

Final Project- Assignment

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OLTD 502

For my final project for this course, I have decided to discuss an online review assignment that I designed to use with my Biology 12 students. As the unit on the digestive system was coming to an end, I decided to move away from a traditional paper review package that I would do with my students and move towards an activity based review that incorporated online activities. In doing so, I was hoping to keep my students engaged by providing them with simulators, videos and interactive games to review their knowledge. I was also hoping to move away from a teacher centered class by having the computer play that role so that I could become more of a facilitator and be freed up to have student interactions.

The online review activity that I designed covered the three main learning outcomes that are required for this section of the course. The students need to know the parts and functions of the digestive system, how the enzymes throughout the digestive system are responsible for breaking down the food and then to describe how the four biological molecules are broken down and absorbed into the small intestines. To insure that the assignment stays focused, I incorporated Grant Wiggins' concept of Understanding by Design as to help guide me while creating the individual parts.

Each section of the review contains two parts; the instructions containing objectives and necessary links and then an accompanying handout that needs to be filled out as the student progresses through the sites. Students can work individually or in small groups depending on their needs. As the students complete each section, they are free to check in with me to confirm their understanding before they move on to the next section. Typically, assessment for this type of activity is given verbally as I travel from group to group and hold mini conferences with my students. I use this activity to help gauge the class' readiness for the final assessment and I ask the students to self-assess their own readiness for their summative assessment.

I used this review assignment for the first time in my class just two weeks ago. I found, overall, that it was quite successful. I noticed that my students were quite engaged with the activity and that the discussion in the groups was focused. The students enjoyed the simulator and commented how it pulled the whole unit together. It was interesting for them to watch the food being digested from the mouth and then all the way down into the small intestines. I enjoyed the freedom of walking around and conversing with my students for the class which is rare occasion in my face to face class.

There was very little that needed to be changed in this activity. I did, however, create the instructional page for each activity. I found that I was giving too many instructions and that it stopped the flow of the lesson. The students wanted to transition smoothly from section into the next without having to be pulled back as a class and given oral instructions. This review activity did accomplish the goals set out in the beginning; it was engaging and informative for my students while simultaneously allowing me to play the role of facilitator.

Bibliography

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2. Edutopia. (2013, November 19). Edutopia | K-12 Education Tips & Strategies That Work. *An Interview with Grant Wiggins: The Power of Backwards Design | Edutopia*. Retrieved November 25, 2014, from <http://www.edutopia.org/blog/interview-grant-wiggins-power-backwards-design-ben-johnson>
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5. Wiggins, G., & McTighe, J. (n.d.). Google. *Understanding by Design*. Retrieved November 25, 2014, from http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=15&ved=0CE4QFjAEOAo&url=http%3A%2F%2Fwebshare.northseattle.edu%2Ftlc%2Fdocs%2FArticle_Backward_Design.doc&ei=tfJwVL-

UbD Template 2.0 for Review of the Digestive System

By Kymberlee Toporowski

Stage 1 Desired Results	
<i>Transfer</i>	
<p><i>Students will be able to independently use their learning to... explain the digestive process of the 4 main food groups naming the parts and the process that occur as food enters the mouth and exits the anus</i></p>	
<i>Meaning</i>	
<p>UNDERSTANDINGS <i>Students will understand that...</i> the small intestines and the enzymes located therein are important to breakdown food</p>	<p>ESSENTIAL QUESTIONS How does the digestive process occur? What are the parts and functions of the digestive system? How are nutrients absorbed in the small intestines?</p>
<i>Acquisition</i>	
<p><i>Students will know...</i> the complete digestive process and the event that occur in each part of the digestive system</p>	<p><i>Students will be skilled at...</i> labeling and describing the roles of the different parts of the digestive system</p>
Stage 2 - Evidence	
Assessment Evidence	
<p>PERFORMANCE TASK(S): Completing a diagram of the parts and functions of the digestive system Describing the structure and function of the small intestine and how it's related to absorption Explain how the macromolecules are broken down by enzymes along the digestive track</p>	
<p>OTHER EVIDENCE: These outcomes will then be assessed on the unit end exam (summative assessment)</p>	
Stage 3 – Learning Plan	
<i>Summary of Key Learning Events and Instruction</i>	
<p>Students will complete three parts of the review</p> <ul style="list-style-type: none"> ○ Part 1 Parts and Functions-students fill in a labeled diagram and give the functions. Students then take a self-quiz on the parts of the digestive system ○ Part 2 Small intestines- While watching a video, students answer questions related to the structure, function and enzymes located in the small intestines ○ Part 3 Digestion of the four food groups- students use a simulation to watch what happens as 4 different food types (carbohydrates, lipids, proteins and fiber) pass through the digestive system while filling in a flowchart that summarizes the process 	

