



# DETECTIVE SKILLS

THE END

**HI AGAIN GUYS!  
NOW, AFTER OUR GAME  
FOR THE RECAP, WE ARE  
ACTUALLY READY TO  
CONTINUE WITH OUR  
INVESTIGATION!**





**NOW, DURING THE LAST  
CLASS WITH SARA YOU  
OBTAINED A VERY  
IMPORTANT PIECE OF  
EVIDENCE!**





UNFORTUNATELY, SOME  
OF YOU WERE NOT  
THERE! SO, WE WILL  
TALK ABOUT IT AGAIN!  
GO MINI!



DO YOU REMEMBER  
THAT 4  
FINGERPRINTS WERE  
FOUND IN THE CRIME  
SCENE?





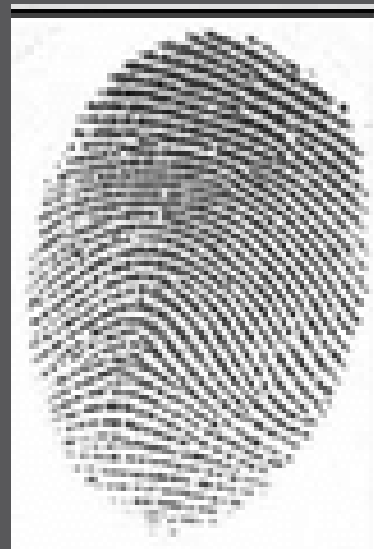
**YOU ACTUALLY LOOK  
CAREFULLY AT THEM AND  
YOU SUCCEEDED TO  
UNDERSTAND TO WHO  
THEY BELONGS! LET'S  
HAVE A LOOK AT THEM  
AGAIN**



THE FINGERPRINT ON  
THE GLASS  
BELONGED TO  
MARCO



GLASS



MARCO'S

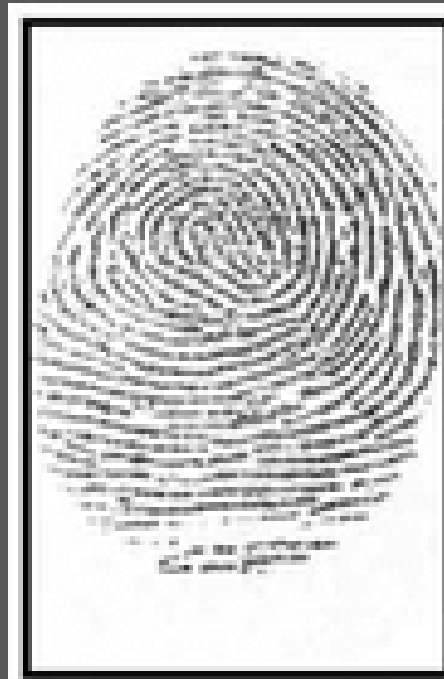




WHILE THE ONE  
ON THE TABLE  
BELONGED TO  
ELISABETTA!



TABLE



ELISABETTA'S

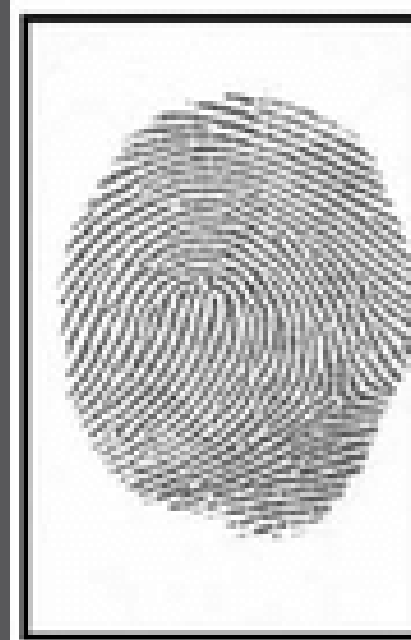




WHILE THE ONE ON  
THE WINDOW AND ON  
THE BED WERE  
UNKNOWN ONES

WINDOW

BED



UNKNOWN!





NOW GUYS, THESE  
UNKNOWN  
FINGERPRINTS  
WERE RUN ON A  
POLICE SOFTWARE

AND THEY FOUND  
A MATCH!









**THIS MAN IS CALLED LUCA AND HE IS A VERY DANGEROUS CRIMINAL!**





YES! AND HE NEVER  
WORK ALONE, HE  
ALWAYS DOES IT WITH  
HIS WIFE: ELISA!



THEY GET HIRED BY  
OTHER CRIMINALS FOR  
COMMITTING CRIMES!





NOW, GUYS... DO  
YOU KNOW FOR  
WHO DID THEY  
WORKED BEFORE??





YES! HER!  
NINA,  
THE EMPRESS!!





**BUT CALM DOWN  
GUYS, WE ARE NOT  
SURE YET!**

**WE HAVE A FACT,  
BUT WE ARE NOT  
CERTAIN! WE NEED  
PROOF!**



LET'S  
CONSIDER  
WHAT WE  
KNOW



FACT:  
LUCA AND ELISA  
WORKED FOR  
NINA BEFORE



HYPOTHESIS:  
NINA HIRED THEM  
AGAIN FOR THIS  
CRIME





HOW CAN WE BE SURE THAT A PERSON WAS IN A CRIME SCENE?







**IT IS NECESSARY  
TO FIND SOME  
EVIDENCE THAT  
CONTAIN HIS/HER  
DNA!**





DO YOU REMEMBER  
WHAT IS DONE AFTER A  
DNA SAMPLE IS  
COLLECTED (=TAKEN)  
FROM A CRIME SCENE?



