

# **DO NOW 12/6**

**Grab a book for D E A R! 😊**

**OR you can read by studying your notes or study guide today!**

**Test after lunch 😊**

# **DO NOW 12/6**

**Insert mutations worksheet H.W. into notebook on page 52 (I will be coming around to check it)**

**Get ready for Do Now on page 51**

es

Changes in the DNA sequence that affect the expression of genetic information are called

- A) infiltrations
- B) mutations
- C) replications
- D) transformations

es



A section of DNA is transcribed to produce a strand of mRNA. The original DNA has the following sequence of nitrogen bases:

ATG GCC CAA TCG TGA

Due to a point mutation, transcription results in the mRNA sequence of:

UAC CGG GUU AGU ACU

Transcription in this case will result in

- A) a mutated protein that is potentially harmful.
- B) the correct sequence of amino acids in the synthesized protein.
- C) a situation where protein synthesis does not "stop" translating.
- D) the incorrect sequence of amino acids in the synthesized protein.

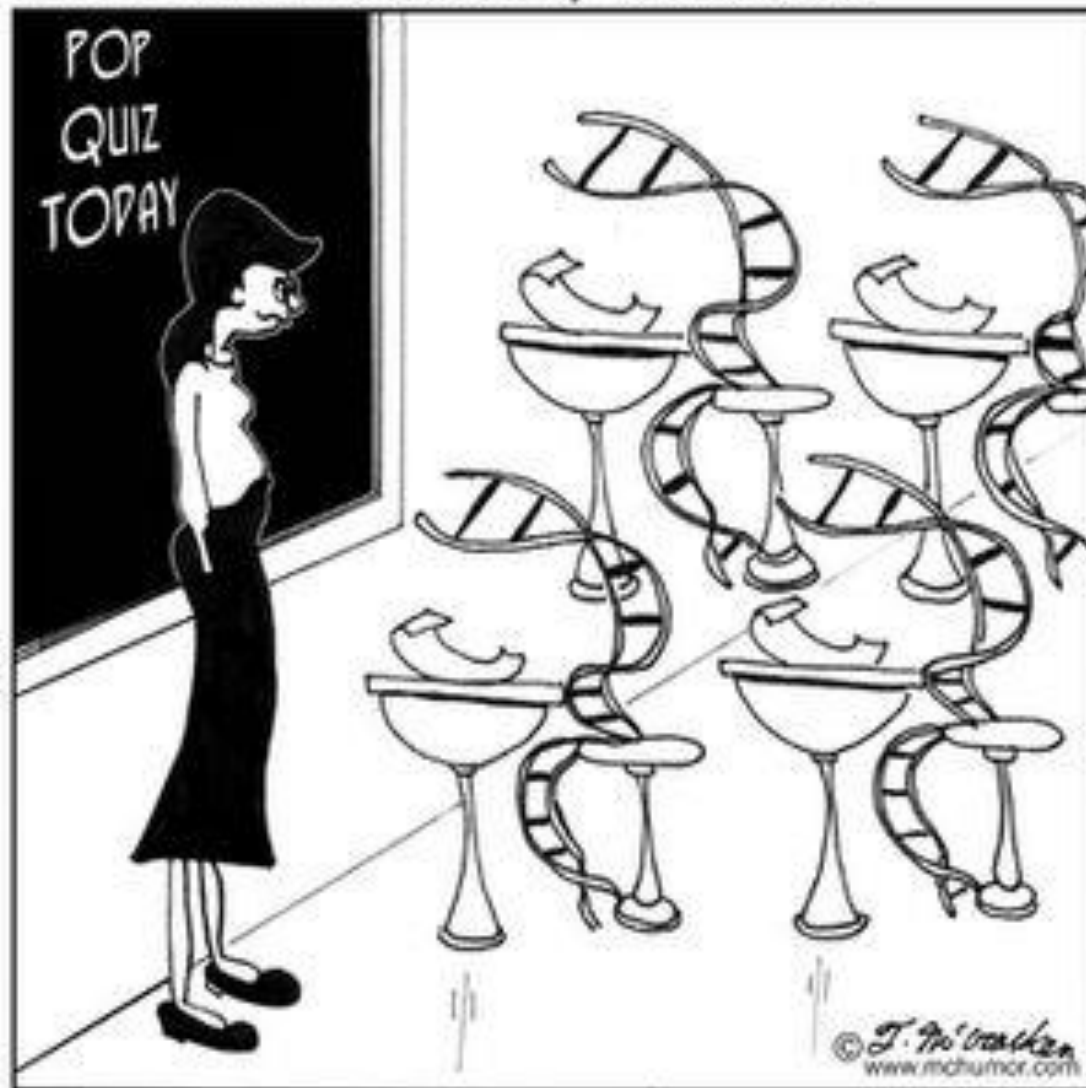


Which of these is a segment of DNA that contains the information necessary to produce a protein?

- A) a base
- B) a gene
- C) a codon
- D) a chromosome

# DNA TECHNOLOGY

DNA FINGERPRINTING & GENETIC ENGINEERING



DNA Testing.

# YOU CAN ORDER A DNA TEST TODAY...

[http://dna.ancestry.com/?s\\_kwcid=human+dna+test&gclid=CjwKEAiA9c-2BRC\\_vaaJ0Ybps30SJABlqxDeFkRagiqvqFFaLo3UAfY7RCdG0SPOCKw7iP3R-DIYdxoCog\\_w\\_wcB&o\\_xid=55307&o\\_lid=55307&o\\_sch=Paid+Search+--+NonBrand](http://dna.ancestry.com/?s_kwcid=human+dna+test&gclid=CjwKEAiA9c-2BRC_vaaJ0Ybps30SJABlqxDeFkRagiqvqFFaLo3UAfY7RCdG0SPOCKw7iP3R-DIYdxoCog_w_wcB&o_xid=55307&o_lid=55307&o_sch=Paid+Search+--+NonBrand)

<https://www.23andme.com>



# **QUESTION:**

**Should DNA be used to explain criminal's actions?**

# EXPLORE:

Read the article, “My DNA made me do it? How Behavioral Genetics Is Influencing the Justice System” and formulate opinion on the subject.

Link:

<http://phenomena.nationalgeographic.com/2014/06/04/my-dna-made-me-do-it-how-behavioral-genetics-is-influencing-the-justice-system/>



