

Minecraft Speedrunning

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1 Introduction

Speedrunning is the art of completing a game in as little time as possible. Minecraft is a sandbox block building and survival game. This book fuses the two to act as a strategy guide to speedrunning *Minecraft* Java Edition.

In the 2010's both *Minecraft* and speedrunning gained massive popularity in the gaming community, and as a natural result *Minecraft* speedrunning gained popularity. *Minecraft* is almost unique among freeform games for having an ending, and as a result beating *Minecraft* is usually defined as defeating the final boss known as the Ender Dragon. (Minecraft has 2 more bosses, but they don't count for the any% category, but they do count for the "all bosses" category)

2 Getting Started

Welcome to *Minecraft* Speedrunning!

2.0.1 Philosophy of speedrunning

Speedrunning is a mode of playing in which a player learns full mastery and understanding of a game's systems over time. A player may decide to speedrun a game for fun, for personal improvement, or to compete with likeminded individuals. There is an extensive *Minecraft* speedrunning community scattered around the Web, who collaborate on strategies and improvements. This book will give an overview of optimal strategies for new *Minecraft* speedrunners. However, the core of speedrunning is constant practice. We recommend you do not reset your run whenever something goes wrong, but instead just attempt to beat the game as many times as possible, hopefully improving over time.

Top players, who have been speedrunning *Minecraft* for hundreds of hours, may be able to beat the game in a manner of minutes. However, just being able to beat the game in an hour is already extremely impressive!

2.0.2 Preparation

The first decision you may want to make is the version you decide to play. The most commonly played versions of *Minecraft* are "Java Edition" (for PC) and "Bedrock Edition" (for various platforms). PC speedrunning is generally considered optimal, as it is easier to record or stream¹ and allows for external tools such as timers or live splits. However, you can speedrun on any version you like. You are unlikely to set a world record of *Minecraft* Bedrock Edition playing on iOS, but you may still enjoy the experience and improving your personal bests, if this is the platform available to you.

Generally the fastest and most popular versions of *Minecraft* for speedrunning are 1.16 and 1.16.1. You can opt to play in the "Random Seed" or "Set Seed" categories. The "Set Seed" category requires memorization and constant repetition, and is therefore more similar to most other speedrunning games. "Random Seed," meanwhile, requires more creative on-the-fly thinking, as the player has to respond to randomly generated terrain and structures. In "Random Seed", you will find that the success of a given run is highly dependent on luck, but you can still consistently improve your own execution. This guide is largely written from the "Random Seed" perspective, as it covers responding efficiently to the randomness of *Minecraft*'s procedural world generation.

¹ <https://en.wikibooks.org/wiki/How%20to%20create%20gaming%20video>

2.0.3 General rules

The ruleset of speedrunning can be defined by any group, but the larger *Minecraft* speedrunning community has established a consensus for various requirements. Submissions are only accepted on the speedrun.com leaderboards if the runs are played on "Survival" or "Hardcore" worlds, for example, and world generation settings must be set to "default." "Peaceful" difficulty setting is vetted, and the game must be played on an official major release of the game from 1.0 onwards. To submit a run on public leaderboards, you must record video footage and denote the world's "seed". For more specific rules, you can check the leaderboard or contact individuals in the *Minecraft* speedrunning community. However, you are of course free to speedrun a game on "home-rules," if you are ambivalent about leaderboards. Playing your first runs just for yourself, with a stopwatch by your side, can be an excellent way to get into speedrunning.

3 Overworld

The overworld is the initial dimension of the game *Minecraft*. There are a number of important resources you will want to obtain in the overworld before making your way to the next dimension: the Nether.

The main resources you will be looking to obtain are tools that allow you to break blocks quickly and combat mobs, a bucket to build a nether portal and lots of food to regenerate health and keep sprinting. Other useful materials can be blocks to build around and a shield/armour to survive taking hits from hostile mobs but when trying to go fast, these can be lower priority. The fastest way to obtain these resources are generally from overworld structures and which one you decide to go for should depend on the seed you are given:

3.1 Shipwrecks

Shipwrecks are generally the fastest method of gaining resources to prepare for the nether since they consist of at most 3 chests that can be quickly looted.

Generally you will want to go for shipwrecks when you spawn on an island or near an ocean and useful items to craft when going for them are a boat for travelling through the ocean fast. Also be on the lookout for dolphins which allow you to travel faster than boats. There are 16 different variants of shipwrecks and they spawn with different chests so being able to identify them quickly is a useful skill.