## EXTRACTION

- taking the DNA from the cell (=the part of the body where DNA is found)

## QUANTITATION

- to discover how much DNA we have

## AMPLIFICATION

- Making even more DNA!

## SEPARATION

- the DNA is separated to be ready for comparison

## ANALYSIS & INTERPRETATION

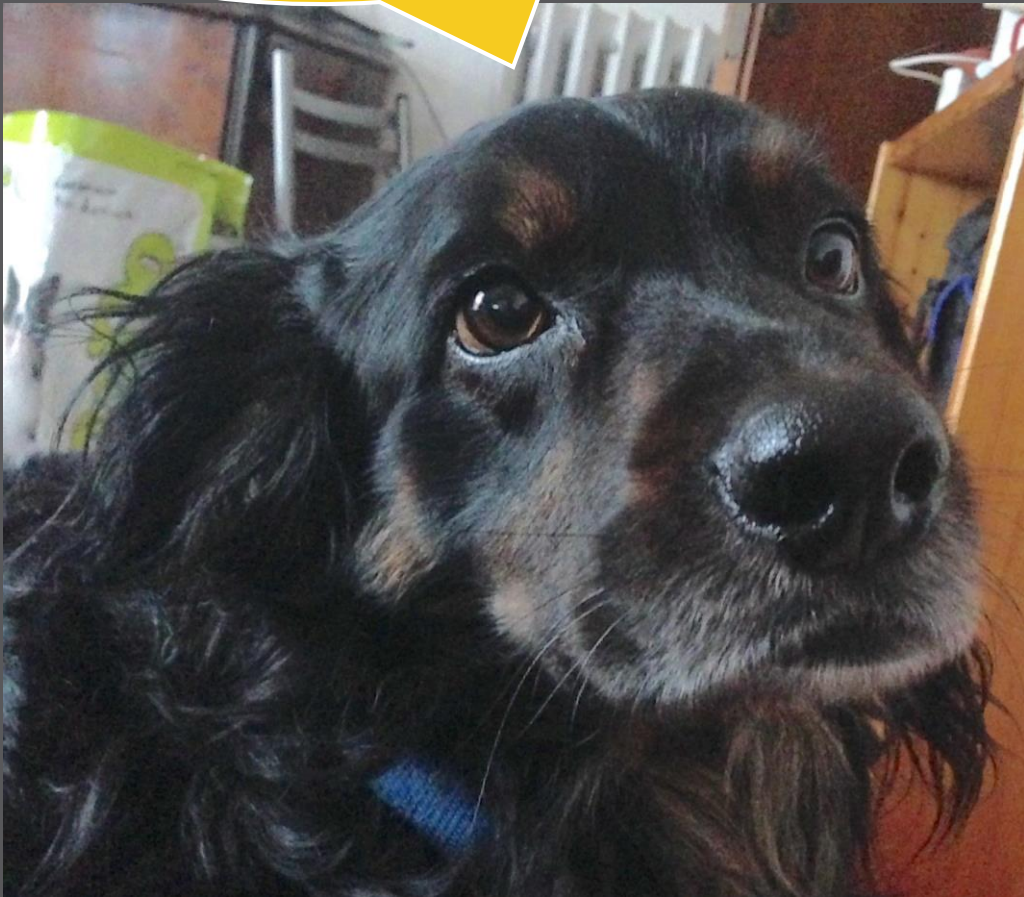
- comparison of the DNA collected in the crime scene with known DNA

HERE THE STEPS!

