

North Carolina Essential Science Standard Alignment

North Carolina Essential Science Standards Cross Reference Chart

Topic	Chapter	1		2		3		4		5			6			7			8		9		10
		1	2	1	2	1	2	1	2	1	2	3	1	2	3	1	2	3	1	2	1	2	1
Physical/ Chemical Properties		X				X						X			X				X	X	X	X	
Physical Changes				X							X			X		X		X	X	X	X		
Chemical Changes							X	X		X		X					X	X				X	
Conservation of Mass											X												
Acid/Bases						X	X																
Cells							X															X	
Bacteria					X						X												
Body Systems										X			X	X				X					
Energy		X								X			X	X				X	X	X		X	
Healthy Habits									X		X		X	X		X			X	X	X		

Chapter 1: Weights & Measures

Food Explorations Lab I: Mastering Measurements

NC Correlated Middle School Science Concepts (Physical Science 6, 8)

The science skill of accurate measurement is practiced in this lesson. Students will use a combination of household and scientific measurement tools to determine both mass and volume of various cooking ingredients. Percent error will be calculated and students will be asked to reflect on the most accurate procedures and precise tools to use in measurement.

The lesson also allows the teacher to emphasize physical properties of the substances involved. Mass and volume are properties dependent on the amount of matter involved. Density is independent of the amount of matter but dependent on the type of matter. The lesson requires students to compare relative densities and relate them to differences in the substances' masses.

NC Essential Science Standards

6.P.2.3 Compare the physical properties of pure substances that are independent of the amount of matter present including density, melting point, boiling point, and solubility to properties that are dependent on the amount of matter present to include volume, mass and weight.

8. P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of gas or precipitate.

Food Explorations Lab II: Label Logic

NC Correlated Middle School Science Concepts (Life Science 8)

Measurement is also one of the focal points of this lesson as students make mass measurements of substances representing the information found on Nutrition Fact Labels. These measurements will be converted to common household measurements. Correlations to the energy content of the foods will be made, and students will be asked to evaluate the foods for the best nutritional option.

NC Essential Science Standards

8.L.5.1 Summarize how food provides the energy and the molecules required for building materials, growth and survival of all organisms.

8.L.5.2 Explain the relationship among a healthy diet, exercise, and the general health of the body.

Investigating Your Health: Everyday Weighing and Measuring

NC Essential Science Standards

8.L.5.1 Summarize how food provides the energy and the molecules required for building materials, growth and survival of all organisms.

8.L.5.2 Explain the relationship among a healthy diet, exercise, and the general health of the body.

NC Essential Information and Technology

6.TT.1, 7.TT.1, 8.TT.1 Use appropriate technology tools and other resources to access information.

Chapter 2: Food Safety

Food Explorations Lab I: Changing States

NC Correlated Middle School Science Concepts (Physical Science 6, 8)

Physical changes of state will be observed in this activity as students observe water pass from the solid state to the liquid state and from the liquid state to the gas state. As qualitative observations are made, students will also record quantitative data and construct change of state diagrams (graphs).

Although temperature and food safety are the main idea, the activity allows students to observe changes in the state of matter as thermal energy is added; to identify the melting point and boiling point of water; and to describe changes in particle motion.

NC Essential Science Standards

6.P.2.2 Explain the effect of heat on the motion of atoms through a description of what happens to particles during a change in phase.

6.P.2.3 Compare the physical properties of pure substances that are independent of the amount of matter present including density, melting point, boiling point, and solubility to properties that are dependent on the amount of matter present to include volume, mass, and weight.

8.P.1.3 Compare physical changes such as size, shape, and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, and formation of gas or precipitate.

Food Explorations Lab II: Invisible Creatures

NC Correlated Middle School Science Concepts (Life Science 8)

Bacteria are common organisms that are part of our ecosystem and interact with us on a daily basis. Some bacteria are beneficial to us such as the bacteria in our digestive systems, and other bacteria are harmful and can impact our health. One of the best preventative measures that we can take against harmful bacteria is hand washing.

Using simulated bacteria, students will investigate the locations on their hands in which bacteria are likely to be concentrated, and how correct hand washing procedures can reduce their exposure to bacteria.

NC Essential Science Standards

8.L.1.1 Summarize the basic characteristics of viruses, bacteria, fungi and parasites relating to the spread, treatment and prevention of disease.

