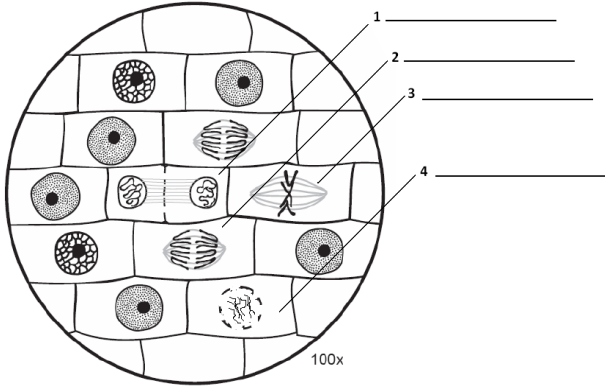
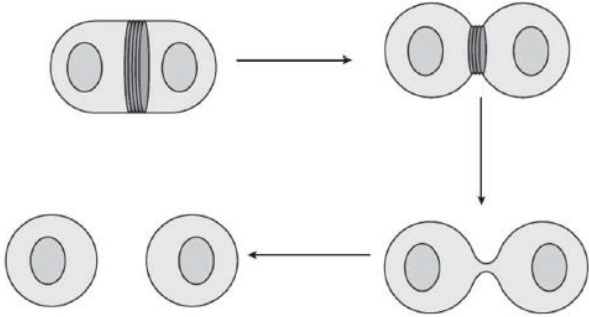


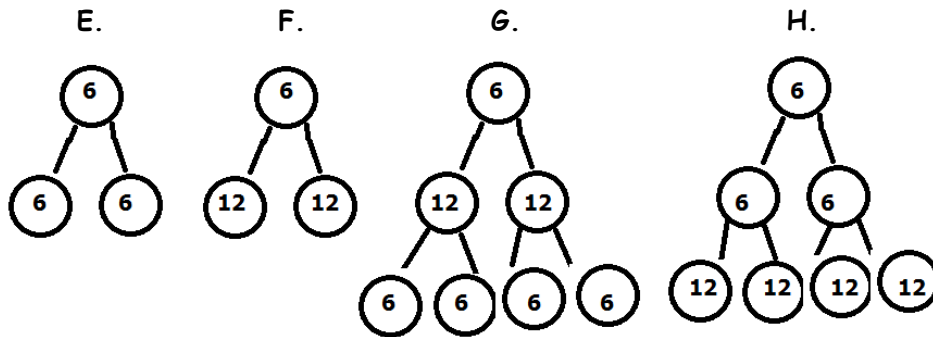
## Cell Cycle Riddle Me This!

Using a dry erase, circle the correct answers to questions #1 - #12.

Question Number	Question
1	<p>A student made the following sketch of the onion root tip cells she viewed under the microscope. The cells are involved in various stages of nuclear division.</p> <div style="text-align: center;">  </div> <p>Which choice correctly identifies the cell number with its phase?</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: left;"> <p>Q. Cell 1 - interphase</p> <p>R. Cell 3 - anaphase</p> </div> <div style="text-align: left;"> <p>S. Cell 2 - metaphase</p> <p>T. Cell 4 - prophase</p> </div> </div>
2	<p>Part of the cell cycle is shown in this a model. This part of the cell cycle is best described as the process that -</p> <div style="text-align: center;">  </div> <div style="margin-top: 10px;"> <p>A. completes cell division</p> <p>B. duplicates the DNA</p> <p>C. maintains genetic homeostasis</p> <p>D. synthesizes new molecules</p> </div>
3	<p>People who have leukemia, a cancer that affects white blood cells, are often given Cytarabine. This drug inhibits the synthesis of DNA. Which phase of the cell cycle is most affected by Cytarabine?</p> <div style="margin-top: 20px;"> <p>J. <math>G_1</math> phase</p> <p>K. S phase</p> <p>L. <math>G_2</math> phase</p> <p>M. <math>G_0</math> phase</p> </div>

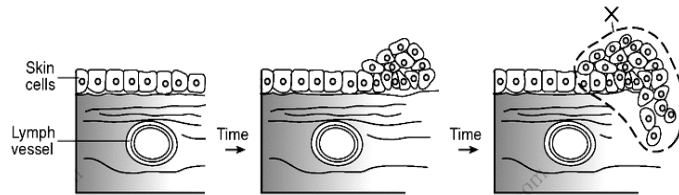
4

The Yellow Fever Mosquito can be found in tropical regions around the world. It can carry and transmit the virus that causes yellow fever. This mosquito has only 6 chromosomes. Which image correctly shows a mosquito cell that underwent mitosis?



5

The diagram below shows the growth pattern of some skin cells in the human body after they have been exposed to ultraviolet radiation.



