DNA fingerprinting

= a process for quantifying the similarity of the DNA of 2 or more individuals.

Step 1. Chop up the DNA into pieces using an enzyme.

A C C G T G T G A A C T T A C G T G T G C
T G G C A C A C T T G A A T G C A C A C G

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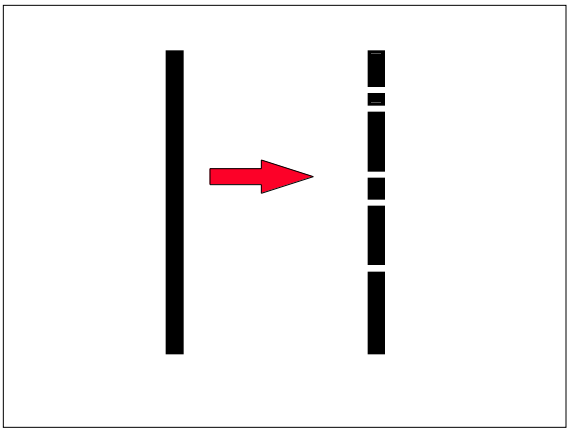
T G G C A C A C T T G A A T G C A C A C G

A C C

G T G T G A A C T T A C

G T G T G C




ACCGTGTGAACTTACGTGTGC
TGGCACACTTGAATGCACACG
ACCGTGTGAACTTACGCGTGC
TGGCACACTTGAATGCGCACG
ACCATGTGAACTTACGCGTGC
TGGTACACTTGAATGCGCACG


ACCGTGTGAACTTACGTGTGC
TGGCACACTTGAATGCACACG
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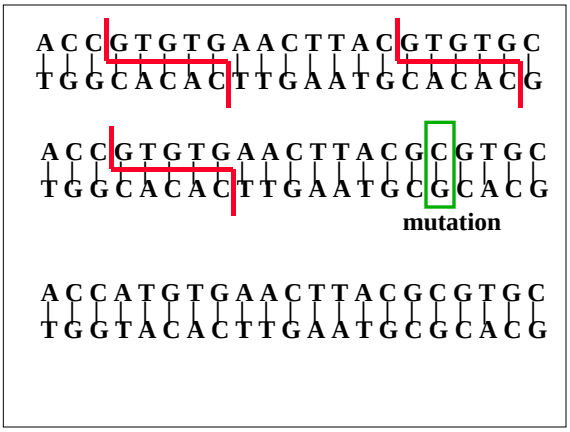
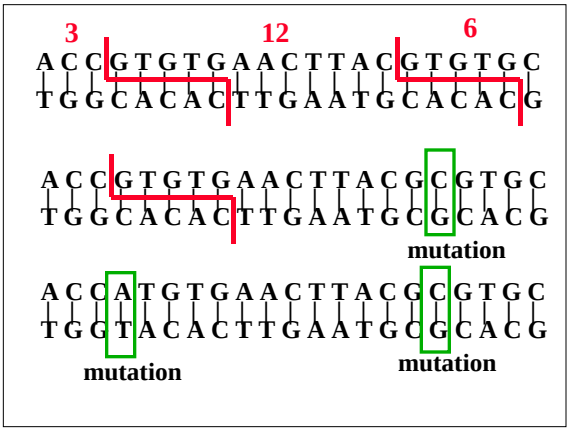
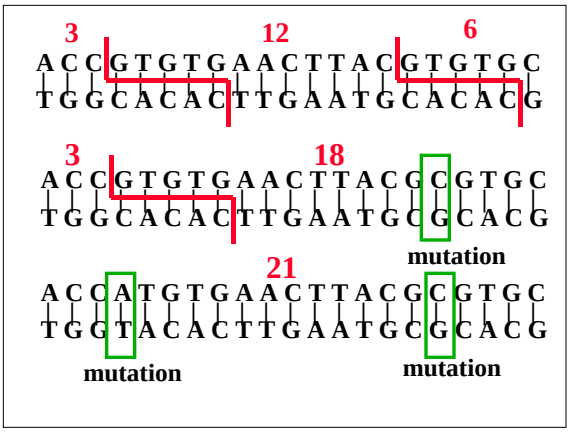
TGGCACACTTGAATGCGCACG
ACCATGTGAACTTACGCGTGC
TGGTACACTTGAATGCGCACG