Food Explorations Lab III: Multiplying Microorganisms

NC Correlated Middle School Science Concepts (Life Science 8)

Exposure to harmful microorganisms may also occur by ingesting them with the foods we eat. Organisms such as yeast and molds will grow best if their environment provides them the proper food, temperature, and resources needed for their survival.

Students will investigate the conditions necessary for the growth of molds. Different food types, and aerobic versus anaerobic environments will be investigated. Prevention of illness due to harmful organisms in the foods we eat can be prevented by limiting the environmental resources necessary for the organism's growth.

NC Essential Science Standards

8.L.1.1 Summarize the basic characteristics of viruses, bacteria, fungi and parasites relating to the spread, treatment and prevention of disease.

8.L.5.1 Summarize how food provides the energy and the molecules required for building materials, growth and survival of all organisms (including plants).

Investigating Your Health: Fearless Food Safety

NC Essential Science Standards

8.L.1.1 Summarize the basic characteristics of viruses, bacteria, fungi and parasites relating to the spread, treatment and prevention of disease.

NC Essential Information and Technology

6.TT.1, 7.TT.1, 8.TT.1 Use technology and other resources for assigned tasks.

6.SI.1, 7.SI.1, 8.SI.1 Analyze (6) or evaluate (7,8) information resources based on specific criteria.

6.RP.1 Apply a research process for collaborative or individual research.

Chapter 3: Vegetables

Food Explorations Lab I: Exploring Acids & Bases

NC Correlated Middle School Science Concepts (Physical Science 8)

In cooking, substances are used that can be classified as acids, bases, or neutral substances. These substances are defined in chemistry based on the structure of their molecules, their behavior in an aqueous solution, and their reactions with other substances. Operational definitions that assist students in identifying these substances may include their behaviors with indicators.

In this investigation, cabbage juice indicator will be used to test two unknown substances. Students will compare the unknowns to the results of known chemicals and infer their identities. Physical and chemical changes are described by the students and used to support their inferences.

NC Essential Science Standards

8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of gas or precipitate.

Food Explorations Lab II: Cooking with Acids & Bases

NC Correlated Middle School Science Concepts (Physical Science 8 and Life Science 7)

Acidic and basic solutions will have different effects on foods cooked in them. Students are asked to observe the physical changes that occur to vegetables as they are exposed to these environments and relate the changes observed to the required results in cooking. The investigation also allows students to look at cell structure, particularly the cell wall, and predict the effects of acids and bases on that structure.

NC Essential Science Standards

7.L.1.2 Compare structures and functions of plant and animal cells, including major organelles.

8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of chemical reaction to include changes in temperature, color, formation of gas or precipitate.

Investigating Your Health: Fabulous Phytochemicals

NC Essential Science Standards

8.L.5.2 Explain the relationship among a healthy diet, exercise and the general health of the body.

NC Essential Information and Technology

6.TT.1, 7.TT.1, 8.TT.1 Use technology and other resources for assigned tasks.

6.SI.1, 7.SI.1, 8.SI.1 Analyze (6) or evaluate (7,8) information resources based on specific criteria.

6.RP.1 Apply a research process for collaborative or individual research.

Chapter 4: Fruits

Food Explorations Lab I: Enzymatic Reactions

NC Correlated Middle School Science Concepts (Physical Science 8)

Oxidation is a chemical reaction that is often emphasized with its relationship to metals and “rusting”. Oxidation also occurs in other circumstances including with fruits that we consume.

Students will investigate enzymatic browning (oxidation) in several different types of fruit. They will then predict and investigate how inhibitors can slow the oxidation reaction. The relationship between the acidic and basic substances and their ability to slow oxidation is emphasized.

NC Essential Science Standards

8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of gas or precipitate.

Food Explorations Lab II: Hidden Antioxidants

NC Correlated Middle School Science Concepts (Physical Science 8 and Life Science 8)

Strong acids ($\text{pH} \leq 3$) are needed to slow oxidation in the fruits tested. These acids are referred to as antioxidants. Students will test substances' antioxidant abilities using iodine as an indicator.

Antioxidants are important to body health. The reading and the lab results will ask students to reflect on this.

NC Essential Science Standards

8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of gas or precipitate.

