

## Pre-test/Post-test

1. Which of the following is true about nano-properties?
  - a. size dependent properties can change based on their size
  - b. the color of an object never changes, regardless of size
  - c. nano-properties are always the opposite of macro-properties
  - d. All of them
2. As size \_\_\_\_\_, the surface area to volume ratio \_\_\_\_\_.
  - a. Increases, increases
  - b. Decreases, decreases
  - c. Decreases, increases
  - d. None of them are correct
3. Which of these factors is not important in self-assembly?
  - a. Temperature
  - b. Stickiness
  - c. Charge
  - d. Color
4. What is the correct order of these on the metric scale? (from largest to smallest)
  - a. Macro, Micro, Nano, Atomic
  - b. Atomic, Nano, Micro, Macro
  - c. Macro, Nano, Micro, Atomic
  - d. Micro, Macro, Nano, Atomic
5. Place the following in the correct order from smallest to largest.
  - a. DNA, Chromosomes, Chromatin
  - b. DNA, Chromatin, Chromosomes
  - c. Chromatin, Chromosomes, DNA
  - d. Chromosomes, Chromatin, DNA
6. DNA is \_\_\_\_\_ and remains in the \_\_\_\_\_, while RNA is \_\_\_\_\_ and moves to the \_\_\_\_\_.
  - a. Double-stranded, nucleus, single stranded, cytoplasm
  - b. Single-stranded, nucleus, double-stranded, cytoplasm
  - c. Double-stranded, cytoplasm, single-stranded, nucleus
  - d. Single-stranded, cytoplasm, double-stranded, nucleus
7. The end result of transcription is ...
  - a. Protein
  - b. mRNA
  - c. tRNA
  - d. DNA
8. The end result of translation is ...
  - a. Protein
  - b. mRNA
  - c. tRNA
  - d. DNA

9. Which of the following is a consequence of mutations:
- Being harmful
  - Being lethal
  - Being helpful
  - All of them
10. In traditional Mendelian examples, if this allele is present, it is always expressed.
- Homozygous
  - Recessive
  - Dominant
  - Heterozygous
11. If the P generation is heterozygous, the probabilities for their offspring will be \_\_.
- 50% homozygous dominant, 50% homozygous recessive
  - 25% heterozygous, 50% homozygous dominant, 25% homozygous recessive
  - All heterozygous
  - 25% homozygous dominant, 50% heterozygous, 25% homozygous recessive
12. AB blood type in humans is a result of \_\_\_\_\_.
- Intermediate inheritance
  - Sex-linked inheritance
  - Codominance
  - Punnett square
13. Which of the following is an example of polygenic inheritance?
- Flower color of snapdragons
  - Male-pattern baldness
  - Colorblindness
  - Human skin color
14. A gamete produced by a ttgg plant is going to be...
- tt
  - gg
  - ttgg
  - tg
15. Which nano property is best related to DNA strands connecting?
- Self-assembly
  - Size-Dependent
  - Forces
  - Size and Scale

## Post-test

- The end result of translation is ...
  - Protein
  - mRNA
  - tRNA
  - DNA
- What is the correct order of these on the metric scale? (from largest to smallest)
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