**Structure**

- **Ingestion**
  - Headgut
  - Foregut
  - Midgut

**Function**

- **Receiving**
- **Conducting**
- **Storage**
- **Digestion** (Acidic secretions)
- **Absorption → Assimilation** (Basic secretions)

- **Storage of waste**
- **Defecation**
In the rabbit, the greatly enlarged cecum, a blind-ended side-compartment at the junction of the midgut and hindgut, is the principal fermentation chamber.
After food is digested within a cell, the useful digestion products enter the blood...

Intracellular digestion in an epithelial cell of a digestive diverticulum

Lumen of digestive diverticulum

Epithelium of digestive diverticulum

Blood

...and the waste particles are returned to the lumen of the diverticulum for ultimate defecation.

Certain ciliary tracts bring food particles into each digestive diverticulum, whereas other ciliary tracts carry waste particles out of the diverticulum.
In crustaceans, the cuticle of the anterior stomach chamber sometimes bears ridges or teeth, used in the gastric mill.

The cuticle of the posterior stomach chamber bears fine cuticular bristles (setae) that strain materials on their way to the midgut.

The tan-colored lining in the foregut and hindgut symbolizes that those parts of the digestive system are lined with cuticle (continuous with the integumentary cuticle).
Alfalfa 100% 
(20000 kJ d⁻¹)

Methane 5% (1000 kJ d⁻¹)

Heat of fermentation 3% (700 kJ d⁻¹)

Volatile fatty acids 33% (6700 kJ d⁻¹)

Microbial growth 18%

Abomasum + small intestine absorption 18% (3700 kJ d⁻¹)

Feces 41% (8400 kJ)
<table>
<thead>
<tr>
<th>Region</th>
<th>Secretion</th>
<th>Daily amount (L)</th>
<th>pH</th>
<th>Composition*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buccal cavity</td>
<td>Saliva</td>
<td>1+</td>
<td>6.5</td>
<td>Amylase, bicarbonate</td>
</tr>
<tr>
<td>Esophagus</td>
<td>Gastric juice</td>
<td>1–3</td>
<td>1.5</td>
<td>Pepsinogen, HCl, rennin in infants, intrinsic factor</td>
</tr>
<tr>
<td>Stomach</td>
<td>Pancreatic juice</td>
<td>1</td>
<td>7–8</td>
<td>Trypsinogen, chymotrypsinogen, carboxy- and aminopeptidase, lipase, amylase, maltase, nucleases, bicarbonate</td>
</tr>
<tr>
<td>Pancreas</td>
<td>Bile</td>
<td>1</td>
<td>7–8</td>
<td>Fats and fatty acids, bile salts and pigments, cholesterol</td>
</tr>
<tr>
<td>Gall-bladder</td>
<td>Succus entericus</td>
<td>1</td>
<td>7–8</td>
<td>Enterokinase, carboxy- and aminopeptidases, maltase, lactase, sucrase, lipase, nucleases</td>
</tr>
</tbody>
</table>

*Excluding mucus and water, which together make up some 95% of the actual secretion.
B. Na⁺ and H₂O absorption in the gut (model)

1. Na⁺ accumulates between cells
2. H₂O follows, and the pressure rises
3. H₂O and Na⁺ flow to base of cell and blood