# DNA TECHNOLOGY

DNA FINGERPRINTING & GENETIC ENGINEERING

# THE HUNGER GAMES



# JABBERJAY +

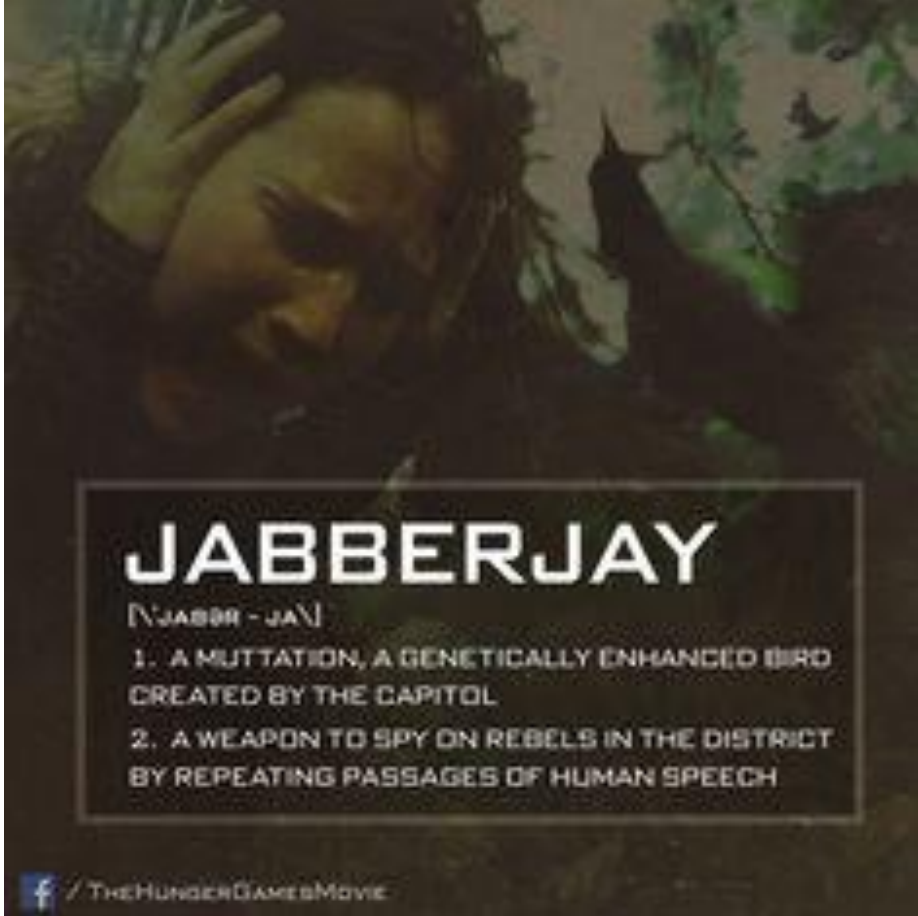


# MOCKING BIRD=



# MATED AND CREATED THE... MOCKINGJAY





# Led to...

## Rebel Symbol of The Mockingjay



(Jokes on the Capitol)



# DNA TECHNOLOGY

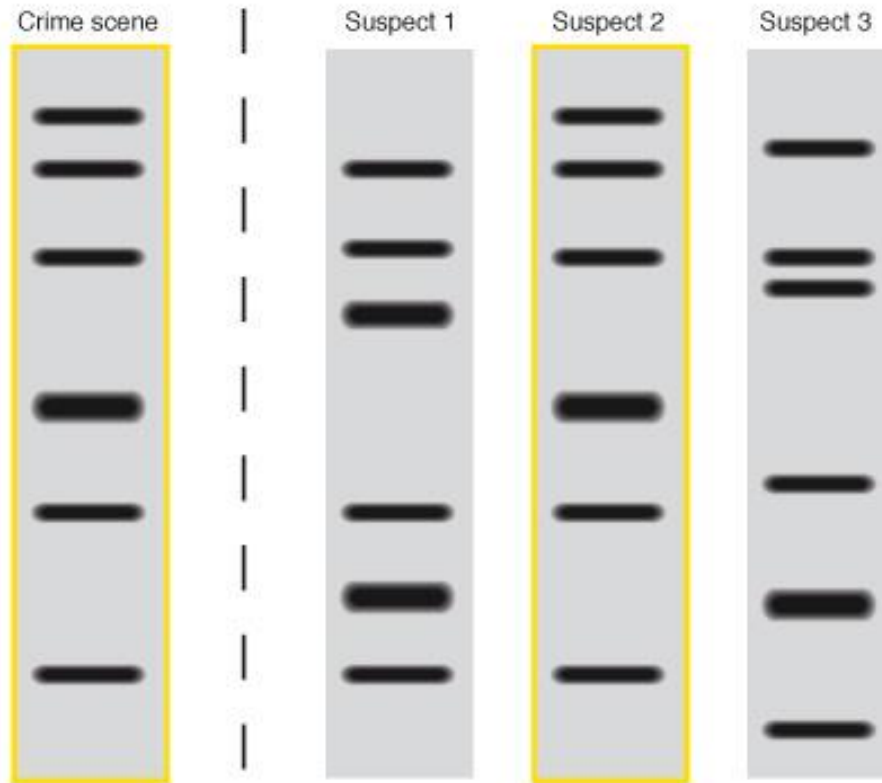
DNA FINGERPRINTING & GENETIC ENGINEERING