ACCGTGTGAACTTACGTGTGC
TGGCACACTTGAATGCACACG
ACCGTGTGAACTTACGCGTGC
TGGCACACTTGAATGCGCACG
mutation
ACCATGTGAACTTACGCGTGC
TGGTACACTTGAATGCGCACG


ACCGTGTGAACTTACGTGTGC
TGGCACACTTGAATGCACACG
ACCGTGTGAACTTACGCGTGC
TGGCACACTTGAATGCGCACG
mutation
ACCATGTGAACTTACGCGTGC
TGGTACACTTGAATGCGCACG
mutation
mutation


3
12
6
ACCGTGTGAACTTACGTGTGC
TGGCACACTTGAATGCACACG
ACCGTGTGAACTTACGCGTGC
TGGCACACTTGAATGCGCACG
mutation
ACCATGTGAACTTACGCGTGC
TGGTACACTTGAATGCGCACG
mutation
mutation



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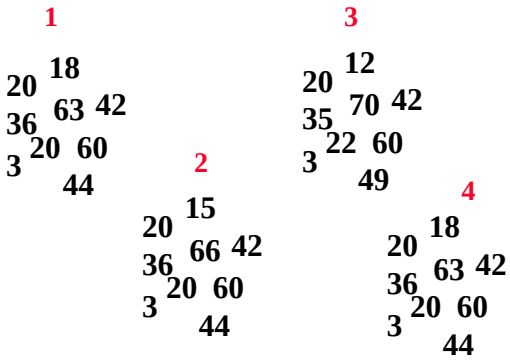
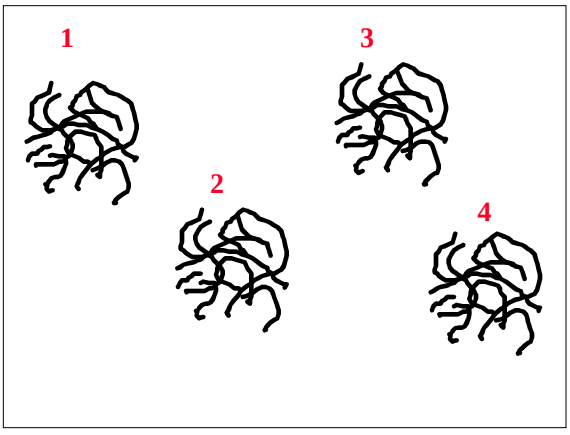
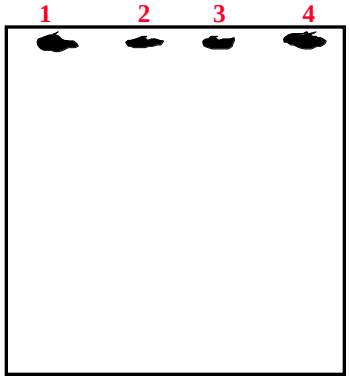
1	2	3	4
3	3	3	3
18	15	12	18
20	20	20	20
20	20	22	20
36	36	35	36
42	42	42	42
44	44	49	44
60	60	60	60
63	66	70	63





Step 2. Put the DNA fragments on a gel.



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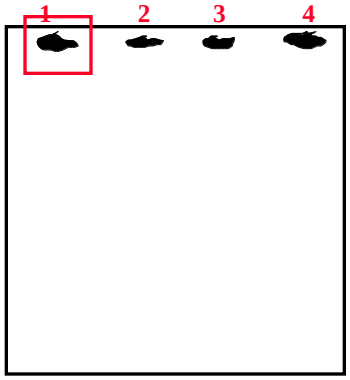