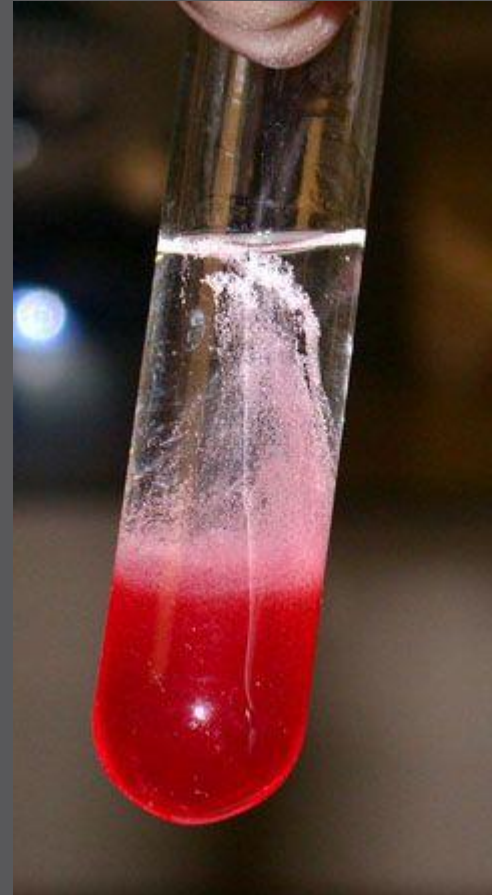




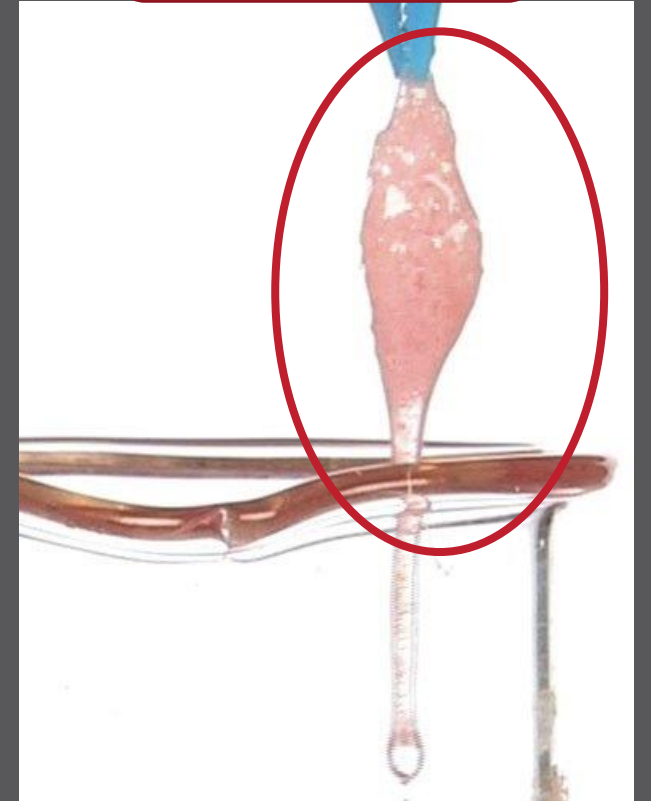
NOW, LAST TIME YOU  
EXTRACTED SOME DNA  
FROM  
STRAWBERRIES! IT  
WAS PRETTY COOL!



DO YOU STILL HAVE  
YOUR VIAL WITH  
THE DNA?