# **DNA FINGERPRINTING**

**IN FORENSICS**

# WHAT IS DNA FINGERPRINTING?

Method used to identify DNA between two organisms



# HOW IS DNA FINGERPRINTING DONE?

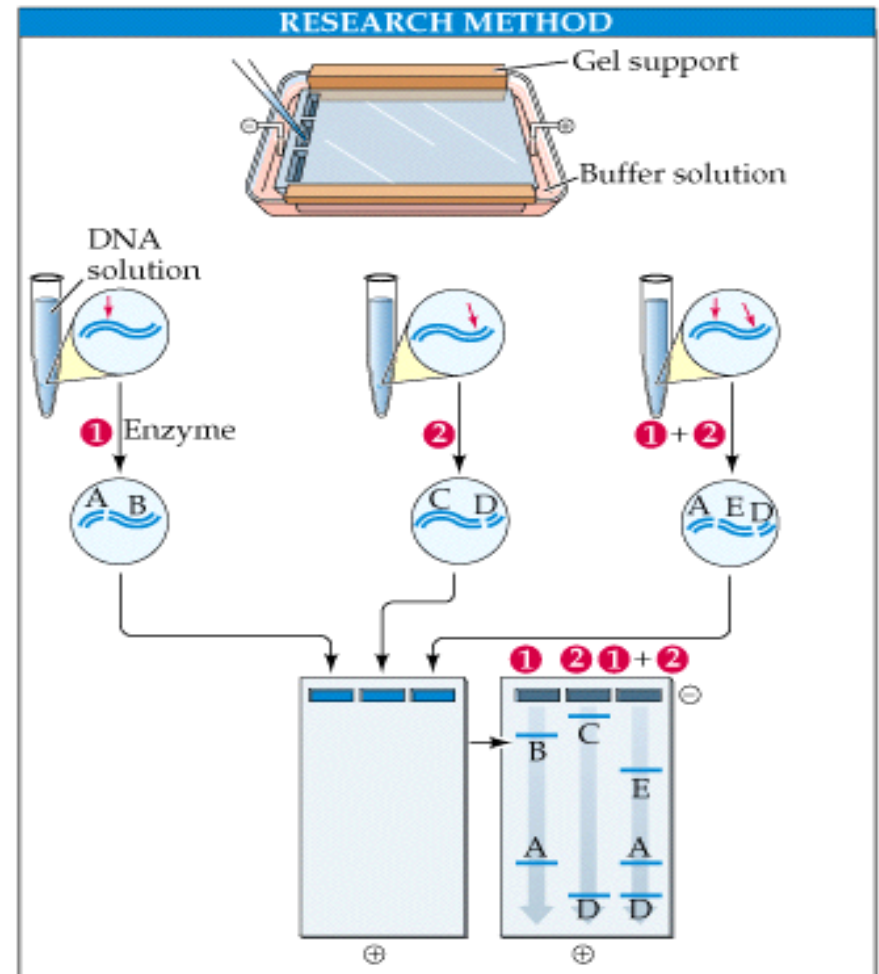
DNA is exposed to restriction enzyme = cuts it

DNA is loaded into a gel and run through an electrophoresis machine

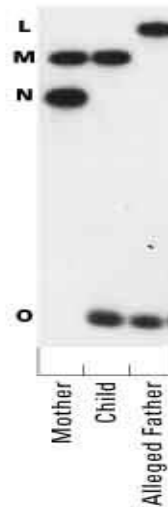
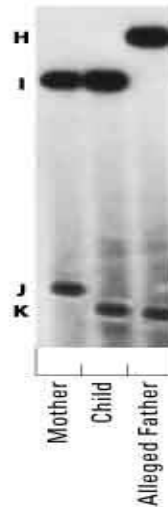
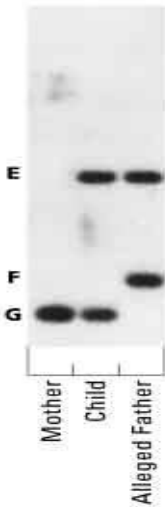
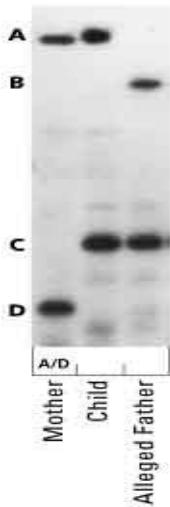
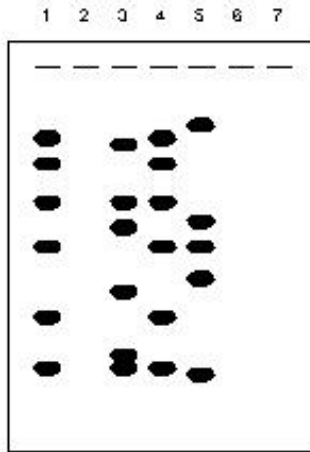
Since DNA is cut at certain sequences, each piece is a different length and weight

Pieces that are heavier stay at the top of the gel, lighter will “run” to the bottom