ESTABLISHED GOALS

- To label an image of the digestive system and explain the function of each part
- To discuss the structure and function of the small intestine and explain how macromolecules are broken down
- Using the 4 biological molecules, explain how they change into monomers using enzymes

Part A: Reviewing the parts and functions of the digestive system

A critical part of this unit is to know all the parts and functions of the digestive system as you travel from the mouth to the anus. To accomplish this task, please complete the following assignments.

Assignments

1. By now, you should be able to locate all the parts of the digestive system from a diagram and give the functions.

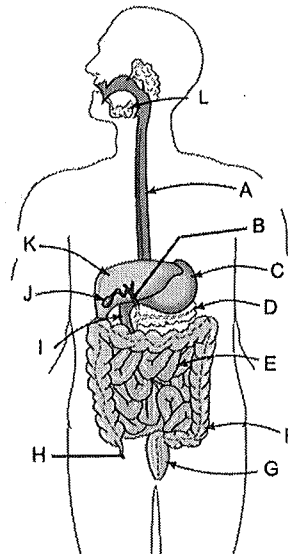
- Using the handout of the digestive system, fill in as many parts and functions from memory
- If you have any blanks remaining, you may surf the internet to find the remaining information
- Check with my once you are done to make sure your answers are correct

2. Take the online quiz at the following site:

http://www.sporcle.com/games/shapiror/digestive_system

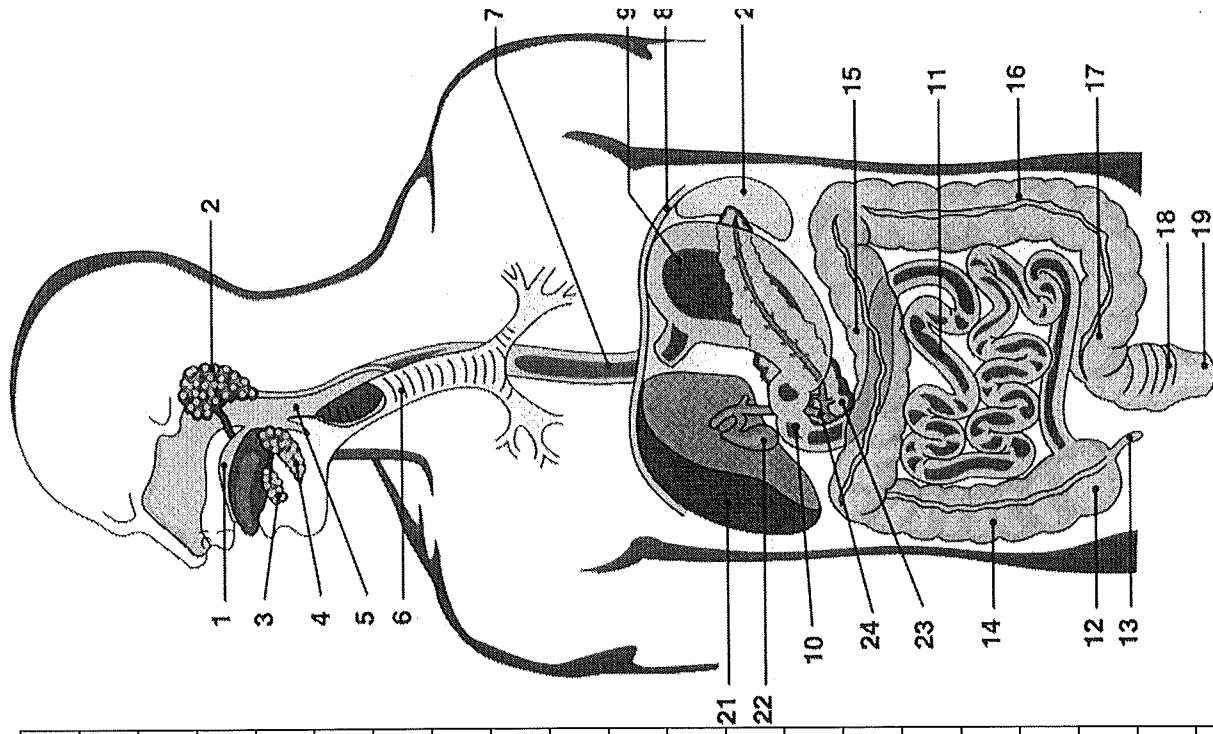
- Once there, scroll down until you see empty box under the diagram
- Type in the answer to the corresponding letter in the diagram
- The letters keep cycling through until you get them all right
- You are timed for this exercise.
- Please write down your time and then show me the time it took you to complete the quiz