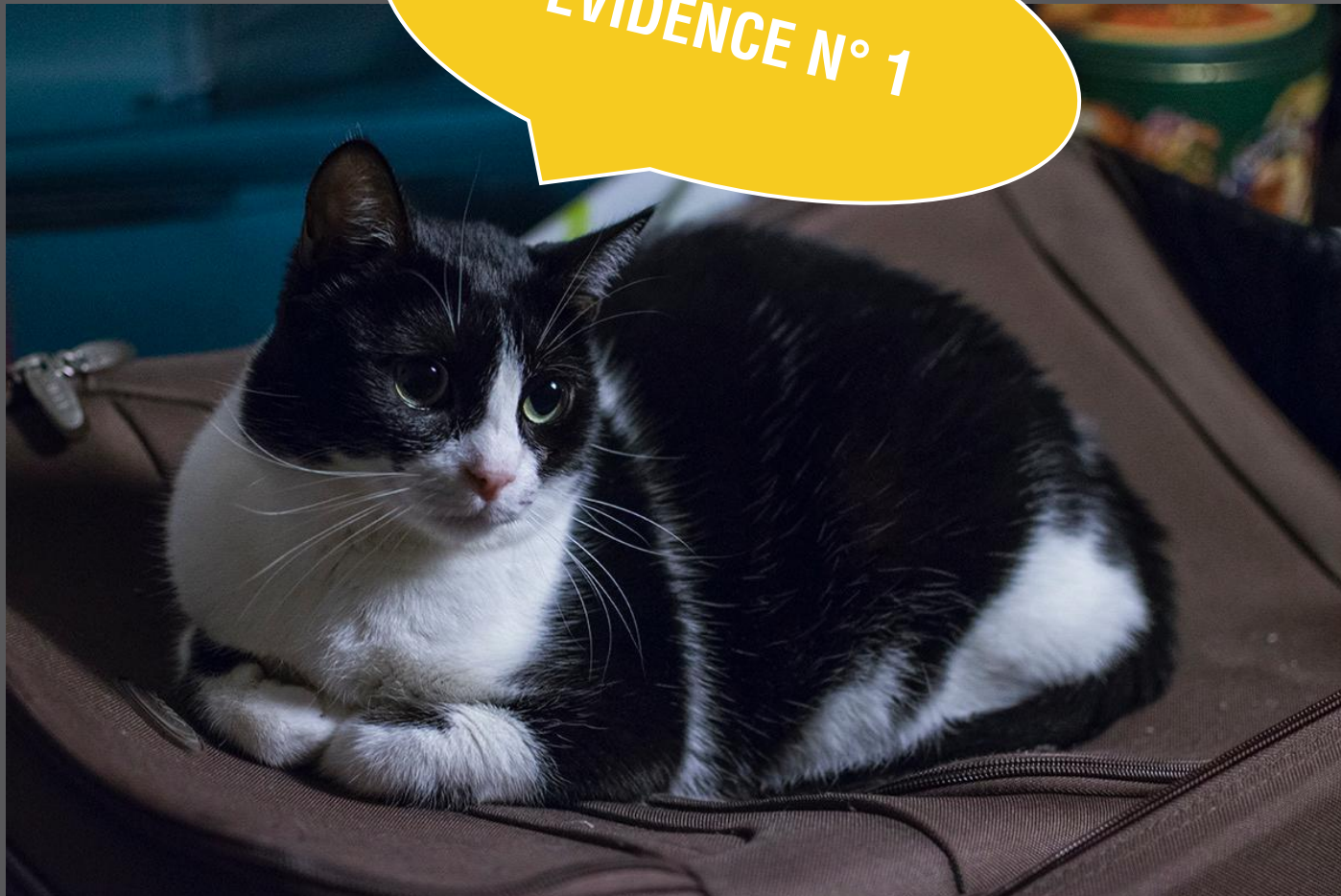
**DNA!**





**NOW GUYS,  
DO YOU REMEMBER  
WE FOUND SOME  
EVIDENCE THAT MIGHT  
CONTAIN DNA?**





EVIDENCE N° 1

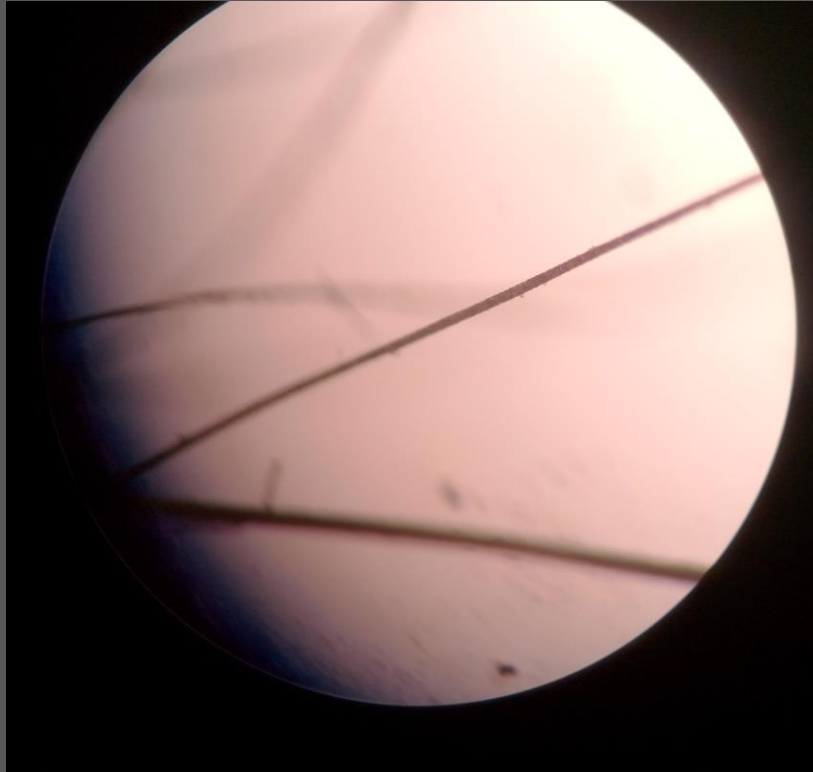
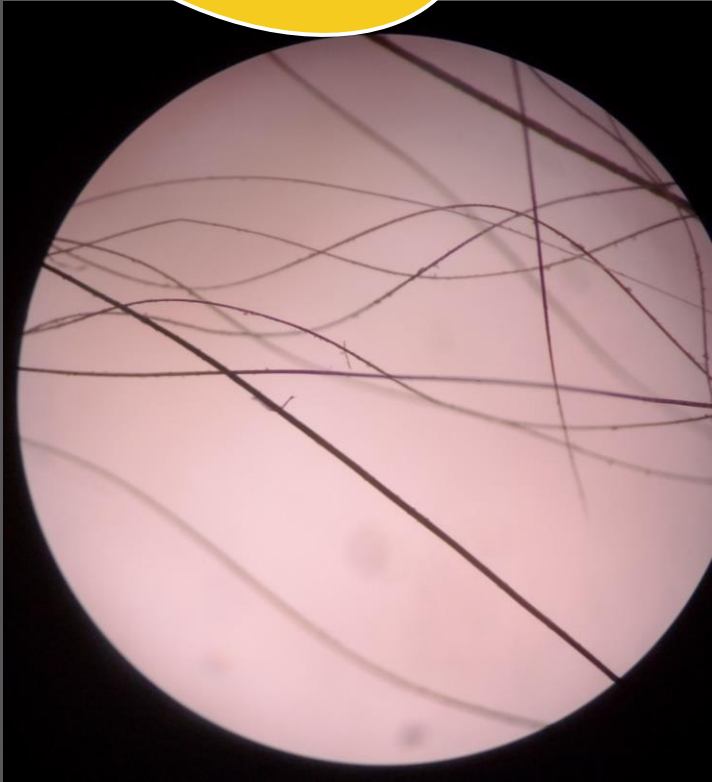
SALIVA ON THE PLATE





