Stem Cell Notesheet by C. Kohn - Agricultural Sciences, Waterford WI

Name: Hour Date:

Date Assignment is due: Why late? Score: + ✓ -  
 Day of Week Date If your project was late, describe why

# Unit Preview – complete this before the notes. If you are unsure, that is ok!

1. Why do you think scientists are interested in stem cells? What could they do?
2. What do you think a ‘stem cell’ is? Create a definition below:

**Weekly Schedule**

*We will be doing the following each day this week:*

Monday

Tuesday

Wednesday

Thursday

Friday

Create four questions about stem cells below:

1.

2.

3.

4.

1. Where would we find stem cells?
2. Stem cells have been known to be a controversial topic. Why do you think this is?

Notes C. Kohn, Agricultural Sciences - Waterford WI

**Directions**: Use the accompanying PowerPoint (<http://communities.naae.org/docs/DOC-10039>) to complete this sheet. This is graded on a + ✓- scale.

1. What are three current problems with modern medicine?
2. How could stem cells change these problems? `
3. What are stem cells? Stem cells are that become   
     
      
     
    and replace
4. What is an undifferentiated cell?
5. To differentiate means to
6. For each of the following, state how they became unique as a result of differentiation:   
     
   Muscle cells:   
     
   Nerve cells:   
     
   Bone cells:
7. List and describe the two kinds of stem cells:   
     
   1: Description:

2. Description:

1. Many, but not all tissues have that   
     
   \_
2. How often does the lining of your intestine have to be replaced?   
     
   Where does this new tissue come from?
3. Briefly describe the following kinds of stem cell sources:  
   1. Hematopoietic stem cells:
   2. Mesenchymal stem cells:
   3. Neural stem cells:
   4. Epidermal stem cells:
4. Tissue-specific stem cells are . This means that they can   
     
      
   1. For example, the stem cells beneath your skin can only   
        
       under normal circumstances.
5. True or false – there are already medical treatments that exist that use tissue-specific stem cells.
6. What is leukemia?
7. Briefly describe how tissue-specific stem cells are used to treat leukemia:
8. What is a pluripotent stem cell?
9. What is the primary difference between a multipotent and pluripotent stem cell?
10. List and describe the two kinds of pluripotent stem cells:   
      
    1: Description:

2. Description:

1. Embryonic stem cells are from   
     
   knowingly by
2. Where do embryonic stem cells come from?
3. What is a blastocyst?
4. How were the blastocysts used for stem cell research created?
5. Why are there usually leftover eggs from in vitro fertilization (IVF) clinics?
6. All tissue in the body comes from the of a 5-7 day old   
     
   The develops into three , the   
     
    , the and the .
7. Briefly describe what each of the following forms:  
     
   Endoderm:   
     
   Mesoderm:   
     
   Ectoderm:
8. To be a pluripotent stem cell, a stem cell must be able to   
    **.**
9. Induced pluripotent stem cells begin as   
   1. What are sources of cells for this?
10. How do scientists turn a normal mature bodily cell into an induced pluripotent stem cell?   
      
    Scientists turn off and turn   
      
    of these so that they have the same
11. What are three advantages of pluripotent stem cells?
12. What are three disadvantages of pluripotent stem cells?
13. How could pluripotent stem cells help scientists to better understand birth defects, cancer, and degenerative diseases?
14. How might stem cells help to address the problem of transplant organ shortages?
15. How might pluripotent stem cells aid in the discovery of new drugs?
16. Briefly list three kinds of guidelines that stem cell researchers must follow:
17. What is your opinion about stem cells? I think stem cell research is a good idea a bad idea not sure  
      
    Explain your stance:
18. President George W. Bush banned the use of federal funds for most embryonic stem cell research. President Barack Obama overturned this ban. Which action do you think was best, President Bush’s or Obama’s?   
      
     Why?

Unit Wrap-up C. Kohn, Agricultural Sciences - Waterford WI

This page is designed to help raise your grade while enabling you to develop skills you will need for after high   
school. You will need to complete every question and blank in order to receive full credit for your notes. Note: if you cannot come up with a strategy to remember a difficult concept on your own, see your instructor for help.

1. What is a topic or concept from this unit that you found to be more challenging? Write or describe below:  
     
      
     
   In the space below, create a mnemonic, rhyme, analogy, or other strategy to help you remember this particular concept:
2. What is a 2nd topic or concept from this unit that you found to be more challenging? Write or describe below:  
     
      
     
   In the space below, create a mnemonic, rhyme, analogy, or other strategy to help you remember this particular concept:
3. What is a 3rd topic or concept from this unit that you found to be more challenging? Write or describe below:  
     
      
     
   In the space below, create a mnemonic, rhyme, analogy, or other strategy to help you remember this particular concept:
4. Circle the most appropriate response. You will only be graded on whether or not you completed this section, so be entirely honest with yourself when completing this section.

Circle one: *I used my notes outside of class to prepare for the quiz.* Definitely – Yes – Sort of - No

Circle one: *I took extra notes in the margins for very difficult concepts.* Definitely – Yes – Sort of - No

Circle one: *I created a personal strategy for at least three difficult items.* Definitely – Yes – Sort of - No

Circle one: *I was very involved and actively studying during the quiz review.* Definitely – Yes – Sort of - No

Circle one: *I think I will be satisfied with the quiz grade I received this week.* Definitely – Yes – Sort of - No

Circle one: *My instructor is cool & I want to pay dues to be in their fan club.* Definitely – Yes – Sort of - No