# 7.3 Metabolic Reactions

Content Area: **Science**
Course(s): **Science 7**
Time Period: **Marking Period 2**
Length: **40 days**
Status: **Published**

## Established Goals/Standards

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|---|---|
| MS-LS1-3 | Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. |
| MS-LS1-6 | Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. |
| MS-LS1-7 | Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism. |

## Technology Standards

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|---|---|
| TECH.8.1.8.A.4 | Graph and calculate data within a spreadsheet and present a summary of the results. |
| TECH.8.1.8.B.CS2 | Create original works as a means of personal or group expression. |

## NJ 21st Century Life and Careers/NJ Career Ready Practices

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|---|---|
| CAEP.9.2.8.B.6 | Demonstrate understanding of the necessary preparation and legal requirements to enter the workforce. |

## Interdisciplinary Connections

ELA/Literacy -

**RST.6-8.1** Cite specific textual evidence to support analysis of science and technical texts. (MS-LS1-5)

**RST.6-8.2** Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. *(MS-LS1-5)*

**WHST.6-8.2** Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. *(MS-LS1-5)*

**WHST.6-8.9** Draw evidence from informational texts to support analysis, reflection, and research. (MS-LS1-5)

Mathematics -

**6.SP.A.2** Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. *(MS-LS1-5)*

**6.SP.B.4** Summarize numerical data sets in relation to their context. *(MS-LS1-5)*

## Essential Questions

- How does the body process food in order to receive energy?
- What are humans made of?
- What is the evidence that a body is actually a system of interacting subsystems composed of groups of interacting cells?

## Enduring Understanding

- Food is processed at the cell level to release chemical energy for the body to use.
- In multicellular organisms, the body is a system of multiple, interacting subsystems.

## Content

- Subsystems are groups of cells that work together to form tissues.
- Organs are groups of tissues that work together to perform a particular body function.
- Tissues and organs are specialized for particular body functions.
- Systems may interact with other systems.
- Systems may have subsystems and be part of larger complex systems.
- Interactions are limited to the circulatory, excretory, digestive, respiratory, muscular, and nervous systems.
- Scientists and engineers are guided by habits of mind such as intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas.
- Sense receptors respond to different inputs (electromagnetic, mechanical, chemical).
- Sense receptors transmit responses as signals that travel along nerve cells to the brain.
- Signals are then processed in the brain.
- Brain processing results in immediate behaviors or memories.
- Cause-and-effect relationships may be used to predict response to stimuli in natural systems.
- Sunlight energy is transformed into chemical energy during the process of photosynthesis ~ that chemical energy is released in the mitochondria at the cell level.

## Accommodations and Modifications

Accommodations and Modifications according to student IEP, 504, I&RS goals, and/or gifted status.

## Assessment

Summative assessment:  Students create an infographic showing the process of energy being released from food in the body and how the body is composed of several interacting subsystems.

Formative Assessments

- Participation/Observations
- Questioning
- Discussion Circles
- Science Notebook
- Exit Slips
- Peer/Self Assessment
- Rubrics
- Teacher-created project-based assessment
- Turn & Talk

Alternate Assessments

- Teacher-created project-based assessment
- Alternate running records
- Discussion Circles
- Turn and Talks

Benchmark Assessments

- Teacher-created assessment

## Resources

Please add your Resources by clicking on the Lists tab above.

- Amplify
- Discovery Education
- OpenSciEd