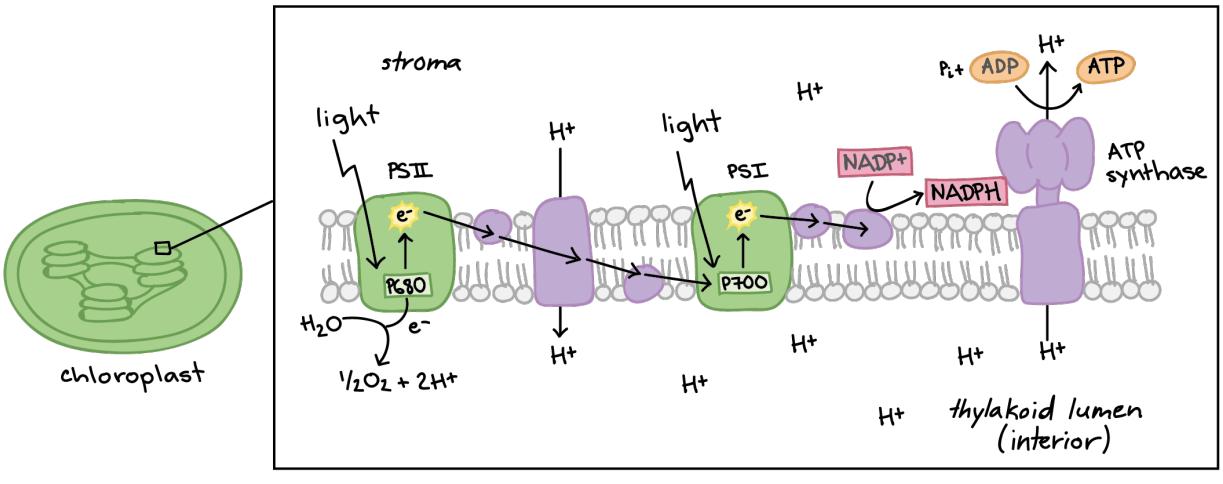
Name _____ Date _____ Period _____

AP BIOLOGY – MAKING CONNECTIONS

ACTIVITY 1: LIGHT-DEPENDENT REACTIONS

The diagram below shows the light dependent reactions of eukaryotic photosynthesis. Try to make as many connections as possible with topics learned throughout the year. Here are some of the topics to think about when making these connections.

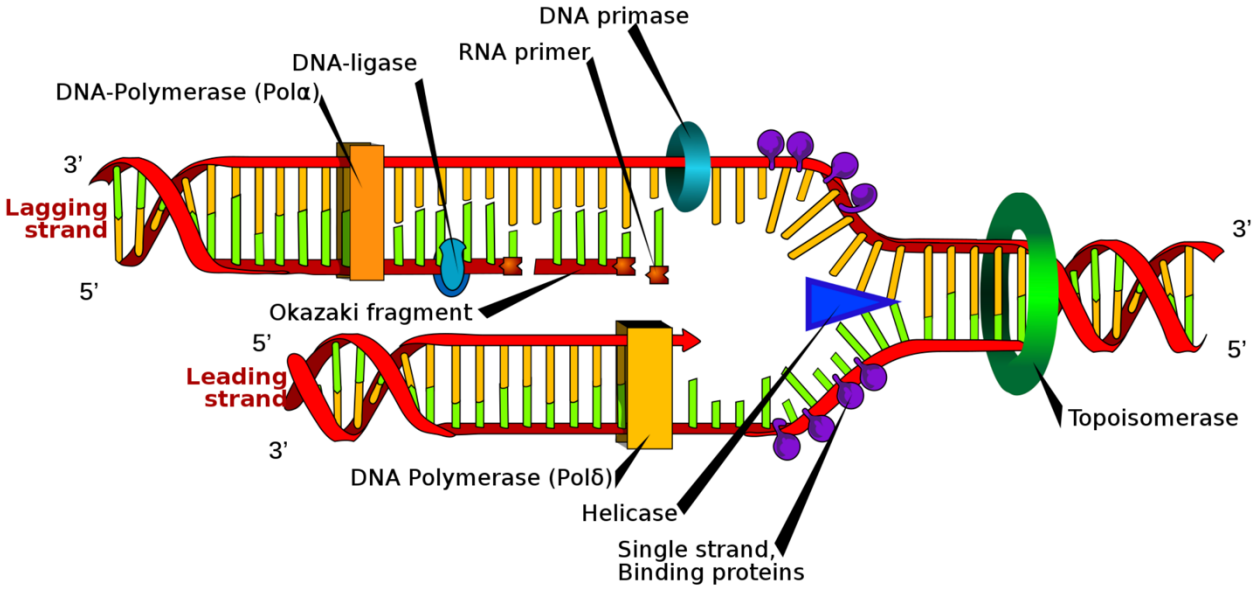
- Natural Selection
- Endosymbiosis
- Proteins
- Organelles
- Membrane Structure
- Membrane Transport
- Membrane Selective Permeability
- Enzyme Structure and Function
- Ions
- ATP
- Origin of Life
- Others



