Name:_____

Date: _____ Per:_____

The Innocence Project: A Real Issue that Involves DNA

Read the three articles: *How Does Forensics Identification Work?, Cleared by DNA, man tries to reclaim his life,* and *The Innocence Project.* Highlight important information and write down quotes.

Ariticle Notes:

How Does Forensics Identification Work?

-
-
-
-

Cleared by DNA, man tries to reclaim his life

-
-
-
-

The Innocence Project

-
-
-
-

Watch "60 Minutes" Video Clip relating to the Innocence Project. Take notes on important points from the video below.

Video Notes:

-
-
-
-
-
-
-
-
-

Questions

1. How was DNA evidence used to prove that John Woodard did not commit the crime in questions? Explain your answers citing from the *How does forensics identification work?* article or "60 Minutes" video.

2. Why wasn't the DNA evidence used when the case first went to court in 1981?

3. Explain the goal of the Innocence Project. Why is the Innocence Project important to our justice system

4. In your opinion, how might you repay a person who has been wrongly convicted for close to three decades? Do you think that it is right for the court to issue a public apology? Do you feel the person should receive financial compensation to help get them on their feet (if so, how much money and for how long)?

5. In your opinion, what should be done to compensate the families of those who have been put to death for crimes they did not commit? Should we compensate them? Do you feel we should spend tax dollars on cases that have already put a person to death for a crime? In other words, should we spend the money to research if a person was wrongly convicted after they are deceased?

The Innocence Project: A Real Issue that Involves DNA

Rubric

	5 – Exceeds	4 – Meets	3 – Approaching	2 – Below	1 – No Attempt
Video Notes	6 or more NOTES taken during the video	5-6 NOTES taken during the video	3-4 NOTES taken during the video	1-2 NOTES taken during the video	No attempt was made to take notes on the video
Article Notes	6 or more Different notes taken while reading the article	5-6 Different notes taken while reading the article	3-4 Different notes taken while reading the article	1-2 Different notes taken while reading the article	No attempt was made to take notes on the articles
Article Annotation	Articles were annotated using annotation guide provided: circles for unknown words, highlight or underline for evidence, and summary or questions written in the margin. Also connections to other uses of biotechnology is shown in margins.	Articles were annotated using annotation guide provided: circles for unknown words, highlight or underline for evidence, and summary or questions written in the margin	Most of the articles were annotated using annotation guide provided, missing one of the following: circles for unknown words, highlight or underline for evidence, and summary or questions written in the margin	Most of the articles were annotated using annotation guide provided, missing two of the following: circles for unknown words, highlight or underline for evidence, and summary or questions written in the margin	No attempt was made to annotate the articles
Answer the questions	All question are answered and insight is shown	All questions are answered thoroughly	All questions were answered	Some of the questions were answered	No attempt was made to answer the questions
Supporting Evidence	Evidence was used to support answers to the questions and shows connection to use of other types of biotechnology	Evidence was used to support answers to the questions	Some evidence was used to support answers to the questions	Little Evidence was used to support answers to the questions	No attempt to was made to support with evidence

Annotation Guidelines

For

The Innocence Project: A Real Issue that Involves DNA

Step #1

Step #2

Words that cause you to misunderstand the entire sentence or topic

UNDERLINE

Words or phrases that are KEY pieces to the article

Step #3

WRITE

Short notes in the margin to remind you what the paragraph was about or questions you might have during the reading

INNOCENCE PROJECT

Get E-mail Updates

About the Innocence Project

The Innocence Project is a non-profit legal clinic affiliated with the Benjamin N. Cardozo School of Law at Yeshiva University and created by Barry C. Scheck and Peter J. Neufeld in 1992. The project is a national litigation and public policy organization dedicated to exonerating wrongfully convicted people through DNA testing and reforming the criminal justice system to prevent future injustice. As a clinic, law students handle case work while supervised by a team of attorneys and clinic staff.

Most of our clients are poor, forgotten, and have used up all legal avenues for relief. The hope they all have is that biological evidence from their cases still exists and can be subjected to DNA testing. All Innocence Project clients go through an extensive screening process to determine whether or not DNA testing of evidence could prove their claims of innocence. Thousands currently await our evaluation of their cases.