8.L.5.2 Explain the relationship among healthy diet, exercise, and the general health of the body (emphasis on the relationship between respiration and digestion).

Investigating Your Health: Amazing Antioxidants

NC Essential Science Standards

8.L.5.2 Explain the relationship among a healthy diet, exercise and the general health of the body.

NC Essential Information and Technology

6.TT.1, 7.TT.1, 8.TT.1 Use technology and other resources for assigned tasks.

6.SI.1, 7.SI.1, 8.SI.1 Analyze (6) or evaluate (7,8) information resources based on specific criteria.

6.RP.1 Apply a research process for collaborative or individual research.

Chapter 5: Milk & Cheese

Food Explorations Lab I: Explicit Enzymes

NC Correlated Middle School Science Concepts (Life Science 7, 8 and Physical Science 8)

There are many different types of sugar that include monosaccharides such as glucose and disaccharides such as sucrose and lactose. As part of chemical digestion, enzymes break down disaccharides into their component monosaccharides. These simple sugars are then absorbed and used by the body. In this investigation, students will test different types of milk for the presence of lactose (glucose + galactose) by adding the lactase enzyme to the milk samples. Glucose test strips will be used before and after the addition of the enzyme to allow students to infer which milk samples underwent a chemical reaction and originally contained lactose.

NC Essential Science Standards

7.L.1.4 Summarize the general functions of the major systems of the human body (digestion) and ways that these systems interact with each other to sustain life.

8.P.1.3 Compare physical changes such as size, shape, and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of a gas or precipitate.

Food Explorations Lab II: Magnificent Microbes

NC Correlated Middle School Science Concepts (Life Science 7, 8 and Physical Science 8)

Fermentation is a cellular process used by some organisms for energy such as bacteria. During the chemical reaction, lactose will produce lactic acid. Lactic acid causes milk to curdle and thicken. Bacterial fermentation is used in the making of yogurt. As well as having the appropriate sugar present, proper environmental conditions such as temperature must also be considered. In this investigation, students will try different forms of cow milk and temperatures to make yogurt. Students' conclusions will identify the necessary requirements for bacterial fermentation. Evidence of the chemical reaction will be seen.

NC Essential Science Standards

7.L.1.1 Compare the structures and life functions of single-celled organisms that carry out all of the basic life functions.

8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of gas or precipitate.

8.L.1.1 Summarize the basic characteristics of viruses, bacteria, fungi, and parasites relating to the spread, treatment and prevention of disease.

8.L.3.2 Summarize the relationships among producers, consumers, and decomposers including the positive and negative consequences of such interactions.

8.L.5.2 Explain the relationship among a healthy diet, exercise and the general health of the body.

Food Explorations Lab III: Maintaining Mass

NC Correlated Middle School Science Concepts (Physical Science 6, 8)

The Law of Conservation of Mass applies to this investigation in which heat, acid, and base are added to milk to make curds and whey. Masses before the treatment are compared to the final masses of the produced curds and whey.

Curds are formed by the coagulation of the protein casein with fat in milk. The remaining liquid is the whey. The physical properties of the milk, curds, and whey are readily observable allowing comparisons to be made.

NC Essential Science Standards

6.P.2.3 Compare the physical properties of pure substances that are independent of the amount of matter present including density, melting point, boiling point and solubility to properties that are dependent on the amount of matter present to include volume, mass and weight.

8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of a gas or precipitate.

8.P.1.4 Explain how the idea of atoms and a balanced chemical equation support the law of conservation of mass.

Investigating Your Health: Magnificent Milk

NC Essential Science Standards

8.L.5.2 Explain the relationships among a healthy diet, exercise and the general health of the body.

NC Essential Information and Technology

6.TT.1, 7.TT.1, 8.TT.1 Use technology and other resources for assigned tasks.

6.SI.1, 7.SI.1, 8.SI.1 Analyze (6) or evaluate (7,8) information resources based on specific criteria.

6.RP.1 Apply a research process for collaborative or individual research.

Investigating Your Health: Charming Cheese

NC Essential Science Standards

8.L.5.2 Explain the relationships among a healthy diet, exercise and the general health of the body.

NC Essential Information and Technology

6.TT.1, 7.TT.1, 8.TT.1 Use technology and other resources for assigned tasks.