ACTIVITY 2: THE REPLICATION FORK

The diagram below shows the replication fork created during DNA replication. Try to make as many connections as possible with topics learned throughout the year. Here are some of the topics to think about when making these connections.

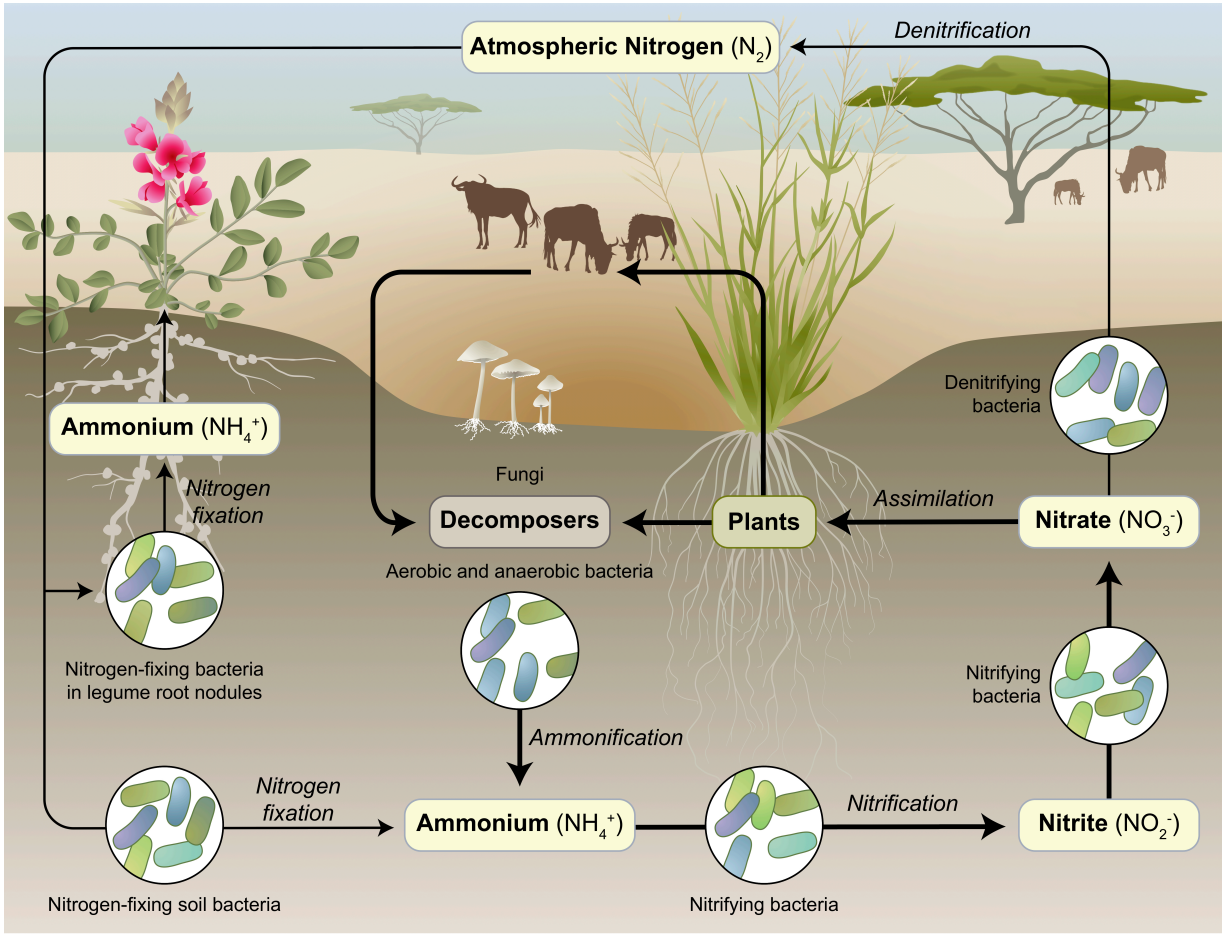
- Natural Selection
- Proteins
- RNA
- Transcription
- Translation
- Regulation of Gene Expression
- Cell Division
- The Cell Cycle
- Enzymes
- Origin of Life
- DNA Directionality
- Semi-Conservative Replication
- Mutations
- Others