Every person is genetically different, so DNA fingerprints are different



# WHAT ARE SOME APPLICATIONS FOR DNA FINGERPRINTING?



Can be used to:

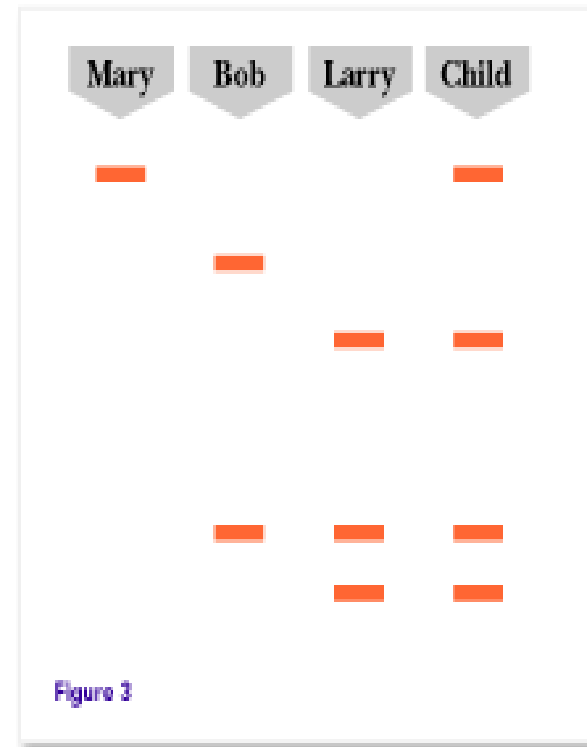
identify or eliminate suspects when genetic material has been collected at a crime scene

determine paternity of a child, or establish other family relationships

identify a deceased person

# QUESTION?

Who is the father of the child? How can you tell?



# WHAT IS GENETIC ENGINEERING?

Changing the DNA of one organism using another organisms DNA

Also called:

