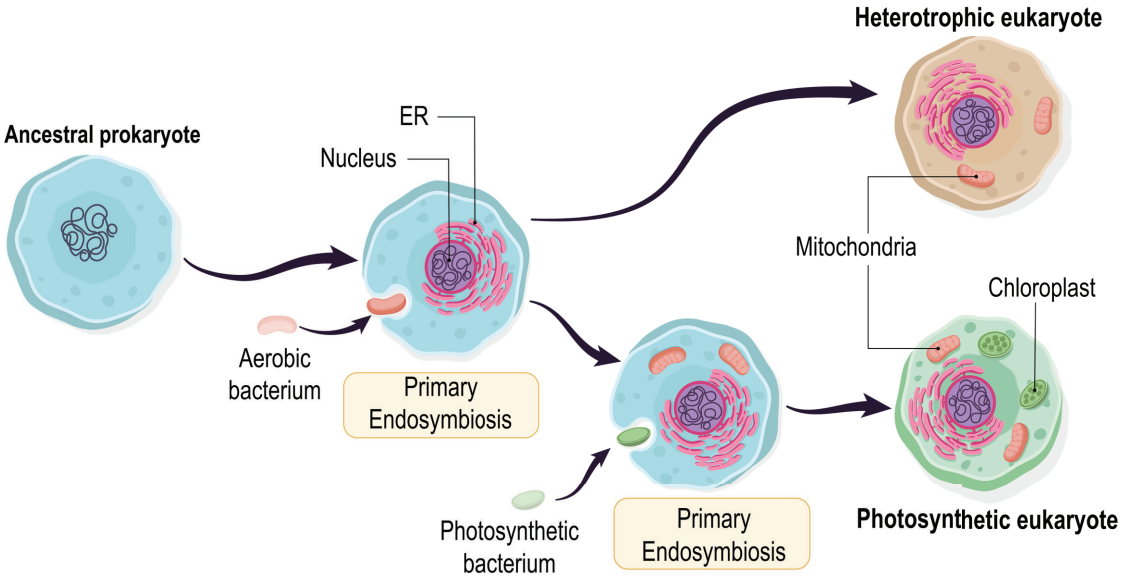
## TOPIC: EVOLUTION OF PROTISTS

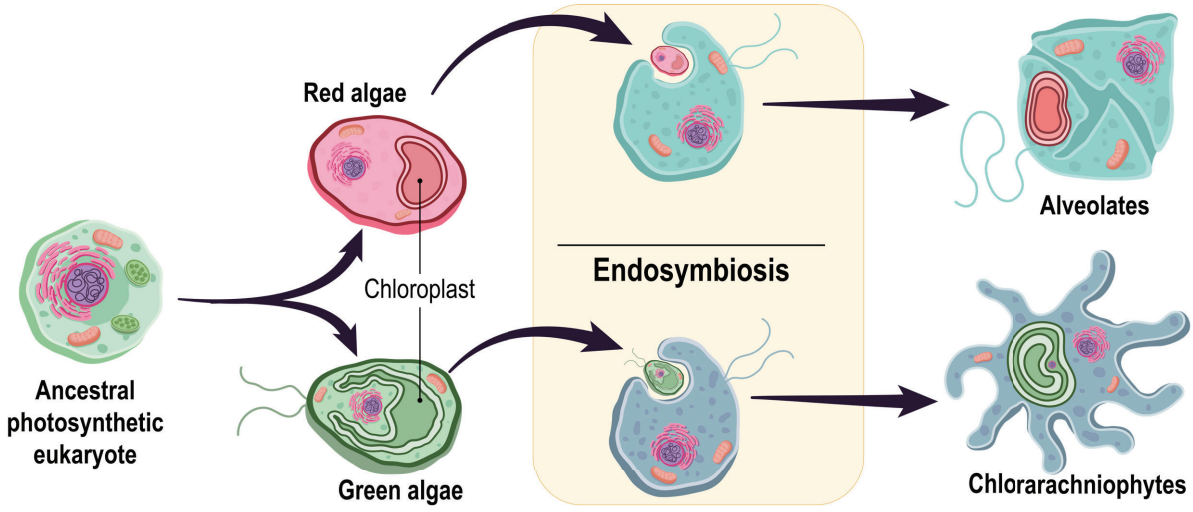
### Primary Endosymbiosis Gave Rise to Eukaryotes

- *Recall*: **Endosymbiosis**: a symbiotic relationship where one organism lives inside another.
  - ____**rimary Endosymbiosis**: when a host cell engulfs a ____rokaryotic cell.




### Secondary Endosymbiosis Led to Several Eukaryotic Lineages

- **Secondary Endosymbiosis:** when a host cell engulfs a ____karyotic cell.
  - Ingested cell eventually evolves into an organelle with _____ membranes.
- Red & green algae were engulfed by host cells, leading to multiple photosynthetic lineages.



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### EXAMPLE

Why was it advantageous for the host cell to keep the engulfed aerobic bacterium alive during primary endosymbiosis, rather than dissolve it for food?

a) It helped protect the host cell from pathogens.
b) It provided the host cell with ATP.
c) It allowed the host cell to photosynthesize.
d) It provided an opportunity to swap genetic information with the host cell.

### PRACTICE

Which of the following is a benefit that eukaryotes gained via endosymbiosis?

a) Endosymbiosis allowed eukaryotes to have a structurally solid cell wall.
b) Endosymbiosis allowed eukaryotes to survive in extreme environments.
c) Endosymbiosis allowed eukaryotes to obtain energy via sunlight (photosynthesize).
d) All of the above.

### PRACTICE

Which of the following is a characteristic that you could look for to determine if a cell has undergone secondary endosymbiosis?

a) A rough endoplasmic reticulum.
b) A photosynthetic organelle with 3 or more membranes.
c) A complex nucleus & endomembrane system.
d) A chloroplast.