

# Expectation Sheet

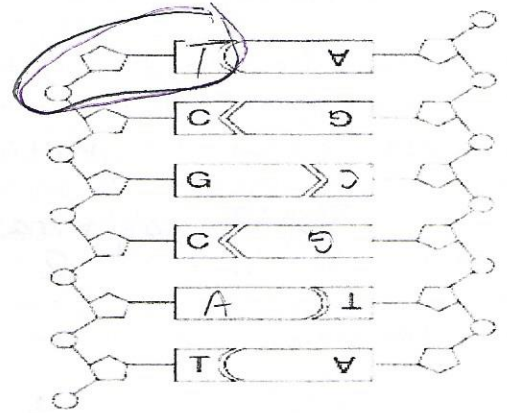
## DNA & Cell Cycle

Key

NAME: \_\_\_\_\_

PERIOD \_\_\_\_\_

Look at the DNA strand on the right.



- Fill in the missing bases ...
- Circle one nucleotide ...
- What type of bond holds these bases together? H
- How many nucleotides are in this image of DNA? 12
- If there was 26% Adenine, how much thymine would there be? 26
- If there was 20% guanine, how much Cytosine would be present? 20
- If there was 14% guanine, how much thymine would there be? (show your math)

$$14 + 14 = 28$$

$$72 \div 2 = 36$$

- If there was 24% adenine, how much guanine would there be? (show your math)

26

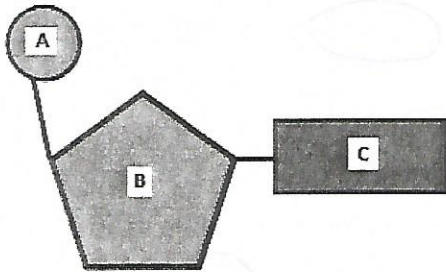
- Traits are determined by the genetic code, what part of the DNA actually carries the code? N. bases
- What is semi conservative DNA? New DNA has one original strand & one new strand
- What is anti-parallel DNA? opposite 3-5 5-3
- Write the complimentary bases for the following strands:

3' ATC CGG GCA TTC GCC 5'  
5 TAG GCC CGT AAG CCG 3

5' TTA GTA CCC TAG GGT AAC 3'  
3 AAT CAT GGG ATC CAA TTS

- What determines what an organism is and their specific traits? order of bases
- (YES / NO) Does a human and potato have the same DNA molecular parts?
- (YES / NO) Does a human and a potato have the same nitrogenous base sequence within their DNA?
- What is the monomer of a DNA molecule? Nucleotide
- What is the polymer of a DNA molecule? Nucleic Acid / DNA

- What is the name of this structure? Nucleotide
- Name structure A Phosphate
- Name structure B Deoxyribose sugar
- Name structure C N base
- What is the polymer of this structure? DNA
- Which part of this structure carries the genetic code  
Bases

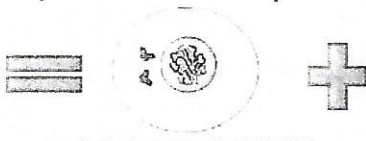


- What are the four bases possible on a DNA nucleotide?

A, T, C, G

24. Fill in the steps to this cellular process:

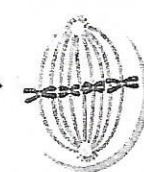
**Cell Cycle** =



Interphase



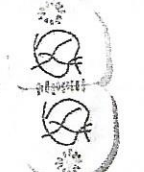
Prophase



Metaphase



Anaphase



Telophase

What happens at the very end of mitosis to split the cells?  
Cytokinesis

25. In which stage does DNA replicate? S of Interphase

26. What is the longest stage of the cell cycle? Interphase

27. What process is DNA preparing for when it replicates? Mitosis / cell

28. Why does DNA replicate before cell division? for 2 identical cells

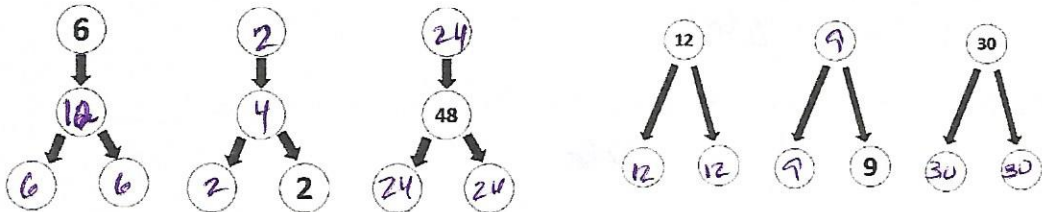
29. Which enzyme unzips DNA? Helicase

30. Which enzyme adds new nucleotides to the original "parent" strands?  
DNA polymerase

31. The end result of replication is 2 identical DNA strands

32. Cancer cells do not enter the G<sub>0</sub> phase (the resting period), what do they do? uncontrolled growth

33. Fill in the chromosomal number for each cellular division if mitosis occurred.

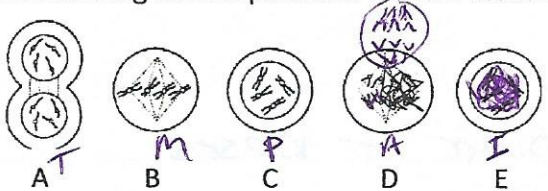


34. How do the daughter cells compare to each other after mitosis? identical

35. How do the daughter cells compare to the original cell after mitosis? identical

36. How many times did the cell divide during mitosis? once

37. Put the following mitosis phases in the correct order. E, C, B, D, A



38. Circle the Answer that describes what is happening in each of the following stages of the cell cycle:

**Interphase:** DNA is (REPLICATING / UNWINDING / SEPERATING)

**Prophase:** The (RIBOSOMES / CELL MEMBRANES / CHROMATIN) is condensing into chromosomes and the nucleus is (DISAPPEARING / GETTING BIGGER / DOUBLING)

**Metaphase:** The chromosomes are migrating to the (TOP / MIDDLE / BOTTOM)

**Anaphase:** Chromosome get (PULLED APART / PUSHED TOGETHER / DISAPPEAR)

**Telophase:** The cell starts to (GROW BIGGER / DIVIDE / SHRINK) and the nucleus (REAPPEARS / DISAPPEARS)

Use the image to left to answer questions 39-41

39. Circle the "original" strands in the resulting DNA.

40. How do the 2 new DNA strands compare to each other?

identical

41. What is meant by DNA being a "Semi-Conservative" model?

one old - one new strand

