

Build It Then Break It

Digestive map activity packet

A short team challenge that turns digestive anatomy and function into a hands-on lecture activity.



5 to 7 minutes | Teams of 3 to 4 | Tabletop or whiteboard

Build the pathway, match the functions, then change the map for a scenario. A neighboring team earns points by explaining a correction or defending an accurate placement.

Prepare your team kits

Print pages 4 to 6 for each team. Print page 7 once per four teams. Cut the cards before class and add sticky notes, a pen, and an envelope.

Instructor setup and timing are on pages 2 to 3. Answer keys and references are on pages 8 to 11.

Set up the activity

A 5 to 7 minute team challenge for a nursing lecture. Students build the digestive pathway, connect structure with function, and then change their map to explain one condition.

Learning targets

Trace the route of swallowed contents. Locate five digestive functions. Explain how a change in anatomy, flow, or the exit route affects the patient. Defend a placement or correct it with a reason.

Prepare before class

1. Make teams of 3 to 4 students. Pair each team with a neighboring team for the challenge. Students stay at their seats.
2. Print pages 4 to 6 once per team. Print page 7 once per four teams; each team receives only one scenario card. Use single-sided printing at 100% size. Color is optional.
3. Cut along the card borders. Place the 8 organ cards, 5 function cards, 12 arrows, and 4 map markers in an envelope. Keep the spare function card available for overlapping functions.
4. Add 3 sticky notes and a pen per team. Provide a clear tabletop or sheet of paper for the map. For a whiteboard, use magnets or removable tape.
5. Assign one scenario per team and keep it face down until the break phase. Prepare a visible timer. Keep pages 8 to 11 for the instructor.

Roles and materials

Builder places organs. Function matcher places function cards. Explainer speaks for the team. Checker tracks arrows and prepares the challenge. With three students, combine the checker and explainer roles.

One team kit: 8 organs + 5 functions + 12 arrows + 4 markers + 1 scenario + 3 sticky notes + pen. No devices or clinical equipment are required.

Print guide

Pages	Use
2 to 3	Instructor setup, script, timing, and scoring
4 to 6	One cutout kit for each team
7	Four scenario cards; distribute one per team
8 to 10	Instructor answer key and challenge examples
11	Debrief and clinical references

Run the game

One round uses one scenario per team and takes 6 minutes 30 seconds.

Time	Phase	Instructor cue
0:00 to 0:30	Launch	Assign roles and explain the goal.
0:30 to 2:00	Build	Order all 8 organs and connect them with arrows.
2:00 to 3:00	Match	Place 5 functions, LES, and diaphragm. Show overlap.
3:00 to 4:30	Break	Reveal one scenario. Change the map and explain it.
4:30 to 5:30	Challenge	Neighboring teams review each other simultaneously.
5:30 to 6:30	Debrief	Reveal the key and correct one misconception.

Read aloud at launch

"Build the pathway that swallowed contents follow. Add the five function cards. A function can belong to more than one organ: bridge the card across sites or repeat its name on a sticky note. When I say break it, open your scenario and change the map. Be ready to explain what changed, what function is affected, and what you would assess."

Challenge rule

Each team gets 30 seconds to challenge one organ, function, marker, or arrow on its neighbor's map. Say: "We challenge ____ because _____. We would change it to _____." The other team accepts or defends with a reason. Review simultaneously in pairs. Do not invent an error if the map is correct.

If no error is found, give an accurate defense: "We agree with ____ because _____." This earns the same points. The instructor settles disputed answers using the key. A different but accurate placement earns credit.

Score out of ten

Phase	Points	Award criteria
Build	4	2: all organs in sequence with forward arrows. 2: all five functions accurately placed, including overlap when explained.
Break	4	1 each: correct location, accurate map change, effect on function, relevant assessment or symptom.
Challenge	2	1: specific correction or accurate defense. 1: clear clinical reason.

Team name _____ Build ____/4 Break ____/4 Challenge ____/2 Total ____/10

Teams self-score after the reveal. No speed bonus. If tied, share the win or ask both teams to explain the same function in one clear sentence.

Five minute option

Launch 15 sec; build 60 sec; match 45 sec; break 60 sec; challenge 60 sec; debrief 60 sec. Pre-distribute open kits to avoid using game time for setup.

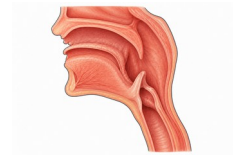
Organ cards

Print one page per team. Cut along the borders. Shuffle before play.



