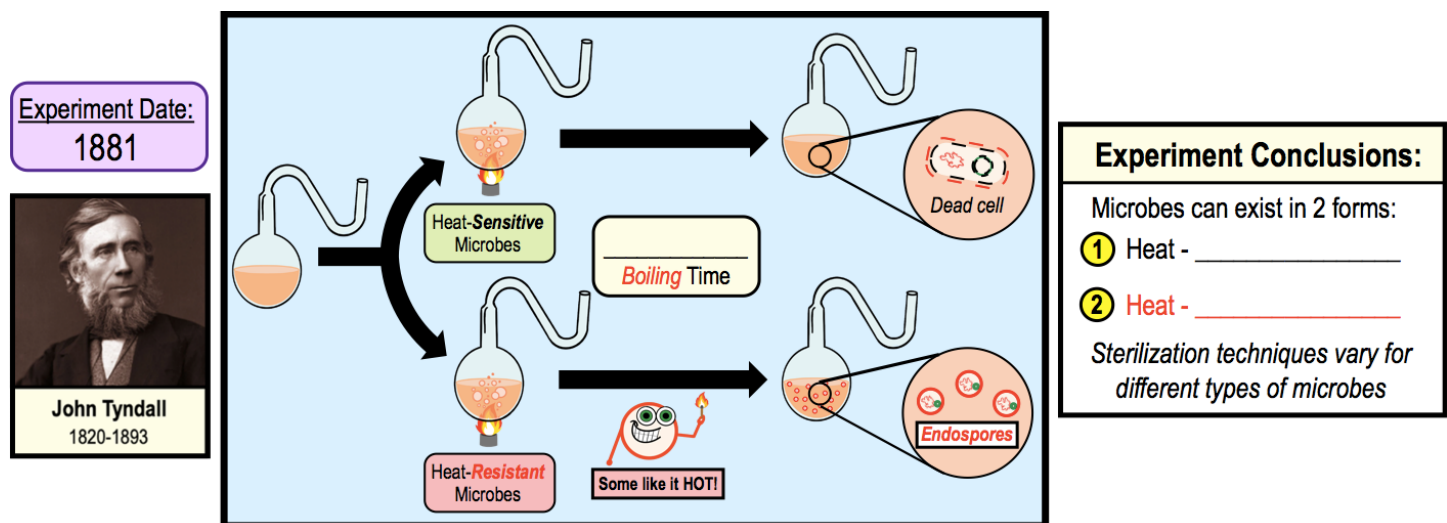


CONCEPT: JOHN TYNDALL'S EXPERIMENT

- One drawback from Pasteur's results were that NOT every scientist could _____ them.
 - Some scientists still discovered microbial growth in a swan-neck flask, even after "sterilizing" with _____.
- **John _____**: physicist that showed & explained why Pasteur's experiment could NOT always be replicated.
 - Found that some types of broth could _____ be *sterilized*, even after extremely long boiling times.
- Tyndall realized that, depending on the type of broth, they could contain different types of microbes:
 - 1) **Heat-Sensitive Microbes**: _____ when exposed to high enough heat.
 - 2) **Heat-Resistant Microbes**: can tolerate & _____ high levels of heat.

EXAMPLE: Tyndall showed why some scientists could not replicate Pasteur's results & further validated biogenesis.



- In the same year, the scientist Ferdinand Cohen discovered _____: heat-resistant forms of *some* bacteria.
 - Scientists with *endospore* contaminants could _____ replicate Pasteur's results.

PRACTICE: Louis Pasteur and John Tyndall worked together to:

- a) Develop antiseptic surgery.
- b) Disprove that microorganisms could arise from non-living matter.
- c) Discover the cause of French wine spoilage.
- d) Develop a cholera vaccine.
- e) Develop methods for isolating bacteria in pure culture.