6.SI.1, 7.SI.1, 8.SI.1 Analyze (6) or evaluate (7,8) information resources based on specific criteria.

6.RP.1 Apply a research process for collaborative or individual research.

Chapter 6: Meat, Fish, Poultry & Eggs

Food Explorations Lab I: The Building Blocks

NC Correlated Middle School Science Concepts (Life Science 7, 8)

The building blocks of proteins are amino acids. Foods contain proteins and our digestive system breaks down these proteins into the essential amino acids. Our bodies need these amino acids in order to synthesize proteins needed for the maintenance of our bodies. Not all foods contain proteins with all essential amino acids. Students will model the composition of the proteins found in different food types and identify how the foods we eat provide our bodies with the essential amino acids.

NC Essential Science Standards

7.L.1.4 Summarize the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, and excretion) and ways that these systems interact with each other to sustain life.

8.L.5.1 Summarize how food provides the energy and molecules required for building materials, growth and survival of all organisms (to include plants).

8.L.5.2 Explain the relationships among a healthy diet, exercise and the general health of the body.

Food Explorations Lab II: Synthesizing Muscles

NC Correlated Middle School Science Concepts (Life Science 7, 8)

Protein consumption is necessary for muscle growth and maintenance. Depending on an individual's gender, body weight, height and physical activity, the amount of dietary protein needed may differ. In this activity, students will compare and evaluate the dietary protein needs of four individuals to their actual protein consumption. Model muscles will be used to represent the muscles of the four individuals.

NC Essential Science Standards

7.L.1.4 Summarize the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, and excretion) and ways that these systems interact with each other to sustain life.

8.L.5.1 Summarize how food provides the energy and molecules required for building materials, growth and survival of all organisms (to include plants).

8.L.5.2 Explain the relationships among a healthy diet, exercise and the general health of the body.

Food Explorations Lab III: Foam Formulations

NC Correlated Middle School Science Concepts (Physical Science 6, 8)

Egg whites are often used in cooking to create homogeneous mixtures (foams) such as meringues. These colloidal dispersions change as more gas (air) is mixed with the liquid (egg white). Students will observe these physical changes as they create egg white foams.

Overbeating of the egg white will lead to the loss of stability to the foam. The addition of some substances also impacts the colloid's formation and its stability. Students will compare and contrast the effect certain substances have on egg white foams.

NC Essential Science Standards

6.P.2.3 Compare the physical properties of pure substances that are independent of the amount of matter present including density, melting point, boiling point, and solubility to properties that are dependent on the amount of matter present to include volume, mass and weight.

8.P.1.3 Compare physical changes such as size, shape, and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of a gas, or precipitate.

Investigating Your Health: Healthy Proteins

NC Essential Science Standards

8.L.5.2 Explain the relationship among a healthy diet, exercise and the general health of the body.

NC Essential Information and Technology

6.TT.1, 7.TT.1, 8.TT.1 Use technology and other resources for assigned tasks.

6.SI.1, 7.SI.1, 8.SI.1 Analyze (6) or evaluate (7,8) information resources based on specific criteria.

Investigating Your Health: Extraordinary Eggs

NC Essential Science Standards

8.L.5.2 Explain the relationship among a healthy diet, exercise and the general health of the body.

NC Essential Information and Technology

6.TT.1, 7.TT.1, 8.TT.1 Use technology and other resources for assigned tasks.

6.SI.1, 7.SI.1, 8.SI.1 Analyze (6) or evaluate (7, 8) information resources based on specific criteria.

6.RP.1 Apply a research process for collaborative or individual research.

Chapter 7: Grains

Food Explorations Lab I: Great Grains

NC Correlated Middle School Science Concepts (Life Science 8)

The structure and nutrition of a grain (corn) is the topic of this lesson. Students will learn the three basic parts of the grain and the nutritional components associated with each part. They will evaluate the nutrition available from whole grains versus refined grains.

NC Essential Science Standards

8.L.5.2 Explain the relationship among healthy diet, exercise, and general health of the body (emphasis on the relationship between respiration and digestion)

Food Explorations Lab II: Globes of Gluten

NC Correlated Middle School Science Concepts (Physical Science 8)

Gluten protein is found in flours. Some flours are high protein flours suitable for making bread, while others are low protein flours suitable for making cakes. A gluten ball will form when water is added to the flour to form dough. As the dough is kneaded gluten develops to strengthen the dough and to make it more elastic. Students will test and compare different types of flour for gluten formation.