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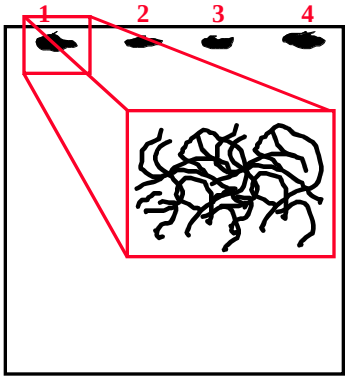
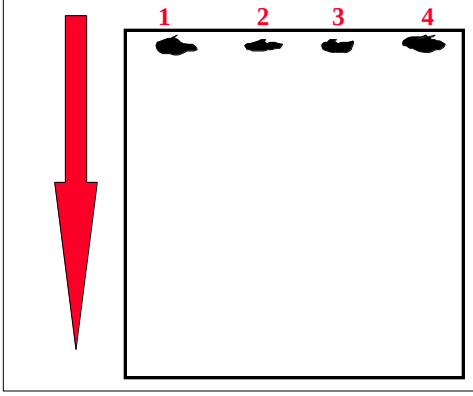
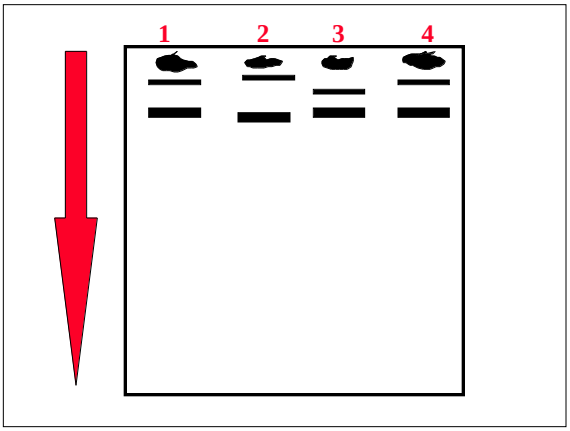
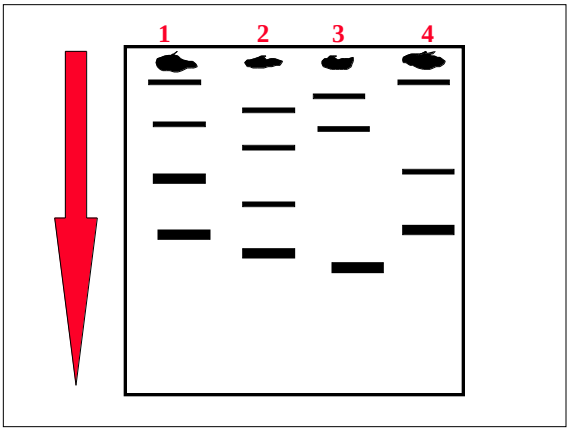


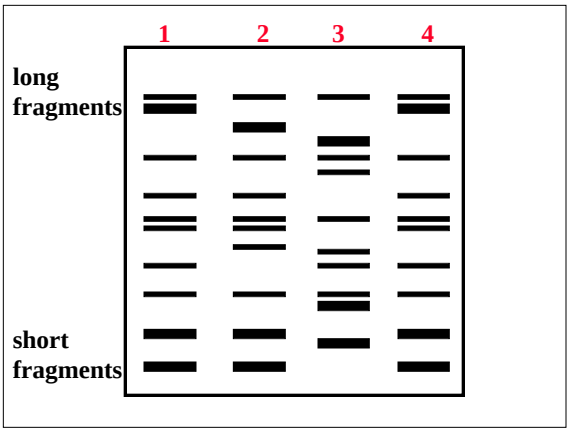
Step 3. Apply electric current to the gel.

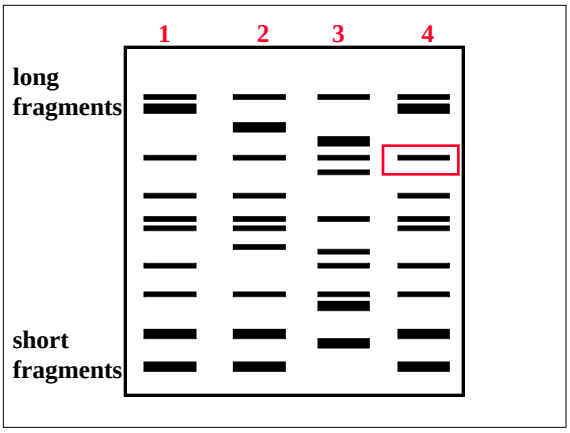
- **causes the fragments to move down the gel.**
- **small fragments move faster than large fragments.**

