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| **TEXAS CTE LESSON PLAN**[www.txcte.org](http://www.txcte.org) |
| **Lesson Identification and TEKS Addressed** |
| **Career Cluster** | Health Science |
| **Course Name** | Medical Terminology |
| **Lesson/Unit Title** | Let’s Eat! – The Gastrointestinal System/The Digestive System  |
| **TEKS Student Expectations** | **130.223. (c) Knowledge and Skills**(2) The student recognizes the terminology related to the health science industry. (A) The student is expected to identify abbreviations, acronyms, and symbols related to the health science industry(C) The student is expected to practice word-building skills(F) The student is expected to define and accurately spell occupationally specific terms such as those relating to the body systems, surgical and diagnostic procedures, diseases, and treatment(3) The student demonstrates communication skills using the terminology applicable to the health science industry. (A) The student is expected to demonstrate appropriate verbal and written strategies such as correct pronunciation of medical terms and spelling in a variety of health science scenarios(B) The student is expected to employ increasingly precise language to communicate(C) The student is expected to translate technical material related to the health science industry(4) The student examines available resources. (A) The student is expected to examine medical and dental dictionaries and multimedia resources(B) The student is expected to integrate resources to interpret technical materials(C) The student is expected to investigate electronic media with appropriate supervision(5) The student interprets medical abbreviations. (A) The student is expected to distinguish medical abbreviations used throughout the health science industry(B)The student is expected to translate medical abbreviations in simulated technical material such as physician progress notes, radiological reports, and laboratory reports |
| **Basic Direct Teach Lesson**(Includes Special Education Modifications/Accommodations and one English Language Proficiency Standards (ELPS) Strategy) |
| **Instructional Objectives** | Upon completion of this lesson, the learner should be able to:* Define and decipher common terms associated with the digestive system
* Identify the basic anatomy of the digestive system
* Analyze unfamiliar terms using the knowledge of word roots, suffixes and prefixes gained in the course
* Research diseases which involve the digestive system
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| **Rationale** | Healthcare professionals must have a comprehensive medical vocabulary in order to communicate effectively with other health professionals. They should be able to use the terminology of the gastrointestinal system to discuss common conditions and diseases. |
| **Duration of Lesson** | Teacher’s Discretion |
| **Word Wall/Key Vocabulary***(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)* | Refer content of “Direct Instruction” below. |
| **Materials/Specialized Equipment Needed** | * Medical Terminology book
* List of gastrointestinal terms
* Pathway of food through the body
* Index cards
* Markers
* Data projector
* Computer
* Internet access
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| **Anticipatory Set**(May include pre-assessment for prior knowledge) | Have students measure 23 feet on your classroom floor or in the hallway - this is the approximate length of the intestinal tract. Ask if they can name any of the organs or body parts that make up the 23 feet. |
| **Direct Instruction \*** | 1. Gastrointestinal System
	1. “GI” system
	2. Alimentary or digestive tract
	3. Begins at the mouth and ends at the anus
2. Functions
	1. Carrying food for digestion
	2. Preparing food for absorption
	3. Transporting waste products for elimination
3. The Journey

A. Digestion begins in the mouth* + 1. Food is put in the mouth
		2. It is broken down mechanically and chemically
			1. Chewing (***mastication***)
			2. Digestive enzymes help speed up the chemical reaction
			3. Proteins break down into amino acids, complex sugars are reduced to simple sugars, and large fat molecules are broken down into ***fatty acids*** and ***triglycerides***
		3. Absorption
			1. Takes place when digested food is absorbed into the blood stream
			2. It goes through the walls of the small intestine
			3. Fatty acids and triglycerides are absorbed through the wall of the small intestine
		4. Elimination
			1. Solid waste materials that cannot be absorbed into the bloodstream are passed out of the body
			2. Feces collects in the large bowel and exits through the anus
1. Mouth
	1. Oral cavity
	2. Lips provide the opening
	3. Cheeks form the walls
	4. ***Hard palate*** – roof of the mouth
	5. Muscular ***soft palate***
		1. Lies posterior to the hard palate
		2. Separates the mouth from the throat
