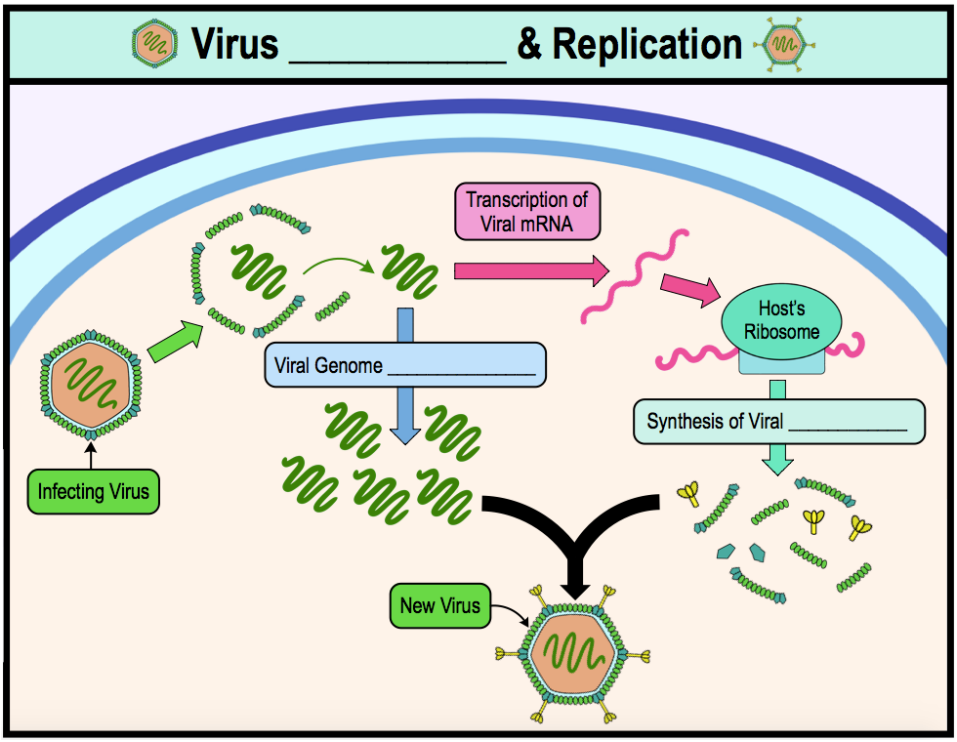
CONCEPT: ANIMAL VIRUSES: 3. SYNTHESIS & REPLICATION

●After the entry & uncoating of a virus into a host animal cell, *synthesis* & *replication* of the virus can begin.

●There are _____ events that are required for complete replication of a virus:

1) _____ of the virus structural proteins (capsids) & viral/replication enzymes.

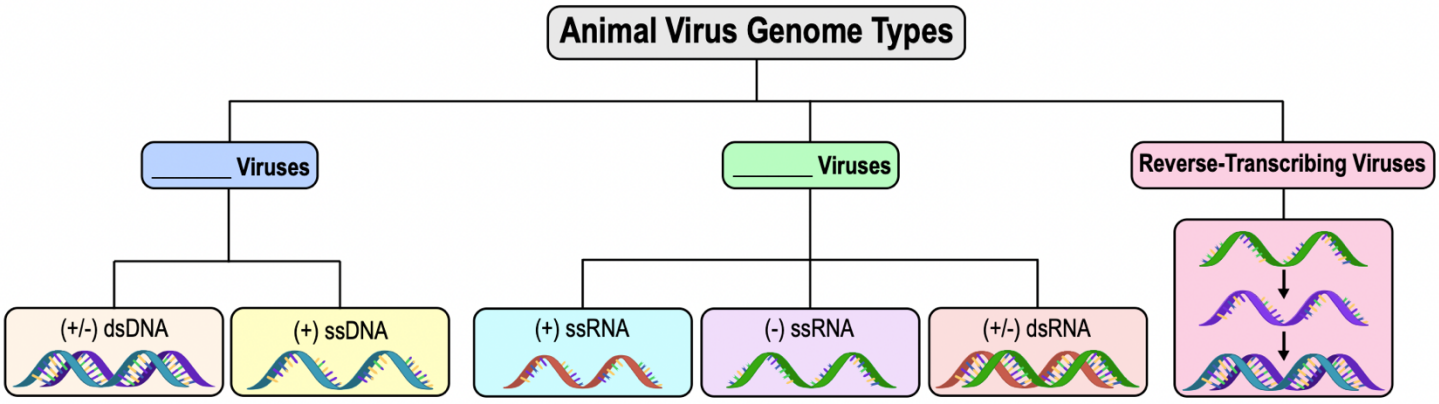
2) _____ of the viral genome (occurs *multiple* times inside the host cell).



