



Chemistry & Composition of Milk

Which of the following animals produce milk after giving birth?

A. Dog

B. Pig

C. Cow

D. Mouse

E. All of the above

*All mammals
produce milk
after giving birth*

Which of the following animals produces the milk most people consume?

A. Dog

B. Pig

C. Cow

D. Mouse

E. All of the above

Cow's milk is most widely used for human consumption



If all mammals produce milk, why are cattle used most widely for milk production?

A. Cows produce the best tasting milk.

Taste varies by species

B. Cows produce the most milk of any mammal

False- a single gray whale can produce up to 80 gallons per day!
(cows produce 6-8 gallons per day)

C. Cows produce milk most efficiently

When considering the cost to feed and maintain an animal, cows produce the most milk at the cheapest cost.

What is Milk?



Water

Lactose

Fat

Protein

Minerals

Nutrition Milk Provides

Water



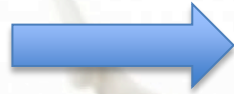
Hydration

Lactose



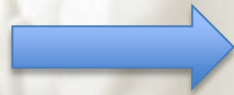
Carbohydrate

Fat



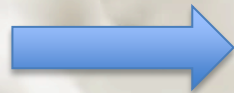
Energy

Protein



Builds and repairs muscle

Minerals



Calcium for strong bones
and teeth

Components of Cow's Milk

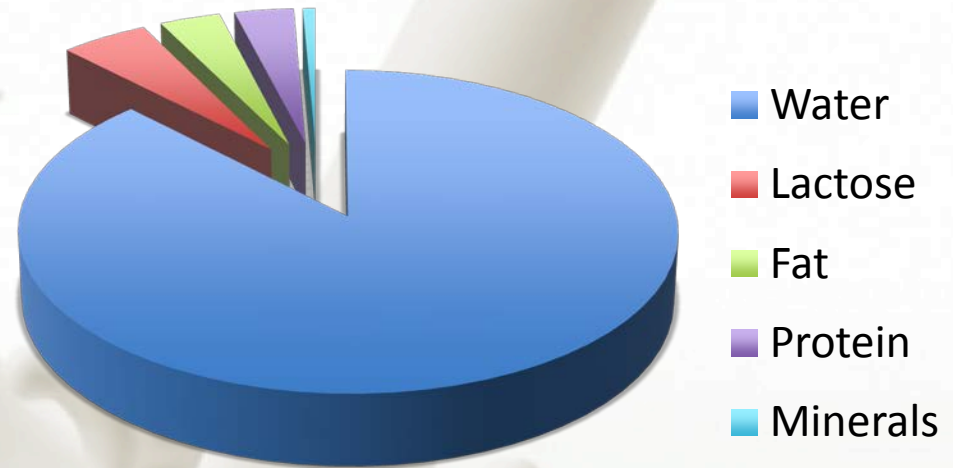
87.7% Water

4.9% Lactose

3.4% Fat

3.3% Protein

0.7% Minerals



Chemistry Review

What is an *enzyme*?

- A. When 2 monosaccharides (sugars) join together.
- B. A substance that helps a specific chemical reaction occur.
- C. A carbohydrate molecule with 1 sugar.
- D. A sugar present in milk

Chemistry Review

What is a *monosaccharide*?

- A. The simplest form of carbohydrate which contains 1 saccharide (sugar.)
- B. When 2 monosaccharides (sugars) join together.
- C. A specific protein found in vegetables
- D. A substance that helps a specific chemical reaction occur.

Chemistry Review

What is a *disaccharide*?

- A. A class of sugar whose molecules contain 1 saccharide.
- B. When 2 monosaccharides (sugars) join together.
- C. A specific protein found in vegetables
- D. A substance that helps a specific chemical reaction.