- Genetically modified organisms (GMO's) or Recombinant

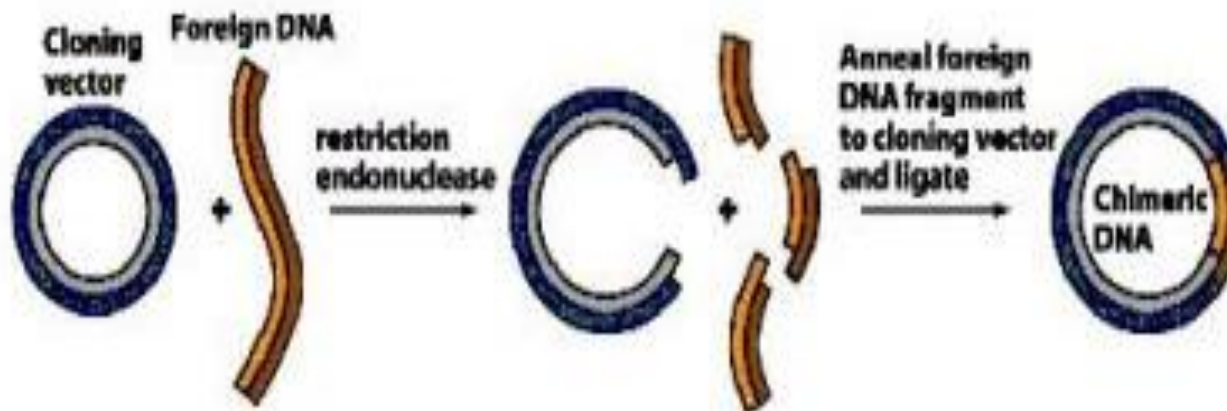


Figure 3-27 Fundamentals of Biochemistry, 2/e  
© 2006 John Wiley & Sons

# WHAT IS GENE THERAPY?

Insertion of normal gene to correct genetic disorders

“Bad” gene is cut with restriction enzymes & removed

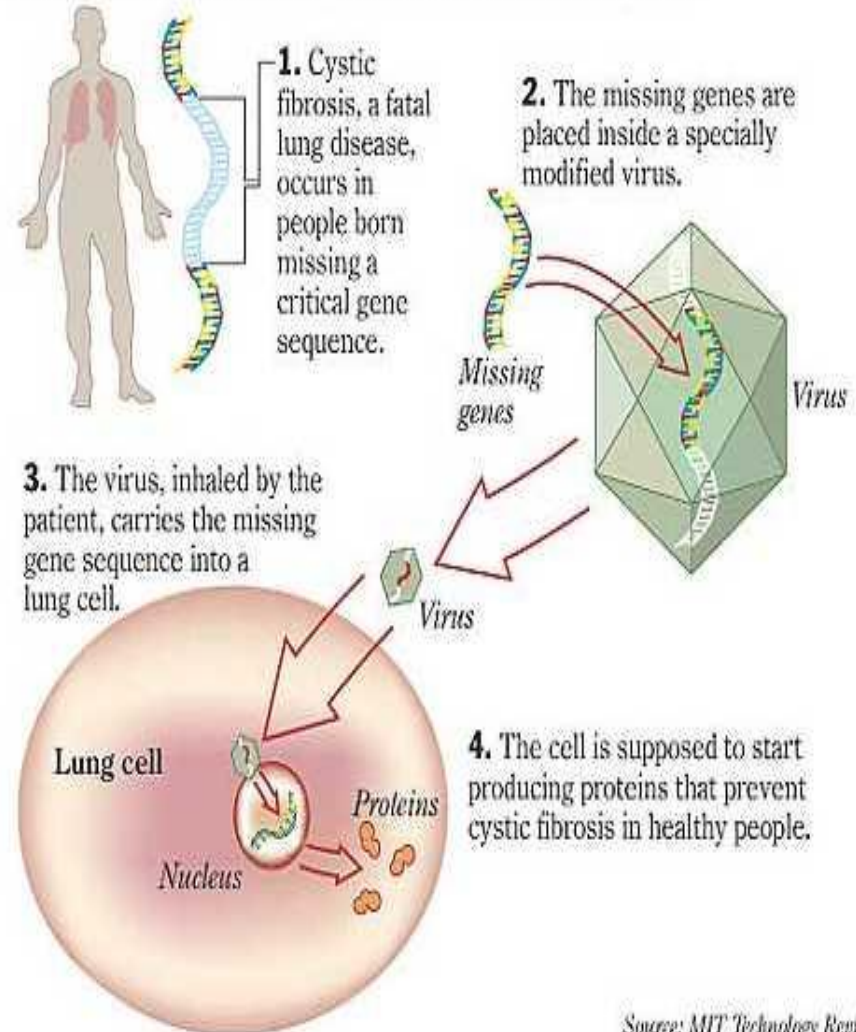
Plasmids from healthy person are added

Plasmid DNA fuses to patient’s DNA & changes its functioning

Being used now to treat cystic fibrosis

## A gene-repairing virus

Seattle biotech company Targeted Genetics reports success in early trials treating cystic fibrosis using viruses to deliver correct genes.





# WHAT ARE SOME APPLICATIONS FOR RECOMBINANT DNA?

**Bacteria:** break down pollutants, make them produce hormones (insulin) and antibiotics

**Plants:** resistant to herbicides, increase protein content in grains (GMO- genetically modified organisms)

**Animals:** cloning of endangered species; adding special trait genes (glow genes)



# QUIZ 3

- 1. In genetic \_\_\_\_\_ DNA is split and new fragments of DNA are inserted.**
  - a. deletion**
  - b. engineering**
  - c. mutation**
- 2. Gene \_\_\_\_\_ Involves the insertion of normal genes in the place of genes which control genetic disorders.**
  - a. cloning**
  - b. mutation**
  - c. therapy**
- 3. DNA fingerprinting works because everyone's DNA is different except for ?**
  - a. fraternal twins**
  - b. identical twins**
- 4. The structure of DNA was discovered by \_\_\_\_\_**
  - a. Watson & Crick**
  - b. Wilson & Crockett**
  - c. Schleiden & Schwann**
- 5. DNA gels can be used for \_\_\_\_\_**
  - a. determination of parents**
  - b. elimination of suspects**
  - c. identification of body**
  - d. all of these**

