Good Bugs and Bad Bugs: Micro-organisms in Dairy Products

Fact file

Dairy products contain some "bugs" or bacteria. Some of the bacteria are not good for you, but others help your body to be healthy and to function properly, and some provide flavour in dairy products.

Cheese creepy-crawlies

Blue cheese

When blue cheese is being made, the whole milk (usually homogenised) can have mould spores of *Penicillium roqueforti* added to it. The reaction that this causes in the milk fat is the main reason for the flavour of the finished cheese.

Swiss cheese

Swiss cheese uses bacteria to produce the characteristic holes, or "eyes", in the finished cheese. The starter cultures that are used for Swiss cheese contain *Streptococcus thermophilus* and small amounts of *Lactobacillus bulgaricus* and *Lactobacillus helveticus*. These are heat-tolerant species of bacteria used in cooking the curd. A culture of *Propionibacterium shermanii* is added, which is the main cause of the "eyes" and sweet flavour of Swiss cheese.

Camembert and brie

Camembert cheese contains a type of mould called *Penicillium camemberti,* and as the cheese ripens, this mould creates the creamy, semi-liquid middle to the cheese.

Brie is similar to camembert, but it also contains *Brevibacterium linens,* which gives the cheese a different flavour.

What's in yoghurt?

To make yoghurt, milk is heat treated to get rid of bacteria that are not good for you, and then the yoghurt starter culture (consisting of good bacteria) is added. The starter cultures that are usually added are called *Streptococcus thermophilus* and *Lactobacillus bulgaricus.*

Name: Room Number:

As well as typical yoghurt starter cultures, acidophilus yoghurt has something called *Lactobacillus acidophilus* added to it. This type of bacterium, which is often found in your intestine, helps your body to function. *Bifidus infantis* is another healthy bacterium that is used in some types of yoghurt.

Taking action

This is an observation exercise on what bacteria do to milk.

You will need two identical glass bottles or jars, two identical see-through plastic bottles or jars, and two identical non-see-through containers. Fill each of these six items with exactly the same amount of milk. Place one bottle, one see-through plastic bottle, and one non-see-through container inside in a cool, shady place. Place the other three items outside in a sunny place.

Make up a chart like the one below. Make your observations daily at the same time. At the end of the observation exercise, make five statements about what your chart shows. (In your observation, consider such things as the milk's appearance, smell, and texture, and the evidence of bacteria.)

	Glass bottle (shade)	See-through (shade)	Non-see-through (shade)	Glass bottle (sun)	See-through (sun)	Non-see-through (sun)
Day 1						
Day 2						
Day 3						
Day 4						
Day 5						