Test for **Template-Based Synthesis: PCR** Activity
Name_____ Teacher _____
Date_____ Class _____

Check one:
___ Pretest
___ Posttest

1. Suppose you have a supply of four types of molecules: A, B, C and D. When combined in a reaction chamber, these molecules can react with each other forming a chain-like linear polymer (each of them can bond to any two others). Imagine, you would like them to form the chain C-A-B-D. You friend suggests simply making a mixture of A, B, C and D in equal concentrations and allow them to form chemical bonds with each other. Would this be an effective method to create a high concentration of C-A-B-D linear chains of molecules? Why or not?

2. Describe the role of random molecular motion in getting the correct nucleotide (A, T, G or C) to bond to a growing DNA strand during DNA duplication.

3. A lab technician is getting bad results from her PCR procedure. She's trying to make lots of copies from a tiny sample of DNA, but it's not working. Help her troubleshoot! Read her procedure below, find at least 3 errors and suggest a way to correct each one.

i. Cool the sample to 30ºC to denature the DNA.

ii. Add RNA primers, two paired nucleotides in length.

iii. Heat the sample to 90ºC to anneal the primers.

iv. Cool the sample to 20ºC so that the enzyme can extend the primers