# **TO STUDY:**

- 1. USA test prep- Sunday @ midnight**
- 2. Study guide- under assignments on my website**
  - 1. Turn in SG on Monday- extra pts**
- 3. Notebook check- 44-54**
  - 1. Table of contents on my website**
- 4. Extra help page on my website**

# **GOOD MORNING!**

- **We have TWO class periods left until the final...**
- **Today: We will focus on Ecology!**
- **Pick up your notebook from the crate**
- **Pick up a study guide from the front table & get started!**

# TODAYS AGENDA:



## Zika Virus and GM mosquitos Controversy

**EVERYONE** first answer in your groups:

1. What is a genetically modified organism?
2. What is the value of creating genetically modified organisms?  
What are some of the concerns surrounding G.M.O.'s?
3. What predictions can you make for what might happen if the tools of biotechnology spread to everyone, and lead to “an explosion of diversity of new living creatures”?

# **GROUP ROLES:**

**1** person mediator and time keeper (keeps people in line)

**3** people main researchers (use QR codes and look up own)

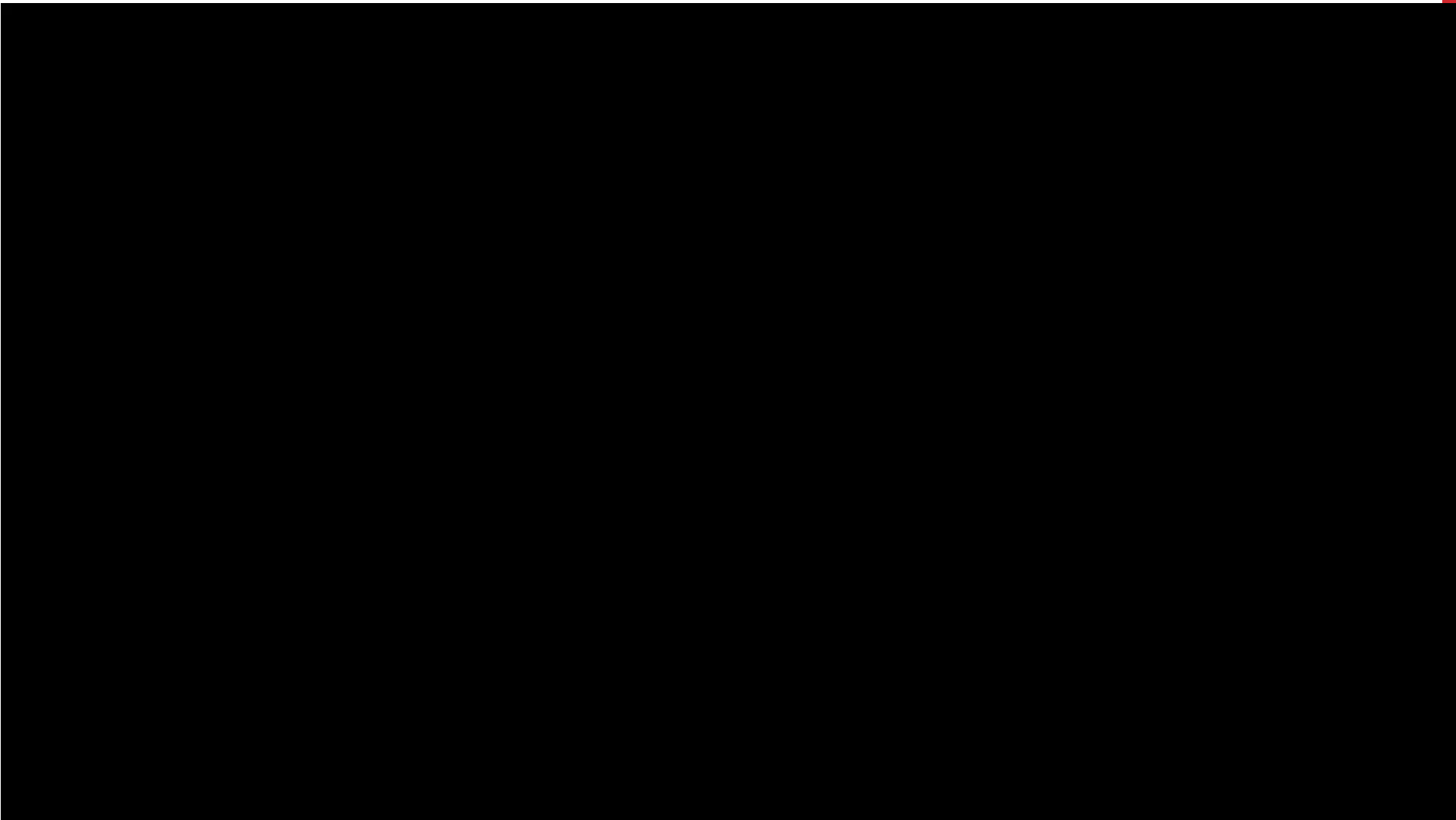
**2** people put together presentation on a laptop (with pictures and possible video clips)