	6. ***Pharynx*** – the throat
	7. ***Rugae***
		1. Irregular ridges in the mucous membranes
		2. Cover the anterior portion of the hard palate
	8. ***Uvula***
		1. Hangs from the soft palate
		2. Means “little grape”
		3. Aid the production of sounds and speech
	9. ***Tongue***
		1. Extends across the floor of the oral cavity
		2. Attached by muscles to the lower jaw
		3. Moves food around during chewing (***mastication***) and swallowing (***deglutition***)
	10. ***Tonsils***
		1. Masses of lymphatic tissue
		2. Located in depressions of the mucous membranes in the walls of the pharynx
		3. Act as filters to protect the body from the invasion of germs
		4. Produce ***lymphocytes*** (white blood cells which fight disease)
	11. ***Gums***
		1. Made of fleshy tissue
		2. Surround the sockets in which the teeth are found
	12. ***Teeth***
		1. 32 permanent teeth in the entire oral cavity - incisors, canines, premolars/molars, cuspids/bicuspids
		2. Structure of a tooth:
			1. Crown – above the gum
			2. Root – fits into the socket of the alveolar process of either the upper or lower jaw
			3. Enamel
				1. Outermost protective layer of the crown
				2. Dense, hard, white substance
				3. The hardest substance in the body
			4. Dentin
				1. Layer underneath the enamel
				2. Extends throughout the crown
				3. The main bulk of the tooth
				4. Yellowish in color
				5. Composed of body tissue which is softer than enamel
			5. Cementum
				1. Protective and supportive layer
				2. Covers the dentin in the root
			6. Periodontal membrane
				1. Surrounds the cementum
				2. Holds the tooth in place in the tooth socket
			7. Pulp
				1. Delicate layer in the center of the tooth
				2. Underneath the dentin
				3. Also called the ***root canal***
				4. Contains blood vessels, nerve endings, connective tissue, and lymph vessels
	13. Three pairs of salivary glands
		1. Produce a fluid called saliva which contains digestive enzymes
		2. Parotid gland, submandibular, and sublingual glands all produce saliva
2. Pharynx
	1. Throat
	2. Food passes from the mouth to the pharynx
	3. Muscular tube lined with a mucous membrane
	4. Common passageway for air and food
	5. Epiglottis covers the opening to the larynx and prevents food from entering the windpipe (trachea) during swallowing
3. Esophagus
	1. 9 -10-inch muscular tube
	2. Extends from the pharynx to the stomach
	3. Aids in swallowing
	4. Peristalsis – involuntary, progressive, wavelike contraction which moves food along the alimentary tract
4. Stomach
	1. Composed of
		1. Fundus – top portion
		2. Body – middle portion
		3. Antrum – lower portion
	2. Openings into and from the stomach are controlled by sphincters
		1. Cardiac sphincter
			1. Relaxes and contracts to move food from the esophagus into the stomach
			2. Found at the top of the stomach, where the esophagus meets the stomach
		2. Pyloric sphincter
			1. Allows food to leave the stomach when it has been sufficiently digested
			2. Found at the end of the stomach
	3. Rugae
		1. Line the stomach
		2. Irregular ridges in the mucous membranes
5. Small intestine
	1. Extends from the pyloric sphincter to the first part of the large intestine
	2. 20 feet long
	3. Lined with ***villi***
		1. Tiny microscopic projections
		2. Completely digested nutrients pass through the tiny capillaries of the villi and enter the blood stream
	4. Three parts
		1. Duodenum
			1. 1 foot long
			2. Duodenum is from the Latin word *duodeni* meaning “twelve inch”
			3. Receives food from the stomach
			4. Receives bile from the liver and gallbladder
			5. Receives pancreatic juice from the pancreas
			6. Enzymes and bile help digest food
		2. Jejunum
			1. 8 feet long
			2. Connects with the 3rd section of the small intestine
			3. Jejunum is from the Latin *jejunas* meaning “empty”
		3. Ileum
			1. 11 feet long
			2. Attached to the first part of the large intestine
			3. Ileum is from the Greek *cilein* meaning “to roll”
6. Large Intestine
	1. Extends from the ileum to the anus
	2. Four parts
		1. Cecum
			1. A pouch on the right side which is connected to the ileum by the ***ileocecal sphincter***
			2. Vermiform appendix hangs from the cecum
				1. ***Appendix***
				2. Only causes a problem when infected
		2. Colon
			1. 5 feet long
			2. 3 divisions
				1. Ascending colon – extends from the cecum to the undersurface of the liver
				2. Transverse colon –passes horizontally to the left toward the spleen, and then turns downward
				3. Descending colon – the downward portion of the colon
		3. Sigmoid colon
			1. S-shaped
			2. Distal end of the descending colon
			3. Leads into the rectum
		4. Rectum
			1. Terminates in the lower opening of the gastrointestinal tract
			2. Anus – opening to the outside world (the “exit”)
7. Liver
	1. Food does not pass through the liver
	2. Located in the right upper quadrant (RUQ) of the abdomen
	3. Manufactures bile
	4. Bile