Your time _____



The Digestive System- Parts and Functions

#	Part	Function
1		
2		
3		
4		
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6		
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8		
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11		
12		
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22		



Digestive system

Part B- The role of the Small Intestine in digestions

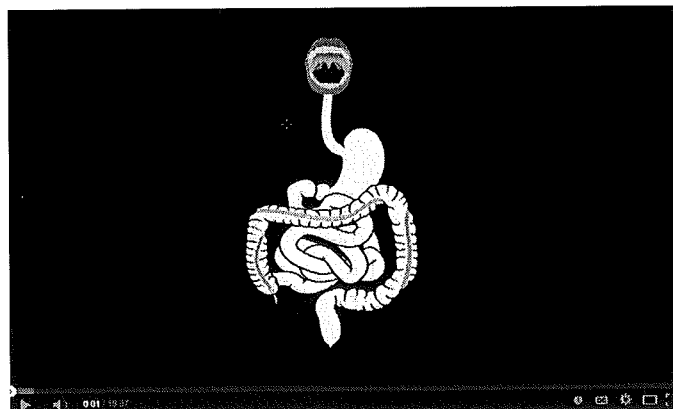
The small intestine plays an important role in the digestive process. By the end of this review, you should know the different sections of the small intestines. You will also review the structure of the small intestine and how it relates to absorption of nutrients. And finally, you will investigate how the large macromolecules are broken down by various enzymes into monomers for digestion. The small intestines are complex and are extremely important in digestion.

Assignment

- Watch the following video (see link below) and answer the questions on the following page
- You may pause/watch the video as many times as you like
- Check in with me when you are done and to answer any questions that you may have

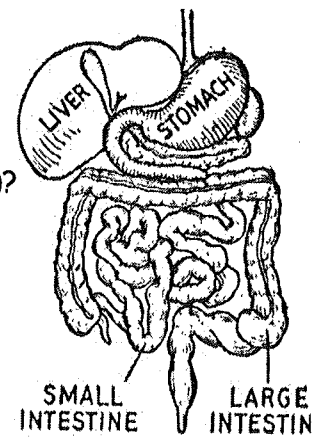
Video- Small intestines: structure, digestions and absorption

YouTube: <https://www.youtube.com/watch?v=OygBLRNKxEY>



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YouTube: <https://www.youtube.com/watch?v=OygBLRNKxEY>



<http://breastcancerinfoblog.com/small-intestine-diagram-labeled/>

1. What are the main functions of the first section of your small intestine (duodenum)?
2. What is the main function of the second section of your small intestine (jejunum)?
3. What is the main function of the third section of your small intestine? (ileum)?
4. List four major events that occur in the duodenum?
5. What are the folds called in small intestine and how do they help in digestion?
6. What are the even smaller folds that are inside the villi? What do these folds do?
7. What is the brush border?
8. Take notes on the four large polymers and the process needed to make them into monomers.

1. Proteins —————→

2. Carbohydrates —————→

3. Nucleotides —————→

4. Fats —————→

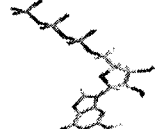
amino acid



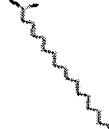
sugar



nucleotide



lipid



Part C: Following the 4 food groups through the digestive track

The final section of this review is going to incorporate the other two sections and then have you follow food from the mouth to the anus. In this animated simulation, you will watch the 4 biological molecules (carbohydrates, lipids, proteins and fiber) be broken down by enzymes into monomers of glucose, fatty acids, lipids and cellulose.

