Global Teachers to Germany 2014

Science Global Lesson
4th Grade Food Chemistry Unit Plans

Unit Theme: A Balanced Diet for Healthy Living

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Coltrane Webb STEM Elementary
Cabarrus County Schools, NC.
4th Grade Food Chemistry Unit

Unit Theme:
A Balanced Diet for Healthy Living

Concepts: Balanced Diet, Healthy Living
Unit Overview

This unit will be taught in a brain friendly, collaborative and cooperative learning environment. The classroom will incorporate an enriched learning environment, in which active and experimental learning will take place.

Reflection and assessment will be an ongoing tool used by both the students and the teacher. Through the various activities that have been planned, students will gain the knowledge they need to answer the essential questions that have been posed.

The activities that the students will do during this unit will lead up to two complex performances:

1. Designing and creating a menu with a balanced diet for a banquet in honor of our visiting German delegates.

2. Writing a persuasive letter convincing them to choose their company to cater for the banquet.
Essential Understandings

1. Eating a balanced diet can improve and maintain healthy living.

2. Food provides energy and materials for the growth and repair of the body.

Essential Questions

1. How does eating a balanced diet affect healthy living?

2. How does food provide energy and materials for the growth and repair of our body?
Complex Performances

Divide students into groups of three. Each group will represent a catering company that wants to cater for the upcoming banquet in honor of our visiting German delegates.

1. Each company (group) will create and design a balanced diet authentic German menu for the banquet. Their menu should include German foods from all the different food groups and nutrients. Their food portions should represent a diet that recommends how much a person should consume from each food group every day.

2. Students will then write a persuasive letter to the delegates convincing them why they should pick their company to do the catering for the banquet. In their letter they should include facts and reasons for choosing the foods on the menu, their importance and how they will impact healthy living.
Skills

- Use media and technological resources for research and as tools for learning.

- Use a variety of technology tools to create and design a menu.

- Use written language to present information and ideas in a clear, concise manner.

- Create written presentations using visual aids with an awareness of purpose and audience.

- Apply grammar and language conventions to communicate effectively.

- Collect, organize, analyze, and display data.
Vocabulary words to know

Calcium                              Carbohydrates                   Cholesterol
Energy                                Fat                                    Food groups
Fruits and vegetables               Glucose                                Ingredients
Meat group                           Milk group                              Malnourished
minerals                            Nutrient                                Nutrition
organisms                           Protein                                Vitamins

Create an ABC Word Map and insert these words.  
Fill in the map with more words as you do the unit.
## Food Nutrition likert scale.

<table>
<thead>
<tr>
<th>PRE-ASSESSMENT</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To be healthy you must eat from all food groups.</td>
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<tr>
<td>2. All athletes are healthy.</td>
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<tr>
<td>3. You need food to grow.</td>
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<td>4. All foods give you energy.</td>
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<tr>
<td>5. Food helps to heal your body.</td>
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<tr>
<td>6. All fats are bad for your body.</td>
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<tr>
<td>7. Proteins are necessary for growth and tissue repair.</td>
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<tr>
<td>8. Carbohydrates give the body most of its energy.</td>
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<tr>
<td>9. You can only get vitamins and minerals from taking a vitamin pill.</td>
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<tr>
<td>10. As long as you eat healthy, you do not need to exercise.</td>
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</tbody>
</table>
### Class A B C Word Map

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>What does it mean?</td>
<td>Carbohydrates: main source of energy.</td>
<td>Digestion: way food is broken down so nutrients can get into body</td>
<td>Energy</td>
<td></td>
</tr>
<tr>
<td>What is it like?</td>
<td>What does it mean?</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>What are some examples?</td>
<td>Examples?</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat: gives us energy and flavor to foods.</td>
<td>Glucose</td>
<td>Ingredients</td>
<td>J</td>
<td>J</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
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</thead>
<tbody>
<tr>
<td>Protein: supplies energy &amp; builds muscle, skin and internal organs</td>
<td></td>
<td>Minerals: same as vitamins. Milk group Malnourished</td>
<td>Nutrient Nutrition</td>
<td>Organisms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P</th>
<th>Q/R</th>
<th>S</th>
<th>T</th>
<th>U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein: supplies energy &amp; builds muscle, skin and internal organs</td>
<td>Water: main ingredient. It cleans and cools you.</td>
<td></td>
<td></td>
<td>ABC's of food. Mrs. Lewis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>V</th>
<th>W/X</th>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamins &amp; minerals: make nutrients work together. It helps what our bodies need to do.</td>
<td>Water: main ingredient. It cleans and cools you.</td>
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</tbody>
</table>
Lesson/Activity 1

I will create a KWHL chart and be able to discuss how foods provide both energy and nutrients for living organisms.

<table>
<thead>
<tr>
<th>K</th>
<th>W</th>
<th>H</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Know</td>
<td>Want</td>
<td>How</td>
<td>Learned</td>
</tr>
</tbody>
</table>
Lesson/Activity 2

I will view various pictures and be able to explain why organisms require energy to live and grow.

1. Picture match activity
   Match each picture to one of your classmates!

   Discuss the following questions:

   1. Are you the same size you were in your baby picture?
   2. How can you tell that you have grown?
   3. Do you know what helps your body grow?
   4. Do you know what could prevent your body from growing?

