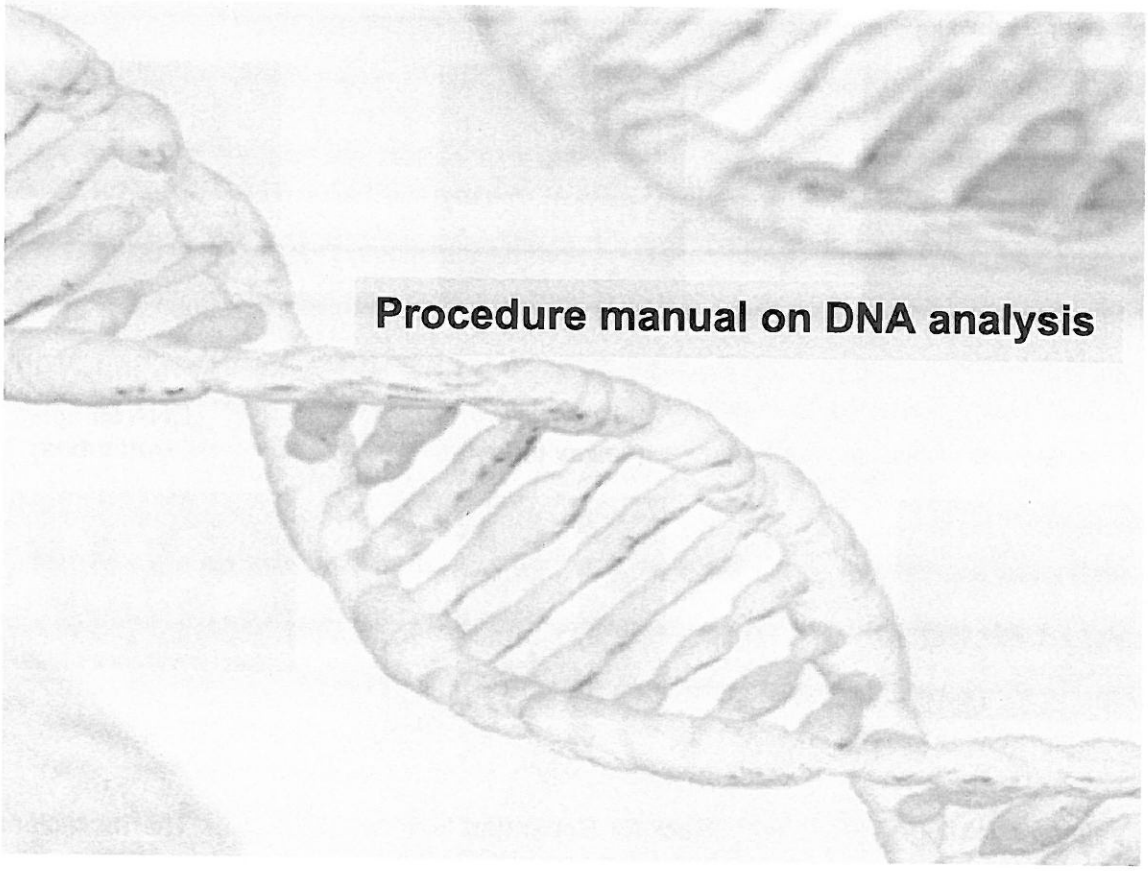
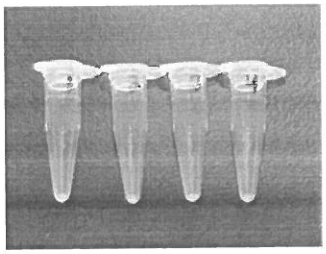

Procedure manual on DNA analysis

STATION 4 – Preparing the PCR

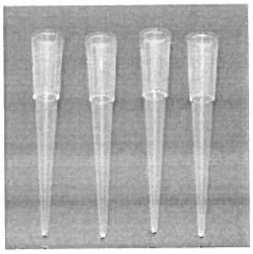
Protocol on multiplying DNA fragments

LIST OF MATERIALS

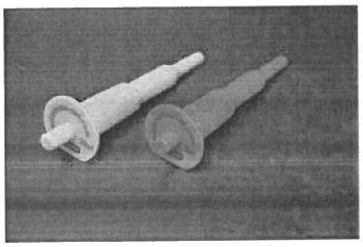
Tube strips and caps
(white tubes)



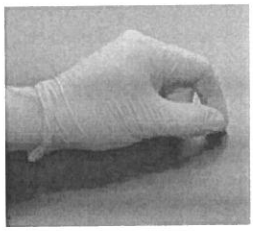
Tips for pipette



Pipettes 5 μl, 20 μl

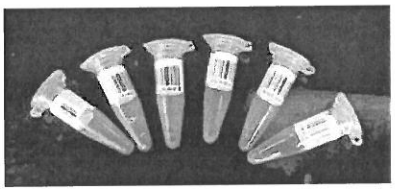


Gloves

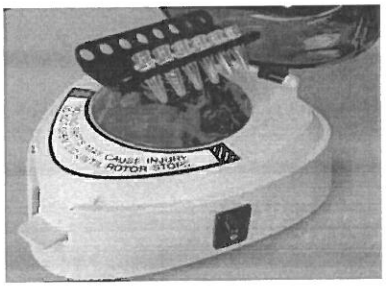


PCR mix
(yellow tube)

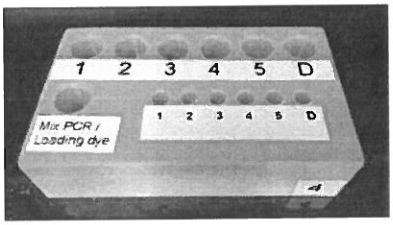
DNA samples
(red tubes)



Tabletop centrifuge



Rack for Eppendorf test
tubes 1.5 ml and PCR strips

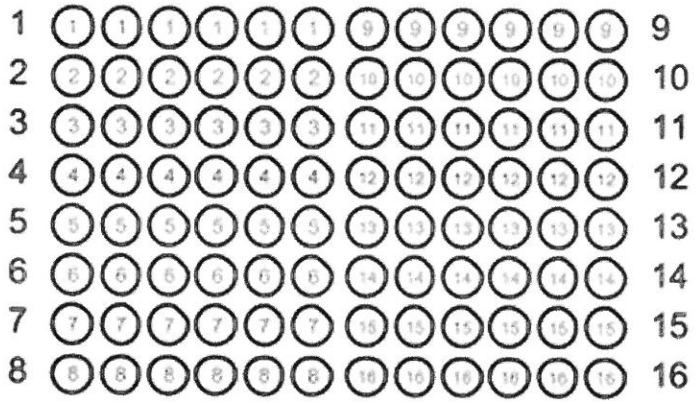


Thermocycler

Trash can for tips
(Provided by the school)

PROCEDURES

1. Cut 1 test tube strip (white) in half to make 2 strips of 6 tubes.
2. Number each of the white tubes from 1 to 5 for each of the unidentified victims. Write D on the 6th tube for the DNA collected on the toothbrush of victim D.
3. Centrifuge all the yellow tubes of the PCR mix and DNA from the victims (red tubes) for a few seconds.
4. Place a new tip on the 20 μl pipette.
5. Pipette 20 μl of PCR solution mix (yellow tubes) into your six white tubes, 1 to 5 and D.
6. Discard the tip into the trash can for tips.
7. Place a new tip on the 5 μl pipette.
8. Pipette 5 μl of solution containing DNA from body 1 (red tube).
9. Deposit the DNA in white tube number 1.
10. Discard the tip into the trash can for tips.
11. Repeat steps 5 to 9 for all the other samples to be multiplied.
12. Firmly secure the cap on the test tube strip.
13. Place the strip in the centrifuge *(Important note: Before activating the centrifuge, you need to make sure that the tubes are evenly distributed in the device).*
14. Centrifuge the test strip for a few seconds.
15. Place your test strip on ice.
16. When all the teams have completed their work at station 4, place the test strips in the thermocycler based on the following diagram:



The number indicates the spot reserved in the thermocycler for each corresponding team.

17. Teams must note the position of their test strips in the thermocycler:

Position in the thermocycler:	_____

18. Your teacher (or lab technician) will start the thermocycler.

19. When the thermocyler completes its program, take out the tubes and go to the next station.

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GUIDANCE-ORIENTED APPROACH 2

As part of their job, biomedical lab technicians perform tasks that are very similar to the ones you did stations 1 to 4.

In your opinion, what are the personal characteristics of biomedical lab technicians?

