergoing cytokinesis. Show the differences between cytokinesis in plant cells and animal cells (notes and page 284)
* **Page 6+ (50):** Provide a well-developed essay discussing the following points about stem cells (paragraph requirement in parenthesis). Papers should be between 2-4 pages long, double-spaced. You may only cite the textbook and articles from peer-reviewed primary sources. You may read other sources (such as blog posts, Wikipedia entries, and news articles) as a way of finding and interpreting primary sources, but you must cite only the primary source. Do not use direct quoting – phrase everything in your own words, then cite the source of the information.
  1. Introduction (1)
  2. The purpose of stem cells in embryos and adults (2)
  3. How stem cells change into other types and how the type is determined (2)
  4. How scientists currently use stem cells and how they hope to use them in the future (2)
  5. Ethical concerns and issues that surround stem cell research (2)
  6. A personal response to the use of stem cells, including why you feel that way (2)
  7. At least 4 works cited (2010-2016). Use of 4 sites required,
     + 1. An encyclopedia source
     + 2. A primary (1°) source (i.e. peer-reviewed science journal)
     + 3. A secondary (2°) source (i.e. articles from a .gov or .com source)

4. An article from the “Opposing Viewpoints” section in Discus looking specifically at treatments with adult vs. embryonic stem cells.

* 1. Choose MLA format.

**Cell Cycle / Cell Regulation Vocabulary**

1. Gene
2. Chromosome
3. Centromere
4. Chromatid
5. Chromatin
6. Histone
7. Interphase
8. Mitosis
9. Cytokinesis
10. Spindle fibers
11. Cancer
12. Tumor
13. Metastasize
14. Proto-oncogenes
15. Tumor-suppressor genes
16. Apoptosis

**Things to mention:**

1. CITE YOUR WORK! This means when you make a statement in the body of your paper that comes from a cited source, identify it.
2. You are to define and develop these topics. Do not waste your words by repeating what you have already stated. Do not use sentences that fail to add any new information to the subject.
3. Use of colloquialism's or phrases common in informal conversation (i.e. cool or neat, headway to be made, neither here nor there, a ton of benefit)
4. Using descriptors like ‘they’ and ‘it’ are acceptable only when the reader knows to what ‘they’ and ‘it’ refers.
5. Using phrases like etcetera, such and such, and the like.
6. Define abbreviations and specific terms that an adult not versed in the subject might not know (i.e. toti-, pluri-, multipotent)