Map of Lesson on Animal Virus Synthesis & Replication

●Animal viruses can have _____ different types of genomes allowing for *variations* in viral *synthesis & replication.*

□ The mechanism of synthesis & replication depends on the type of the viral genome.



CONCEPT: ANIMAL VIRUSES: 3. SYNTHESIS & REPLICATION

PRACTICE: All of the following are types of animal viruses except which of these answers?

a) Reverse transcribing viruses. b) Phage viruses. c) DNA viruses. d) RNA viruses.

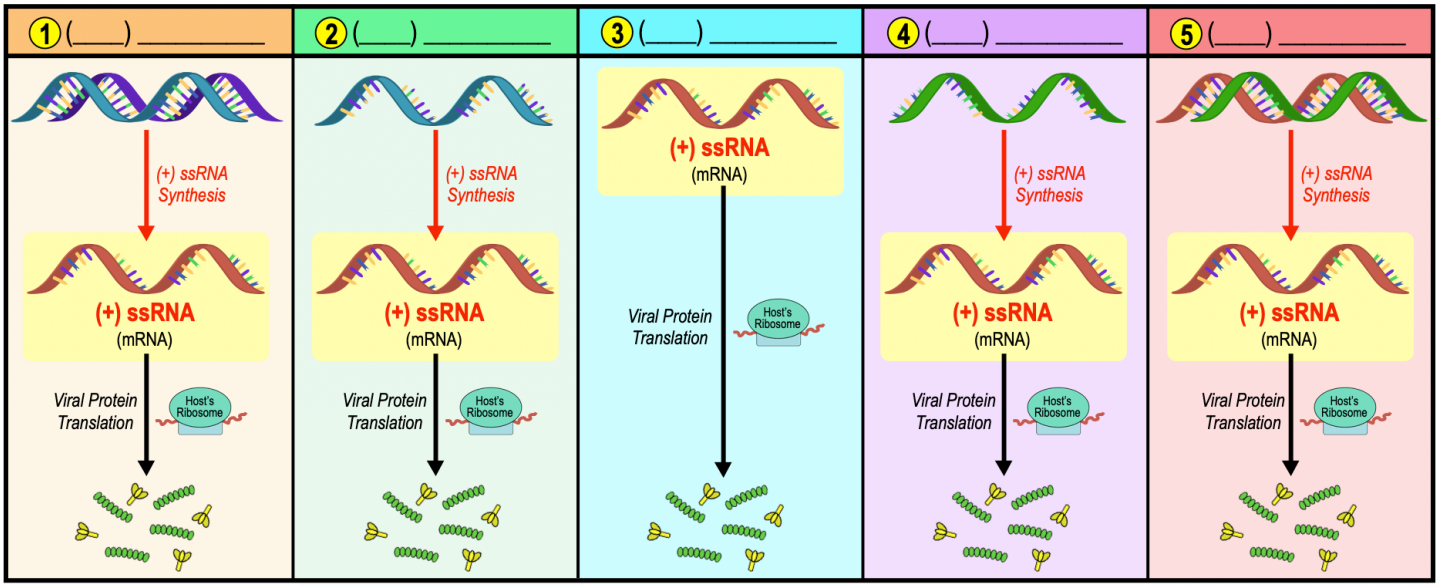
Types of Animal Virus Genomes

●The synthesis & replication mechanism of animal viruses depends on the type of viral genome.

□ There are _____ main types of viral genomes.

□ (+) strands are _____ *strands* □ (–) strands are _____-coding (or template) strands.

1. **(+/–) dsDNA:** a ***d****ouble-****s****tranded* DNA molecule that is expressed following the central dogma of biology.
2. _____**DNA (+ or –):** ***s****ingle-****s****tranded* DNA is converted to (+/–) dsDNA before replication & synthesis.
3. **(+) ssRNA:** a *coding* single-stranded ____RNA molecule that is *directly* translated by host ribosomes.
4. **(–) ssRNA:** a _____-*coding* single-stranded RNA that is NOT directly translated by host ribosomes.
5. **(+/–) dsRNA:** *double-stranded* RNA molecule that is a *template* to make (+) ssRNA for translation.



Common Themes of All Virus Genomes

●Regardless of viral genome type, all viruses MUST:

1) Recreate their _____ genome type (Ex. dsRNA viruses recreate dsRNA genomes).

2) Make (___) ssRNA (mRNA) in order for host cell ribosomes to synthesize viral proteins.