NC Essential Science Standards

8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are a result of chemical reactions to include changes in temperature, color, formation of a gas or precipitate.

Food Explorations Lab III: Amylase in Action

NC Correlated Middle School Science Concepts (Physical Science 8, Life Science 7, 8)

Starches are carbohydrates found in food. Amylose is one form that is chemically digested in our mouths due to the enzyme amylase found in saliva. Amylose is a long chainlike molecule that amylase breaks down into simple carbohydrates. Using iodine, students will test for the presence of starch before and after chewing bread samples. Students will also compare and contrast the salivary digestion of whole grain bread versus refined grain bread.

NC Essential Science Standards

7.L.1.4 Summarize the general functions of the major systems of the human body (digestion) and ways that these systems interact with each other to sustain life.

8.P.1.3 Compare physical changes such as size, shape, and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of a gas or precipitate.

8.L.5.1 Summarize how food provides the energy and molecules required for building materials, growth, and survival of organisms.

Investigating Your Health: Gratifying Grains

NC Essential Science Standards

8.L.5.2 Explain the relationships among a healthy diet, exercise and the general health of the body.

NC Essential Information and Technology

6.TT.1, 7.TT.1, 8.TT.1 Use technology and other resources for assigned tasks.

6.SI.1, 7.SI.1, 8.SI.1 Analyze (6) or evaluate (7,8) information resources based on specific criteria.

6.RP.1 Apply a research process for collaborative or individual research.

Chapter 8: Sugar

Food Explorations Lab I: Sweet Saccharide

NC Correlated Middle School Science Concepts (Life Science 7, 8 and Physical Science 6, 8)

Sugars are simple carbohydrates found in foods. Glucose and fructose are sugars commonly found in fruits. Sucrose is table sugar and is often used in cooking. Whereas glucose and fructose are monosaccharides that can be directly absorbed by our digestive systems, sucrose is a disaccharide that must first be chemically digested by the enzyme sucrase.

Students will use glucose test strips to determine glucose concentrations of three unknown solutions. Using provided data, students will calculate the percent glucose for the actual solutions. The percent obtained will be compared to the unknowns' glucose results and the unknown's identified.

NC Essential Science Standards

6.P.2.3 Compare the physical properties of pure substances that are independent of the amount of matter present including density, melting point, boiling point, and solubility to properties that are dependent on the amount of matter present to include volume, mass and weight.

7.L.1.4 Summarize the general functions of the human body (digestion, respiration, reproduction, circulation, and excretion) and ways that these systems interact with each other to sustain life.

8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of a gas or precipitate.

8.L.5.1 Summarize how food provides the energy and the molecules required for building materials, growth and survival of all organisms.

8.L.5.2 Explain the relationship among a healthy diet, exercise and the general health of the body.

Food Explorations Lab II: Super Solutions

NC Correlated Middle School Science Concepts (Life Science 8, Physical Science 6, 8)

The solubility of sugar is investigated in this activity. The mass of the sugar needed to make a saturated solution at high temperature (teacher demonstration) will be compared to the amount needed at a low temperature (student performed). Solute and solvent will be identified by students and they will be asked to explain the observed differences between the heated and cold solutions.

In addition, the experimental results will be compared to the sugar content of fresh juice.

The calorie content for each solution and the fresh juice will be calculated and students will be asked to reflect on their personal beverage choices.

NC Essential Science Standards

6.P.2.2 Explain the effect of heat on the motion of atoms through a description of what happens to particles during a change in phase.

6.P.2.3 Compare the physical properties of pure substances that are independent of the amount of matter present including density, melting point, boiling point, and solubility to properties that are dependent on the amount of matter present to include volume, mass and weight.

8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of a gas or precipitate.

8.L.5.1 Summarize how food provides the energy and the molecules required for building materials, growth and survival of all organisms.

8.L.5.2 Explain the relationship among a healthy diet, exercise and the general health of the body.

Investigating Your Health: Surprising Sugar

NC Essential Science Standards

8.L.5.2 Explain the relationships among a healthy diet, exercise and the general health of the body.

