I. Digestive System
   A. Food must be broken down into nutrients in a process called digestion.
      1. The breaking down of food into simpler substances for use by the body is the job of the digestive system.
      2. The digestive system is a coiled, muscular tube (6-9 meters long) beginning with the mouth and ending with the anus.

II. Digestion
   A. Digestion is the process by which food is converted into soluble forms.
III. Forms of Digestion

<table>
<thead>
<tr>
<th>Physical Digestion</th>
<th>Chemical Digestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. mechanical breakdown of food into smaller particles</td>
<td>1. chemical breakdown of food by enzymes</td>
</tr>
<tr>
<td>2. begins in mouth by chewing</td>
<td>2. begins in mouth with saliva</td>
</tr>
<tr>
<td>3. increases surface area of food</td>
<td>3. mostly occurs in small intestine</td>
</tr>
</tbody>
</table>

IV. Stages of Digestion

| 1 | movement | propels food through system |
| 2 | secretion | release of digestive juices |
| 3 | diaeston | breakdown of food into molecular sizes |
| 4 | absorption | food molecules passing through intestinal walls |
| 5 | elimination | removal of undigested food |
V. Primary Digestive Organs

A. Peristalsis

Peristalsis is a series of involuntary muscular contractions in the esophagus that squeeze the food down to the stomach.

Esophagus - transports food to stomach through the process of peristalsis.

Stomach - muscular organ that stores, mixes, digests and controls passage of food.

Teeth, mouth, tongue begin the mechanical breakdown of food.
small intestines - coiled tube from 3 - 6m long, the major site for digestion and absorption of nutrients; contains villi

large intestines - 1.5 m long tube, absorbs water from undigested material

anus - opening for removal of feces

VI. Accessory Digestive Organs

salivary glands - secrete a chemical (enzyme) that breaks down starch into glucose

liver - produces bile, which helps break down fats in small intestines

gall bladder - stores bile

pancreas - secretes enzymes that break down starches and proteins
The accessory digestive organs are connected to stomach by ducts.

VII. Digestive Disorders
   A. Ulcers - spot in stomach lining where cells are destroyed, lining unprotected, irritated by stomach acid
   B. Gastritis swelling of stomach lining, caused by irritating foods, alcohol, or bacteria
   C. Acid Reflux - "back washing" of acid from the stomach into the esophagus; also called heartburn