

Dear Jax,

What is milk made from?

Joseph P. Ruddick
Warren, Rhode Island

Dear Joseph,

Most animals with hair make milk. Those animals are called mammals. The milk that humans drink comes mostly from cows, goats, sheep, yak, and of course, humans.

Milk is a clear liquid called whey (WAY) that has lots of solids floating in it. We call that a colloid (CAHL-oyd).

EXPERIMENT #1

WHAT YOU NEED:

1/4 cup milk - 1 tsp.
vinegar - coffee filter -
strainer

WHAT TO DO:

Add the vinegar to the milk and stir until you see globs form. Lift out spoonfuls and tilt the

spoon so you can see the liquid flow back into the milk.

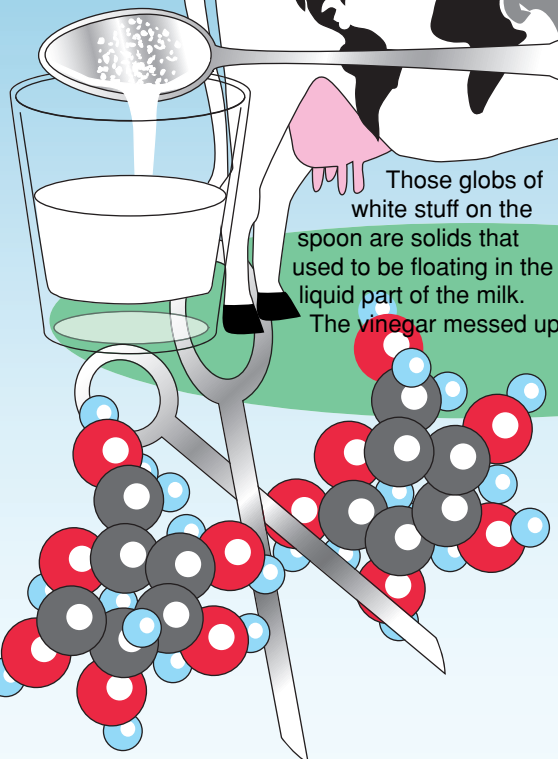
Line a strainer with a coffee filter and pour in the milk-vinegar mix. Examine the liquid and the gunk caught in the filter.

LACTOSE

The sugar lactose is a very large chemical. It's too big for our bodies to absorb and use.

Another chemical acts like a pair of scissors and cuts up the lactose into two smaller sugars, glucose (GLOO-koz) and galactose (gal-LAK-toz).

Without the special scissors, you can't digest milk. The chemical scissors is called lactase (LAK-taz). Babies and young people make a lot of it in their own bodies.



Those globs of white stuff on the spoon are solids that used to be floating in the liquid part of the milk. The vinegar messed up

the floating, and the solids clumped together.

The solids are mostly casein (KAY-seen) - a protein, butterfat and a special sugar called lactose (LAK-toz).

But as we get older, our bodies make less lactase, and we can't digest milk as well. But if people in your family tree raised dairy animals, you will probably make enough lactase all your life to digest milk.

People in India, the Middle East and Europe seem to have evolved to make lactase longer. (See the map.)

In other parts of the world milk is not much a part of an adult's diet.

P.S. from Beakman: In parts of the world where adults don't use milk, other things have changed. In Asia, mice will not eat cheese because they're not used to it.

