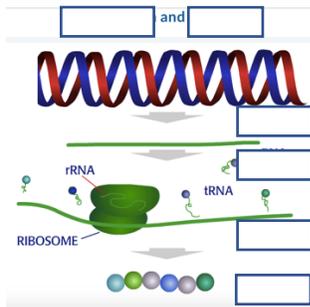




DNA Fingerprint

Pre-lab:

1. Use your textbook or an internet search to look up “the central dogma of molecular biology”. Fill in the diagram below with the names of the molecules and the processes in the central dogma.



2. Not all DNA is used to make protein! Some regions of our genome are **non-coding**, meaning they do not code for protein. Regions that do produce protein are called **coding regions**. Use the chart to fill in your prediction for what proportion of the human genome is comprised of coding vs. non-coding DNA. Come back to this chart and fill out the last column after learning the actual percentages from your instructor!

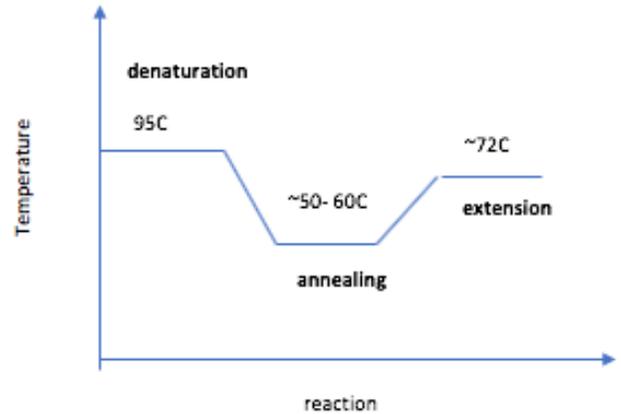
	Prediction	Actual
Coding DNA	% of genome	% of genome
Non-coding DNA	% of genome	% of genome

Post-Lab:

1. What was the name of the locus being analyzed for an *Alu* insertion today? What chromosome was it located on?
2. Write out the possible genotypes for the *Alu* insertion analyzed today.
3. What was the purpose of Chelex resin in this experiment?



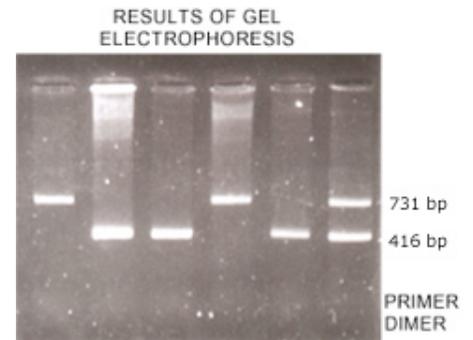
4. To the right is a temperature course for a typical PCR reaction. Explain what is happening to DNA at each step of the reaction. Use the words “primer, DNA strand, and nucleotides” in your response.



5. Gel electrophoresis allowed us to visualize our DNA based on its size and charge. What would the result have been if you misplaced the electrodes on the gel (i.e. if you had attached the positively charged cord, or cathode, to the top of the gel where samples were loaded and the negatively charged cord, or anode, to the bottom of the gel)? You may find it helpful to draw a diagram to support your answer.

6. Displayed to the right are previous student data. Please determine the genotype for each student starting from the left most lane and working your way to the right.

- 1 -
- 2 -
- 3 -
- 4 -
- 5 -
- 6 -



7. Even though the *Alu* insertion studied today exists in a non-coding region, we can use it to study human populations and evolution. Using the data below, suggest a hypothesis about the origin and dispersal of the *Alu* allele.

Alaska Native	62%	Filipino	80%	!Kung	20%	Pakistani	30%
Australian	15%	French	23%	Malaysian	72%	PNG	24%
Chinese	86%	French-Acadian	18%	Mayan	70%	Taiwanese	90%
European-American	18%	Indian	52%	Nigerian	9%	Yanomamo	96%