		1. Has a detergent-like effect on fats in the duodenum
		2. It breaks apart large fat globules so that enzymes from the pancreas can digest the fats – this is called ***emulsification***
		3. Contains
			1. cholesterol
			2. Bile acids
			3. Bilirubin – a waste
		4. Product of hemoglobin destruction
		5. Continuously release from the liver
		6. Travels down the hepatic duct to the cystic duct, which leads to the gallbladder
	5. Combines bilirubin with bile and both are secreted into the duodenum, eventually to leave the body as feces
	6. Functions
		1. Keeps the amount of glucose in the blood at a normal level
		2. Removes excess glucose from the bloodstream and stores it as glycogen (starch) – this is called ***glycogenesis***
		3. When the blood sugar level is low, it converts the glycogen into glucose
		4. Converts proteins and fats into glucose – this is called ***gluconeogenesis***
		5. Manufactures some blood proteins
		6. Destruction of old erythrocytes and release of bilirubin
		7. Removal of poisons from the blood
8. Gallbladder
	1. Pear-shaped sac under the liver
	2. Stores and concentrates the bile for later use
9. Pancreas
	1. An exocrine gland
	2. Produces pancreatic juices filled with enzymes (amylase and lipase) to digest food
	3. An endocrine gland – secreting into the bloodstream
	4. Secretes insulin
		1. Insulin is needed to help release sugar from the blood to be used by the cells of the body
10. Gastrointestinal root words
11. Common Gastrointestinal prefixes and suffixes
12. Common Gastrointestinal Conditions
13. Gastrointestinal Disease and Pathology
14. Radiology and Diagnostic Testing
15. Common Surgeries and Procedures
	1. Surgical excisions or removals
		1. Abdominoperineal resection – surgical excision of the colon and rectum, by both the abdominal and perineal approach
		2. Appendectomy – surgical excision of the appendix
		3. Cholecystectomy – excision of the gallbladder
		4. Colectomy – excision of the colon or part of the colon
		5. Gastrectomy – surgical excision of the stomach
		6. Polypectomy – excision of a polyp
		7. Uvulectomy – excision of the uvula
	2. Surgical repairs
		1. Anoplasty – repair of the anus
		2. Anastomosis – surgical connection between two normally
	3. Creations of artificial openings
		1. Colostomy – artificial opening into the colon through the abdominal wall
		2. Gastrojejunostomy – artificial opening between the stomach and jejunum
		3. Gastrostomy – artificial opening into the stomach through the abdominal wall; this is a feeding method used when swallowing is not possible
		4. Herniorrhaphy – surgical repair of a hernia by means of a suturing operation
		5. Ileostomy – creation of an artificial opening into the ileum through the abdominal wall for the passage of feces
		6. Jejunostomy – creation of an artificial opening in the jejunum
16. Gastrointestinal Pharmacology
17. Common Gastrointestinal Vocabulary
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| **Guided Practice \*** | Make flash cards of gastrointestinal terms and practice putting the terms together with prefixes and suffixes to make new terms.Review media terms with the students using review games such as the “Fly Swatter Game” or the “Flash Card Drill”  |
| **Independent Practice/Laboratory Experience/Differentiated Activities \*** | Complete the Gastrointestinal Medical Terminology WorksheetResearch and report on diseases and disorders from the gastrointestinal system |
| **Lesson Closure** |  |
| **Summative/End of Lesson Assessment \***  | Successful completion of the activities**Accommodations for Learning Differences** For reinforcement, the student will practice terms using flash cards related to the gastrointestinal system. |
| **References/Resources/****Teacher Preparation** |  |
| **Additional Required Components** |
| **English Language Proficiency Standards (ELPS) Strategies** |  |
| **College and Career Readiness Connection[[1]](#footnote-1)** |  |
| **Recommended Strategies** |
| **Reading Strategies** |  |
| **Quotes** |  |
| **Multimedia/Visual Strategy****Presentation Slides + One Additional Technology Connection** |  |
| **Graphic Organizers/Handout** |  |
| **Writing Strategies****Journal Entries + 1 Additional Writing Strategy** |  |
| **Communication****90 Second Speech Topics** |  |
| **Other Essential Lesson Components** |
| **Enrichment Activity**(e.g., homework assignment) | For enrichment, the students will research a disease or disorder related to the gastrointestinal system. Share findings with the class using a multimedia presentation. |
| **Family/Community Connection** |  |
| **CTSO connection(s)** | HOSA, SkillsUSA |
| **Service Learning Projects** |  |
| **Lesson Notes** |  |

1. Visit the Texas College and Career Readiness Standards at <http://www.thecb.state.tx.us/collegereadiness/CRS.pdf>, Texas Higher Education Coordinating Board (THECB), 2009. [↑](#footnote-ref-1)