Who Ate the Cheese?! Name: _____ Per____

Objectives: In this simulation you will examine crime scene evidence to determine who is responsible for eating the Queen's special imported Lindbergher Cheese (yes, the stinky cheese). You will model the process of electrophoresis and DNA fingerprinting.

ROYAL GUARD INCIDENT REPORT

Incident Data

Incident Type:	Theft	Complaint Status:	Pending DNA results
Processed by:	Chief Wiggam	Other Officers:	Officer Li Gase

Property

Property Code:	Rare cheese	Owner's Name:	Queen Elizabeth
Name:	Lindbergher	Value:	$12,000

Burglary Data

Method of Entry: Unknown, no evidence of force on doors or windows.

Narrative: The cheese was allegedly stolen from the Queen's sitting room the night before the grande ball. The cheese was listed as a gift from the Manchurian diplomat. Officer Li Gase dusted for fingerprints and found none on the table or doors, the maid claimed that they had been wiped clean earlier. The wheel of cheese was on a platform in the sitting room, and half of it had been eaten. We took pictures of the half eaten cheese and sent it to the lab for further tests. Edna N. Zime, the lab technician said that saliva samples could be taken from the teeth imprints of the cheese that was left behind.

Suspect Data

Suspect Number: 1
Name: Princess Dubbah Elix
Description of Suspicion: The princess was seen entering the sitting room earlier in the evening. She is well known for her love of cheese.

Suspect Number 2
Name: Electra Foresis
Description of Suspicion: Electra was recently involved in a relationship with the Manchurian diplomat that sources say ended badly. Her motive may have been to sabotage the diplomat's gift to the Queen.

Suspect Number 3
Name: Ada Nine
Description of Suspicion: Ada was the maid in charge of cleaning the sitting room. She had access to the cheese.

Suspect Number 4
Name: Gene Tics
Description of Suspicion: Gene is the leader of the local Cheese-Makers Guild, he may not have wished for Queen Elizabeth to have cheese from anywhere but his own guild.

Narrative:

After receiving the package with the plastic bag marked Crime Scene, the DNA was extracted. Because the sample of DNA from the cheese was so small, the DNA was amplified using PCR. We isolated the DNA from the four suspects and compared them to the crime scene DNA using DNA restriction analysis.

DNA Evidence Evaluation

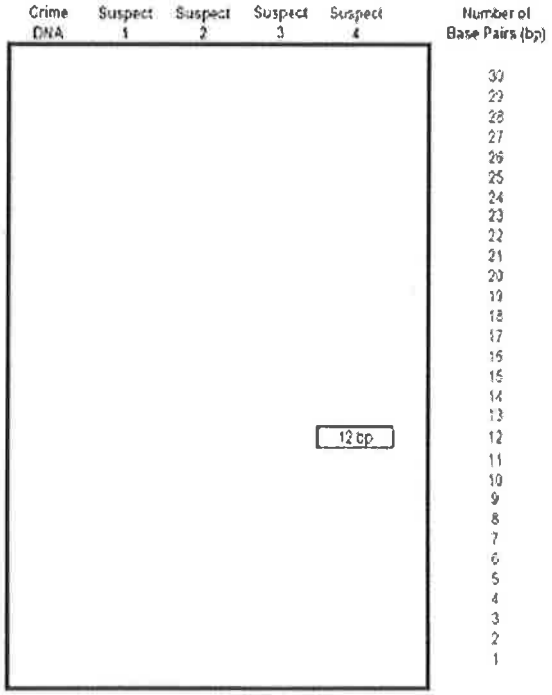
1. Get your DNA sample. The restriction enzyme cuts at ever point it finds C C G G, always cutting between the C and the G. Label the back of the slips with the suspect number so that you don't get them confused after cutting. Use scissors to cut the DNA sequence at the C C G G points.

2. Count the number of base pairs (bp) in each piece of DNA that you created. Record the base pair number on the back side of the DNA fragment.

3. Make an enlarged chart like the one shown. Your teacher will give you paper for this. Use a ruler to nesure that your lengths are uniform.

4. Glue your DNA fragments to the chart, using the base pair numbers as a guideline for fragment placement. Be sure to keep the suspects DNA in the correct column.

5. Compare the crime scene DNA to the suspects and indicate on your chart, which suspect is guilty of eating the cheese.



Crime DNA Crime DNA Crime DNA Crime DNA Crime DNA Crime DNA Crime DNA Crime DNA Crime DNA Crime DNA Crime DNA Crime DNA

GTCGACCGGTGACCGTGCGTACACAGTGCTCCGGATAGCTGATAGCTCCGGTG

CAGCTGGCCACTGGCACGCATGTGTCACGAGGCCTATCGACTATCGAGGCCAC

Suspect 1 DNA Suspect 1 DNA Suspect 1 DNA Suspect 1 DNA Suspect 1 DNA Suspect 1 DNA Suspect 1 DNA Suspect 1 DNA Suspect 1 DNA Suspect 1 DNA

GTCCCAGCCGGACCGTACCGGTAGATCAGCCGGTAGATTGATAGCGTGATGTG

CAGGGTCGGCCTGCCATGGCCATCTAGTCGGCCATCTAACTATCGCACTACAC

Suspect 2 DNA Suspect 2 DNA Suspect 2 DNA Suspect 2 DNA Suspect 2 DNA Suspect 2 DNA Suspect 2 DNA Suspect 2 DNA Suspect 2 DNA Suspect 2 DNA

GTCTACGTAATCGTAGCCATCCGGACAGTGTGCACGATCGTACATGCTACGTG

CAGATGCATTAGCATCGGTAGGCCTGTCACACGTGCTAGCATGTACGATGCAC

Suspect 3 DNA Suspect 3 DNA Suspect 3 DNA Suspect 3 DNA Suspect 3 DNA Suspect 3 DNA Suspect 3 DNA Suspect 3 DNA Suspect 3 DNA Suspect 3 DNA

GTCGACCGGTGACCGTGCGTACACAGTGCTCCGGATAGCTGATAGCTCCGGTG

CAGCTGGCCACTGGCACGCATGTGTCACGAGGCCTATCGACTATCGAGGCCAC

Suspect 4 DNA Suspect 4 DNA Suspect 4 DNA Suspect 4 DNA Suspect 4 DNA Suspect 4 DNA Suspect 4 DNA Suspect 4 DNA Suspect 4 DNA Suspect 4 DNA

GTCTCCATCCGGACTACCATACATCTGGTGTACCCGGTGATATCGTCCGGGTG

CAGAGGTAGGCCTGATGGTATGTAGACCACATGGGCCACTATAGCAGGCCCAC

Who ate the Cheese

DNA