DNA testing has been a major factor in changing the criminal justice system. It has provided scientific proof that our system convicts and sentences innocent people — and that wrongful convictions are not isolated or rare events. Most importantly, DNA testing has opened a window into wrongful convictions so that we may study the causes and propose remedies that may minimize the chances that more innocent people are convicted.

As forerunners in the field of wrongful convictions, the Innocence Project has grown to become much more than the "court of last resort" for inmates who have exhausted their appeals and their means. We are a founding member of The Innocence Network, a group of law schools, journalism schools and public defender offices across the country that assists inmates trying to prove their innocence whether or not the cases involve biological evidence which can be subjected to DNA testing. We consult with legislators and law enforcement officials on the state, local, and federal level, conduct research and training, produce scholarship and propose a wide range of remedies to prevent wrongful convictions while continuing our work to free innocent inmates through the use of post-conviction DNA testing.

We hope that this site will raise awareness and concern about the failings of our criminal justice system. It is a facet of our society that eventually touches all of its citizens. The prospect of innocents languishing in prison or, worse, being put to death for crimes that they did not commit, should be intolerable to every American, regardless of race, politics, sex, origin, or creed.

Innocence Project
40 Worth St., Suite 701
New York, NY 10013

info@innocenceproject.org
212.364.5340

The Innocence Project is not equipped to handle case applications or inquiries by email or over the phone. All case submissions and follow-up correspondence will be handled by mail or overnight delivery services only. If you are seeking legal assistance, click here to read guidelines for submitting your case.

How does forensic identification work?

Any type of organism can be identified by examination of DNA sequences unique to that species. Identifying individuals within a species is less precise at this time, although when DNA sequencing technologies progress farther, direct comparison of very large DNA segments, and possibly even whole genomes, will become feasible and practical and will allow precise individual identification.

To identify individuals, forensic scientists scan 13 DNA regions, or loci, that vary from person to person and use the data to create a DNA profile of that individual (sometimes called a DNA fingerprint). There is an extremely small chance that another person has the same DNA profile for a particular set of 13 regions.

Some Examples of DNA Uses for Forensic Identification

- Identify potential suspects whose DNA may match evidence left at crime scenes
- Exonerate persons wrongly accused of crimes
- Identify crime and catastrophe victims
- Establish paternity and other family relationships
- Identify endangered and protected species as an aid to wildlife officials (could be used for prosecuting poachers)
- Detect bacteria and other organisms that may pollute air, water, soil, and food
- Match organ donors with recipients in transplant programs
- Determine pedigree for seed or livestock breeds
- Authenticate consumables such as caviar and wine

Is DNA effective in identifying persons? [answer provided by Daniel Drell of the U.S. DOE Human Genome Program]

DNA identification can be quite effective if used intelligently. Portions of the DNA sequence that vary the most among humans must be used; also, portions must be large enough to overcome the fact that human mating is not absolutely random.

Consider the scenario of a crime scene investigation . . .

Assume that type O blood is found at the crime scene. Type O occurs in about 45% of Americans. If investigators type only for ABO, finding that the "suspect" in a crime is type O really doesn't reveal very much.

If, in addition to being type O, the suspect is a blond, and blond hair is found at the crime scene, you now have two bits of evidence to suggest who really did it. However, there are a lot of Type O blonds out there.If you find that the crime scene has footprints from a pair of Nike Air Jordans (with a distinctive tread design) and the suspect, in addition to being type O and blond, is also wearing Air Jordans with the same tread design, you are much closer to linking the suspect with the crime scene.

In this way, by accumulating bits of linking evidence in a chain, where each bit by itself isn't very strong but the set of all of them together is very strong, you can argue that your suspect really is the right person.

With DNA, the same kind of thinking is used; you can look for matches (based on sequence or on numbers of small repeating units of DNA sequence) at many different locations on the person's genome; one or two (even three) aren't enough to be confident that the suspect is the right one, but thirteen sites are used. A match at all thirteen is rare enough that you (or a prosecutor or a jury) can be very confident ("beyond a reasonable doubt") that the right person is accused.

How is DNA typing done?

Only one-tenth of a single percent of DNA (about 3 million bases) differs from one person to the next. Scientists can use these variable regions to generate a DNA profile of an individual, using samples from blood, bone, hair, and other body tissues and products.