ORGAN

Mouth



ORGAN

Pharynx

Throat



ORGAN

Esophagus



ORGAN

Stomach



ORGAN

Small intestine

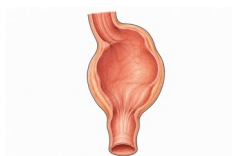
Duodenum, jejunum, ileum



ORGAN

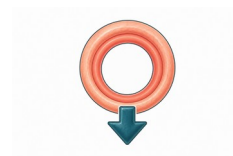
Colon

Large intestine segment



ORGAN

Rectum



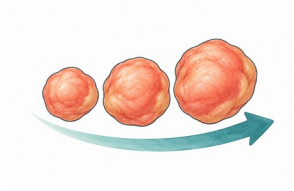
ORGAN

Anus

The card labels identify structures, not placement order. The colon card represents the colonic segment; the rectum is a separate card for this activity.

Function cards

Print one page per team. Cut along the borders. More than one site may be correct.



FUNCTION

Propulsion

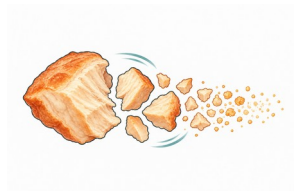
Move contents along the digestive tract.



FUNCTION

Acid production

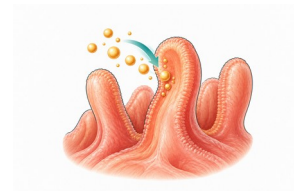
Secrete gastric acid.



FUNCTION

Digestion

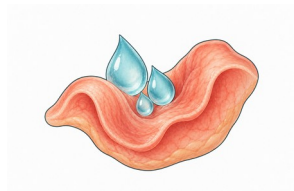
Break food into smaller components.



FUNCTION

Nutrient absorption

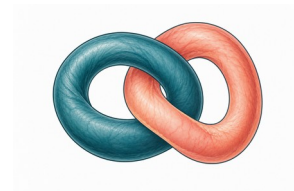
Move digested nutrients into the body.



FUNCTION

Water absorption

Move water from the GI tract into the body.



SPARE

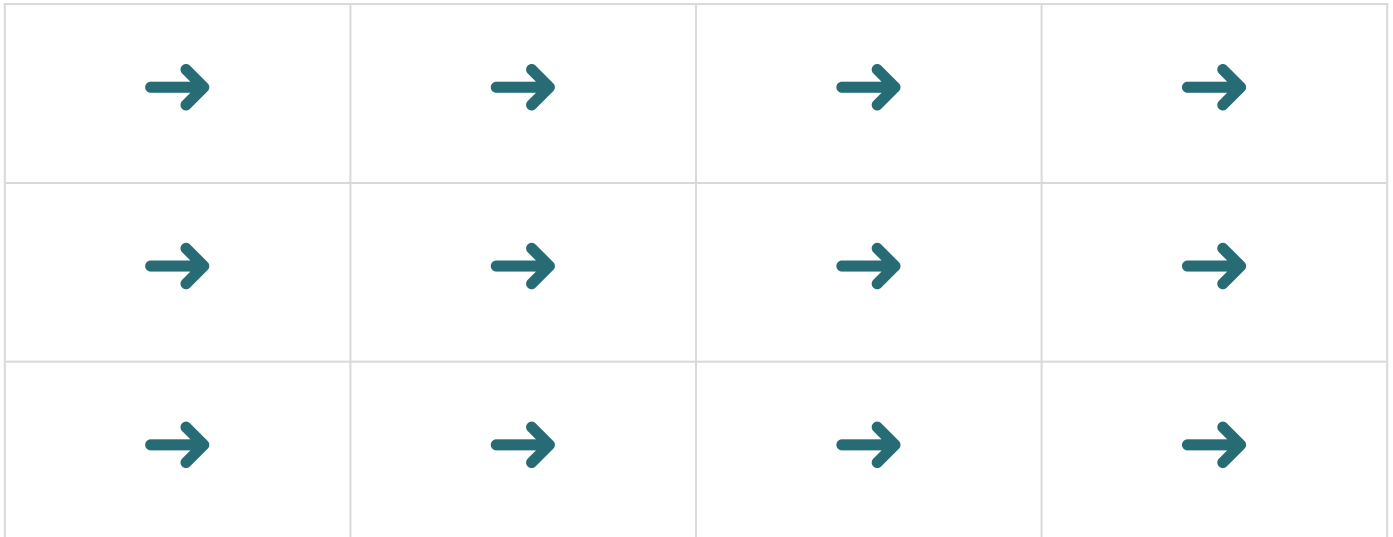
Shared function

Write a function name here to show a second location.

Use sticky notes or the spare card when a function applies to several organs. Be ready to explain your choices.

