

CLUE in the 21st Century

You are a forensic scientist working with DNA. You receive a call to an old mansion to investigate multiple mysterious murders. There you find a group of suspicious guests at a party of some sorts. After conducting interviews with the suspects, dramatizations of the murders were made.

After studying the scene of the murder, you find a blood sample on the ground next to Mr. Body's body in the hallway. After searching for clues in the rest of the house, you find the cook dead in the kitchen, a police officer dead in the library, Yvette (the maid) dead in the billiard room, a motorist dead in the lounge, and a telegram girl dead at the front door. Hair and blood samples were taken from each of the bodies and the murder scenes. Blood samples and fingerprints were taken from each of the suspects and Mr. Body's employees. Below are the gene sequences for each of the suspects.

Col. Mustard:	G T T C T A A G G C A C T G G A C C G T A A C G
Prof. Plum:	C A C G G A G T T A G C C G G G G T T A A T C
Mr. Green:	T A C C T G A A G G C T A A A C T G G A G G C C
Mrs. White:	G C A A T G C C A G G G T T A A G C T T G A C C
Miss Scarlett:	A A T C T G G T A C T C A G G T A A T G T C G C
Mrs. Peacock	C C G T A G C C C C T T T A T T G T C A T C C G
Yvette:	T A A G C C G T T A C G G T A A A C C G A G T T
Cook:	C G G C A G T C G T T A C C C C C T G T C A G C
Wadsworth:	G C C A T G G G A C T G C C C T A G G T T A T G

There is a protein in our blood that is unique to each person. **Determine the amino acid sequence for each of these DNA strands.**

Compare the sequence of each suspect to the sequences below. Match which protein is with each person and look at the evidence on your answer sheet – this will help you determine who killed who.

Protein	Amino Acid Sequence
H – 2	Asp – Ser – Val – Thr – Trp – His
H – 4	Asp – His – Glu – Ser – Ile – Thr
H – 6	Val – Pro – Gln – Ser – Ala – Pro
H – 8	Gly – Ile – Gly – Glu – Ile – Thr
H – 10	Tyr – Gly – Pro – Asn – Ser – Asn
H – 12	Phe – Arg – Phe – Asp – Leu – Arg
H – 14	Val – Ser – Asn – Gly – Gly – Gln
H – 16	Gln – Cys – His – Leu – Ala – Gln
H – 18	Arg – Tyr – Pro – Asp – Gly – Ile


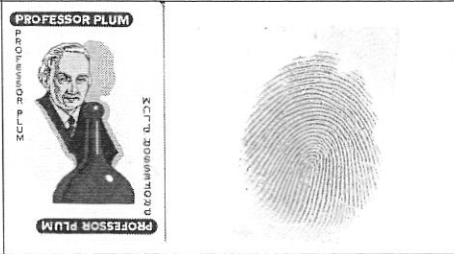



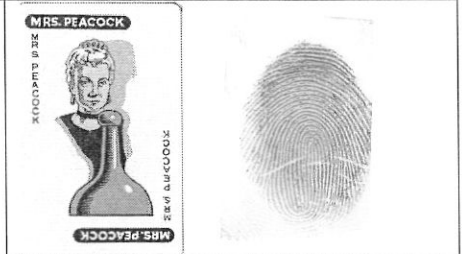



In each of the proteins you made on your answer sheet, there are 8 amino acids. In the above table there are 6. Here is what to look for when you compare

Protein on answer sheet: A B C D E F G H

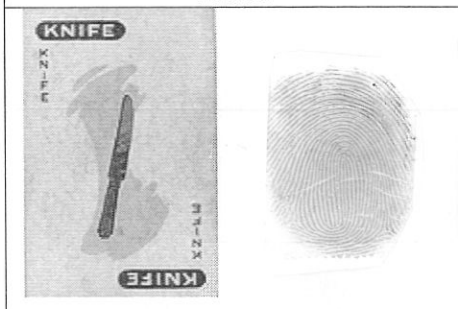
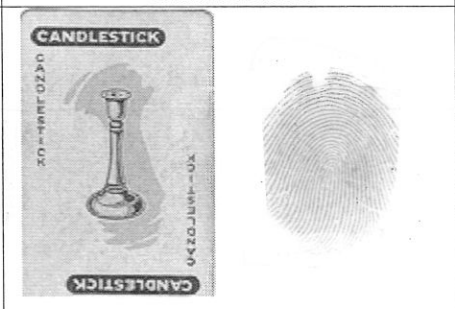
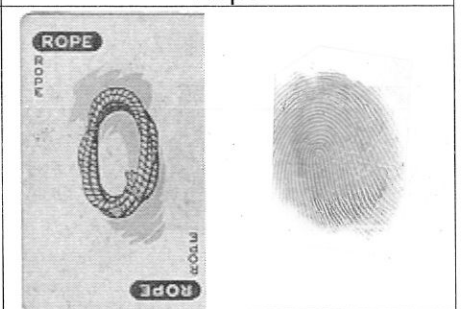
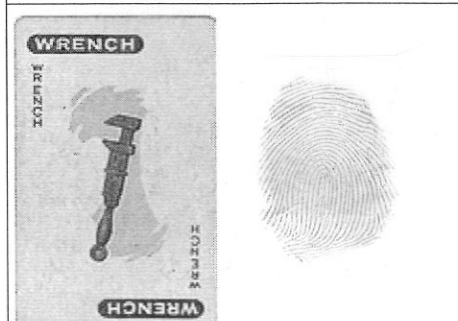
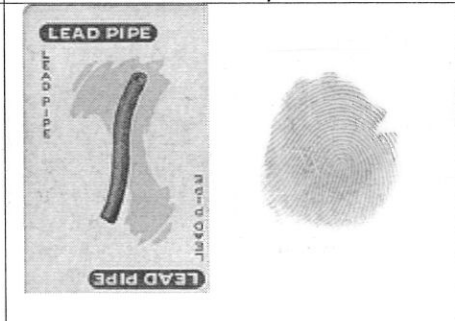
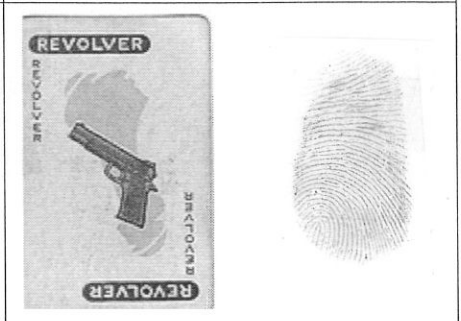
Possible combinations: A B C D E F
 B C D E F G
 C D E F G H