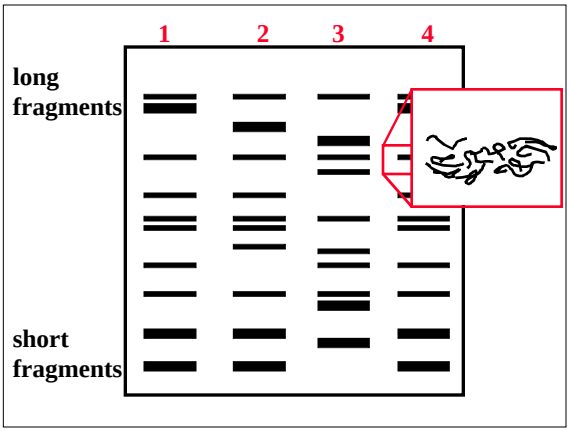












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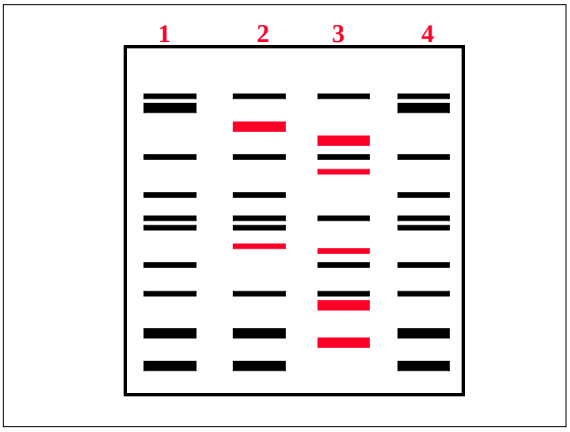
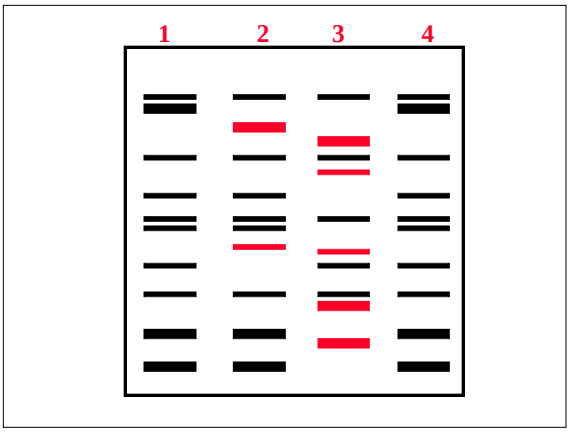
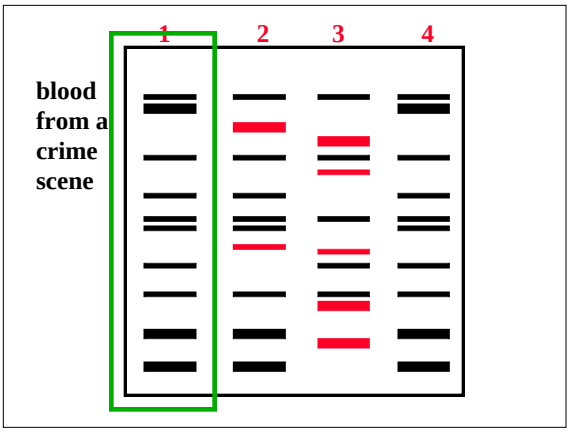
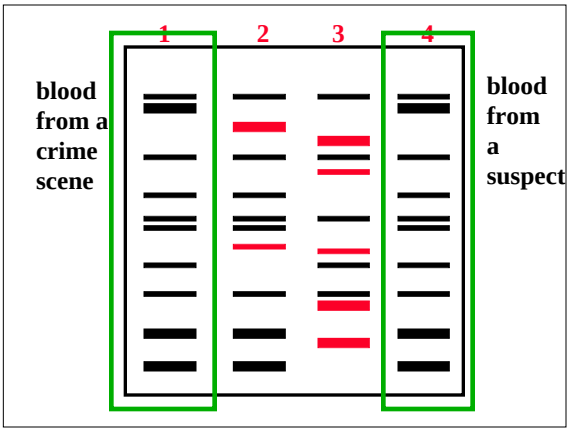


Step 4. Compare the bands

- The more bands two individuals have in common, the more similar their DNA is.
- If two columns show identical banding patterns, the DNA came from the same individual (or a twin).


1
2
3
4


1
2
3
4
blood from a crime scene


1
2
3
4
blood from a crime scene
blood from a suspect