Assignment

- Log onto the following page: <http://science.nationalgeographic.com/science/health-and-human-body/human-body/digestive-system-article/>
- Once there, click on "the Interactive feature; Not All Food is Treated Equally"
- At the next screen, click on the image of the slice of bread



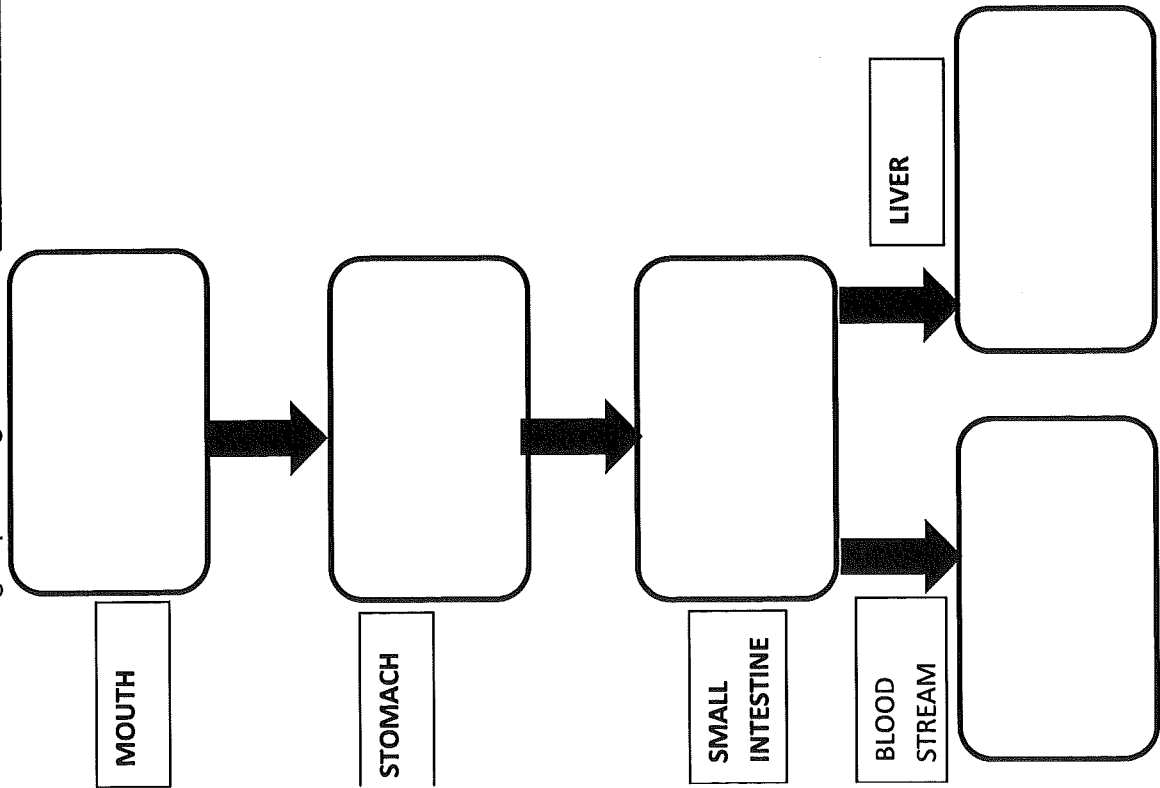
- From there, follow the digestive process and take notes on the accompanying handout
- Continue with this process with the next three images: steak, broccoli and ice cream
- Show me your completed flow charts

Not all food is treated equally

<http://science.nationalgeographic.com/science/health-and-human-body/human-body/digestive-system-article/>