Chemistry Review

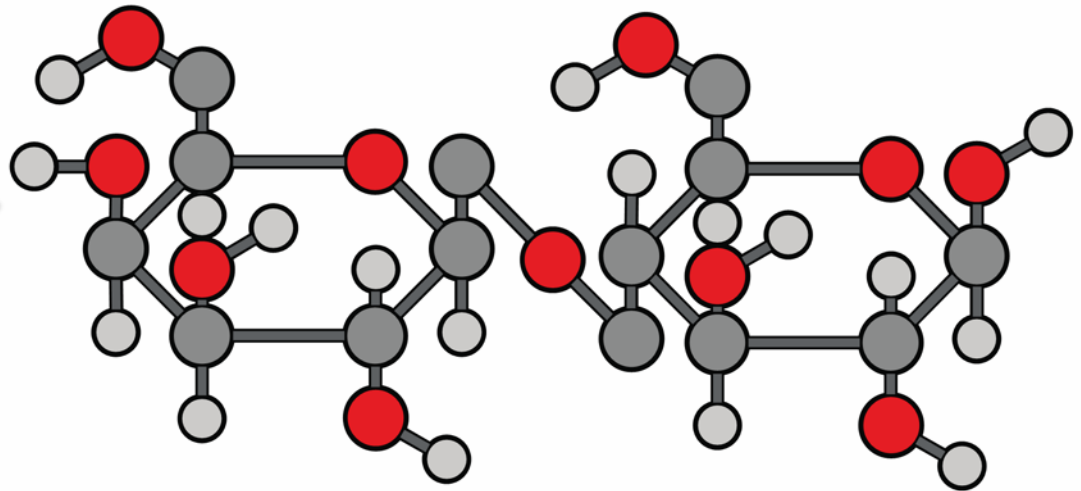
What is a *lactose*?

- A. The carbohydrate or sugar found in milk.
- B. A specific protein found in vegetables
- C. An enzyme
- D. An amino acid

Chemical Structure of Milk

Water

Lactose



Fat

Protein

Minerals

Glucose + Galactose = Lactose

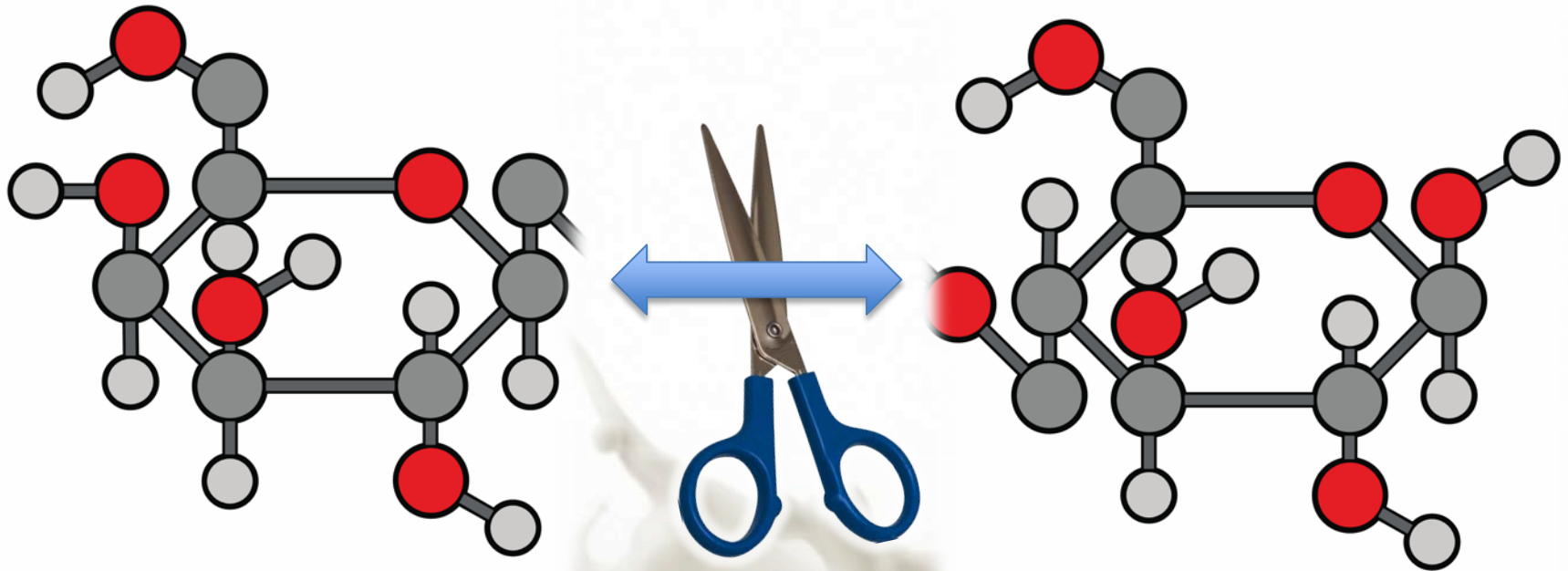
(Lactose is a disaccharide)

Chemical Structure of Milk



Lactase= Enzyme that breaks down Lactose

Chemical Structure of Milk



Glucose
(monosaccharide)

Galactose
(monosaccharide)