# Normal ticking

- [Game Ticks](#)
- [Redstone Ticks](#)
- [Random Ticks](#)

# Game Ticks

## How the game runs

The Minecraft game engine progresses through time in steps called "ticks". In each second there are 20 "game ticks". There will never be more than 20 game ticks in a second, however, if there are less than 20 this means the game is lagging. Each tick includes processing most things in your Minecraft world. All ticks are calculated on the server that is running the world. As the server is calculating the ticks even if your FPS drops, your Minecraft world can still run at full speed. On the other hand, even if you have high FPS your TPS (ticks per second) can be below 20 making things in the world sluggish (such as mobs moving).

> Even in single-player sessions, there is a server running on the device that is calculating the ticks.

> If you are experiencing low TPS (ticks per second) in your Minecraft world constantly and want to upgrade your computer, upgrading your CPU will make the game run better as opposed to the GPU.

## Things in the game that are controlled by game ticks:

- WIP

# Redstone Ticks

## How redstone is calculated

As opposed to game ticks, there are only 10 redstone ticks in a second. This makes each redstone tick last 100 milliseconds. In each redstone tick, there are two game ticks. Since Redstone ticks are run alongside game ticks, having less than 20 game ticks per second will slow down the speed of Redstone. On the other hand, if it takes a long time to process redstone for redstone ticks it can slow the game ticks down and lag your game.

# Random Ticks