ACTIVITY 3: THE NITROGEN CYCLE

The diagram below shows the nitrogen cycle. Try to make as many connections as possible with topics learned throughout the year. Here are some of the topics to think about when making these connections.

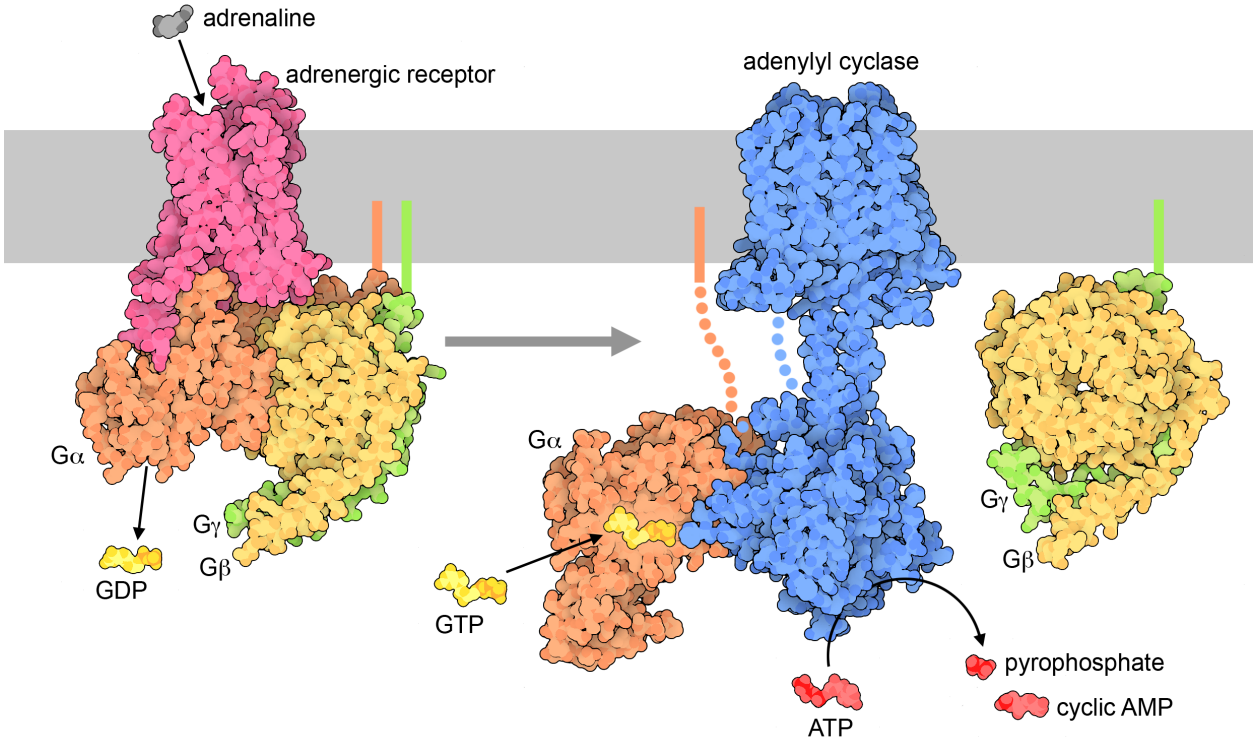
- Symbiosis
- Food Chains / Food Webs
- Trophic Structures
- Biological Molecules
- Cycling of Matter
- Flow of Energy
- Metabolism
- Biotic / Abiotic Limiting Factors
- Prokaryotes
- Human Impact
- Primary Productivity
- Others



ACTIVITY 4: CELL SIGNALING

The diagram below shows the beginning part of an epinephrine (adrenaline) signal transduction pathway. Try to make as many connections as possible with topics learned throughout the year. Here are some of the topics to think about when making these connections.

