**PCR Virtual Lab**

**Answer the following questions as you complete** <http://learn.genetics.utah.edu/content/labs/pcr/>

**1.** How many base pairs is the human genome made up of? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2.** What does “PCR” stand for?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. What is this biotechnology used for (besides making copies of DNA)?

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**4.** Is a lot of DNA required for a PCR reaction? \_\_\_\_\_ What does this mean about the size of the sample that you need to extract DNA from? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**5.** Why is a PCR test tube special compared to regular test tubes? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6.** What are primers and how many were added to the PCR tube?

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**7.** What are nucleotides and why were they added to the PCR tube?

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**8.** What is DNA polymerase and what does it do?

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**9.** What is the PCR machine called, and what does it do?

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**10.** Describe what happens to the DNA during cycle #1 at these specific temperatures:

**950C -**

**500C -**

**720C -**

**11.** How do you eventually end up with over a billion copies of your targeted DNA?

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**Real World Genetics**

You’re a surfer and a microbiologist. You want to find out if the near-by sewage treatment plant is contaminating your favorite beach with harmful bacteria species, so you collected a water sample while you were paddling out to catch some waves one day. Write a brief paragraph outlining how you would use genetic analysis to figure out whether the bacteria in question are in your sample.