In a full shipwreck, there are 3 chests:

- The supply chest or food chest which is useful since it can have food like carrots, potatoes, suspicious stew, wheat for crafting into bread and rotten flesh if needed. It is found below the deck, near the front of the ship.
- There is the treasure chest which is the most useful one since it contains necessary iron and gold and sometimes even diamonds. This one is found near the back of the ship, under the deck.
- There is also the map chest which contains a buried treasure¹ map for locating buried treasure for more useful resources. This chest can sometimes appear at the back of the ship, above deck, in a small room.

Note that chest locations are relative to the bottom of the ship, not to where gravity falls. Many ships are rotated on their side, or even upside down.

Shipwrecks also come with some logs which may be useful if you need more wood. Note that mining them can be difficult and dangerous in water and if you want to play it safe, build a door, then enter the air space it formed, and mine the blocks you need (only Java).

¹ <https://en.wikibooks.org/wiki/Minecraft%2FBuried%20Treasure>

After looting a shipwreck, depending on the resources obtained you should be ready to build a Nether Portal² to head to the Nether.

3.2 Villages

Villages are an important source of resources in *Minecraft* speedrunning. They can contain haybales for food and easy access to items such as beds, wood, stone, iron and obsidian for later progression in the game. The village type depends on which biome you are in, and there are 5 of them with some similarities but also some important differences.

Villages can be quite large, so going through every house can be quite slow, especially since some houses aren't useful. Generally the main resources you will want to get from a village is food, some beds and a bucket. The most valuable house in every village is the weaponsmith which is mainly called the blacksmith for historical reasons since its chest has the most valuable loot, can contain iron pickaxes, iron ingots, gold ingots and iron armour and it is marked by a grindstone. Other notable houses are fishermen houses which can have buckets in their chests, marked by buckets.

The main way of obtaining a bucket is killing the iron golem in a village. By hitting the golem and pillaring up three blocks you can easily kill the golem without much risk. However you should be careful as iron golems do a lot of damage and have a large range. Iron golems drop three to five iron, enough to craft a bucket. If you only get 3 it may be awkward to obtain a flint and steel though.

3.2.1 Savanna Villages

Savanna Villages spawn in the savanna biome and have haybales which are very useful since they can be crafted into wheat and then into bread for food. Crafting a hoe can be useful to mine the haybales faster. The blacksmith in this village is quite large and rare. The most notable difference in this village is that normal house chests can contain buckets so it can be worth it to check them.

3.2.2 Plains Villages

Plains Villages spawn in the plains and are ones of the most common villages and are in a biome that is one of the most common too. They have haybales, farms, cartographer, cleric, blacksmith, etc... The blacksmith is quite large, containing two lava sources and has a chance to have diamonds in its chest.

3.2.3 Desert Villages

Desert Villages spawn in the desert biome and have haybales. The blacksmith is quite large containing two lava sources. Make sure to obtain wood logs before heading into a desert since there are no trees in the desert. Otherwise you will need to break dead bushes for sticks and use crafting tables inside houses.

² Chapter 3.16 on page 12

3.2.4 Taiga Villages

Taiga Villages spawn in taiga biomes and they don't have exposed haybales. (they're under the campfires) One big advantage of these villages is their chests contain logs, however food is awkward to come by, but you can find bread in chests, or trade emeralds in chest with a farmer villager for bread or potentially cook potatoes from chests on campfires in the village. Also there is some haybales underneath some campfires. Also the blacksmiths are more difficult to identify since they are smaller but they are more common. Another note is that iron golems sometimes do not spawn in these villages, so it can be more awkward to obtain some iron.

3.2.5 Snowy Villages

Snowy Villages spawn in snowy tundra biomes and they don't have haybales. One advantage of these villages is they tend to have lots of furnaces which could be used for smelting iron or cooking food. Other than that, these villages tend to be not that useful.

Once you've finished looting a village, you should be ready to build a Nether Portal³ to enter the nether.

3.3 Ruined Portal

Ruined Portals are a new structure added in 1.16 and can spawn in both the overworld and the nether, although the overworld ones are most useful. There are 13 different ruined portal variants, with different chest locations so learning them can be useful. The chest can contain useful loot such as a flint and steel or fire charge for lighting a nether portal, flint for crafting a flint and steel, gold or iron nuggets, obsidian, gold blocks or enchanted gold armour.

(The gold armour is recommended to wear, because the piglins won't attack you and will make easier to trap them in a hole mined into the floor and trade with them)

If the ruined portal contains no crying obsidian in the portal part of the structure and you have some obsidian in your inventory or in the chest, the portal can be completable, meaning you just need to place the obsidian down and light the portal without the need of a bucket although this is very awkward to find.


