

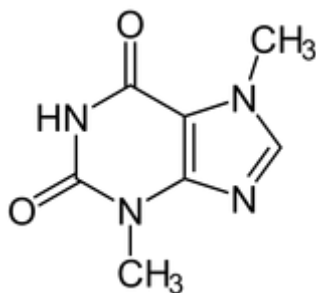
STUDENT A

Read the article and ask Student B questions to complete the gaps in your text. Then answer Student B's questions.

THEOBROMINE CHEMISTRY

Adapted from <http://chemistry.about.com/od/factsstructures/a/theobromine-chemistry.htm>

By Anne Marie Helmenstine, Ph.D.,



This is the two-dimensional molecular structure of theobromine, a naturally-occurring alkaloid that is similar to caffeine. Theobromine is also known as **1.**

Theobromine belongs to a class of alkaloid molecules known as methylxanthines. Methylxanthines naturally occur in as many as **2.** different plant species and include caffeine (the primary methylxanthine in coffee) and theophylline (the primary methylxanthine in tea). Theobromine is the primary methylxanthine found in products of the **3.** tree (...).

Theobromine affects humans similarly to caffeine, but on a much **4.** scale. Theobromine is mildly diuretic (increases urine production), is a mild stimulant, and relaxes the smooth muscles of the bronchi in the lungs. In the human body, theobromine levels are halved between **5.** hours after consumption.

Theobromine has been used as a drug for its diuretic effect, particularly in cases where cardiac failure has resulted in an accumulation of body fluid(...).

Cocoa and chocolate products may be toxic or lethal to dogs and other domestic animals such as horses because these animals metabolize theobromine more slowly than humans. The heart, central nervous system, and kidneys are affected. Early signs of theobromine poisoning in dogs include nausea and vomiting, restlessness, diarrhea, muscle tremors, and increased urination or incontinence. The treatment at this stage is to induce vomiting. (...)

Different types of chocolate contain different amounts of theobromine. In general, theobromine levels are higher in dark chocolates (approximately 10 g/kg) than in milk chocolates (1-5 g/kg). Higher quality chocolate tends to contain more theobromine than lower quality chocolate. Cocoa beans naturally contain approximately 300-1200 mg/ounce theobromine (note how variable this is!).

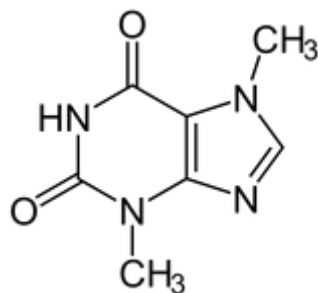
STUDENT B

Read the article and answer Student A's questions. Then ask Student A questions to complete the gaps in your text.

THEOBROMINE CHEMISTRY

Adapted from <http://chemistry.about.com/od/factsstructures/a/theobromine-chemistry.htm>

By Anne Marie Helmenstine, Ph.D.,



This is the two-dimensional molecular structure of theobromine, a naturally-occurring alkaloid that is similar to caffeine. Theobromine is also known as xantheose.

Theobromine belongs to a class of alkaloid molecules known as methylxanthines. Methylxanthines naturally occur in as many as sixty different plant species and include caffeine (the primary methylxanthine in coffee) and theophylline (the primary methylxanthine in tea). Theobromine is the primary methylxanthine found in products of the cocoa tree, *theobroma cacao*.

Theobromine affects humans similarly to caffeine, but on a much smaller scale. Theobromine is mildly diuretic (increases urine production), is a mild stimulant, and relaxes the smooth muscles of the bronchi in the lungs. In the human body, theobromine levels are halved between 6-10 hours after consumption.

Theobromine has been used as a **6.** for its diuretic effect, particularly in cases where cardiac failure has resulted in an accumulation of body fluid. (...).

Cocoa and chocolate products may be **7.** to dogs and other domestic animals such as horses because these animals metabolize theobromine more slowly than humans. The heart, central nervous system, and kidneys are affected. Early signs of theobromine poisoning in dogs include nausea and vomiting, restlessness, diarrhea, muscle tremors, and increased urination or incontinence. The treatment at this stage is to **8.** (...)

Different types of chocolate contain different amounts of theobromine. In general, theobromine levels are higher in **9.** (approximately 10 g/kg) than in milk chocolates (1-5 g/kg). Higher quality chocolate tends to contain more theobromine than lower quality chocolate. Cocoa beans naturally contain approximately **10.** mg/ounce theobromine (note how variable this is!).