Interests (Personal tastes and preferences, what you like):

Values (What matters to you, what guides your actions and decisions):

Aptitudes (Natural or acquired inclination for doing something):

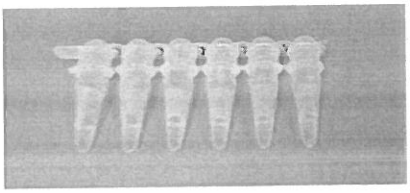
STATION 5 DNA migration in agarose gel

Protocol on migrating DNA fragments

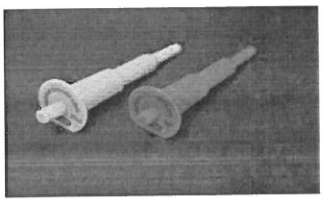
LIST OF MATERIALS

PCR reactions

(white tubes labelled 1, 2, 3, 4, 5, D)

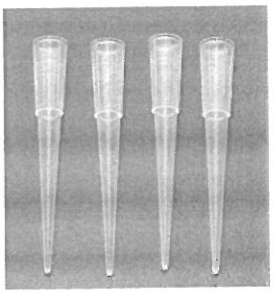


Pipettes 5 μl, 20 μl

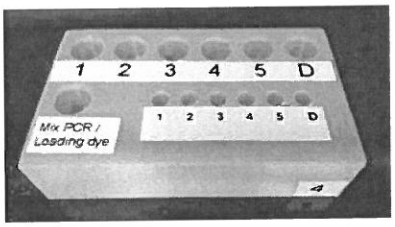


Migration dye
Loading buffer
(brown tube)

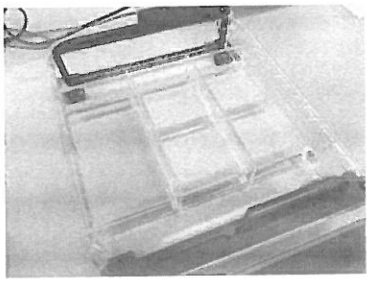
Tips for pipette



Rack for Eppendorf test tubes 1.5 ml and PCR strips



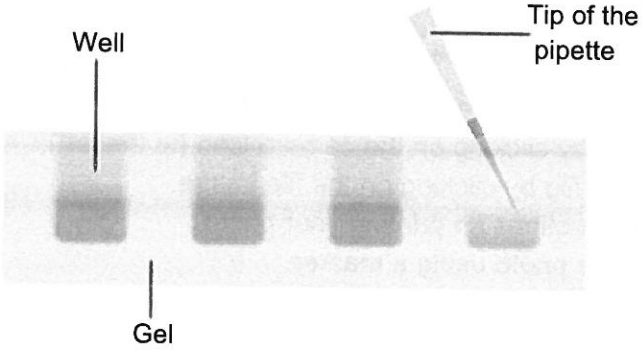
Electrophoresis tank



Trash can for tips
(Provided by the school)

PROCEDURES

1. Place a new tip on the 5 μl pipette.
2. Pour 5 μl of migration dye in the PCR reaction tubes.
3. Discard the tip into the garbage bin for tips.
4. Repeat steps 1 to 3 for all the other PCR reaction tubes.
5. Place a new tip on the 20 μl pipette.
6. Collect 20 μl from the victim 1 sample.
7. Place 20 μl of solution (PCR reaction + migration dye) from victim 1 into the first gel well, **as slowly as possible**. You need to position the tip into the well, while being careful not to go too deep to avoid piercing the bottom of the well.



8. Discard the tip into the trash can for tips.
9. Repeat steps 5 to 8 for all the other PCR reactions.
10. Wait until all teams have loaded their wells.
11. Once all teams have loaded their wells, start the current in the electrophoresis tank.
12. Set the power to 115 volts
13. Let the migration continue for 30 minutes.
14. After the migration, turn off the current.
15. Go to the next station.

Note: The gel will last a few days if it is properly wrapped in plastic wrap (or a Ziploc bag), kept away from light (wrap in tin foil or other) and stored in the refrigerator at 4 °C.

STATION 6 - Observing the migration of DNA fragments

Protocol on observing the migration of DNA fragments

LIST OF MATERIALS

- Result from the migration
- Transilluminator
- Computer

PROCEDURES

1. Place your gel on the glass of the transilluminator, in the area indicated.
2. Close the cover of the transilluminator using the latchets.
3. Start the UV lamp.
4. If necessary, adjust the image in the advanced settings of the program.
5. Take a picture of your gel by clicking on the camera icon (to the left).
6. You can access the photo file by clicking on the file image.
7. Follow your teacher's instructions on printing your photo.
8. Identify the samples on the photo using a marker.

Attach the photo of your result here.