Summative 1: Systems in Action

Overall Expectation(s): 3. Demonstrate an understanding of different types of systems and the factors that contribute to their safe and efficient operation. (8s20).

Your Goal: Demonstrate an understanding of the following topics:

Systems
- Identify various types of systems (e.g., mechanical systems, body systems, optical systems, mass transit systems, Aboriginal clan systems, health care systems) (8s30).
- Identify the purpose, inputs, and outputs of various systems (8s31).
- Identify the various processes and components of a system that allow it to perform its function efficiently and safely (8s32).

Safe and Efficient Operation
- Compare, using examples, the scientific definition with the everyday use of the terms work, force, energy, & efficiency (8s33).
- Understand and use the formula work = force × distance to establish the relationship between work, force, and distance moved parallel to the force in simple systems (8s34).
- Calculate the mechanical advantage of various mechanical systems (8s35) (Create an example).
- Explain ways in which mechanical systems produce heat, and describe ways to make these systems more efficient (8s36).
- Describe systems that have improved the productivity of various industries (8s37).
- Identify social factors that influence the evolution of a system (8s38).

Consider the following vocabulary:
- action-at-a-distance
- contact force
- energy
- force
- friction
- gravitational potential energy
- gravity
- ideal mechanical advantage
- input force
- kinetic energy
- machine
- mass
- output force
- potential energy
- mechanical advantage
- spring scale
- weight
- work
- efficiency
- 1st, 2nd, 3rd class lever
- fulcrum
- inclined plane
- lever
- mechanical system
- mechanism
- pulley
- screw
- simple machine
- useful output work
- wedge
- wheel and axle
- automated system
- components
- consumer
- criteria
- non-mechanical system
- productivity
- qualitative assessment
- quantitative assessment

Option 1: Systems in Action Mind Map
Mind maps are used to generate, visualize, structure, and classify ideas, and as an aid in study, organization, problem solving, decision making, and writing. A mind map is a diagram used to represent words, ideas, tasks, or other items linked to and arranged around a central key word or idea. Start your graphic organizer with the words “Systems in Action” in the middle. Use a pencil so you can make changes as you learn more information. Add to your graphic organizer with pictures and science vocabulary as you read through the chapter.

Option 2: Systems in Action Key Concept Review
The following questions provide a review of structures and forces and can be found in your Investigating Science and Technology textbook. Answer the questions in your Science notebook.
- Page 105 #1, 2, 3, 5, 8
- Page 112 #1, 2, 3, 6, 7, 8
- Page 124 #9, 11, 17
- Page 152 #2, 12

Option 3: Systems in Action Review
Using any of the following imaginative ideas, create a review of the systems in action and forces concepts. Make sure to include pictures and science vocabulary. Some ideas to consider for your graphic organizer:
- advertisement
- advice column
- announcement
- autobiography
- bibliography
- bylaw
- card or letter
- cartoon
- cheer
- comic Strip
- commercial
- complaint letter
- create a 3-D drawing
- create a postcard or brochure
- description
- design a flag
- dialogue
- diary
- fable
- fake Journalism article
- haiku
- horoscope
- instructions
- interview
- invitation
- journal entry
- label
- letter
- limerick
- menu
- movie review
- myth
- newspaper
- nursery Rhyme
- order
- payslip
- poem
- rap
- resume
- letter
- riddle
- song text
- speech
- spell
- story
- storyboard
- survey
### Assessment Criteria - Summative Evaluation

<table>
<thead>
<tr>
<th></th>
<th>Level 4</th>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
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<tbody>
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<td>Student demonstrates some understanding of different types of systems.</td>
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