

SC.912.L.18.1 – Macromolecules – Example 1 Answer

As food travels through the digestive system, it is exposed to a variety of pH levels. The stomach has a pH of 2 due to the presence of hydrochloride acid (HCl), and the small intestine has a pH ranging from 7 to 9. HCl converts pepsinogen into pepsin, an enzyme that digests proteins in the stomach. Which of the following most likely happens to pepsin as it enters the small intestine?

- A. It becomes inactive.**
- B. It begins to replicate.**
- C. It's shape changes to engulf large proteins.**
- D. It's activity increases to digest more proteins.**

Answer

- A. It becomes inactive.

Enzymes have an ideal pH, at which they best function. Many enzymes cannot function at all outside their ideal pH range. Pepsin functions best in the extreme acid environment of the stomach and will, therefore cease to function in the much higher pH of the small intestine.