

Grade 8 Science

Unit 4: Systems in Action



Systems

What is a system?

A system is a structure that has parts that are connected and influence each other in some way. It can be physical, such as a car, or organizational, such as the health care system.

I have named two examples of systems above, can you think of more?

Clock

Education System

Can Opener

Computer

Team

Postal Service

Government

Crane

School

Bicycle

One student please record our ideas.



Systems

When we looked at hydraulic and pneumatic technology, we discussed what they were used for, their purpose, as well as the input and output of the devices. These fluid powered devices are systems. All systems, like the technology we discussed, have a purpose, an input, and an output.

Purpose: What the system is to accomplish.

Input: The things put into the system - can be physical items or other (energy, movement, etc.).

Output: What is obtained from the system - can be physical items or other (energy, movement, etc.).



Systems

The input and output of a system are like the start and the finish. In order for the system to work it needs to have components that take the input and produce the output. This is done through processes.

Components: The parts of a system.

Processes: The actions, taken by the system, that allow it to convert the input to the output.

When designing a system, considerations must be taken to maximize the effectiveness, the efficiency and the safety of the system

Name That System

What system is being referred to below?

Purpose: *To grow things*

Input: *Seeds, Water, Fertilizer*

Output: *Flowers, Food*

Components: *Soil, Sunlight, Carbon Dioxide*

Processes: *Planting, Watering, Photosynthesis, Cellular Respiration*

A Garden



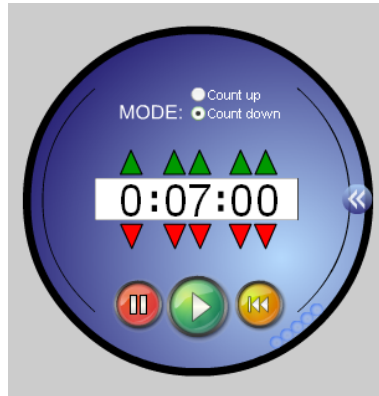
Name That System

We are now going to play a game to help reinforce the features of systems. The game is played as follows:

- Each person will be given a card with the name of a system on it - DO NOT let anyone see your card.
- Pair up and tape your card to your partner's back - DO NOT let them see it.
- You will then mingle, asking questions of your peers, in an attempt to determine the name of the system on your back.
 - You cannot ask any one person more than one question.
 - You can only ask the following questions:
 - » "What is an input of my system?"
 - » "What is an output of my system?"
 - » "What is one component of my system?"
 - » "What is one of the processes of my system?"
 - You are not to guess your system at this point.
- Once the timer sounds, each person will have a chance to guess their system, based on the information they have obtained.

Name That System

- We will play until the timer sounds.
- Do not remove the card from your back until you are told to do so.
- Do not tell anyone what is on their back.
- Remember to only ask these questions:
 - > "What is an input of my system?"
 - > "What is an output of my system?"
 - > "What is one component of my system?"
 - > "What is one of the processes of my system?"



Name That System

It is now time to guess. Does anyone want to go first?

Homework:

For homework I would like you to name a system and write out each of the five features (purpose, input, output, components and processes) for it.

This will be due next class.

Completed accurately and submitted...

...next class = 100%
...2 classes from now = 90%
...3 classes from now = 80%
...etc

You may use any remaining time to do that now.