**2** presenters (can be more, not less)

Name: \_\_\_\_\_ Score: \_\_\_\_\_

## Oral Presentation Rubric

	4—Excellent	3—Good	2—Fair	1—Needs Improvement
<b>Delivery</b>	<ul style="list-style-type: none"> <li>• Holds attention of entire audience with the use of direct eye contact, seldom looking at notes</li> <li>• Speaks with fluctuation in volume and inflection to maintain audience interest and emphasize key points</li> </ul>	<ul style="list-style-type: none"> <li>• Consistent use of direct eye contact with audience, but still returns to notes</li> <li>• Speaks with satisfactory variation of volume and inflection</li> </ul>	<ul style="list-style-type: none"> <li>• Displays minimal eye contact with audience, while reading mostly from the notes</li> <li>• Speaks in uneven volume with little or no inflection</li> </ul>	<ul style="list-style-type: none"> <li>• Holds no eye contact with audience, as entire report is read from notes</li> <li>• Speaks in low volume and/or monotonous tone, which causes audience to disengage</li> </ul>
<b>Content/ Organization</b>	<ul style="list-style-type: none"> <li>• Demonstrates full knowledge by answering all class questions with explanations and elaboration</li> <li>• Provides clear purpose and subject; pertinent examples, facts, and/or statistics; supports conclusions/ideas with evidence</li> </ul>	<ul style="list-style-type: none"> <li>• Is at ease with expected answers to all questions, without elaboration</li> <li>• Has somewhat clear purpose and subject; some examples, facts, and/or statistics that support the subject; includes some data or evidence that supports conclusions</li> </ul>	<ul style="list-style-type: none"> <li>• Is uncomfortable with information and is able to answer only rudimentary questions</li> <li>• Attempts to define purpose and subject; provides weak examples, facts, and/or statistics, which do not adequately support the subject; includes very thin data or evidence</li> </ul>	<ul style="list-style-type: none"> <li>• Does not have grasp of information and cannot answer questions about subject</li> <li>• Does not clearly define subject and purpose; provides weak or no support of subject; gives insufficient support for ideas or conclusions</li> </ul>
<b>Enthusiasm/ Audience Awareness</b>	<ul style="list-style-type: none"> <li>• Demonstrates strong enthusiasm about topic during entire presentation</li> <li>• Significantly increases audience understanding and knowledge of topic; convinces an audience to recognize the validity and importance of the subject</li> </ul>	<ul style="list-style-type: none"> <li>• Shows some enthusiastic feelings about topic</li> <li>• Raises audience understanding and awareness of most points</li> </ul>	<ul style="list-style-type: none"> <li>• Shows little or mixed feelings about the topic being presented</li> <li>• Raises audience understanding and knowledge of some points</li> </ul>	<ul style="list-style-type: none"> <li>• Shows no interest in topic presented</li> <li>• Fails to increase audience understanding of knowledge of topic</li> </ul>
<b>Comments</b>				





# TODAY WE ARE GOING TO LEARN ABOUT... JAPAN!



# TODAY WE ARE GOING TO LEARN ABOUT... THE US!



# US CITIZENSHIP TEST - COULD YOU PASS?

An important part of the application process for becoming a US citizen is passing a civics test, covering important U.S. history and government topics. There are 100 civics questions on the naturalization test. During the interview process, applicants are asked up to 10 questions and must be able to answer at least 6 questions correctly. Here is a sampling of what may be asked. How would you do?



# FOR THE SECOND HALF OF CLASS... SUB- SAHARAN AFRICA!

