Confidential
Case of the Crown Jewels: Police Report

My name is Friday, Joe Friday. I work with my assistant, Dee Enae. Together, we keep the city safe. We're detectives. It was early Thursday morning. We were already on the scene. Officer Ligase approached me. "We haven't got much for you, Friday. It was a clean job. Not a print. Whoever it was got in and out with the jewels without a trace."

"There is no crime without its clues. They're here. We'll find them," I replied.

Just then Dee Ena yelled, "Friday, over here."

"What is it Dee?" I said.

"Some blood on the sill. Looks like our thief cut himself on the broken glass."

"Good work, Dee. Let's see what the lab can do with this."

Back at the crime lab, the messenger R. Renee, gave the package to technician Edna N. Zime. N. Zime opened the package and took out a plastic bag marked Crime Scene. She began extracting the DNA from the blood sample in the bag. Because the sample was so small, she had to amplify the DNA using the polymerase chain reaction.

Meanwhile, Dee Enae and Friday had narrowed the suspects to four people.

Suspect #1
Pockets Peterson: A widely known and successful crime chief. Peterson had been known to brag that he could get by any security system. He said he would prove it by someday taking the crown jewels. No stone has been known to have higher security.

Suspect #2
Cruella "the Cat" Blanchard: Owns the largest private collection of precious stones in the world. She has offered millions of dollars for them. Having been a member of the prestigious ninja swat team, she has the talent and guts to pull off such a crime.

Suspect #3
Professor Angstrom: Past curator of the museum that housed the Crown Jewels. He was recently fired from his job and replaced by the boss's niece. His motive may be revenge.

Suspect #4
The Resident Scientist: Credited for discovery of the Jewel. She claims it is rightfully hers.

As Edna's lab assistants, each one of you will receive an envelope containing a DNA sample either one from the crime scene or one from a suspect. Each person is to follow the instructions in their envelope. Work only on your DNA sample.

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DNA Strips
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CRIME DNA
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GTCGACCGGTGACCGTGCGTACACAGTGCTCCGGATAGCTGATAGCTCCGGTG
CAGCTGGCCACTGGCACGCATGTGTCACGAGGCCTATCGACTATCGAGGCCAC
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SUSPECT 1 DNA
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AGTCCAGCCGGACCGTACCGGTAGATCAGCCGGTAGATTGATAGCGTGATTAG
TCAGGTCGGCCTGGCATGGCCATCTAGTCGGCCATCTAACTATCGCACTAATC
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SUSPECT 2 DNA
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CGATACGTAATCGTAGCCATCCGGACAGTGTGCACGATCGTACATGCTACCGG
GCTATGCATTAGCATCGGTAGGCCTGTCACACGTGCTAGCATGTACGATGGCC
```

```
SUSPECT 3 DNA
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```
GTCGACCGGTGACCGTGCGTACACAGTGCTCCGGATAGCTGATAGCTCCGGTG
CAGCTGGCCACTGGCACGCATGTGTCACGAGGCCTATCGACTATCGAGGCCAC
```
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```
SUSPECT 4 DNA
```

```
ATCTCCATCCGGACTACCATACATCTGGTGTACCCGGTGATATCGTCCGGATC
TAGAGGTAGGCCTGATGGTATGTAGACCACATGGGCCACTATAGCAGGCCTAG
```

DNA Instructions

Work only on your DNA sample.

1. Turn the paper strip with the DNA base sequences over so the side with the bases is facing you. Use your scissors (restriction enzymes) to cut your DNA samples only where you see this base pattern CCGG. Cut between the C and the G as shown in the example.
                                                                    GGCC

Example:
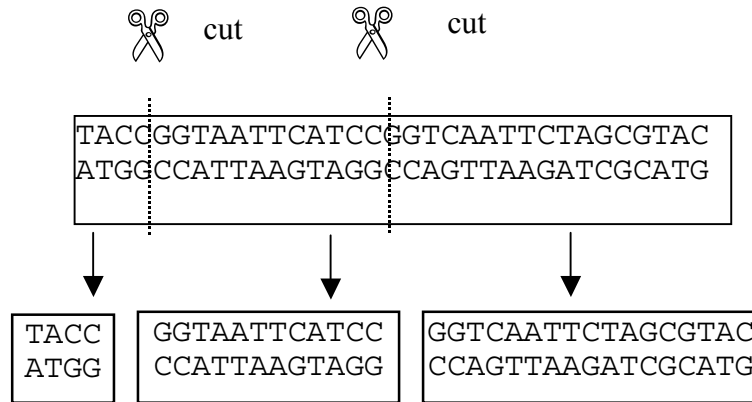
2. Count the number of base pairs (bp) in each piece of DNA you have. A base pair consists of two complementary bases. Record the number of base pairs in each piece on the blank side of the DNA fragment.

```
G C T A A T T C A T C C
C G A T T A A G T A G G
```
Base side