EVIDENCE  
N° 2

# HAIR FOUND ON THE BED



HAIR UNDER THE MICROSCOPE AT THREE  
DIFFERENT MAGNIFICATIONS



THE DNA WAS EXTRACT  
IN THE LABORATORY  
AND IT WAS ANALYSED

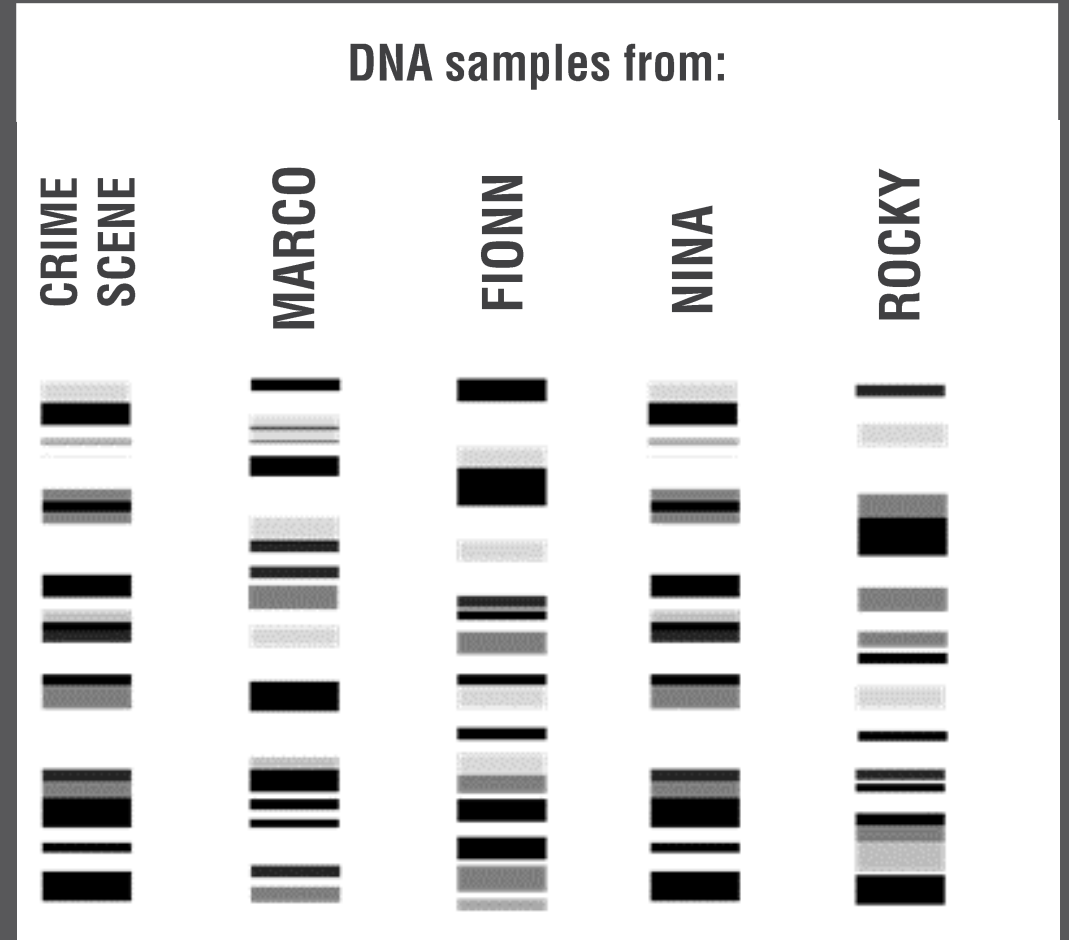




LUCKILY, THE POLICE HAD  
SOME DNA FROM OTHER  
CRIME SCENES THAT  
BELONGS TO 3 OF THE  
SUSPECTS



THIS IMAGE ARE THE  
RESULTS OF A TECHNIQUE  
CALLED  
ELECTROPHORESIS

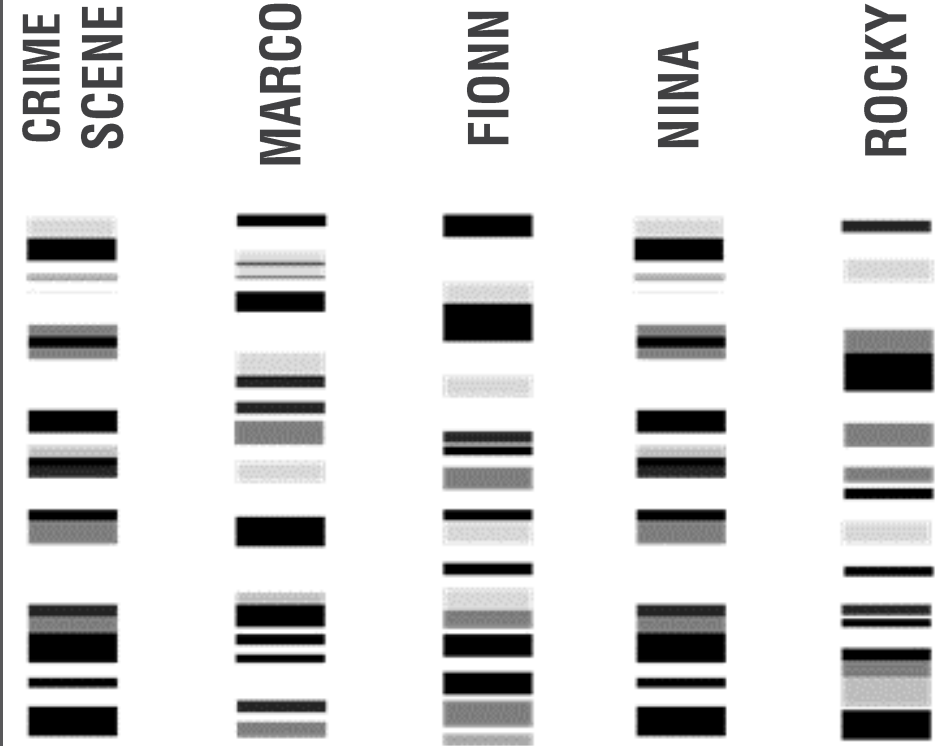




