The RECIPROCAL RELATIONSHIP of FREQUENCY AND PERIOD

The basic unit of frequency is the Hertz, a monosyllabic stand-in for cycles per second, honoring Heinrich Hertz who discovered radio waves. This unit of rate tells how many events are squeezed into a single second.

The period of an event or cycle is how long it takes to occcur; how many seconds per cycle. Notice that the two nouns have switched places, around the per; they are the mathematical flips or reciprocals of each other.

One Hertz = one cycle per second, so the period of the event is one second per cycle. But when more than one event takes place in a second, Hz > 1, there are many events crammmed into that second, each one taking a fractional part of a second. 2 Hz means each one of the two takes a half second, 4 Hz 1/4", etc.

frequency	period
1 Hz = 1 cps	1 s
10 Hz = 10 cps	.1 s = 100 ms
100 Hz = 100 cps	.01 s = 10 ms
1 kHz = 1,000 cps	.001 s = 1 ms
10 kHz = 10,000 cps	.0001 s = 100 us
100 kHz = 100,000 cps	.00001 s = 10 us
1 MHz = 1,000,000 cps	.000001 s = 1 us
10 MHz = 10,000,000 cps	.0000001 s = 100 ns
100 MHz = 100,000,000 cps	.00000001 s = 10 ns
1 GHz = 1,000,000,000 cps	.000000001 s = 1 ns
10 GHz = 10,000,000,000 cps	.0000000001 s = 100 ps
100 GHz = 100,000,000,000 cps	.00000000001 s = 10 ps
1 THz = 1,000,000,000,000 cps	.000000000001 s = 1 ps