There can also be enough lava to build a nether portal⁴ using the normal bucket method to enter the nether.

3.4 Buried Treasure

Buried Treasure spawns in beach biomes randomly and are easiest to find using a buried treasure map which can be obtained from a shipwreck or ocean ruins. A useful thing to know is that buried treasure always spawns at chunk coordinates 9 ~ 9. This means if you

³ Chapter 3.16 on page 12

⁴ Chapter 3.16 on page 12

press  and next to "Chunk: " you have the first and third coordinates equal to 9 and you are over the X on the map, the treasure will be below you. This can save time since the map isn't perfectly accurate to the block. Buried treasure contains lots of valuable loot, including iron, gold, diamonds, cooked cod/salmon and tnt so can be very useful if it doesn't take too long to find. Once you have obtained this loot, you should be ready to build a nether portal⁵ to enter the nether.

3.5 Structureless

Playing an overworld without structures can make sense if you have a lava pool and a cave with exposed iron ore. This means you can play Minecraft similar to a casual start, smelting iron ore in a furnace to craft a bucket. A flint and steel will be very useful in this situation since the only way to obtain food this method is to kill animals such as pigs, cows, sheep and chickens. If you light them on fire first with a flint and steel they will drop cooked food, saving time cooking the food in the furnace. You should be trying to do as much as possible while the iron is smelting such as obtaining blocks, building the portal⁶, gathering food, etc.

3.6 Other Structures

There are quite a lot of miscellaneous structures which are useful for minor things but aren't common or useful enough to be a staple in a speedrunner's repertoire. Still knowing some things about them can be useful in some situations.

3.7 Abandoned Mineshafts

These spawn underground and have chests in minecarts which can contain food and iron. They spawn most commonly and are often exposed in mesa biomes. They have cave spiders inside which will poison you if the difficulty is higher than easy.

3.8 Ocean Ruins

These spawn in or near oceans and can have stone axes and buried treasure maps but are otherwise not very useful and you will often get attacked by a drowned. In the recent 1.20 update, you can use the brush to get some valuables such as emeralds and gold nuggets. if you are very lucky, you can find a sniffer egg

3.9 Desert Pyramids

Also called desert temples, these spawn in deserts and have some useful resources like golden apples, iron, gold, diamonds, string and 9 tnt. Definitely can be very useful although they

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6 Chapter 3.16 on page 12

tend to not have quite enough iron or food and take too much time to loot to be a mainstay of speedrunning in 1.16.

3.10 Igloos

Igloos spawn in snowy biomes and will contain a furnace. Half of igloos spawn with a basement section which contains a golden apple and a splash potion of weakness for curing a zombie villager which gives good trades. This would be useful for the trading with villagers for ender pearls strategy, but this strategy is slower in 1.16.1 than bartering with piglins. Also can contain a stone axe in the chest in the basement.

3.11 Jungle Temples

Jungle Temples spawn in jungle biomes and contain 2 chests, one hidden behind the lever puzzle and one behind some dispensers with arrows. Can contain some iron, gold and diamonds but are quite inconsistent. Oftentimes, mining through the lever puzzle and accessing the chest this way is much faster than solving it.

3.12 Pillager Outposts

Pillager Outposts spawn in the same biomes a village can spawn in. They have one chest at the top which can contain some iron and logs as well as some food. They can also spawn with a caged iron golem, but killing the golem while being harassed by pillagers is very difficult.

3.13 Swamp Huts

Swamp huts, or witch huts are basically useless for speedrunning since they have no chests. Theoretically one could obtain a useful potion by killing the witch at the right time, but this is very inconsistent and not very applicable.

3.14 Woodland Mansions

Woodland mansions are actually quite useful but they are so rare as to not really be worth investing time into. They also can take a lot of time to navigate because of how large they are. There are many different rooms and lots of loot from chests. Here⁷ is a semi-serious guide to mansions made by T_Wagz.

⁷ <https://www.youtube.com/watch?v=cuKYDyJdm9U>

3.15 Dungeons

Dungeons can have iron and buckets and some food in their chests so can be useful but as with most underground structures they are somewhat rare to find.

3.16 Building a Nether Portal

In casual Minecraft, generally players will get a diamond pickaxe, mine 10 obsidian and build a nether portal from that. However since getting diamonds is inconsistent and each obsidian takes around 10 seconds to mine, in a speedrun this is quite slow and a much faster method that only requires a water bucket and some lava. The main idea is to place some water so that lava can be placed to form obsidian in a portal cast. There are two main different areas to build a nether portal in: a lava pool either above or below ground or a magma ravine below which often has lava.