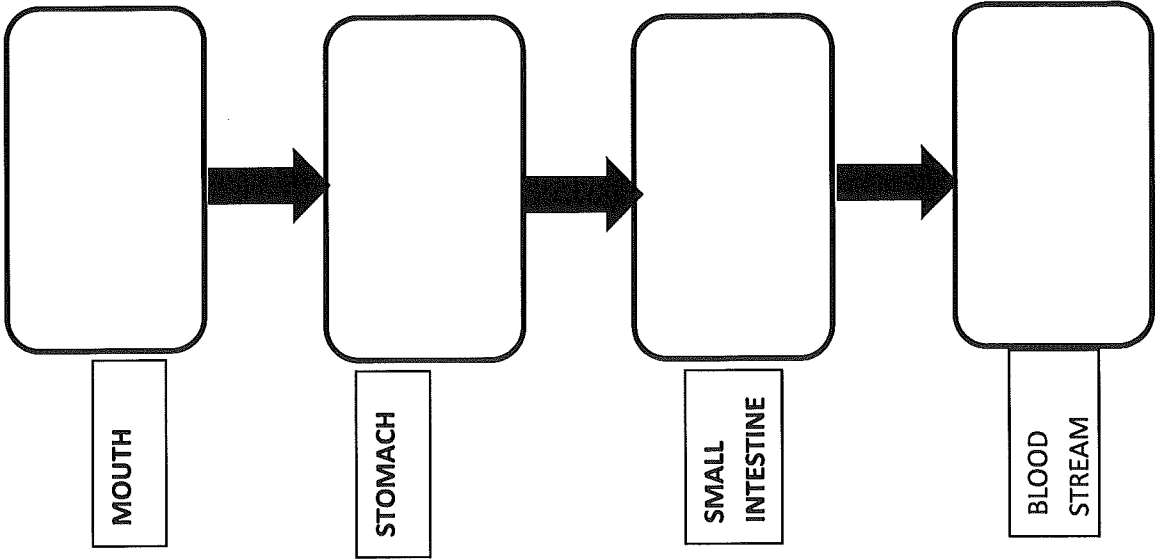
1. Bread

What food group is being broken down? _____



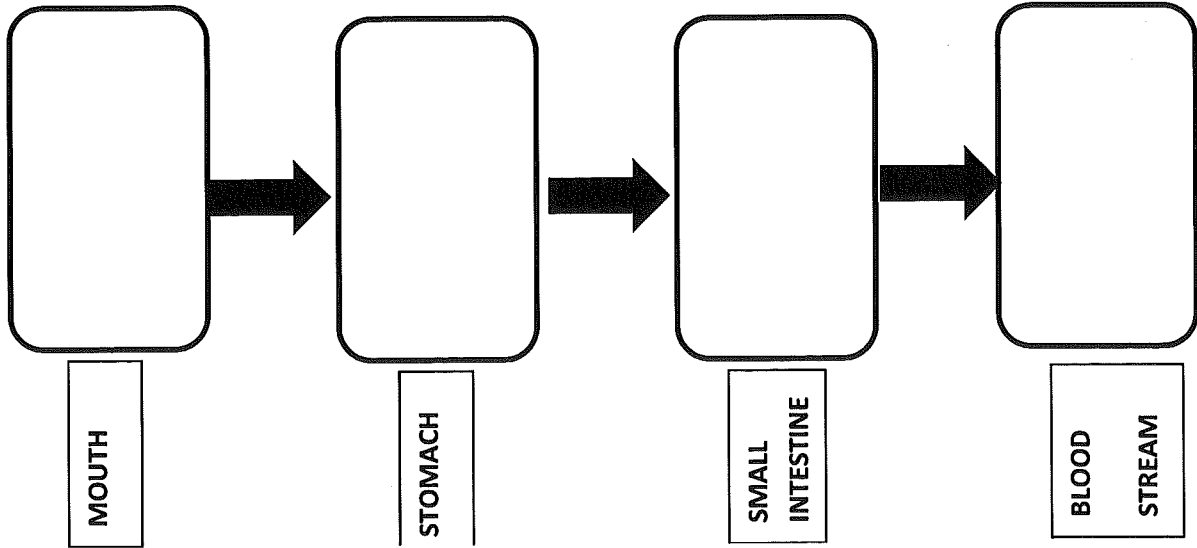
2. Steak

What food group is being broken down? _____



3. Broccoli

What food group is being broken down? _____



4. Ice cream

What food group is being broken down? _____