WITH THIS TECHNIQUE IS POSSIBLE TO DIVIDE THE DNA IN PIECES AND CHECK IF THE PIECES FROM DIFFERENT SAMPLES MATCH



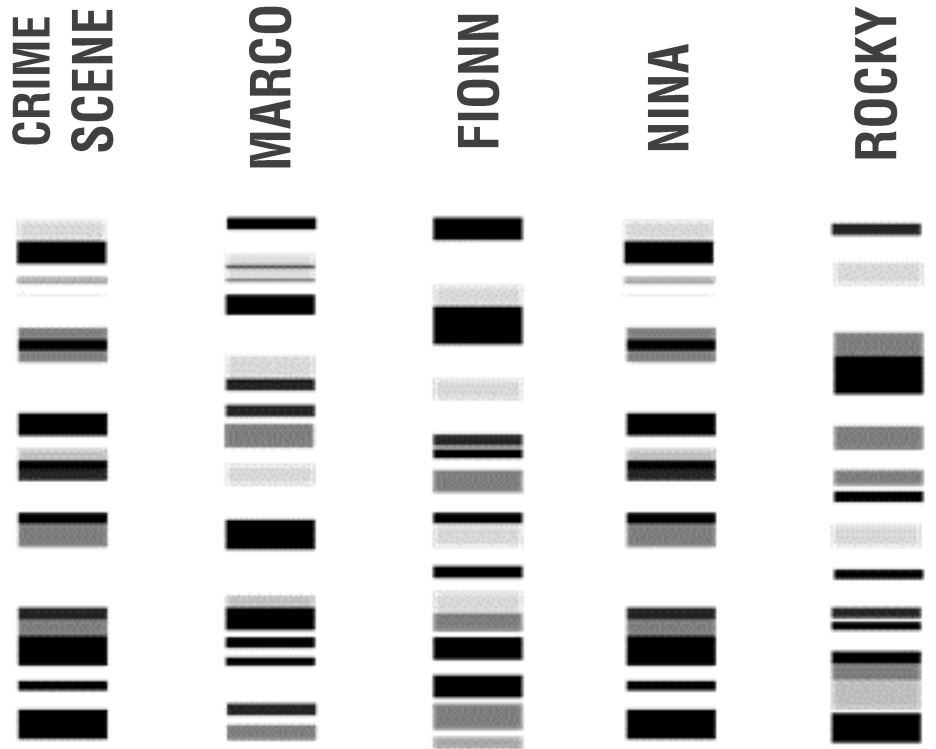
### DNA samples from:



THE BLACK AND GRAY  
RECTANGLES ARE  
DIFFERENT PIECES OF  
DNA AND THEY HAVE  
DIFFERENT SIZES



DNA samples from:



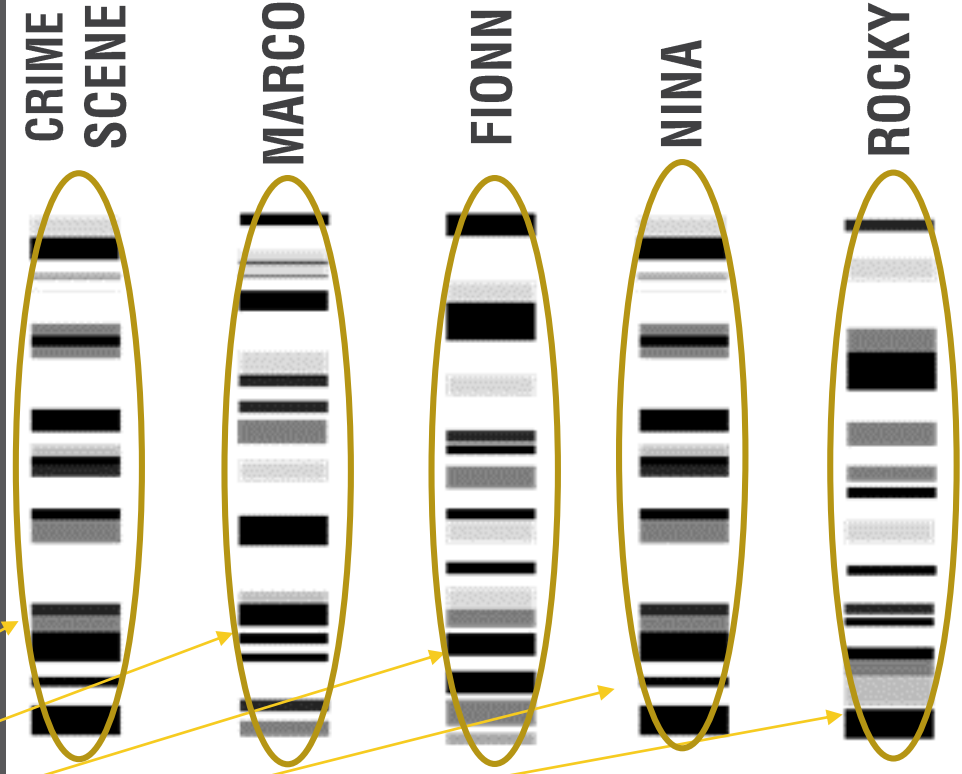


LET'S HAVE A LOOK AT  
THE SEQUENCES: IS  
THERE TWO SEQUENCE  
THAT ARE THE SAME?



