## The Changing Colors of Akanuma Pond

Akanuma Pond is fed by a spring on the pond floor, which gushes out at a temperature of 16°C.

The mystery of the pond's changing colors can be explained by the chemical composition of its water, which is affected by the presence of nearby sulfur and iron deposits. Bacteria involved in oxidation also play a part, but the basic process is as follows:

## Fall, Winter, Spring

The surface water is colder than the spring water feeding the pond, resulting in good water circulation and an ample supply of oxygen. The oxygen reacts with iron and bacteria to create iron oxide, which is brown in color. Simultaneously, hydrogen sulfide combines with oxygen to make sulfur, which is white. The amounts of each compound affect the turbidity of the water.

## <u>Summer</u>

The surface water temperature is equal to or warmer than that of the spring water. As a result, water circulation is poor and oxygen levels are low. Correspondingly, iron oxidation ceases, cutting down on turbidity. In the first half of summer, the water remains cloudy due to the oxidation of hydrogen sulfide, but by late summer the pond is clear.