In criminal cases, this generally involves obtaining samples from crime-scene evidence and a suspect, extracting the DNA, and analyzing it for the presence of a set of specific DNA regions (markers).

Scientists find the markers in a DNA sample by designing small pieces of DNA (probes) that will each seek out and bind to a complementary DNA sequence in the sample. A series of probes bound to a DNA sample creates a distinctive pattern for an individual. Forensic scientists compare these DNA profiles to determine whether the suspect's sample matches the evidence sample. A marker by itself usually is not unique to an individual; if, however, two DNA samples are alike at four or five regions, odds are great that the samples are from the same person.If the sample profiles don't match, the person did not contribute the DNA at the crime scene.

If the patterns match, the suspect may have contributed the evidence sample. While there is a chance that someone else has the same DNA profile for a particular probe set, the odds are exceedingly slim. The question is, How small do the odds have to be when conviction of the guilty or acquittal of the innocent lies in the balance? Many judges consider this a matter for a jury to take into consideration along with other evidence in the case. Experts point out that using DNA forensic technology is far superior to eyewitness accounts, where the odds for correct identification are about 50:50.

The more probes used in DNA analysis, the greater the odds for a unique pattern and against a coincidental match, but each additional probe adds greatly to the time and expense of testing. Four to six probes are recommended. Testing with several more probes will become routine, observed John Hicks (Alabama State Department of Forensic Services). He predicted that DNA chip technology (in which thousands of short DNA sequences are embedded in a tiny chip) will enable much more rapid, inexpensive analyses using many more probes and raising the odds against coincidental matches.

http://www.ornl.gov/sci/techresources/Human_Genome/elsi/forensics.shtml#1

INNOCENCE PROJECT

Get E-mail Updates

About the Innocence Project

The Innocence Project is a non-profit legal clinic affiliated with the Benjamin N. Cardozo School of Law at Yeshiva University and created by Barry C. Scheck and Peter J. Neufeld in 1992. The project is a national litigation and public policy organization dedicated to exonerating wrongfully convicted people through DNA testing and reforming the criminal justice system to prevent future injustice. As a clinic, law students handle case work while supervised by a team of attorneys and clinic staff.

Most of our clients are poor, forgotten, and have used up all legal avenues for relief. The hope they all have is that biological evidence from their cases still exists and can be subjected to DNA testing. All Innocence Project clients go through an extensive screening process to determine whether or not DNA testing of evidence could prove their claims of innocence. Thousands currently await our evaluation of their cases.

DNA testing has been a major factor in changing the criminal justice system. It has provided scientific proof that our system convicts and sentences innocent people — and that wrongful convictions are not isolated or rare events. Most importantly, DNA testing has opened a window into wrongful convictions so that we may study the causes and propose remedies that may minimize the chances that more innocent people are convicted.

As forerunners in the field of wrongful convictions, the Innocence Project has grown to become much more than the "court of last resort" for inmates who have exhausted their appeals and their means. We are a founding member of The Innocence Network, a group of law schools, journalism schools and public defender offices across the country that assists inmates trying to prove their innocence whether or not the cases involve biological evidence which can be subjected to DNA testing. We consult with legislators and law enforcement officials on the state, local, and federal level, conduct research and training, produce scholarship and propose a wide range of remedies to prevent wrongful convictions while continuing our work to free innocent inmates through the use of post-conviction DNA testing.

We hope that this site will raise awareness and concern about the failings of our criminal justice system. It is a facet of our society that eventually touches all of its citizens. The prospect of innocents languishing in prison or, worse, being put to death for crimes that they did not commit, should be intolerable to every American, regardless of race, politics, sex, origin, or creed.

Innocence Project
40 Worth St., Suite 701
New York, NY 10013

info@innocenceproject.org
212.364.5340

The Innocence Project is not equipped to handle case applications or inquiries by email or over the phone. All case submissions and follow-up correspondence will be handled by mail or overnight delivery services only. If you are seeking legal assistance, click here to read guidelines for submitting your case.

Affiliated with the **Benjamin N. Cardozo School of Law** at Yeshiva University
Facebook / Twitter / info@innocenceproject.org

Cleared by DNA, man tries to reclaim his life

James Woodard is slowly returning to life. He is starting over after spending 27 years behind bars. He was wrongly imprisoned and cleared by DNA.

