

Set 2. Life Sciences: *Specialized Structures*

Respiration – using oxygen to release energy from food.

“Respiration” here is really about “cellular respiration” and the oxidation of food, which is to say releasing energy. Respiration happens in the cells. That’s a hard concept to get across since we use “respiration” (inaccurately from a science point of view) all the time as synonymous with “breathing”.

Breathing – taking in oxygen for use in respiration and getting rid of carbon dioxide as a waste product.

“Breathing” here is self-explanatory. It is specifically included to show the difference between “breathing” and “respiration”.

Digestion – breaking down food into the materials that a body can use.

“Digestion” will be addressed on a broader sense than the students may think of it. Digestion happens throughout the digestive system, not just in the stomach as the commercials would lead them to believe.

Specialized structures – structures made for a specific purpose.

“Specialized structures” is included here because this is the essence of Standard Set 2. Plants and animals have structures to perform life functions and they are specialized for that purpose.

Background Information

One of the important overriding concepts in physiology, and in all science, is that of systems. We have small systems and large systems but they are all made of components that operate together. In the body, they operate together to help the organism live and thrive. Thrive may be a difficult concept to get across to the students. Throughout the section terms like “live and grow” or “live and be healthy” crop up so they begin to understand the notion of “thrive”.



The sequence of sub-sections in the standard set is:

- Circulation-respiration (sometimes called cardio-vascular) system.
- Digestion.
- Excretion.