NC Essential Information and Technology

6.TT.1, 7.TT.1, 8.TT.1 Use technology and other resources for assigned tasks.

6.SI.1, 7.SI.1, 8.SI.1 Analyze (6) or evaluate (7,8) information resources based on specific criteria.

6.RP.1 Apply a research process for collaborative or individual research.

Chapter 9: Fats & Oils

Food Explorations Lab I: Lipid Language

NC Correlated Middle School Science Concepts (Life Science 8, Physical Science 6, 8)

The molecular differences of lipids and their physical properties are focused on in this activity. Students will be asked to compare the physical appearances, the melting points (teacher demonstration) and the temperatures of solidification (student performed) for butter, margarine, and vegetable oil. From the results, students will be asked to identify the lipids as saturated, unsaturated, or trans fat.

The students will also be asked to compare the particles in the solid and liquid states and to consider the nutrition and health benefits associated with the different forms of lipids.

NC Essential Science Standards

6.P.2.2 Explain the effect of heat on the motion of atoms through a description of what happens to particles during a change in phase.

6.P.2.3 Compare the physical properties of pure substances that are independent of the amount of matter present including density, melting point, boiling point and solubility to properties that are dependent on the amount of weight present to include volume, mass and weight.

8.L.5.2 Explain the relationship among a healthy diet, exercise, and the general health of the body.

8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, and formation of a gas or precipitate.

Food Explorations Lab II: Examining Emulsions

NC Correlated Middle School Science Concepts (Life Science 7, 8 and Physical Science 6, 8)

Emulsions are made by adding an emulsifier to liquids that are immiscible. In this activity, students will test different substances to see which will act as an emulsifier for oil and vinegar. Once identified, the emulsion may be viewed under a microscope. After performing the experiment, students will mix their test samples to create vinaigrette. Students will describe the physical characteristics of each mixture, identify whether the mixtures are homogeneous or heterogeneous, and describe how the appearance of the vinaigrette changes as it is mixed and when used on lettuce.

Phospholipids are major components of the membranes of cells. Students are asked to relate their investigation results to the importance of lipids in the cell membrane.

NC Essential Science Standards

6.P.2.3 Compare the physical properties of pure substances that are independent of the amount of matter present including density,

melting point, boiling point and solubility to properties that are dependent on the amount of weight present to include volume, mass and weight.

7.L.1.2 Compare the structures of plant and animal cells, including major organelles.

8.L.5.2 Explain the relationship among a healthy diet, exercise, and the general health of the body.

8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, and formation of a gas or precipitate.

Investigating Your Health: Fascinating Fats

NC Essential Science Standards

8.L.5.2 Explain the relationship among a healthy diet, exercise and the general health of the body.

NC Essential Information and Technology

6.TT.1, 7.TT.1, 8.TT.1 Use technology and other resources for assigned tasks.

6.SI.1, 7.SI.1, 8.SI.1 Analyze (6) or evaluate (7, 8) information resources based on specific criteria.

6.RP.1 Apply a research process for collaborative or individual research.

Chapter 10: Energy Balance

Food Explorations Lab: Energy Balance Equation

NC Correlated Middle School Science Concepts (Life Science 8, Physical Science 8)

In this activity, the teacher will use a bomb calorimeter to experimentally determine the calorie content of a peanut. Before burning the peanut, students are asked to predict the number of peanuts that would provide 200 kilocalories. Using the change in temperature of the water in the calorimeter, students will calculate the calories in one peanut. As well as comparing the results to their predictions and to the nutrition fact label from the peanut container, students will be asked to identify sources of error that occur using the bomb calorimeter and suggest improvements to its design. The relationship of a food's calorie content to its potential energy is emphasized.

NC Essential Science Standards

8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of gas or precipitate.

8.L.5.1 Summarize how food provides the energy and the molecules required for building materials, growth and survival of all organisms.

Investigating Your Health: Managing Your Meals

NC Essential Science Standards

8.L.5.2 Explain the relationship among a healthy diet, exercise and the general health of the body.

NC Essential Information and Technology

6.TT.1, 7.TT.1, 8.TT.1 Use technology and other resources for assigned tasks.

6.SI.1, 7.SI.1, 8.SI.1 Analyze (6) or evaluate (7,8) information resources based on specific criteria.

6.RP.1 Apply a research process for collaborative or individual research.