SEQUENCES

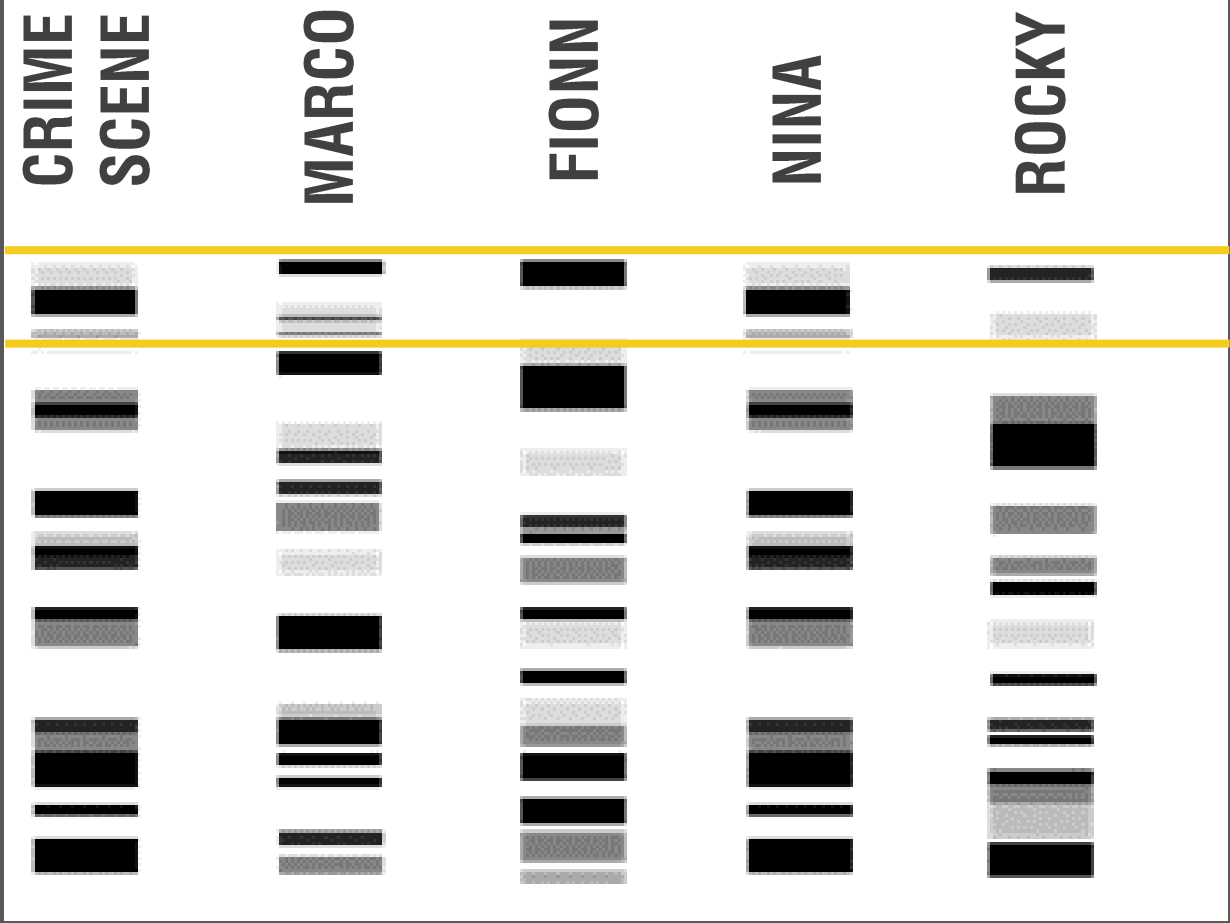
### DNA samples from:



LOOK AT THEM JUST CHECKING SMALL PIECES AT THE TIME LIKE IN THE EXAMPLE HERE



### DNA samples from:

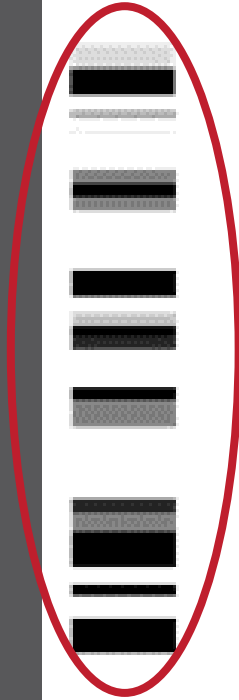




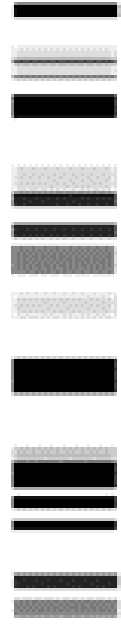


# DNA samples from:

CRIME  
SCENE



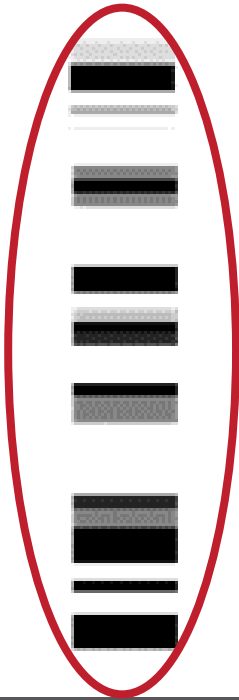
MARCO



FIONN



NINA



ROCKY



**MATCH!**





YES, GUYS! NINA WAS IN  
THE CRIME SCENE!!!



AND IT SEEMS SHE  
LIKES CAKES....!







WITH THIS IMPORTANT PIECE OF INFORMATION, THE POLICE WAS ABLE TO UNDERSTAND OTHER THINGS!