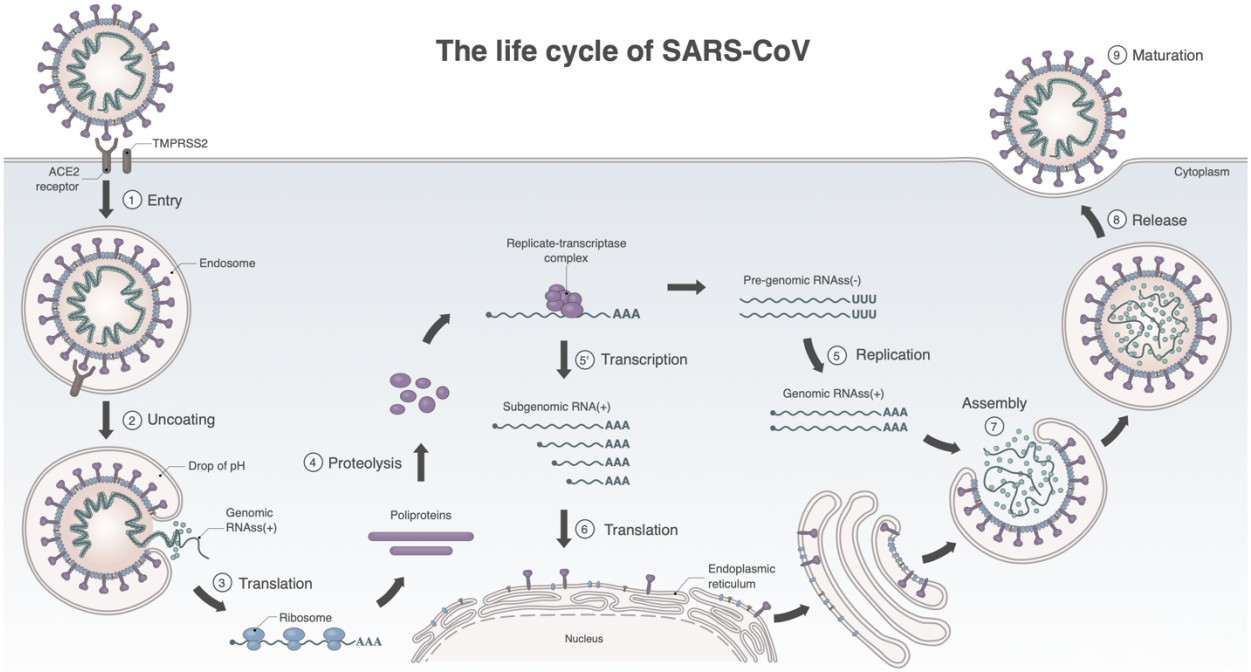
- Cell Signaling / STP
- Cell Membrane
- Ligands / Receptors
- Polarity
- Multicellularity
- Enzyme Structure / Function
- Second Messengers
- Natural Selection
- Animal Behavior
- Gene Expression
- Cell Division
- Common Ancestry
- Metabolism
- Others



ACTIVITY 5: VIRUS LIFE CYCLE

The diagram below shows the life cycle of an enveloped virus (SARS-CoV-2). Try to make as many connections as possible with topics learned throughout the year. Here are some of the topics to think about when making these connections.

- Endocytosis
- Exocytosis
- Virus Replication
- Organelles
- Endomembrane System
- DNA Structure / Function
- RNA Structure / Function
- Transcription
- Translation
- Protein Structure / Function
- Cell Membrane
- Viral Specificity
- Virus vs. Retrovirus
- Mutations
- Natural Selection
- Others



ACTIVITY 6: UNITY & DIVERSITY OF LIFE

The diagram below shows a phylogenetic tree of life. Try to make as many connections as possible with topics learned throughout the year. Here are some of the topics to think about when making these connections.

- Domains / Kingdoms
- Last Universal Common Ancestor
- Levels of Taxonomy
- Prokaryotes / Eukaryotes
- Horizontal Gene Transfer
- Endosymbiosis
- Bacteria
- Archaea
- Natural Selection
- Mass Extinctions
- Genetic Drift / Bottleneck Events
- Pre-Zygotic / Post-Zygotic Barriers
- Unity
- Diversity
- Geologic Timeline
- Others