Arrows and map markers

Print one page per team. Cut along all borders. Rotate arrows to match the map.



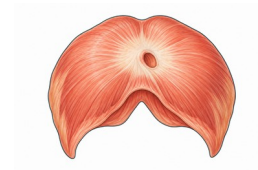
12 arrows: use 7 for the normal route and keep 5 for scenario changes.



MAP MARKER

LES

Lower esophageal sphincter
Place at the esophagus and stomach junction.



MAP MARKER

Diaphragm

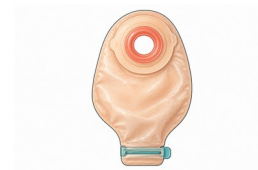
Chest above | Abdomen below
The esophagus passes through its opening.



MAP MARKER

BLOCK

Place where contents cannot pass.



MAP MARKER

Stoma and pouch

Show an abdominal exit into a collection pouch.

For the diaphragm, draw a boundary on paper or use a strip of tape. Place the marker beside it. The map represents relationships rather than exact body proportions.

Break it scenario cards

Print once per four teams. Cut into four cards. Give each team one card face down.



SCENARIO A

Hiatal hernia

MODEL: Sliding hiatal hernia.

Show the upper stomach and its junction with the esophagus moving above the diaphragm boundary.

Explain one function that may be affected and one symptom you would ask about.



SCENARIO B

Reflux

MODEL: Stomach contents moving back into the esophagus.

Change the arrows and identify the barrier involved.

Explain why this affects the patient and one symptom you would ask about.



SCENARIO C

Intestinal obstruction

MODEL: Complete mechanical blockage near the distal small intestine.

Place the BLOCK marker and show what happens to forward flow.

Explain the effect on propulsion and one assessment priority.



SCENARIO D

Colostomy

MODEL: End colostomy from the descending colon. Small intestine is intact; bowel beyond the stoma is bypassed or removed.

Create the new route to the pouch.

Explain one function that continues and one assessment priority.

All scenarios are fictional teaching models. A colostomy is a surgically created diversion; the game title refers to changing the normal map.

Normal map answer key

Instructor only. Reveal after teams finish the challenge.

Correct pathway

**Mouth → Pharynx → Esophagus → Stomach
→ Small intestine → Colon → Rectum → Anus**

Put an arrow between each pair, pointing toward the next structure. The LES marker sits at the esophagus and stomach junction. For the normal model, place the stomach below the diaphragm boundary. [1, 2]

Acceptable function placements

Function	Placement and explanation
Propulsion	Esophagus, stomach, small intestine, and colon. Swallowing also moves contents through the mouth and pharynx. Accept a card spanning the route with an accurate explanation.
Acid production	Stomach.
Digestion	Mouth, stomach, and small intestine. Both mechanical and chemical processes contribute.
Nutrient absorption	Small intestine is the principal site for digested nutrients.
Water absorption	Small intestine AND colon. Do not teach that water absorption occurs only in the colon.

Function key supported by sources 1 and 2. Each organ can perform several functions; the five labels are not exclusive assignments.

Useful clarifications

Rectum: stores stool before elimination. Anus: provides the exit and continence control. These functions are part of the pathway, although they are not included among the five matching cards.

The liver, gallbladder, pancreas, and salivary glands contribute secretions. They do not belong in the route taken by swallowed food. For this short round, they are discussed rather than added as cards. [1]

Fair scoring

Award the 2 function points when all five labels are accurate and the team can explain overlap. Award 1 when three or four labels are accurate. Award 0 when two or fewer are accurate. A correct function label does not become wrong because another site also performs it.

For pathway points, award 2 for all eight cards and seven forward connections. Award 1 for a single sequencing or arrow error. Award 0 for multiple errors. These are game scoring rules, not competency pass criteria.

Hiatal hernia and reflux key

Instructor only. Look for a visible map change and an accurate explanation.

Scenario A Sliding hiatal hernia

Location and map change: move the upper part of the stomach and gastroesophageal junction above the diaphragm boundary. Keep the sequence of organs intact. The change is in position. [3]

Effect: the anti-reflux barrier may be less effective, increasing the chance of reflux. Ask about heartburn or regurgitation. A hernia does not mean reflux is always present. [3]

Full-credit model response: "The upper stomach has moved through the diaphragm opening. Contents still follow the same pathway, but reflux may occur more easily. I would ask about regurgitation."

Common correction: the entire stomach does not need to move into the chest. This card specifies a sliding hernia; do not apply its junction movement to every hernia type.

