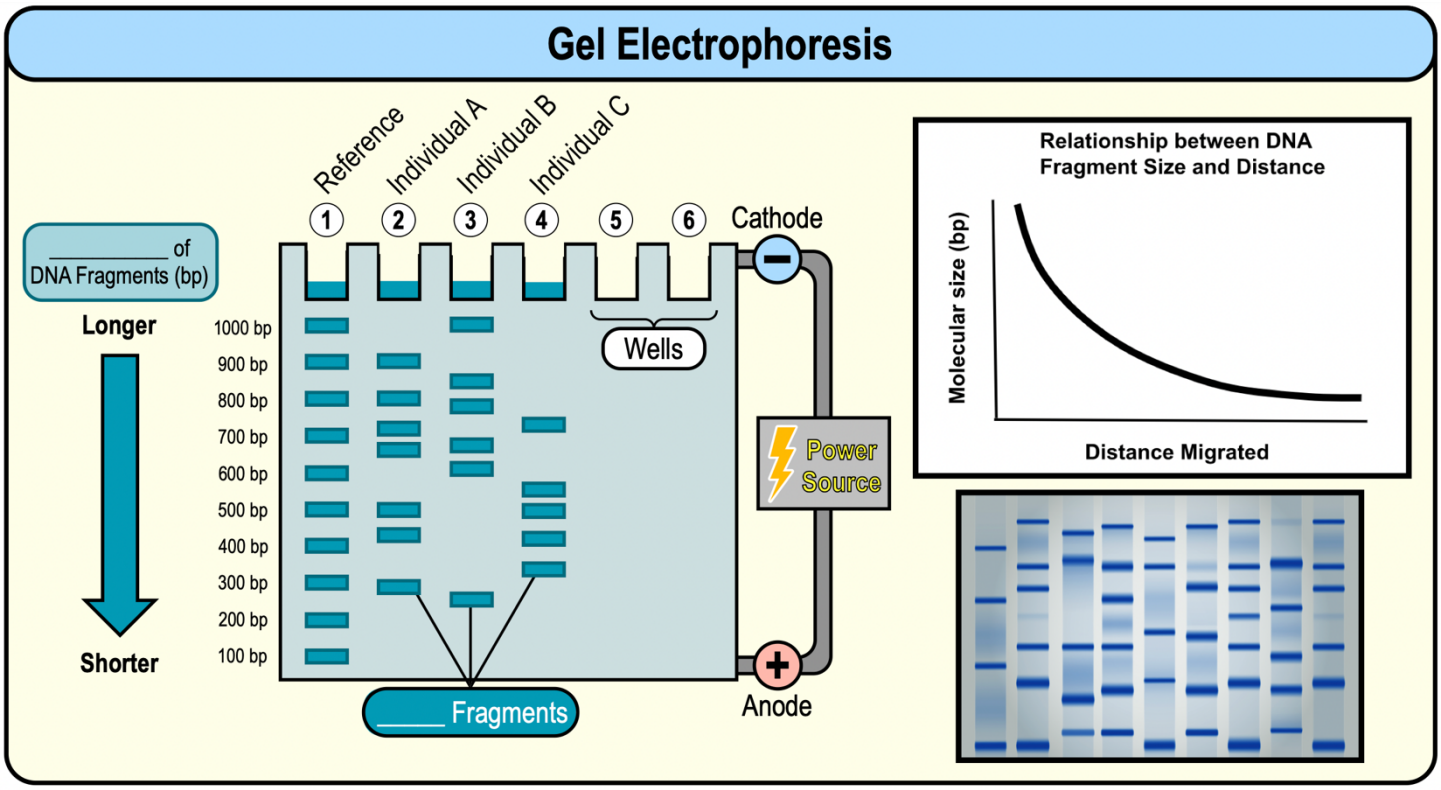
CONCEPT: GEL ELECTROPHORESIS

- _____ **Electrophoresis:** technique used to _____ & *visualize* fragments of DNA using a 3-D gel matrix.
- DNA is _____ *charged* & separated by **size** using an _____ current & ion *buffer solution.*
  - □ _____ (top): *negatively charged* end of the gel where the DNA sample is *loaded* & migrates *away* from.
  - □ _____ (bottom): *positively charged* end of the gel where the DNA sample migrates *towards*.
- Larger fragments of DNA are at the _____ of the gel & smaller fragments of DNA are at the _____ of the gel.
  - □ _____ fragments migrate *faster* through the gel apparatus.



