

Chapter One

What You Eat and Why

(What influences your food choices?)

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Nutrition and Your Health

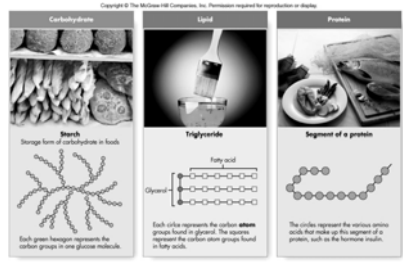
- Nutrition = the science of food
- **Nutrients come from food**
Nutrients are nourishing substances
Food provides energy and the material our cells need

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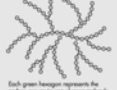
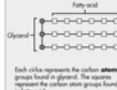

- **Why Study Nutrition**
- Proper nutrition is important for maintaining good health
- Table 1-1 discusses nutrition related diseases

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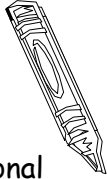
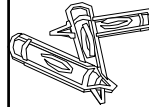
Classes and Sources of Nutrients



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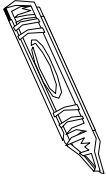
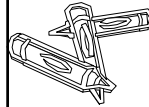
Carbohydrates	Lipid	Protein
Starch Storage form of carbohydrate in foods	Triglyceride Fatty acid	Segment of a protein
 Each green hexagon represents the carbon groups in one glucose molecule.	 Each circle represents the carbon atoms found in glycerol. The squares represent the carbon atom groups found in fatty acids.	 The circles represent the various amino acids that make up this segment of a protein, such as the hormone insulin.

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- Nutrients are assigned to three functional categories:
 - 1) provide calories and meet energy needs
 - 2) important for growth, development and maintenance
 - 3) keep the body functioning properly
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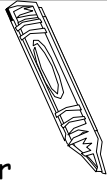
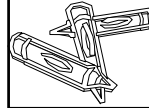
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- Nutrient: Carbohydrates
 - Composition: carbon, hydrogen, oxygen
 - Organic: yes
 - Calories: 4 kcal/gram
 - Function: major source of calories
 - Example: sugar, starch, fiber
 - Source: fruits, vegetables, grains
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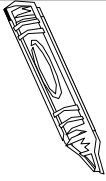
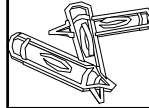
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- Classified based on the number of sugar molecules
 - Monosaccharide - 1 molecule, ex. Glucose
 - Disaccharide - 2 molecules, ex. Sucrose
 - Polysaccharide - many molecules, ex. Starch
- Fiber = carbohydrate molecules that cannot be broken down
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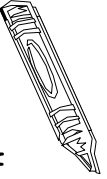
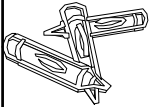
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- Nutrient: Lipids
 - Composition: carbon, hydrogen, oxygen
 - Organic: yes
 - Calories: 9 kcal/gram
 - Function: hormone production, brain development
 - Example: fats & oils
 - Source: butter, nuts, oils
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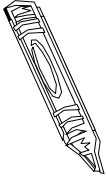
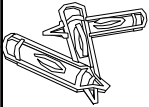
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- Triglyceride is the major source of fat in foods and also main form of energy storage in the body
 - Two Basic Types
 - Saturated fatty acid - no C=C; solid at room temperature
 - Unsaturated fatty acids - has C=C; liquid at room temperature
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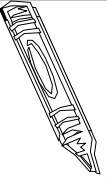
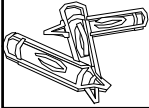
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- Nutrient: Protein
 - Composition: carbon, hydrogen, oxygen, nitrogen
 - Organic: yes
 - Calories: 4 kcal/gram
 - Function: main structural material in the body
 - Example: building blocks of muscle in the body
 - Source: meat, fish, eggs, nuts, beans
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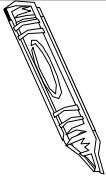
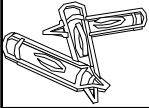
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- Amino acids chemically bonded together make a protein
 - Enzymes - specialized proteins that act as a catalyst, yet remain unchanged
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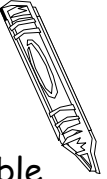
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- Nutrient: Vitamins
 - Composition: carbon, hydrogen, oxygen, nitrogen, sulfur, phosphorous
 - Organic: Yes
 - Calories: 0
 - Function: enable chemical reactions
 - Example: A, B-6, B-12, D, E, K, Folate
 - Source: fruits, vegetables, milk
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Vitamins A, D, E and K are fat soluble
- they dissolve in fat

- These vitamins can be toxic to the body

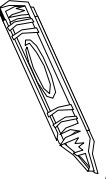
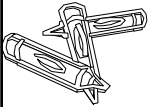
Vitamin C and the B vitamins are water soluble

- Cooking breaks them down



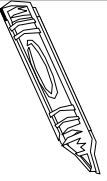
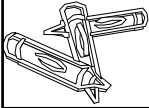
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- Nutrient: Minerals
 - Composition: groups of atoms
 - Organic: no
 - Calories: 0
 - Function: water balance, muscle contraction
 - Example: calcium, zinc, selenium, iron
 - Source: fruits, vegetables, fish, nuts
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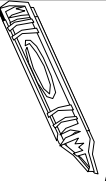
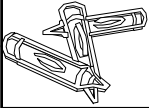
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- Do not break down during cooking
 - 16 essential minerals are needed for good health
 - Divided into: major minerals and trace minerals (body needs less than 100 mg a day)
 - When dissolved in water and conduct electricity they are called electrolytes
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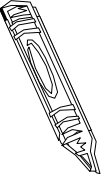
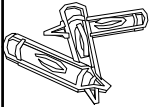
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- Nutrient: Water
 - Composition: hydrogen, oxygen
 - Organic: no
 - Calories: 0
 - Function: solvent, temperature regulation, transport
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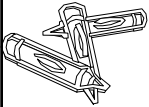
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- Human body is 60% water
 - Daily needs:
 - Men 11 cups
 - Women 9 cups

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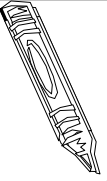
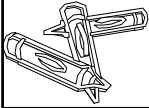
Energy Sources and Uses



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- We get energy from carbohydrates, fats and protein
 - Plant oils are 100% fat - other foods provide more than one calorie source
 - Alcohol is rich in carbohydrates and provide 7 kcal/gram

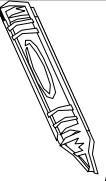
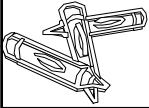
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- Energy from food is used to:
 - Build new compounds
 - Perform muscular movement
 - Promote nerve transmissions
 - Maintain ion balance within cells

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- **CALORIES**
 - What we see expressed on food labels is kilocalories
 - Calorie = amount of heat energy needed to raise the temperature of one gram of water one degree Celsius

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