

SYSTEMS OVERVIEW

System Definition: A system has interacting elements or parts that form a complete meaningful whole.

Features of Systems:

Boundary (B): determines what is inside and outside the system; border

Elements (E): the parts that make up the system

Input (I): anything that goes into the system from outside the system to keep it going

Output (O): anything that the system releases or produces to the outside of the system

Interactions ($\leftrightarrow$): the effects that parts of the system have on each other or things that happen in a system that use the inputs and give off outputs

Generalizations for Systems:

- Systems have parts that work together to create a whole.
- Systems interact.
- Parts of systems are interdependent upon one another.
- A system may be influenced by another system.

Systems Example: School Cafeteria

Boundary (B): The walls and doorways of the cafeteria determine whether something is inside or outside of the system.

Elements (E): Food, the serving line, tables, chairs, cooks, staff, students, teachers, trays, utensils, garbage cans, and cleaning supplies are some of the parts that make up the system.

Input (I): People, food deliveries, and electricity are some of the things that come into the system to keep it functioning.

Output (O): Nutritional needs being met is the main purpose of this system. Another output of the system could be garbage and waste that is produced, wages for workers, and friendships through conversation over food.

Interactions ($\leftrightarrow$): Some of the elements that work together in the system are: students and workers, students and food, food and utensils, food and garbage cans, tables and cleaning supplies.