Routine chores are a test of endurance when the only identification card in his wallet is issued by the Texas prison system.

With his new friend, Clay Graham of the Innocence Project of Texas, serving as his guide and driver, Woodard is on the hunt for the basics of everyday life.

When he went off to prison, Ronald Reagan was president, gas was cheap, AIDS was barely on the radar and no one had a cell phone or a personal computer.

"It's sort of like waking up from a dream," Woodard said, walking through the corridors of Dallas City Hall, trying to track down his birth certificate. "When you first wake up you are first kind of groggy and then as time passes you get more coherent."

He may be free, but he doesn't have his life back yet -- or even proof of his life. He crisscrosses the city looking for the birth certificate. Watch Woodard make the rounds

He can't open a bank account with a prison-issued I.D. He can't get a state I.D. card without a birth certificate or Social Security card. It's not easy starting over. Woodard calls it an "adventure."

Woodard was convicted of raping and murdering his girlfriend in 1981 and sentenced to life in prison. He was released on April 29, the 17th Dallas County inmate to be exonerated by DNA testing.

In one aspect at least, Woodard and the 16 others are lucky; the evidence that freed them was preserved even after their appeals were exhausted and the courts finalized their convictions. If they had been tried in a county or city that has no preservation laws, the DNA to clear them would have been destroyed long ago.

But more and more counties and states are passing laws for evidence preservation, according to the Innocence Project, practicing what Dallas County has long been doing.

The Innocence Project is a national litigation and public policy organization, based in New York, dedicated to exonerating wrongfully convicted people through DNA testing. Its Texas branch has been instrumental in handling the Dallas cases.

Since 2001, Dallas County has had more DNA exonerations than any other county in the nation.

For years, Woodard wrote letters to the prosecutors from his prison cell begging and pleading for help. Woodard says he never gave up hope.

"A man gives up hope, he gives up his life. You can't never give up hope," Woodard said.

But bad luck -- or maybe even bad faith -- put Woodard in prison in the first place. Woodard's attorney says prosecutors in the Dallas County district attorney's office sat on information that could have kept Woodard out of prison.

The jury believed Woodard was the last person seen with the victim. But according to court records, there were two other men that were with her. Police never followed up on the lead and prosecutors never shared the information with defense attorneys, even though they were legally obligated to do so.

Dallas District Attorney Craig Watkins is on a mission to right the wrongs of the past. He's suggesting that it's time to start prosecuting the prosecutors to keep innocent people like James Woodard from going to prison.

"When individuals intend to cause a person to be convicted for a crime they did not commit, that's an embarrassment for our profession," Watkins said during an interview at his office inside the Dallas courthouse.

Watkins says the prosecutor who handled Woodard's case deserves prison time. CNN made several attempts to reach the prosecutor involved. He did not return our calls.

Because it's unlikely that any of the prosecutors would face prison time under existing law, Watkins said, he wants to make it a crime from now on for prosecutors to knowingly hide or suppress evidence that could help a defendant.

"In order for us to have credibility with people and jurors and citizens I believe we had to take on this fight," he said.

Watkins' comments are sending shock waves through the Dallas legal community. Many of the prosecutors who handled the exonerated criminal cases have moved on to lucrative careers in private practice.

But many former prosecutors say the idea of criminalizing prosecutors' mistakes will have a chilling effect on the justice system.

"You need to be careful before you start saying 'Let's throw them in jail,'" said Robert Rogers, a former Dallas prosecutor.

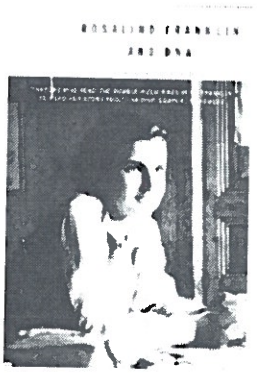
Critics of Watkins' idea say the threat of criminal charges will drive people away from becoming prosecutors because they'd be afraid an honest mistake could cost them their careers, or even jail. But James Woodard thinks that kind of fear would make prosecutors think twice.

The only time James Woodard sounds angry about his experience, spending half of his life in prison, is when he talks about the man who prosecuted him. "I think he should pay a penalty. I paid 27 years," Woodard said. "He took my life away from me. What's the difference if it's by a gun, by words or by lies. What's gone is gone."

http://articles.cnn.com/2008-05-16/justice/dna.exonerations_1_dna-testing-dna-exonerations-innocence-project/2?_s=PM:CRIME

Rosalind Franklin

Andrzej Stasiak



Rosalind Franklin and DNA.
by Anne Sayre
W.W. Norton & Co., New York, NY
221 pages, US$ 13.95
ISBN 039 332 0448

Most biologists will probably agree that the greatest and most important scientific discovery of the 20th Century was the revelation of the structure of DNA in 1953. All biology students and even high school students interested in biology associate this fundamental discovery with the names of James Watson and Francis Crick. A few scientists and students still know that the Nobel Prize awarded in 1962 was actually shared by Francis Crick and James Watson with Maurice Wilkins, then at the King's College in London. And a still smaller number know that Rosalind Franklin, another English scientist, was not given this great honour although her work was an important contribution to Watson, Crick and Wilkins' discovery. She died very young in 1958 at the age of 38 and the Nobel Prize is not given posthumously. Anne Sayre, an American writer and friend of Rosalind Franklin, wanted to set this story straight and so tells us in her book that we should closely associate Franklin's name with the discovery of the DNA structure. The book, brought out last year in a new edition by Norton & Co., also illuminates the shocking gender inequality in English education and science throughout the 1940s and 1950s. First published in 1975, Sayre's book became widely cited in feminist circles for exposing rampant sexism in science. That has changed, but the story of Rosalind Franklin and her contribution to the discovery of the structure of DNA still deserves to be told.

Many of us have read the story about the discovery of the structure of DNA in James Watson's book 'The Double Helix'. I myself read this book as a graduate student in the late 1970s and my recollection of the story is that Watson ingeniously put all the disjointed pieces of the great puzzle together and built the model of DNA. He was my hero: a motivated, intelligent, young man who used all freely available information, such as Chargaff's equivalence rule, chemical formulae of the bases and X-ray diffraction data, to obtain a solution to the most prized question in biology.

From Sayre's story, however, I learned that the crucial high-quality X-ray diffraction patterns of DNA were in fact privileged unpublished information taken without permission from a scientist working on the same subject in another laboratory. This scientist was Rosalind Franklin. She patiently mastered the technique of preparing DNA samples and was steadily improving the quality of their X-ray pictures in order to have clear-cut data allowing her to propose the structure of the DNA. She was an exemplary scientist who wanted to double-check her results before jumping to conclusions. And indeed, she was close to a solution. As early as November 1951, she gave a seminar where Watson was present and she concluded that DNA forms a 'big helix in several chains, phosphates on the outside'. Shortly thereafter, Crick and Watson built in their laboratory at Cambridge a triple-stranded DNA model with a sugar–phosphate backbone inside. They were entirely satisfied with the result and consequently invited the King's College group with Wilkins and Franklin to its presentation. But Franklin immediately pointed out that this particular model did not agree with X-ray data and therefore must be wrong. The obvious solution to get a correct model was to obtain better X-ray data and Franklin continued to systematically work toward this end.

Franklin did not know, however, that her new data were made available to the competing group at Cambridge, partly through internal documents that were not intended for distribution and partly through disclosures by Wilkins during his discussions with Watson. Thus, while she was devoting her time to collect new data, Watson had them presented to him on a silver platter and had time to compare them with different DNA models and discuss those with his co-worker Crick. Most of us would be furious if our unpublished results were not only leaked to our competitor but gave him or her a crucial lead to solving the vital problem we were working on.

We all know the end of the story, but many of us do not realise that much of the credit for the discovery of the structure of DNA should have been given to Rosalind Franklin. Indeed, Watson and Crick did not give her this well-deserved credit in their memorable *Nature* paper. In addition, Watson later greatly diminished Rosalind Franklin's contribution or even negated it in 'The Double Helix'. Anne Sayre presents a counterpart to the better-known description of Watson's glorious work. I lost my hero from my time as a student but I replaced it with another one who is more humane and more tragic.

The author is at the University of Lausanne, Switzerland.
E-mail: Andrzej.Stasiak@lau.unil.ch

DOI: 10.1093/embo-reports/kve037