



Name: \_\_\_\_\_

Date: \_\_\_\_\_

Hour: \_\_\_\_\_

## Technological Systems

### Unit 1: Definition of a System

## Lesson 1: Mechanical System – Pencil Sharpener

### Objectives:

Upon successful completion of this activity you should be able to:

- Sketch a common mechanical system.
- Identify the individual parts of a mechanical system.
- Describe the relationship of parts and how they interact.

### Connections:

During this activity you will be applying knowledge from the following areas:

- Mathematics – measurement
- Language Arts – writing

### Directions:

You have probably used a pencil sharpener many times. This is an example of a simple mechanical system. Have you ever thought about how it works? Have you ever looked at all the parts that must work together just right to properly sharpen a pencil? In this activity you will be examining all the parts in a mechanical pencil sharpener system, sketching them, identifying them, and describing what they do.

Begin by taking a pencil sharpener apart. As you do, take care that you can put it back together when you are finished. Sketch each part of the pencil sharpener, and identify the part by name. If you do not know the exact name of the part, describe what it does. Describe the function of each part and how it is connected to other parts.

When you are done, put the pencil sharpener back together. Use the pencil sharpener to sharpen your pencil.



**Grading Criteria – Pencil Sharpener**

<b>Proficiency Levels Sub Concepts</b>	<b>Target 3</b>	<b>Draft 2</b>	<b>Unacceptable 1</b>	<b>Proficiency</b>
<b>Sketch</b>	Accurately depicts the chosen device in complete detail.	Most details are included and drawn accurately.	Sketch does not depict device, missing significant details.	
<b>Parts Labeled</b>	Most parts are accurately labeled.	Some parts are accurately labeled.	Very few parts are labeled correctly.	
<b>Part Identification and Function</b>	Most parts are correctly identified and functions accurately described.	Some parts are correctly identified and functions accurately described.	Very few parts are correctly identified and described.	
<b>Description of Operation</b>	Written and verbal descriptions demonstrate clear understanding of the system's operation.	Written and verbal descriptions skip some key steps in the operation.	Written and verbal descriptions do not demonstrate correct operation of system.	
<b>Systems Concepts</b>	Student accurately categorizes functions of a pencil sharpener according to the universal systems model (inputs, process, outputs, feedback).	Student categorizes functions of a pencil sharpener according to the universal systems model (inputs, process, outputs, feedback) with few errors.	Student cannot accurately categorize functions of a pencil sharpener according to the universal systems model (inputs, process, outputs, feedback).	

**Comprehensive Understanding \_\_\_\_ / 15 points**

Additional comments: