Fitness

Level of fitness - determined by the physical activities you can perform (how long you can do them and how hard the activity is)
• **Food** - any substance that your body can use as a raw material to grow, repair itself, and provide energy

• Most of food is made of **water** (not considered a nutrient)
• **Diet** - the type of food you eat every day
• **Calorie** - measures how much energy is in a food

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**Digestible Disaccharides in Food**

- **Sucrose**  
  (Glucose-fructose)

- **Lactose**  
  (Galactose-glucose)

- **Maltose**  
  (Glucose-glucose)

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The Calories in these items could:

- 5 lbs of spaghetti
  ![Chemical bonds break and release energy!](image)
  - Brew a pot of coffee

- 1 piece of cherry cheesecake
  - Light a bulb for 1.5 hours

- 217 Big Macs
  - Drive a car 88 miles

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• Your body **gets energy** from food by **breaking** the chemical bonds that hold the food together!
The Six Food Groups

- **Dairy** (milk, yogurt, and cheese)

- **Meat** (beef, poultry, fish, dry beans, eggs, and nuts)
- **Vegetables** (carrots, lettuce, celery, radishes)
- **Grains** (bread, cereal, pasta)
- **Fruits** (oranges, apples, juices)
- **Fats, sweets, and oils** (butter, candy, cooking oil)
Macromolecules

• Three Major Classes of Nutrients Found in Food
  
  ▪ **Carbohydrates** - get broken down into simple sugars (like glucose = $\text{C}_6\text{H}_{12}\text{O}_6$)
    
    ▪ **The easiest** form of energy for our bodies to use

  ▪ Some carbohydrates have **fiber**, which is important for energy and to maintain a healthy digestive tract (helps you poop!)
  
  ▪ Ex. Foods from the grain, vegetable, and fruit groups
- Carbohydrates contain **fiber** which comes from **plant cell walls** (made of cellulose)

- **Fiber** cannot be digested, but helps absorb water and toxins and helps ensure regular pooping!
• **Proteins** - get broken down into *amino acids*

  ▪ Important for healthy skin, hair, and muscles

  ▪ Ex. Foods from the dairy and meat groups (also nuts and beans!)
• **Fats** (lipids) - get broken down into simpler molecules
  - Important part of **cell membranes**, helps to keep you warm, stops skin from drying out
  - Ex: Foods from the fats, oil, and sweets group; also dairy and meat groups
Other Information

• Food also contains **vitamins and minerals**

- **Vitamins** - work with enzymes to regulate cellular activities (an enzyme is a protein that helps start a chemical reaction)

- **Minerals** - elements, which are the basic components of matter
What Makes a Food Healthy?

- Healthy foods are usually:
  - **High** in fiber, vitamins, and minerals
  - **Low** in calories, sugar, saturated fat, total fat, cholesterol and sodium

Food sources of fiber include whole wheat, bran, fresh or dried fruits, and vegetables.
Practice
To which **food group(s)** does each of these foods belong? Explain. Which **macromolecules** does each of these foods contain? Explain.

**Spaghetti and meatballs**
Grains, meat, veggies, fat, sweets & oils
Protein, carb, lipid

**Asian chicken salad**
Meat, fruit, veggies, fat, sweets & oils

**Cheese pizza**
Grains, dairy, veggies, fat, sweets & oils
Protein, carb, lipid
Reading Food Labels

1. **Serving Size**: This information tells you the size of a **single serving** and the number of servings in the container.

2. **Calories**: This information tells you **how much energy** you get from one serving of this food, including how many calories come from fat.

3. **Percent Daily Value**: The Percent Daily Value shows you how the nutritional content of one serving fits into the recommended diet **for a person who consumes 2,000 calories a day**.

4. **Ingredients**: The ingredients are listed in order by weight, starting with the **main** ingredient.
• Choose foods that are as processed as little as possible
  – Less processed foods are foods in or close to their natural state, without lots of added ingredients
  – More processed = more added junk
  – Examples:

<table>
<thead>
<tr>
<th>Less Processed</th>
<th>More Processed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>Apple pie</td>
</tr>
<tr>
<td>Corn on the cob</td>
<td>Doritos</td>
</tr>
<tr>
<td>Plain oatmeal with milk</td>
<td>Oatmeal cookie</td>
</tr>
<tr>
<td>Roasted chicken with herbs and oil</td>
<td>Fried buffalo chicken sandwich from the truck</td>
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<tr>
<td>Baked potato</td>
<td>Curly fries</td>
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<td>Whole wheat bread</td>
<td>White bread</td>
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• Watch your serving size- don’t assume one package or bottle is one serving; check the label!
• Watch out for calories in drinks- most of them come from sugar!
• **Low fat** products have less fat than the original, but they often have **more sugar**!
• **1 gram of fat has 9 calories, while 1 gram of protein or carbohydrates has 4 calories**
• The bottom line: **Everything in moderation**
Fitness, Food and Macromolecules

Fitness
• Level of fitness - 

To demonstrate Proteins...
- AMINO ACID AMINO ACID AMINO ACID
  a peptide

To demonstrate Lipids...
- a lipid
  NEUTRAL ALCOHOL ALCOHOL a phospholipid

To demonstrate Carbohydrates...
- GLUCOSE GLUCOSE
  a disaccharide
- GLUCOSE FRUCTOSE
  maltose
- MONO-SACCHARIDE MONO-SACCHARIDE MONO-SACCHARIDE
  This will be a polysaccharide

To demonstrate Nucleic Acids...
- a segment of DNA
  a nucleotide (adenine)
• **Food** - any substance that your body can use as a raw material to ________________

• Most of food is made of _________________ (not considered a nutrient)

$H_2O$
• __________ - the type of food you eat every day
• Calorie - ____________________________________

Digestible Disaccharides in Food

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The Calories in these items could:

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• Your body gets energy from food by ____________!
The Six Food Groups

- **Dairy** (milk, yogurt, and cheese)
- ________________ (carrots, lettuce, celery, radishes)

- ___________ (bread, cereal, pasta)

- __________________________

- __________________________ (butter, candy, cooking oil)
Macromolecules

- Three Major Classes of Nutrients Found in Food
  - **Carbohydrates**
    - (like glucose = $C_6H_{12}O_6$)
    - The **easiest** form of energy for our bodies to use
  - Some carbohydrates have **fiber**, which is important for energy and to maintain a healthy digestive tract (helps you poop!)
  - Ex. Foods from the grain, vegetable, and fruit groups
Carbohydrates contain ________________ which comes from **plant cell walls** (made of cellulose)
• **Proteins** - get broken down into *amino acids*

  ▪ Important for healthy skin, hair, and muscles

  **Ex.**  
  
  ![Milk](image1.png)  
  ![Deviled Eggs](image2.png)  
  ![Cheese](image3.png)  
  ![Steak](image4.png)  
  ![Salmon](image5.png)
• **Fats** (lipids) - get broken down into simpler molecules

  ▪ Important part of ______________________________________________________
    ______________________________________________________

  ▪ Ex: Foods from the fats, oil, and sweets group; also dairy and meat groups
• Vitamins - ________________ to regulate cellular activities (an enzyme is a protein that helps start a chemical reaction)

• ________________ - elements, which are the basic components of matter
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