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12 base pairs
```
Blank side
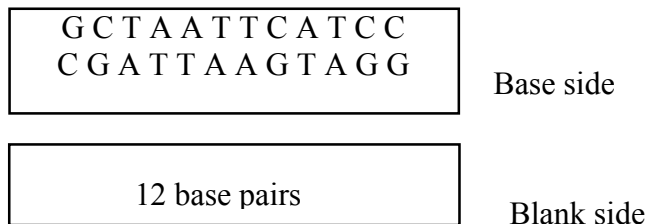
DNA Instructions con't:

3. An enlarged chart like the one below is available for you group. Tape your DNA sequences on the chart according to the number of base pairs. Follow the example below. Be sure to put your sample in the proper column.
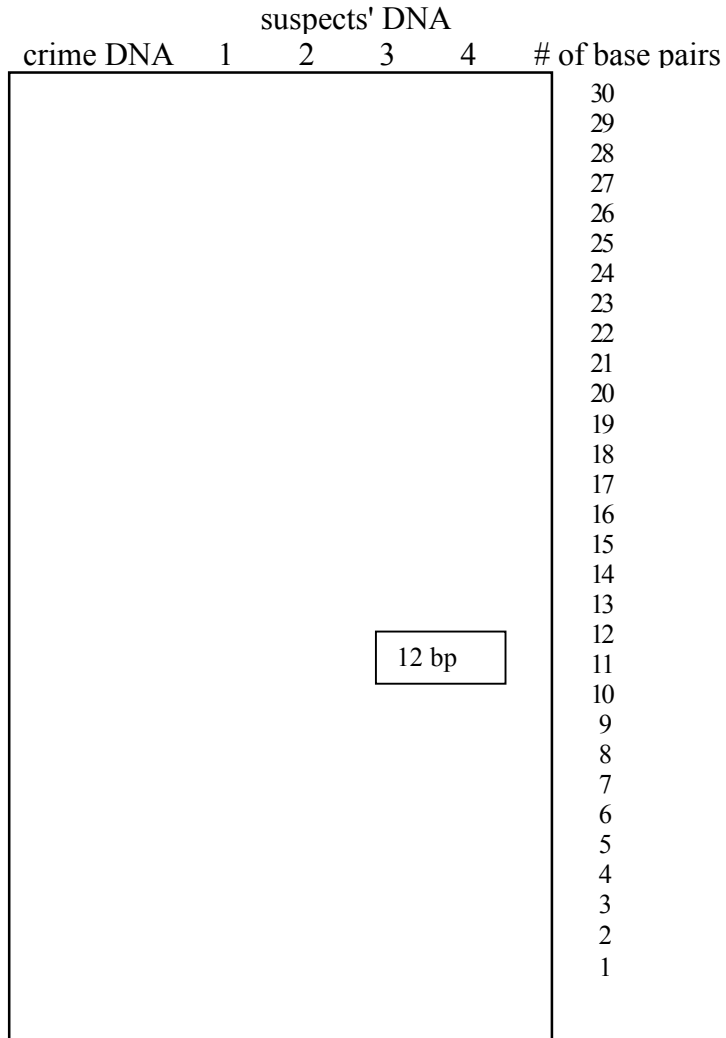
suspects' DNA

crime DNA	1	2	3	4	# of base pairs

```
                                              30
                                              29
                                              28
                                              27
                                              26
                                              25
                                              24
                                              23
                                              22
                                              21
                                              20
                                              19
                                              18
                                              17
                                              16
                                              15
                                              14
                                              13
                                              12
                        [ 12 bp ]             11
                                              10
                                               9
                                               8
                                               7
                                               6
                                               5
                                               4
                                               3
                                               2
                                               1
```

Case of the Crown Jewels: Final Report

Names of team members:

_____

_____

_____

_____

_____

Name of the person whose DNA was found at the crime scene:

_____

Evidence: Explain how you came to your conclusion (you may include diagrams and explanations.)