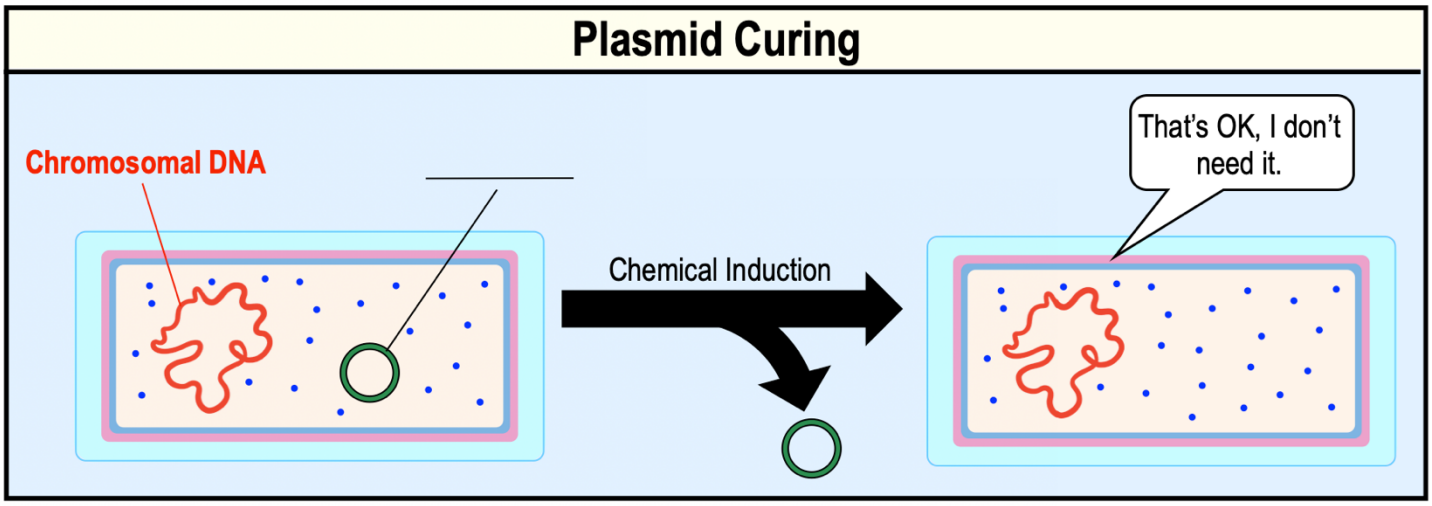
CONCEPT: INTRODUCTION TO BACTERIAL PLASMIDS

- _____**:** small molecules of circular, double-stranded DNA replicated *independently* of the cell's chromosome.
  - □ Contain genes that are typically _____ required for the cell to survive.
  - □ Replicated by the cell's _____ *Polymerase.*
- _____**:** a cell loses its plasmid which can happen spontaneously, or it can be induced chemically.

EXAMPLE: Plasmid curing with chemical induction.



PRACTICE: Which of these is NOT true regarding bacterial plasmids?

a) Bacterial plasmids are found in all bacteria.
b) Bacterial plasmids are not essential for bacterial life.
c) Bacterial plasmids replicate independently of the bacterial chromosome.
d) Bacteria can lose their plasmids in a process called "plasmid curing".
e) Bacterial plasmids are replicated by the same DNA machinery that replicated the bacterial chromosome.

PRACTICE: Which types of genes are commonly found in bacterial plasmids?

a) Genes that encode for proteins used in cellular respiration.
b) Genes that encode for proteins used in DNA replication.
c) Genes that encode for antibiotic resistance.
d) Genes that encode for cell envelope/membrane development.

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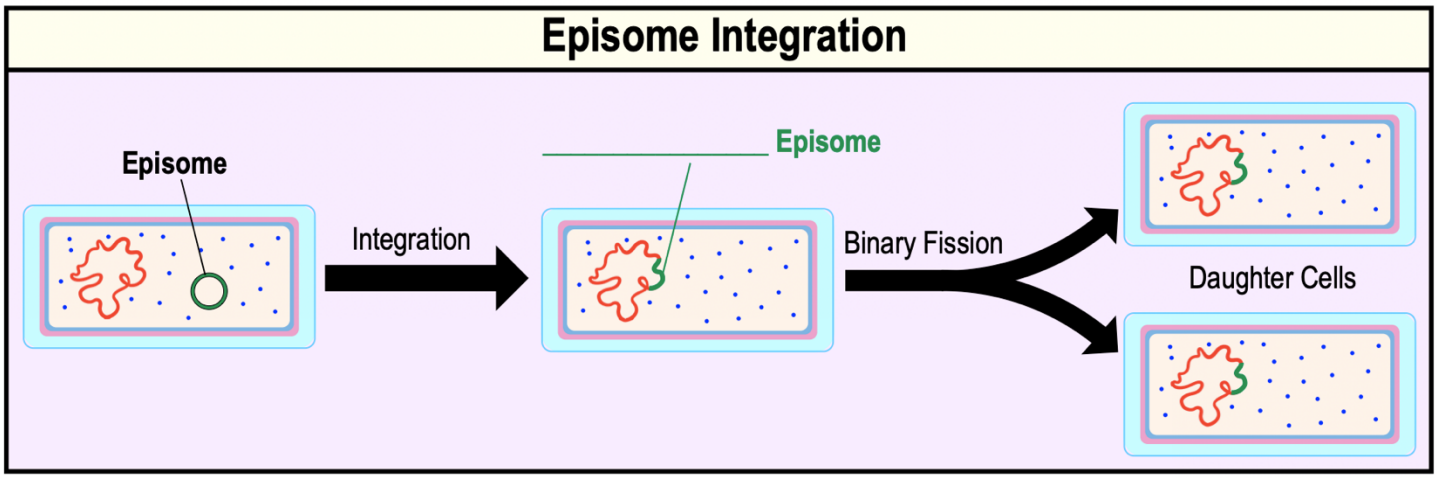
Episomes

- _____: special type of plasmid that is able to integrate into the chromosome.
  - □ Integrated DNA is _____ with the chromosomal DNA & inherited by the daughter cells.

EXMPLE: Episomes are plasmids that can integrate into a bacterial chromosome.



PRACTICE: Episomes differ from normal bacterial plasmids because…

a) Episomes carry genes that are not vital to a bacterial cell's life.
b) Episomes do not replicate independently of the bacterial chromosome.
c) Episomes are replicated by the same DNA machinery that replicated the bacterial chromosome.
d) Episomes are integrated into the bacterial chromosome.
e) A and C.
f) B and D.

PRACTICE: Some bacterial viruses (lysogenic phages) carry viral DNA that acts like an episome. When a bacterial cell that is infected by a lysogenic phage replicates, what happens to the viral DNA?

a) The viral DNA remains separate from the bacterial chromosome and is not passed on to the daughter cells.
b) The viral DNA is incorporated into the bacterial chromosome and passed on to the daughter cells.
c) That viral DNA remains separate from the bacterial chromosome but is still passed on to the daughter cells.
d) The viral DNA is degraded by the bacterial cell.