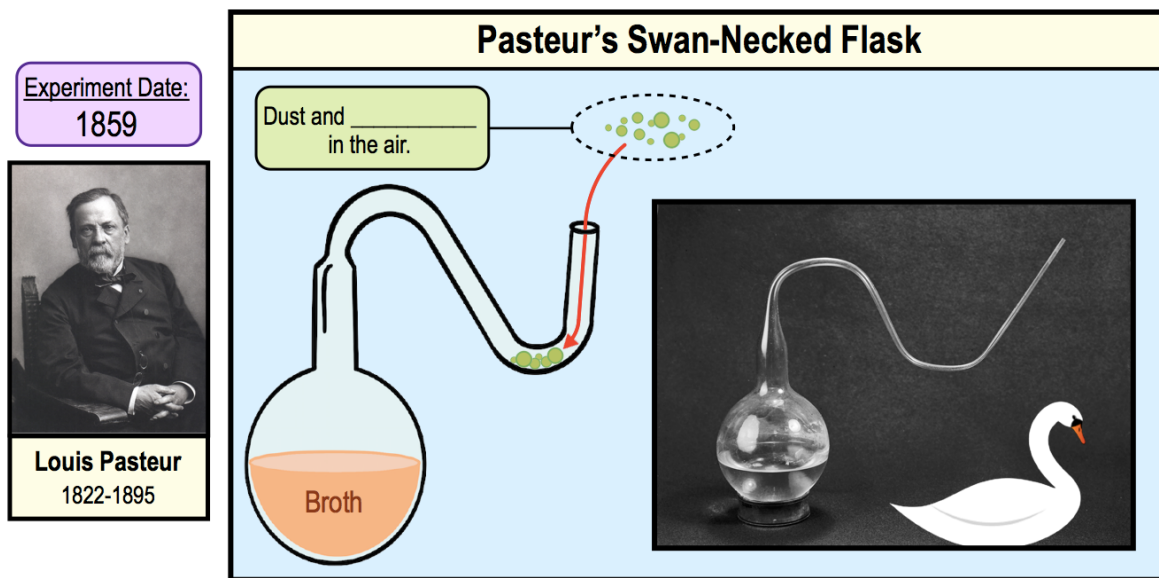


## CONCEPT: PASTEUR'S EXPERIMENTS ON SPONTANEOUS GENERATION

- **Louis** \_\_\_\_\_: French chemist who demonstrated that microbes are all around us, including in the air.
- Based on Spallanzani's results, Pasteur wanted to show that \_\_\_\_\_ was the source of microbial *contamination*.
  - Designed a simple set of experiments using a specialized type of \_\_\_\_\_.
- \_\_\_\_\_ **-Neck Flasks**: specialized flasks designed by Pasteur to have a *long & curved* tube leading into the top of it.
  - Allowed air to enter, BUT dust & microbes in the air would get \_\_\_\_\_ in neck's bend.

**EXAMPLE:** Pasteur's Swan-Neck Flask Disproved Spontaneous Generation.



- Using his swan-neck flask, Pasteur conducted an experiment that \_\_\_\_\_ spontaneous generation.

**PRACTICE:** Louis Pasteur designed swan-necked flasks to:

- Keep maggots away from decaying meat.
- Pasteurize beer and wine.
- Trap microorganisms from the air in the neck of the flask.
- Allow dust to reach sterile infusions.

**PRACTICE:** Why did Pasteur design swan-necked flasks in his experiments on spontaneous generation?

- The neck excluded oxygen from entering the flask.
- The neck stopped microorganisms in the air from contaminating the contents of the flask.
- The neck excluded flies and maggots from entering the flask.
- The neck served as a handle when heating the flask.
- The neck prevented Pasteur from contaminating his sample by sneezing on it.

