

Summative 2: Investigate a Working System

Overall Expectation(s): 3. Demonstrate an understanding of different types of systems and the factors that contribute to their safe and efficient operation. (8s20); 2. Investigate a working system and the ways in which components of the system contribute to its desired function (8s19);

Systems are all around us. We are apart of many systems. Choose a system to research and present to the class.

1. **Choose** one of the following **topics** or one of your own choices.

<ul style="list-style-type: none"> • why dogs noses are wet • water cycle • a body system of a human or animal- eye, ear, nose, digestive, heart etc. • how a plant functions • how a dump truck works • how the education system works 	<ul style="list-style-type: none"> • legal system • how cats purr • carbon cycle • how a product is made • how does a bike work • how does a motor boat work • car engine, skateboard
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2. Complete some preliminary **research** to build your outline using an appropriate graphic organizer. When searching the Internet, type in key words like, how heart functions or parts of the heart or function of the heart. Include all of the required information. Feel free to add interesting facts or additional relevant information. Submit your outline for approval and marking on _____.

3. Required Information:
 - a. What is your system? What is the system's desired function?
 - b. Identify the various **components** of your system that allow it to perform its function efficiently and safely. What are the parts?
 - c. Identify the **purpose, inputs** and the **outputs** of your system. What needs to go into your system to make it work? What is the output of your system?
 - d. Assess the **side effects** of your system - they may be social, economic and environmental. Are there any side effects? List and explain them.
 - e. Provide **alternative** ways of meeting the needs of your system which may have fewer side effects.

4. Include a **drawing** or flow chart of your system. Make sure to clearly **label** the components, input and output. Organize your information in a creative way of your choice - some examples follow:

<ul style="list-style-type: none"> • poster • booklet with overheads 	<ul style="list-style-type: none"> • power point presentation • other?? Approval required.
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5. Prepare an **oral presentation** of your project using overheads and interesting graphics to sustain interest. Time limit of 10 minutes.

6. Include at least one of the following:
 - a. Set-up a **demonstration** to illustrate concepts from your topic
 - b. Invite a **guest speaker** to talk to the class about your topic - see me for assistance
 - c. Provide the class with a **hands-on mini-lab** to illustrate some aspect of your project
 - d. Make up a **game** at the end with at least 10 questions. Try to make it fun for the audience.

Structure Assessment Criteria:

- Submitted detailed preliminary research using an appropriate graphic organizer.
- Submitted a labelled drawing or flow chart of the system.
- Used appropriate scientific vocabulary.
- Applied the skills addressed in the subtasks.

FULL Name: _____

DUE Date: _____

PART A – Preliminary Research – Graphic Organizer (20 Marks)

a.	Graphic Organizer	- Identify the system (8s30)	1	2	3	4
	Intro to the System	- Identify the various components (parts) of the system (8s32)	1	2	3	4
		- Identify the purpose, inputs and the outputs of your system. (8s31)	1	2	3	4
b.	Graphic Organizer	- Assess the side effects of your system - they may be social, economic and environmental. List and explain them.	1	2	3	4
	Side effects and Alternative	- Provide alternative ways of meeting the needs of your system which may have fewer side effects.	1	2	3	4
c.	Drawing	- Include a drawing or flow chart of your system. Make sure to clearly label the components, input and output.	1	2	3	4
TOTAL			/20			

PART B – Oral Presentation of System (40 Marks)

d.	Required Information	- Identify the system	1	2	3	4
		- Identify the various components (parts) of the system	1	2	3	4
		- Identify the purpose, inputs and the outputs of your system	1	2	3	4
		- List & explain the side effects of the system - social, economic, environmental	1	2	3	4
		- Provide alternative ways of meeting the needs of your system which may have fewer side effects	1	2	3	4
		- Labeled drawing or flow chart of your system.	1	2	3	4
		- Included a demonstration, guest speaker, hands-on mini-lab, or game	1	2	3	4
e.	Overall Presentation Vocabulary	- name; class; date; title; labels; neatness	1	2	3	4
		- appropriate science and technology vocabulary, including mechanical advantage, input, output, friction, gravity, forces, and efficiency, in oral and written communication (8s28)				
f.	Safety	- follow established safety procedures for using tools and handling materials (8s23)	1	2	3	4
g.	Participation	- preparation for class, materials in class, on task	1	2	3	4
TOTAL x2			/40			

Feedback

/100

Assessment Criteria - Summative Evaluation

	Level 4	Level 3	Level 2	Level 1
Preliminary Research – Graphic Organizer • Identify the system (8s30) • Identify various components (8s32) • Identify purpose, inputs, outputs (8s31) • Assess the side effects - List and explain. • Provide alternatives • Include a labelled drawing	With a high degree of accuracy, student can investigate a working system and the ways in which components of the system contribute to its desired function	With a considerable accuracy, student can investigate a working system and the ways in which components of the system contribute to its desired function	With a some accuracy, student can investigate a working system and the ways in which components of the system contribute to its desired function	With limited accuracy, student can investigate a working system and the ways in which components of the system contribute to its desired function
Oral Presentation • appropriate science and technology vocabulary, including truss, beam, ergonomics, shear, and torsion), in oral and written communication (8s28) • preparation for class, materials in class, on task • actively participates in classmates presentations	Student demonstrates a high degree of understanding of the different types of systems and the factors that contribute to their safe and efficient operation.	Student demonstrates considerable understanding of the different types of systems and the factors that contribute to their safe and efficient operation.	Student demonstrates some understanding of the different types of systems and the factors that contribute to their safe and efficient operation.	Student demonstrates limited understanding of the different types of systems and the factors that contribute to their safe and efficient operation.