The cells in area X are most likely a result of

- A. Cells with a change in their DNA that results in the cell halting the cell cycle.
- B. Cells with a virus which caused the virus to enter the lytic cycle.
- C. Cells with a mutation in a gene that controls the cell cycle and as a result have uncontrolled mitosis.
- D. Cells undergoing the cell cycle but stopping at a checkpoint.

6

A student is trying to find a cell in a particular phase of mitosis. The student is looking for evidence that spindle fibers are separating the chromosomes to ensure that each new nucleus has one copy of each chromosome. Which cell is in the phase the student is searching for?

- D. Cell 1
- E. Cell 2
- F. Cell 3
- G. Cell 4

7

Cells pass through a  $G_2$  checkpoint before entering mitosis. Ideally, if DNA damage is detected, the cells do not enter mitosis until the damage is repaired. Why is DNA damage repaired before cells enter mitosis?

- L. So that healthy daughter cells are produced, allowing the organism to continue growing
- M. So that another round of DNA synthesis does not have to take place
- N. So that the chromosomes can align at the metaphase plate during mitosis
- O. So that the cytoplasm can be divided equally between the two daughter cells

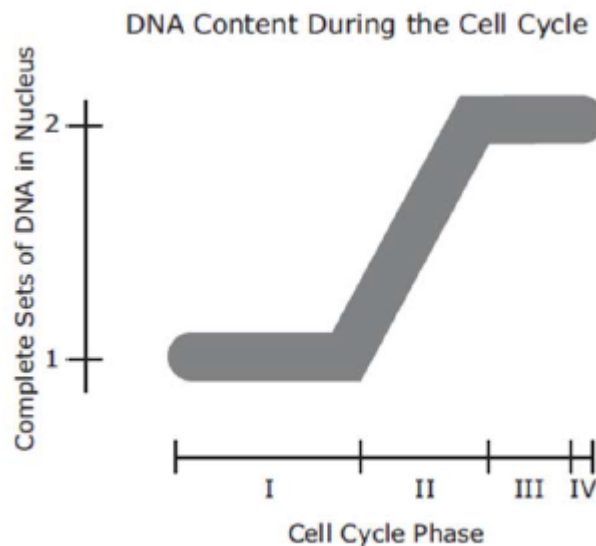
8

Scientists can bioengineer skin in a laboratory to treat severe burns and other types of skin injuries. The bioengineered tissue is grown from living cells. The cellular process that enables the cells to grow and develop into tissue is -

- I. conjugation.
- J. meiosis
- K. budding
- L. mitosis

9

The model represents the change in the DNA content of a cell during the cell cycle.

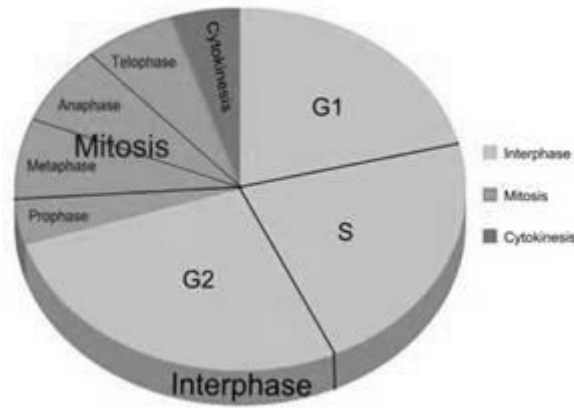


Which part of the model represents the S phase?

- E. I
- F. II
- G. III
- H. IV

10

What is the importance of the process shown below?



- F. To replace damaged cells.
- G. To produce more cells so an organism can grow.
- H. To replace that have been shed because they died off.
- I. All of the above are correct

11.

Bacteria cells divide at a quick rate. Before the cells divide, DNA must first replicate. Where in the cell would DNA replication occur?

- C. Nucleus
- D. Cell membrane
- E. Cytoplasm
- F. Mitosis

12.

Which of these must occur during S phase of the cell cycle so that two daughter cells can be produced during M phase?

- S. The DNA must be replicated
- T. The chromosomes must be joined
- U. The cytoplasm must be separated
- V. The cell membrane must be expanded

**Look at the last sheet and fill in the blanks with the letters you circled.  
If you are correct, you will have the answer to the riddle!**

# Riddle Me This?

## DNA and Cell Cycle Review



Answer the riddle: *What do Biologists like to do on their free time?*  
(Write the answer's letter above the number of that question.)

1      2      3      4                      5      6      7      8      9      10      11      12

Once you have answered the riddle, erase all the writing you did on these pages.



Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

# Riddle Me This?

## DNA and Cell Cycle Review



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