Now, on the next page, you will see a list of fingerprints of each suspect and fingerprints found on the weapons. Match the suspect's fingerprint to the correct weapon – now you can determine who killed who with what!


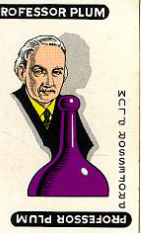




Fingerprints

<p>Colonel Mustard</p> 	<p>Professor Plum</p> 	<p>Mr. Green</p> 
<p>Miss Scarlett</p> 	<p>Mrs. White</p> 	<p>Mrs. Peacock</p> 
<p>Yvette</p> 	<p>Cook</p> 	<p>Wadsworth</p> 







Fingerprints found on Weapons

<p>Knife</p> 	<p>Candlestick</p> 	<p>Rope</p> 
<p>Wrench</p> 	<p>Lead Pipe</p> 	<p>Revolver</p> 

Fingerprints

<p style="text-align: center;">Colonel Mustard</p> 	<p style="text-align: center;">Professor Plum</p> 	<p style="text-align: center;">Mr. Green</p> 
<p style="text-align: center;">Miss Scarlett</p> 	<p style="text-align: center;">Mrs. White</p> 	<p style="text-align: center;">Mrs. Peacock</p> 
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Name: _____ Period : _____ Date: _____

Background Information

Why are the following individuals being blackmailed?

- _____ Col. Mustard A. A Senator's wife, has accepted bribes to deliver her husband's vote.
- _____ Prof. Plum B. Operates an illegal bordello in Washington, DC.
- _____ Mr. Green C. Homosexual, a secret that would cost him his job with the State Department.
- _____ Mrs. White D. A psychiatrist, who lost his license because of an inappropriate relationship with a female patient.
- _____ Miss. Scarlett E. Was drawn in to avoid a scandal regarding the mysterious death of her nuclear physicist husband.
- _____ Mrs. Peacock F. A war profiteer who made his money from selling stolen radio components on the black market.

Col. Mustard	DNA: G T T C T A A G G C A C T G G A C C G T A A C G
Pro: _____	RNA:
	A.A.

Prof. Plum	DNA C A C G G A G T T A G C C G G G G G T T A A T C
Pro: _____	RNA
	A.A.

Mr. Green	DNA T A C C T G A A G G C T A A A C T G G A G G C C
Pro: _____	RNA
	A.A.

Mrs. White	DNA G C A A T G C C A G G G T T A A G C T T G A C C
Pro: _____	RNA
	A.A.

Miss Scarlett Pro: _____	DNA	A A T C T G G T A C T C A G G T A A T G T C G C
	RNA	
	A.A.	

Mrs. Peacock Pro: _____	DNA	C C G T A G C C C C T T T A T T G T C A T C C G
	RNA	
	A.A.	

Yvette Pro: _____	DNA	T A A G C C G T T A C G G T A A A C C G A G T T
	RNA	
	A.A.	

Cook Pro: _____	DNA	C G G C A G T C G T T A C C C C C T G T C A G C
	RNA	
	A.A.	

Wadsworth Pro: _____	DNA	G C C A T G G G A C T G C C C T A G G T T A T G
	RNA	
	A.A.	

Evidence: The following proteins were found around the victim's body, but are not from the victim's blood.

Hallway: H-6

Billiard room: H-10

Library: H-4

Lounge: H-2

Kitchen: H-8

Front Door: H-18

Weapons:

Using the fingerprints, determine which weapon matches each person.

Knife: _____

Candlestick: _____

Rope: _____

Revolver: _____

Lead pipe: _____

Wrench: _____

The Solutions:

_____ killed Mr. Body in the hallway with the _____.

_____ killed Yvette in Billiard room with the _____.

_____ killed the cook in the kitchen with the _____.

_____ killed the police officer in the library with the _____.

_____ killed the motorist in the lounge with the _____.

_____ killed the telegram girl at the door with the _____.