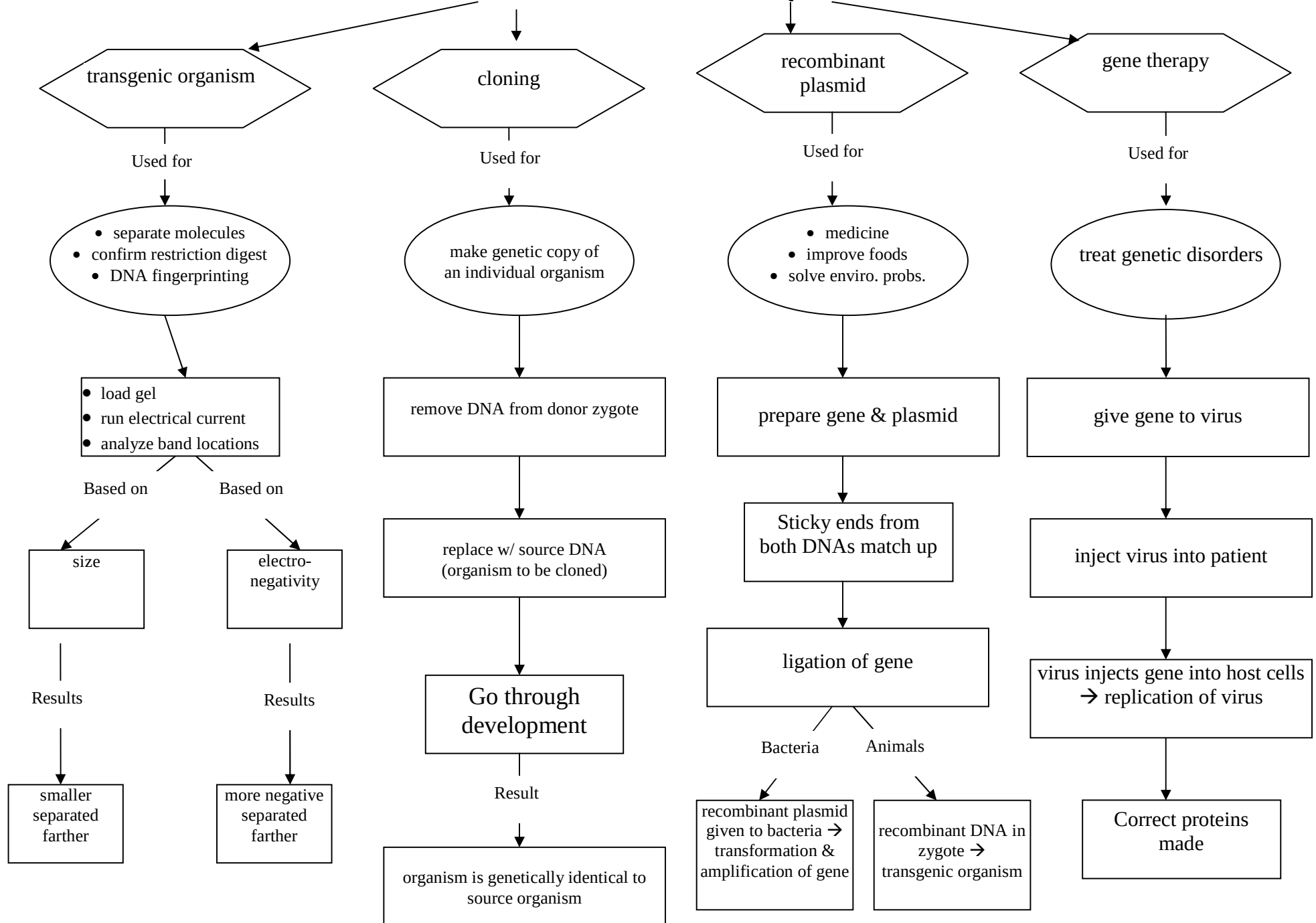


GENETIC ENGINEERING TECHNIQUES



	What is it used for?	How does the process work?	Results	Organisms Involved
Gel Electrophoresis	★ separating DNA/molecules ★ DNA fingerprinting ★ confirm restriction digest	★ load chromosomes into gel ★ run electrical current ★ analyze band locations	★ chromosomes/molecules separated by size & electronegativity	★ any DNA source
Cloning	★ making another organism w/ exact DNA match	★ remove DNA from zygote ★ replace w/ source DNA ★ embryonic development in surrogate	★ organism is genetically identical to the source organism	★ source DNA ★ zygote ★ surrogate
Recombinant Plasmid	★ medicine ★ improve foods ★ solve environmental issues	★ cut plasmid & gene of interest ★ insert gene of interest & ligate ★ transform & amplify gene in bacteria	★ bacteria used to make foreign protein in lab by amplifying gene	★ bacteria ★ plasmid ★ source DNA
Transgenic Organisms	★ medicine ★ improve foods ★ solve environmental issues	★ prepare gene ★ insert gene into zygote ★ embryonic development in surrogate	★ organism w/ foreign DNA can make foreign protein by expressing foreign gene	★ source DNA ★ zygote ★ surrogate
Gene Therapy	★ treat genetic disorders	★ insert gene into cold virus ★ introduce virus into patient ★ virus injects gene into host cells ★ replication → person makes correct protein	★ person makes correct protein by getting correct gene	★ virus ★ source DNA ★ patient

** Use this information to fill in the boxes on the concept map on the back of this page.