

## System and System Models

**Learning Target:** *I can create a model that identifies inputs, outputs and subsystems within a system.*

Do Now:

	<p>This is a model of the respiratory system. Using this model, what information can you tell me about this system?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
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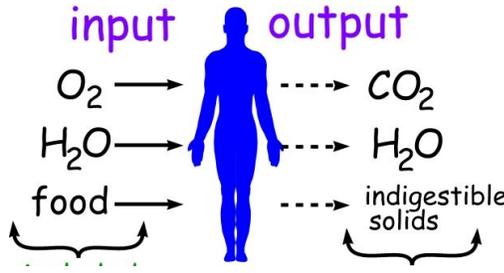
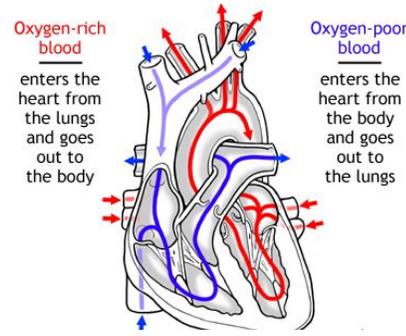
### System Models

A system is an organized group of related parts. Systems may interact with other systems, or they may have sub-systems and be part of a large complex of systems. Models can be used for understanding and predicting the behavior of systems. System models help us represent the systems and subsystems that are under study. Although models do have limitations and may not show every aspect or detail of the system, they are great to use to communicate to others the things that can not be seen or observed.

Model 1 -	
Model 2 -	Figure 3 -

## Inputs and Outputs

One of the most important things to represent in a system model are the inputs and outputs that go in and out of the system. Some examples of things that go in and out of system are energy, matter and information.

 <p><b>input</b>      <b>output</b></p> <p><math>O_2</math> →      → <math>CO_2</math></p> <p><math>H_2O</math> →      → <math>H_2O</math></p> <p>food →      → indigestible solids</p>	 <p><b>Oxygen-rich blood</b> enters the heart from the lungs and goes out to the body</p> <p><b>Oxygen-poor blood</b> enters the heart from the body and goes out to the lungs</p>
Model A -	Model B -

### Activity: Create a School System Model

A system is defined by a boundary in which the system interactions take place. For example, in the human body system, the skin is the boundary in which all the organ system interactions take place within. Your school is a system with a school boundary being a fence. Your home is a system where the outer boundary is a wall.

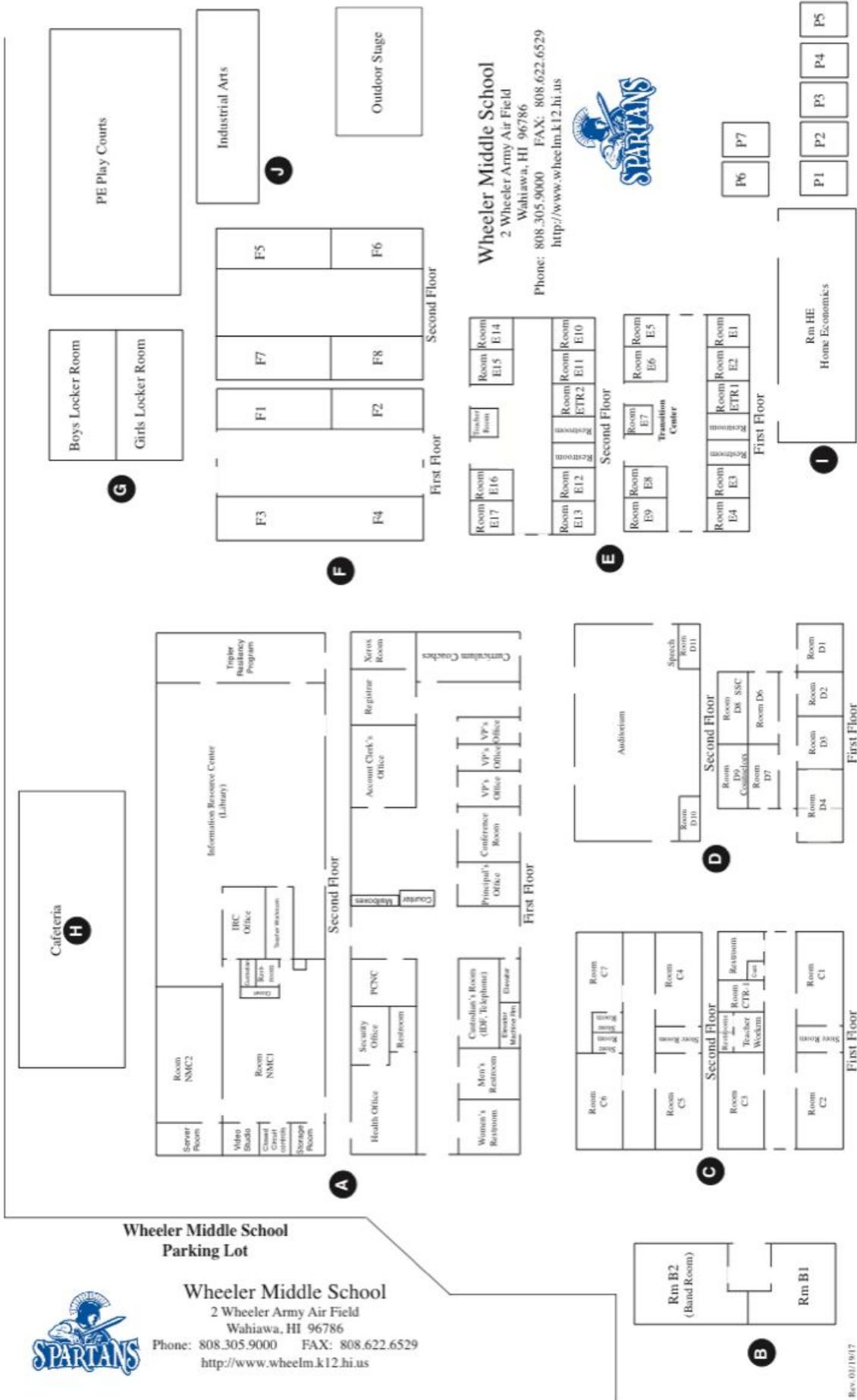
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**Directions-** Create a model of your school system. This school system model should focus on you and the pathway you take through the many subsystems within the school. Models are limited in that they only represent certain aspects of the system under study, therefore the school system model that you create only needs to show the subsystems YOU interact with.

1. Draw the boundary of the school on a piece of paper that is attached.
2. Draw the subsystems that take place within the boundary (*classrooms, cafeteria, bus drop off/pick up etc.*)
3. Draw the pathways that you travel through as you go about your day (*hallways, sidewalks, stairs etc.*)
- 4.
5. Label the important parts of your system.
6. Use color to accent and highlight the important parts of your model.
7. Identify 3 inputs and 3 outputs in your school system model.

Wheeler Elementary School Grounds



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# School System Model

	Input	Output
1		
2		
3		