

Gel Electrophoresis

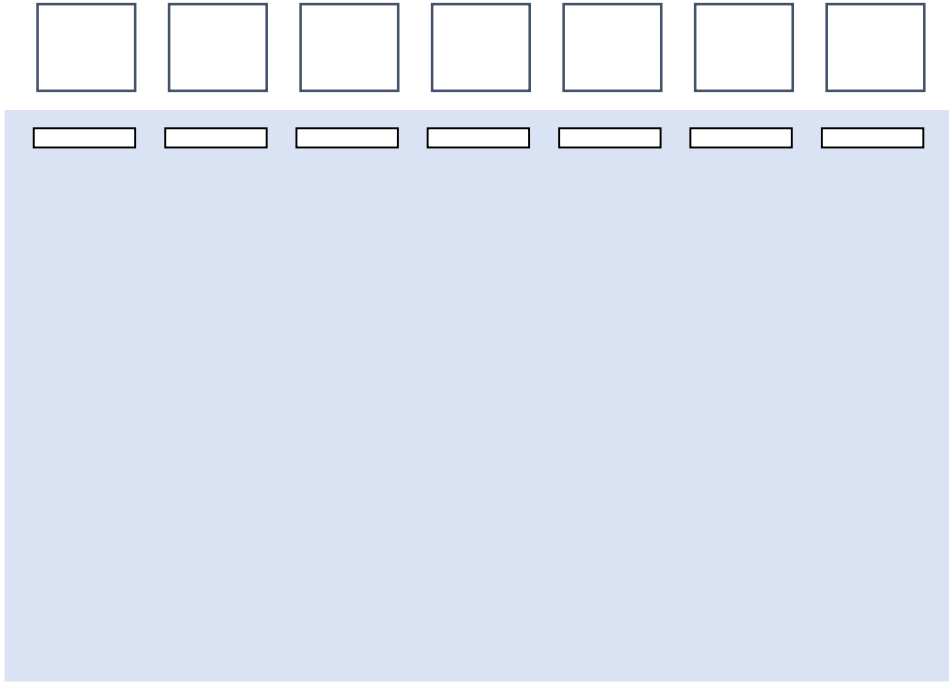
Lab Number _____

Student Worksheet

Name _____

DNA fragment analysis

Draw the results from your gel on the diagram below.



Identifying the genotype

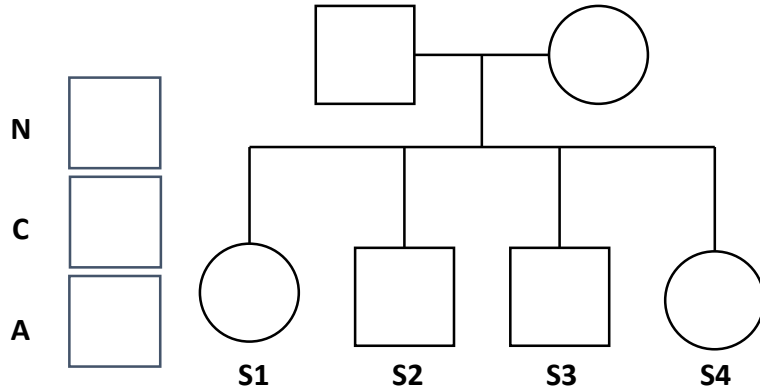
Write in the genotype of the samples, then work out the genotype of the parents

T = Short Tail

t = Long Tail

= Male

= Female



Analysis of your results

- 1) Which sheep have short tails?
- 2) Which sheep carry the tailless gene?
- 3) Which sheep have long tails?
- 4) Which sheep have no tails?



Further Investigations

Why do you think we don't see any homozygous dominant sheep?

PCR is often used to amplify genomic DNA samples.

Some of the uses of PCR include:

- Amplifying regions of DNA
- Screening for the presence or absence of a specific sequence, often used for disease diagnosis.
- Generating genetic profiles for use in paternity disputes or to identify suspects from crime scenes.

1) What are the three steps in PCR?

2) Draw on the diagram the primers needed to identify the differences between the sequences below.

a) N = Normal A = Affected

b)

Mutated Region = █

Insertion = █

3) Write out the primers for the whole sequence below (label the 5' and 3' ends)

1 5' ATGCTGACTGACTCGTCTAAGTTCGATTTGACTGTACACATAGCTGCCCT 3' 50
3' TACGACTGACTGAGCAGATTCAAGCTAAACTGACATGTGTATCGACGGGA 5'

51 5' CGTAGCTAGCTTAGCCTAGCTAAGCTAGCTTGTGTACGATGCATTTTCAG 3' 100
3' GCATCGATCGAATCGGATCGATTCGATCGAACACATGCTACGTAAAAGTC 5'

Forward Primer –
Reverse Primer –