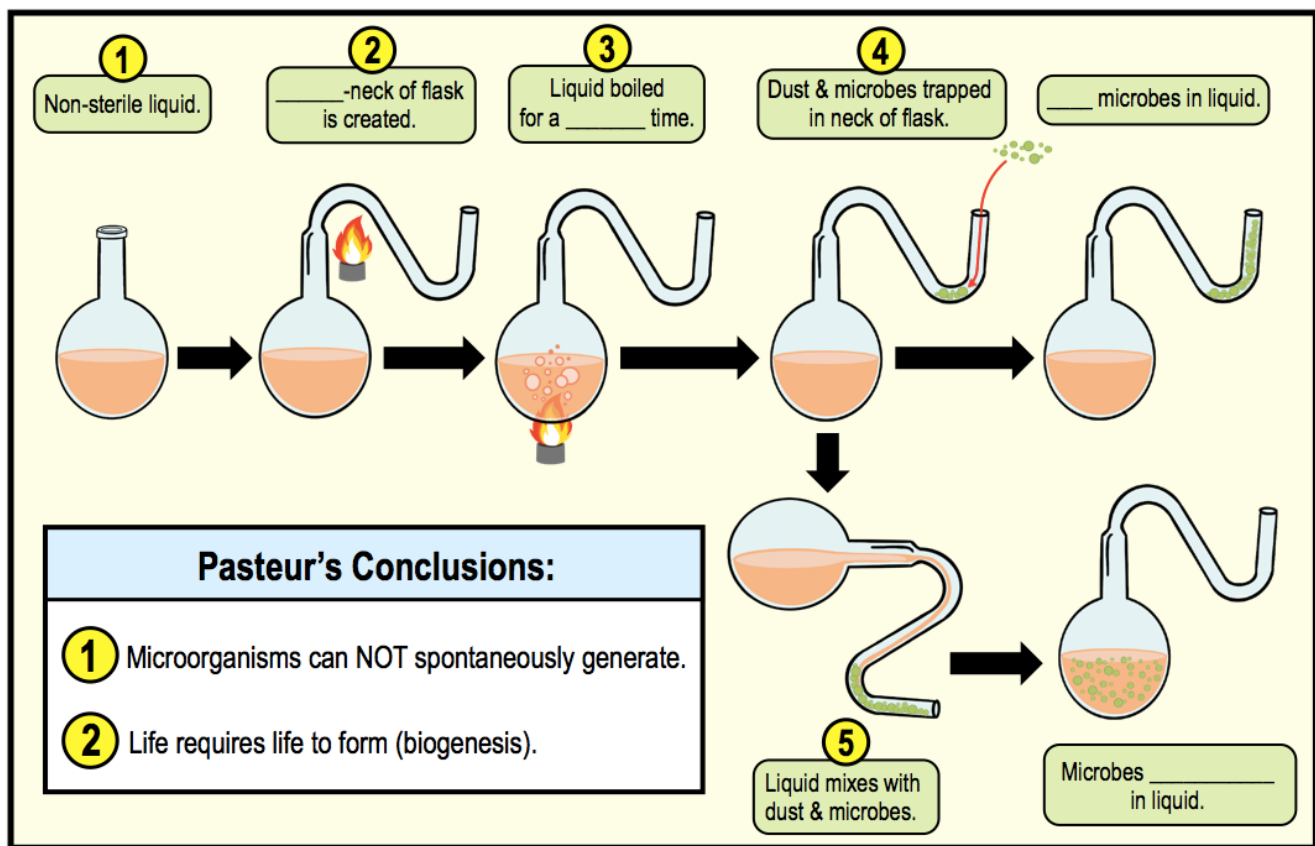
## CONCEPT: PASTEUR'S EXPERIMENTS ON SPONTANEOUS GENERATION

### Pasteur's Swan-Neck Experiment

● Pasteur's experiment consisted of the following 5 steps:

- ① Flask is filled with a \_\_\_\_\_-sterile liquid broth.
- ② \_\_\_\_\_-neck of the flask is formed with heat.
- ③ Broth is \_\_\_\_\_ by extensive heating.
- ④ As the flask cools, dust & microbes from the air get \_\_\_\_\_ in the bend of the Swan-neck.  
☐ Broth remained sterile \_\_\_\_\_ or until step ⑤.
- ⑤ \_\_\_\_\_ the flask mixes trapped microbes with the sterile broth & microbial growth is observed.

**EXAMPLE:** The steps of Pasteur's swan-neck experiment which ended the controversy of spontaneous generation.



**PRACTICE:** Which of the following is not a valid conclusion and/or outcome of Pasteur's experiment refuting the theory of spontaneous generation?

- a) That microorganisms are present everywhere, even in the air.
- b) The development of aseptic techniques when working with microbial cultures.
- c) Microorganisms can cause disease.

Living cells can only develop from pre-existing cells.