

## LESSON ONE

**DURATION:** 2 weeks/4 hours

**SUBJECT:** INTEGRATED SCIENCE

**GRADE:** 6

**DATE:** April, 2020

**TOPIC:** Human Body Systems

**DURATION:** 1week/2hours

### SPECIFIC OBJECTIVES

- Explain what is meant by the term 'system'
- Recognise the integration of the different organ systems in carrying out life processes
- Identify selected organs in the human digestive system (mouth, oesophagus, stomach, small intestine, large intestine) and outline the path food travels from mouth to anus
- Identify the organ systems and state their functions in humans
- Identify the excretory organs of humans (kidneys, lungs and skin) and state their role in excretion
- Show curiosity in exploring their own body and questioning about the structures or functions of the body.
- Share their views confidently

### KEY SKILLS

- Think critically (define operationally), create, make connections, problem- solve, use the Engineering and Design Process

### KEY VOCABULARY

System, organ system, life processes, digestion, alimentary canal, oesophagus, stomach, intestines, anus, excretion, excretory system

### MATERIALS/RESOURCES

3 Plastic bottles (same size) with caps, straws, glue gun/super or crazy glue or other strong glue, screwdriver, scissors

***N.B.* Students are told to collect materials needed to construct Heron's fountain before the day of the lesson.**

## PRIOR LEARNING

Check that students can:

- Identify some internal and external parts of the human body

## LEARNING OUTCOME

- Describe the role of the organ systems in humans
- Create and use models to illustrate the basic structure and function of selected organ systems

## ASSESSMENT CRITERIA

- Acceptable working definition of 'system' developed.
- Flow diagram shows accurate sequence of the route food travels
- Model: correctly represents a realistic digestive system; organs correctly positioned in digestive system and labelled; fulfil other criteria stipulated by rubric
- Presentation depicts the named organ systems; Organs correctly positioned in systems and labelled; Presentation creative and contains accurate information

## PROCEDURES/ACTIVITIES

### ENGAGE

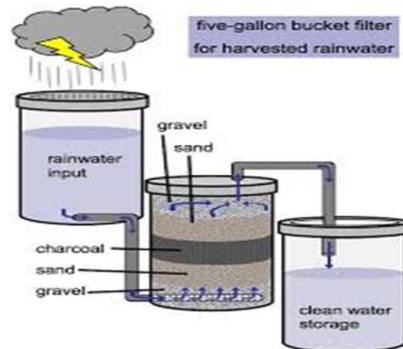
**Facilitator:** Show students pictures of fountains and ask them to express their feelings about them.



- Introduce Heron's Fountain
- Guide students in making a quick Heron's Fountain [see activity sheet in Appendix; views its construction at [https://www.youtube.com/watch?v=K49QOM\\_B8dA](https://www.youtube.com/watch?v=K49QOM_B8dA)]

**N.B.** Students who are not able to finish making their fountains should be given the time to do so as home work and before the next lesson.

**Facilitator:** Guide students, in a whole class discussion, about the parts and function of the fountain and help students to grasp that the fountain with all its working parts is a system. Elaborate on the idea of a system. Provide other simple examples of non-human systems [e.g. a simple water distillation system - simple discussion to highlight parts and function; no explanation of the process of distillation is necessary].



## EXPLORE

**Facilitator:**

Making Connections:

- Show a plant shoot and root system and make a comparison between these systems and the systems discussed
- Introduce the idea that humans have body systems
- Project a picture/diagram/chart of the **Human Digestive System** and briefly highlight the parts [Only the names and description of the parts highlighted in the National Standards Curriculum (NSC) - Integrated Science and a very brief and general statement about the work carried out by each of these parts is required. **Do not discuss the process of digestion**].

**Students:**

- View the video, '**Digestive Tract of the Human Body**' <https://www.youtube.com/watch?v=bFczvJp0bpU>
- Create a Flow Diagram of the path food takes along the Human Digestive Tract
- Post their Flow Diagrams (*as directed by teacher*) for teacher feedback.

## EXPLAIN

**Facilitator:** Whole group discussion of the parts of the Human Digestive System and the path food takes along it. Brainstorm the importance of the digestive tract.

**Students:** Offer ideas about the importance of the Human Digestive Tract. Write a simple definition of 'Systems' and of the 'Human Digestive System' and share with teacher and class.

**Facilitator:** Provide feedback on students' definitions and guide them in creating individual definitions that reflect accurate information.

## ELABORATE

Home Assignment: Students solve the following problem.

### Problem

*As a student of Grade Six, you have been asked to plan, design and create a **realistic** model of the Human Digestive System that you can use to explain the path food travels along it. You are allowed to use only materials found around your home.*

### Facilitator:

- Provide students with the rubric that will be used for scoring the models and, additional guidelines about creating a 'realistic model'. For example, using soft material like stockings to represent the intestines. **Allow students to do their own research and make decisions about the materials that they will use.**
- Have students take pictures of their models, write a short report on the reasons they chose the materials used and the process they followed in creating the model. Students should use the Engineering and Design Process and submit their design solutions, including the design selected and the reasons for selecting the design. The pictures of the model and report should also be submitted to teacher.

**EVALUATE** – (*How can I help my students self-evaluate and reflect on the teaching and learning, and how can I evaluate the students learning of concepts and skills*).

### Facilitator:

- Assessment of the definitions and flow diagram occurs during the lesson at the points when the activities are launched. It is not necessary to give a grade for these assessments.
- Refer to *Specific Objectives, Key Skills and Assessment Criteria* stated above to guide the development (or sourcing – e.g. **ForAllRurics.com**) of rubric for scoring models, rubric/checklist for scoring digital presentation (based on the 'Extended Learning' portion of the lesson) and identifying points during the lesson where assessment should occur. Use the rubrics to assign grades for these pieces of assessment.

## EXTENDED LEARNING

### Students:

- Research additional human body systems [only the Skeletal system is required] and name the organs that make it up [Do not delve into the details of human locomotion] and, *Identify* the excretory organs of humans (kidneys, lungs and skin) and *state their role* in excretion [Do not delve into details about the process of excretion and respiration. Only a simple treatment is required.]

- Present work in a digital format (e.g. PowerPoint, Digital Story) and submit.

**LINKS TO OTHER SUBJECTS:**

- Food and Nutrition, Chemistry, ICT

**POST-LESSON REFLECTION:**

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