



ANALOGIES

Thinking
strategies
to enhance skills
of analysis,
creativity,
and problem
solving.

THE HUMAN BODY IS LIKE...**Brief Description of the Lesson:**

Students will use the thinking process of analogy to demonstrate their understanding of simple and complex machines through the use of _____ and personal analogies.

SOL/POS Objective:**Science 6.8**

The student will investigate and understand that organisms perform life processes that are essential for the survival and perpetuation of the species.

English 6.6

The student will write narratives, descriptions, and explanations.

Instructional Strategy:

Identifying Similarities and differences- Students explore simple and complex machines through personal analogies.

Materials: Student worksheets #1 “Body Systems Analogies”, #2 “Body Parts Analogies”, #3 “More Human Body Analogies”, Teacher read aloud ‘Cell to Systems’, Body system charts (optional), 4 sentence strips:

- _____ is to body as individual is to community
- _____ is to body as family is to community
- _____ is to body as neighborhood is to community
- _____ is to body as service is to community

Enduring Understandings:

- Analogies help us understand new concepts.
- Analogies enable us to visualize.
- Making analogies utilizes higher level thinking skills.

Essential Questions: (For example, *What influences your reaction to an issue or a problem?*)

- How do analogies help us better explain ideas?
- What systems compare to the human body system? What are their similarities?
- Why should we compare unlike objects?

Teach and Explore Strategy: (Steps in teaching the process and exploring applications)

- Review the process of making comparisons/analogies.
- Read to class “**Cells to Systems.**”
- Have class fill in the blanks on the sentence strips orally.
- Hand out student worksheets #1 and #2.
- Do the first few analogies on #1 with class; have them finish on their own.



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- Have students share responses.
- Go over worksheet #2. Class completes this independently.
- Have students share their responses.

Assessment Evidence: (Discussion, teacher observation, completed product, student reflection...)

- Oral responses to “Cells to Systems” analogies
- Completed products on worksheets #1 and #2

Metacognition: (Discuss thinking involved and applications for using the strategy.)

- What kind of thinking did you use in this lesson?
(creative thinking, making comparisons)
- How do analogies help you better understand scientific information?
(relates new information to more familiar things, helps you form a mental picture)

Extension:

- Worksheet #3 “More Human Body Analogies”

Cells to Systems

The human body is an extremely complex organism. Offer students the following analogy to help them understand its basic components.

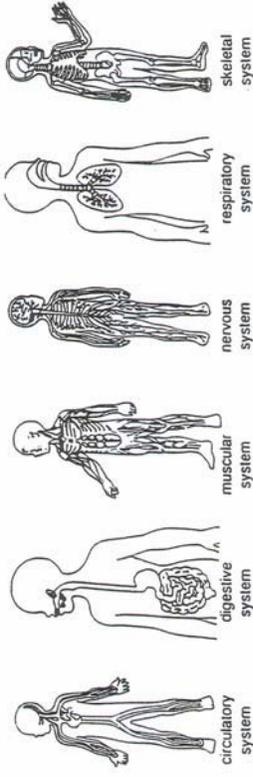
Tell students that the human body is something like a community. Just as many different people make up a community, many different cells make up the body.

The smallest part of a community is an individual person. In the body, an individual cell is the smallest part. In both the community and the body, an individual **cell** is the smallest part. In both the community and the body, these individuals form groups. The body has **tissues**- like the community's families- groups of individuals, usually all of one kind, working together both as a unit and as a part of the whole system. Further, just as a community has neighborhoods made up of different groups and individuals, the body has **organs** made up of different kinds of tissues and cells. Finally, a **body system** is like a community service- a large organized group with many members that perform specific jobs. The different body systems do specific jobs for the body, just as the police and fire departments do specific jobs for the community.

Name _____

Body Systems Analogies

Write the name of the body system that matches each analogy:



1. _____ like a power plant producing energy.
2. _____ like opening windows or blowing up a balloon.
3. _____ like a tugboat pushing a large ship or a bulldozer moving a load of dirt.
4. _____ like the beams in a building.
5. _____ like a building security system.
6. _____ like streams, rivers and creeks

Choose two of the body systems and write your own analogy for each.

1. _____
2. _____

Body Parts Analogies

For each body part, think...

“What else does it look like or what else does it remind me of?”

Write an analogy and tell how they go together. Follow this pattern:

_____ is like _____ because _____

1. heart
2. stomach
3. brain
4. skin
5. lungs
6. veins
7. spinal cord
8. bones

For an extra challenge.....

More Human Body Analogies

How is the human body (including its parts and functions) like the following things? Think of several connections for each one. If you think of 5 or more for each one you're an analogy "ace"!

Compare the human body to the form _____ is like _____ because _____

A car:

A building:

A machine:

Your own idea