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
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.

B. Cows produce the most milk of any mammal

C. Cows produce milk most efficiently

Taste varies by species

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

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.
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