2. Do you think these children are healthy? Why? *Turn and talk with a partner.*

Picture 1  Picture 2  Picture 3  Picture 4
I will create a weekly food diary to be able to track my food and exercise (to be compared with a peer from Germany)

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
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<tbody>
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<td>Date</td>
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<tr>
<td>Breakfast</td>
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<td>Lunch</td>
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<td>Dinner</td>
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<td>Snacks</td>
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<tr>
<td>Calories</td>
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<td></td>
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<tr>
<td>Water</td>
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</tbody>
</table>

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Lesson/Activity 3

I will listen to *Good Enough To Eat* and be able to determine that foods are made up of a variety of components.

*Create Catering Companies (groups)*
<table>
<thead>
<tr>
<th>Information from Presentation</th>
<th>My Thoughts or Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The Nutrient Groups (6 Kinds) Carbohydrates, Protein, Fat, Water, vitamins, and Minerals.</td>
<td>• Carbohydrates-main source of energy. They can be starchy or sweet.</td>
</tr>
<tr>
<td>• The Function of Each Nutrient</td>
<td>• Protein-gives energy, builds our muscle, skin and internal organs</td>
</tr>
<tr>
<td>• Some foods that Contain Nutrients</td>
<td>• Fat-gives energy and flavor to food.</td>
</tr>
<tr>
<td>• Amount of Nutrients Kids need Daily</td>
<td>• Water-main ingredient; cleans and cools our body.</td>
</tr>
<tr>
<td></td>
<td>• Vitamins &amp; minerals- make the nutrients work together.</td>
</tr>
<tr>
<td></td>
<td>• Parts of food your body uses to do it's work.</td>
</tr>
<tr>
<td></td>
<td>• we need more of some than others.</td>
</tr>
</tbody>
</table>

...amount of energy food supplies. **Calories:**
I will be able to combine information from texts and reference text by reading a variety of articles from a web search.

Go to  http://kidshealth.org/kid/

Monday:

1. Read Articles about proteins, carbohydrates, and calories.
2. Write what each word means, where your body gets each, and why each is important to your body.

Tuesday:

1. Same as above with articles about fats.
2. Write the three types of fats and how they effect your body.
3. Tell if fats can be good for you and why.
I will be able to combine information from texts and reference text by reading a variety of articles from a web search.

Go to [http://kidshealth.org/kid/](http://kidshealth.org/kid/)

**Wednesday:**
1. Read an article called "Figuring Out Food Labels" and decide which food described in the labels on the last page is best for you and why.

**Thursday:**
1. Read "It's Time to Play".
2. Create a two column chart labeled "Things I Will Try/Things That I Can't Try."

**Friday:**
1. Read "Be a Fit Kid" then decide which advice in the article is most important to becoming a healthy active kid.
2. Explain your choice or choices.
Lesson/Activity 4

I will skim and scan web sites to be able to build an understanding of how food provides energy and materials for growth and repair of the body

In order to get energy to live and grow, your body needs nutrients from many sources. The best way to make sure your body gets these vital nutrients is to eat a balanced diet. We have an excellent tool to help us eat correctly. It is the Food Pyramid!

Click on the link to view as a class then take the quiz!

*Use Inquiry Chart for food nutrition.*
I will watch a video to be able to build an understanding of how food provides energy and materials for growth and repair of the body.
VEGETABLES
Vary your veggies.
Any vegetable or 100% vegetable juice counts as a member of the Vegetable Group.
Fill half your plate with fruits and vegetables.

FRUITS
Focus on fruits.
Whole fruit is preferable to juice but any fruit counts fresh, frozen, canned, or dried.
Fill half your plate with fruits and vegetables.

GRAINS
Make at least half your grains whole.
Read labels to find more whole grain foods.
Whole wheat, oatmeal and brown rice are all good.

PROTEIN
Go lean with protein.
Keep portion to 1/4 of the plate.
Nuts, beans/peas, seeds, poultry, lean meat, seafood, soy and eggs are in this group.

DAIRY
Get your calcium-rich foods.
Remember to buy skim milk or 1% milk.
Go easy on cheese.
Skim yogurt is a good choice, too.
Lesson/activity 6

I will compare and contrast my food diary with a (German) peer and be able to create a graph of our different food choices.

• Share your food diary entries with your group and the German students.
• Discuss how your food choices compare to one another. Also discuss what factors influenced the foods you had e.g. cooking/preparation time, cost, convenience etc.
• Make a bar graph to show which foods we like best in our class and which food the German students like best.

Here are some questions for discussion:

1. What differences did each group find?
2. Why were there differences of opinion?
3. Do we all eat the same foods each day? Why not?
4. What influences the foods we eat?
5. Do we, as students, need to make better choices of the foods we eat? Why or Why not?
What factors affect individual food choices?

- allergies
- food preferences
- level of activity
- cooking skills
- finances
- climate
- family traditions
- culture
- food preparation
- time
In order to live and grow, living organisms require energy to make and repair new cells. They get this energy from food, water, and oxygen. If an organism eats too little, it will not grow and be healthy.

If an organism eats more than its body can use as energy, the extra food will be stored as fat.

Our bodies are always changing. In order to grow, our cells need nutrients. We get these nutrients from the food we eat. If we eat a balanced diet, our bodies will grow and repair itself. If our body does not get the nourishment it needs, then it will start to break down and possibly die.
I will create a Healthy Eating cube to be able to develop an understanding of each food group.

Create a Healthy Eating cube:

- Use the colors of the food pyramid.
- Each side of the cube will represent a food group
- It should have important facts about the food group and examples.
- You may illustrate if you wish.
- Make sure your work is neat-this is a GRADE!