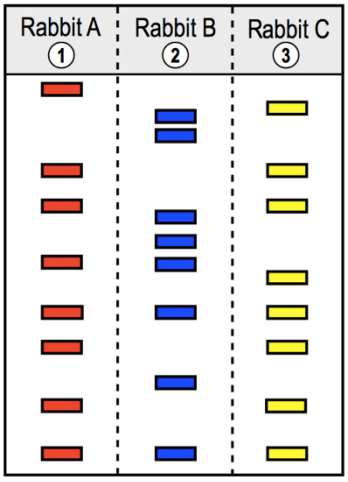
EXAMPLE: Using the gel, determine which rabbit species are most closely related.

a) Rabbit species #1 and #2

b) Rabbit species #1 and #3

c) Rabbit species #2 and #3

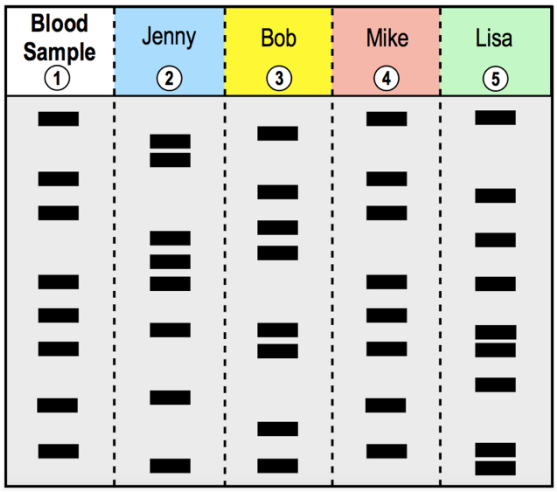
d) Relatedness of the rabbit species cannot be determined from the gel.



CONCEPT: GEL ELECTROPHORESIS

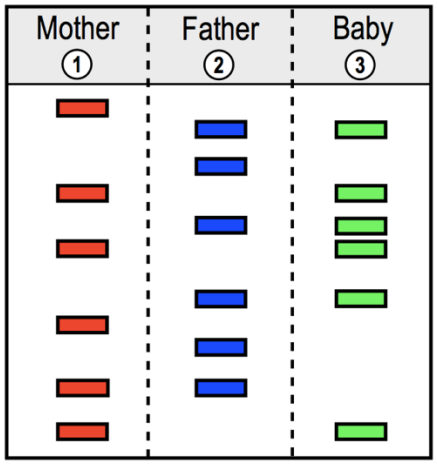
PRACTICE: At a crime scene a blood sample was found and investigated using gel electrophoresis. Based on the gel, the blood at the crime scene belongs to which of the suspects?

a) Jenny
b) Bob
c) Mike
d) Lisa
e) The blood at the crime scene does not belong to any of these suspects.



PRACTICE: The parents of a new baby believe that the hospital sent them home with someone else's baby. The hospital takes DNA samples from both parents and the baby. The DNA is investigated using gel electrophoresis. Do the parents possess their biological child or did the hospital give them the wrong baby?

a) The parents have the correct baby, their DNA matches.
b) The parents have the wrong baby, their DNA does not match.
c) There is no way to tell using this gel.



PRACITCE: Gel electrophoresis separates fragments of DNA based on which characteristic?

a) Sequence.
b) Level of methylation.
c) Size.
d) All of the above.

PRACTICE: Why do the fragments of DNA in gel electrophoresis move away from the negative cathode?

a) DNA is negatively charged and attracted to the positive anode.
b) DNA is positively charged and attracted to the positive anode.
c) DNA is negatively charged and attracted to the positively charged agarose gel.
d) DNA is positively charged and attracted to the negatively charged agarose gel.