Scenario B Reflux

Location and map change: place an extra arrow from the stomach toward the esophagus across the LES. Leave the ordinary forward pathway available. Reflux represents backflow; it does not reverse all digestion. [3]

Effect: stomach contents enter the esophagus and can irritate its lining. Ask about heartburn or regurgitation. The LES and diaphragm normally help resist this backflow. [3]

Full-credit model response: "This arrow shows stomach contents moving back into the esophagus across the lower esophageal sphincter. I would ask about a sour taste or regurgitation."

Common correction: reflux is not simply a card for excess acid production. The essential change in this scenario is the direction of flow.

Challenge examples

"We challenge placing acid production on the esophagus. Gastric acid is produced in the stomach; the esophagus is exposed to it during reflux."

"We agree with keeping the organ order after the hernia change. The stomach position changed, while the connected pathway stayed in sequence."

Quick distinction for the reveal

Hiatal hernia: a change in position. Reflux: a change in flow direction. A hiatal hernia can increase reflux risk, but these are different concepts. [3]

Obstruction and colostomy key

Instructor only. Accept clinically accurate explanations that match the specified model.

Scenario C Complete mechanical obstruction

Location and map change: place BLOCK near the end of the small intestine card. Stop the forward route at that point. Label the upstream side "contents collect here." [4]

Effect: contents cannot pass the blocked site even if the bowel continues trying to propel them. Assess abdominal distention, pain, vomiting, and passage of stool or flatus. [4]

Full-credit model response: "This distal small-bowel blockage prevents passage. Contents collect upstream, so I would assess distention, vomiting, and pain."

Common correction: this card is a mechanical blockage, not absent motility. Passing stool early does not automatically exclude an obstruction; do not require one finding as universal.

Scenario D End descending colostomy

Location and map change: label the colon card "descending colostomy." Redirect the route from that colon segment to the stoma and pouch. Cross out the stool-flow arrow to the rectum; leave downstream cards aside or mark them "bypassed or removed." [5]

Effect: stool exits through the abdominal stoma. With the small intestine intact, nutrient absorption continues. Remaining upstream colon can still absorb water; output consistency depends on the amount of functional colon. [1, 5, 6]

Assess stoma appearance, peristomal skin, output, and pouch seal. [6]

Full-credit model response: "The colon now empties into a pouch through the stoma. Small-intestinal nutrient absorption continues. I would assess the stoma and surrounding skin."

Common correction: a colostomy comes from the colon, not the small intestine. Do not remove the nutrient absorption label solely because the patient has a colostomy.

Challenge examples

"We challenge placing BLOCK at the anus. This scenario specifies a distal small-intestinal blockage."

"We challenge connecting the pouch to the small intestine. That would model an ileostomy; this card specifies a descending colostomy."

"We agree with keeping water absorption on the remaining colon because the segment before the stoma can still perform that function."

Debrief and references

Instructor resource. Choose one prompt for the one minute debrief.

Questions that connect the game to nursing

1. Which function belongs to more than one location?
2. Did your scenario change position, direction of flow, passage, or exit route?
3. What is one assessment finding that follows from that change?

Read aloud to close

"The normal pathway tells us where contents travel. The function labels tell us what each region contributes. Your scenario changed one part of that model. Explain the change first, then connect it to the patient assessment."

Keep it within a lecture

Use a shared map for students with small desks: two neighboring teams build one map and take turns explaining. For a large class, show the key on screen and let teams self-score. If a team finishes early, have it explain a shared function rather than begin another scenario.

Clinical sources

Numbers in the instructor key refer to the resources below. The game prompts, timing, and scoring are educator-designed. The packet teaches anatomy and function; clinical procedures follow course guidance and local policy.

1. NIDDK. Your Digestive System and How It Works.

<https://www.niddk.nih.gov/health-information/digestive-diseases/digestive-system-how-it-works>

2. OpenStax. Anatomy and Physiology 2e. Digestive System Processes and Regulation.

<https://openstax.org/books/anatomy-and-physiology-2e/pages/23-2-digestive-system-processes-and-regulation>

3. NIDDK. Symptoms and Causes of GER and GERD.

<https://www.niddk.nih.gov/health-information/digestive-diseases/acid-reflux-ger-gerd-adults/symptoms-causes>

4. MedlinePlus. Intestinal Obstruction and Ileus.

<https://medlineplus.gov/ency/article/000260.htm>

5. NIDDK. Types of Ostomy Surgery of the Bowel.

<https://www.niddk.nih.gov/health-information/digestive-diseases/ostomy-surgery-bowel/types>

6. Mayo Clinic. Colostomy Surgery Bags and Stoma Care.

<https://www.mayoclinic.org/tests-procedures/colostomy/about/pac-20583139>