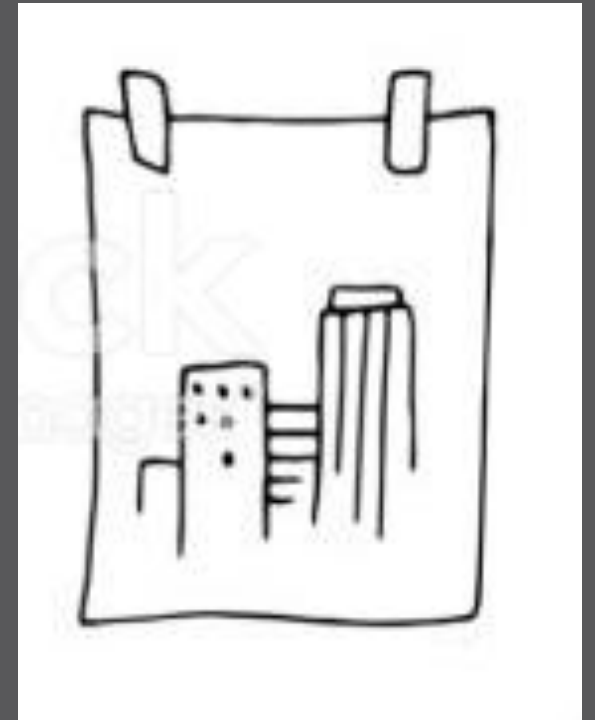


FOR EXAMPLE, WHY DID NINA  
ENTER IN ELISABETTA'S  
HOUSE? WHY WERE SOME OF  
THE THINGS STOLEN?





WE ALREADY DISCOVERED  
THAT THIS WAS THE PROJECT  
OF A GOVERNEMENT BUILDING  
WHERE THERE WERE TOP  
SECRET DOCUMENTS



**IN THAT BUILDING THERE  
WERE DOCUMENTS  
ABOUT A NEW DRONE  
ABLE TO SECRETLY  
FOLLOW CRIMINALS!**

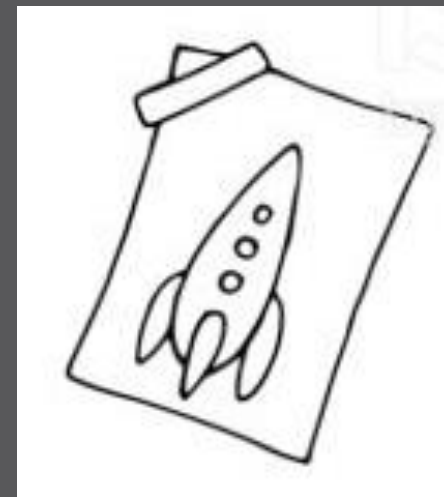
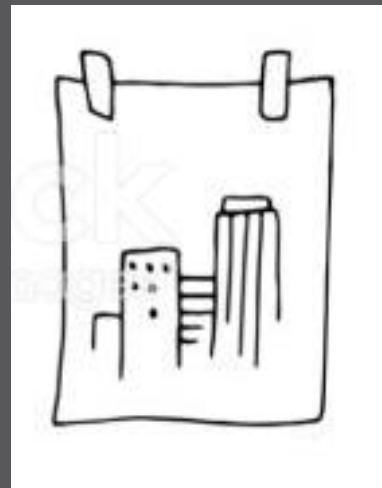


**AN EXAMPLE OF DRONES**





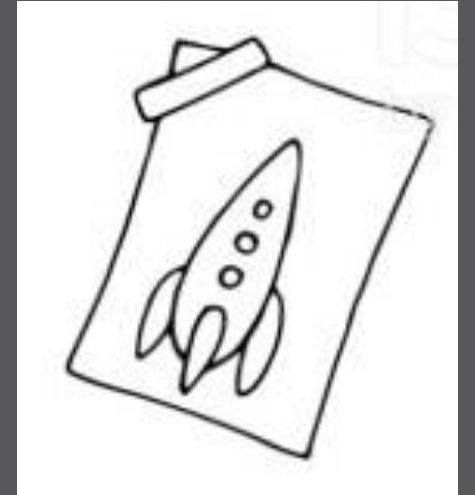
YES, THIS WAS NOT A  
DRAWING OF A  
ROCKET, BUT IT WAS  
THE DRAWING OF  
THAT SPECIAL DRONE



AN EXAMPLE OF DRONES



WHEN ELISABETTA MADE THE SKETCH OF THE CRIME SCENE, SHE DRAW A ROCKET INSTEAD, AS THE DRONE WAS A TOP SECRET PROJECT!



AN EXAMPLE OF DRONES





ARE YOU WONDERING  
ABOUT THE CATCUS,  
RIGHT?



WELL, WE DO NOT  
KNOW WHY THEY  
TOOK IT. IT IS STILL  
A MISTERY!





**UNFORTUNATELY  
SOME THINGS ARE  
NOT ALWAYS  
COMPLETELY CLEAR  
GUYS!**

**AND IT IS OKAY!  
GOOD DETECTIVES  
KNOWS THAT SOME  
OF THE THINGS  
REMAIN UNSOLVED!**



WELL, GUYS AT THE END THE  
POLICE WAS ABLE TO FIND  
ONE OF THE PLACE WERE  
NINA AND HER GANG WERE  
USED TO MEET





LUCKILY, THEY NEED MARCO  
ALIVE SO, AFTER THEY  
KIDNAPPED HIM THEY KEPT  
HIM HIDDEN TO TRY AND GET  
MORE PIECES OF  
INFORMATION



**OBVIOUSLY THEY  
USED BORIS  
NOSE TO FIND  
MARCO!**





THANKS TO BORIS HELP, THE  
POLICE FOUND HIM WORN  
OUT BUT ALIVE!



WHAT ABOUT NINA  
AND HER GANG YOU  
ASK?





THEY SUCCEEDED TO  
RUN AWAY.  
HERE NINA RUNNING  
AWAY



**BUT THE MOST  
IMPORTANT THING IS  
THAT MARCO WAS  
FOUND!**





**WE FOUND MARCO!  
THANKS FOR YOUR  
HELP GUYS!!!  
WOF!**

