Cloning Notesheet 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**Directions**: use the accompanying PowerPoint (<http://bit.ly/cloning-ppt>) to complete the questions below. This sheet will be due upon the completion of the PowerPoint in class. These assignments are graded on a +/√/- scale.

1. For each of the following, state whether or not you think it would count as cloning and why:
   1. By taking and planting a leaf cutting, you can create a new plant with identical DNA. Is this cloning?   
        
      Cloning? \_ Why or why not?   
        
      \_
   2. Could identical twins be considered clones? Why or why not?  
        
      Cloning? \_ Why or why not?   
        
      \_
   3. When bacteria divide in half, is this cloning? Why or why not?  
        
      Cloning? \_ Why or why not?   
        
      \_
   4. Sometimes yeast reproduce by budding (creating smaller copy, or bud, that eventually breaks off and grows to full size). Is this cloning and why or why not?  
        
      Cloning? \_ Why or why not?   
        
      \_
2. One of the most complicated questions regarding genes in the early 1900s was   
     
   \_
3. It is clear that when a sperm cell an egg to create that first cell (a )  
     
   that particular cell must have in order to   
     
   become a
4. What scientists did not know was whether the were as cells specialized into   
     
   skin cells, liver cells, nerves, etc., or if these genes were simply “ ”.
5. One of the first scientists to successfully address this question was the embryologist  
     
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6. Describe Spemann’s work:   
     
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7. Spemann’s work showed that early in cell , each cell retained
8. This suggested that cells did not “ ” DNA but that genes did become ‘ as cells differentiated.
9. Define differentiation:
10. What was the opposing hypotheses to Spemann’s?   
      
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11. After Spemann’s work, scientists wondered if   
      
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12. In 1952, US Scientists carried out the first successful   
      
    \_ (SCNT)
13. What is the process SCNT?   
      
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14. Briggs and King removed the of a frog (   
      
     ) using a and inserted it into an   
      
    \_
15. The egg became a .
16. When did the first example of animal cloning take place? By who?
17. How is a cell and a nucleus like a bus driver and a bus?   
      
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18. What two questions did John Gurdon’s work address?  
      
    1\_   
      
    2\_
19. Describe John Gurdon’s experiment:   
      
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20. What were success rates like in these cloning experiments?   
      
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21. This provided evidence to what idea about cell reprogramming?   
      
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22. Why did scientists believe for decades that mammalian cloning was impossible?   
      
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23. Dolly the Sheep was created by what scientists?
24. Dolly the Sheept was created by taking the from the   
      
    glands of an adult sheep and put it into an   
      
    egg from a different breed (the ).
25. Draw the Dolly cloning experiment below:
26. Write the 5 steps of cloning Dolly below:  
      
    1\_   
      
    2\_   
      
    3\_   
      
    4\_   
      
    5\_
27. It took attempts to create Dolly – in other words, Dolly was the first success after failed attempts.
28. Besides a low success rate, what other problems were associated with the Dolly experiment?  
      
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29. As a whole, animals (the that are   
      
    created) suffer from   
      
    \_
30. One proposed hypothesis for this increase in in   
      
    animals is the difference between
31. The age of a cell can be determined by the length of its
32. What are telomeres?
33. What are telomeres like?
34. What happens to telomeres as a cell continues to divide?
35. Dolly, like many cloned animals, had , a sign   
      
    that her cells
36. Is this true of all cloned animals? Explain:   
      
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37. Are human cloning experiments legal? Why?   
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38. Is cloning now common? Explain:   
      
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39. The primary reason for perfecting cloning technology would be so that   
      
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40. E.g. The same lab that created Dolly also created the clone – a sheep that was   
      
    genetically engineered to
41. Creating clones of would   
      
    hypothetically be than trying to   
      
    create these same animals through .
42. Once standardized, genetically altered nuclei could be and inserted   
      
    into , - style.
43. What endangered species have been cloned so far?   
      
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44. What was the first commercially cloned pet? What did it cost? $
45. Would the clone be just like the original? Why?   
      
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46. What was the first cloned cat? Did it look like her original?
47. Why didn’t the first cloned cat look like the original?   
      
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48. What is your opinion on cloning?   
      
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49. Do you think human cloning should be outlawed? Why?   
      
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50. Do you think all cloning should be outlawed? Why?   
      
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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