Lava Pool

If you're on land, either looking around for a lava pool or digging down for one, this will be the method you will want to use to build a portal and get to the nether.

Here⁸ is a simple guide to the most basic nether portal setup, created by former world record holder Cscuile.

Magma Ravine

If you've looted a shipwreck/buried treasure and are in an ocean, you may want to enter the nether via an ocean ravine. At the bottom of some ocean ravines are magma blocks which have lava beneath them and if you're crafty you can build a nether portal with it, although this can be awkward with swimming mechanics.

Here⁹ is quite a lengthy guide to a few different methods of building a portal in an ocean ravine by T_Wag

Once you've built your nether portal you're headed into the Nether¹⁰!

8 <https://www.youtube.com/watch?v=faFPbG1m1K0>

9 <https://www.youtube.com/watch?v=yGyMWYhHYoQ>

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4 Nether

The nether is the most important but also most dangerous part of your speedrun. You will need to fight dangerous mobs and navigate some structures to obtain the resources you need to beat the game. The main things you will need to obtain are ender pearls and blaze rods. There are two strategies for obtaining ender pearls: classic bartering or bastion strats. To obtain blaze rods, you must go to a fortress and kill blazes.

- Classic Bartering¹
- Bastion Strats²
- Nether Fortresses³

4.1 Classic Bartering

Classic bartering is a beginner strategy for obtaining ender pearls and is generally not as fast as bastion routing⁴.

It consists of just mining nether gold ore for gold nuggets then crafting gold ingots and bartering these with stray piglins and hoping for two ender pearl trades. In the version 1.16.1, there is around a 4.73% for four to eight pearls from each gold ingot and you would prefer to have more than 12 pearls so on average you will need two ender pearl barterers to have enough to beat the game. Stray piglins will only spawn in the nether biomes of Nether Wastes and Crimson Forests and they tend to wander so it can be useful building a pit or putting them in boats so they stay in place while bartering so you can mine more gold or look for a fortress. Be careful since piglins will attack you when you mine nether gold ore even if you have gold armour on. You can give them gold ingots to distract them or simply run/kill them.

Note that with this strategy you will tend to only obtain pearls and not much potions of fire res/obsidian/string/crying obsidian/glowstone and other useful items that would be obtained in a bastion strategy. This means it is generally slower and more linear.

4.2 Bastion Strats

Being able to get resources from a bastion is one of the most important skills in Minecraft Speedrunning. There are four different types of bastions and they each have random elements to how they spawn and each of them can have multiple different ways to route them

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depending on how they spawn, how terrain generates and how you approach them. Note that bastions will generate in every nether biome except for the Basalt Delta biome.

What you should be hoping to obtain from a bastion is at least 10 obsidian, one fire resistance potion and 16 ender pearls. Also looking for string can be used to craft wool which can be used to craft beds or glowstone and crying obsidian which can be used to craft respawn anchors. Beds and respawn anchors are useful for the end fight.

There are a lot of useful ways to corral piglins to get them all into one position for quick bartering such as when you break a gold block or chest, all piglins within 16 blocks of you will be aggroed on to you and go towards you but will still be distracted by gold. Note that just opening a chest aggroes piglins with line of sight on you and hitting a piglin aggroes all piglins around you and makes the piglin you hit ignore gold you throw. Understanding piglin mechanics is very useful for efficiently routing bastions.

Note that the guides in these videos are outdated and are missing newer/faster routes/techniques but they will often be better for beginners than the fastest but riskiest routes for top runners. Try seeking out guides to different bastions yourself and practising them and finding out what you're comfortable with in runs.

4.2.1 Hoglin Stables

Often just called "Stables", this bastion consists of three upper ramparts and two lower ramparts as well as the main section. Here⁵ is a guide by EleventyBillion on routing stables.

4.2.2 Bridge

Bridge is the simplest bastion for newer runners, since the gold blocks are all exposed away from the piglins. Just make sure you don't die to the hoglins in the middle and try to find a spot to barter with as many piglins as possible.

4.2.3 Housing Units

Housing contains two ramparts and a centre area with housing units around.

4.2.4 Treasure room

Treasure is probably the most distinctive bastion, consisting of two ramparts and a massive treasure room area separated by lava. While the treasure room has a chest with very good loot and lots of exposed gold, it is generally riskier and slower than using the gold hidden in the ramparts, since the piglins are harder to collect at the bottom of treasure room and you can get mobbed by magma cubes.

⁵ <https://www.youtube.com/watch?v=Acz0TF5QpZ4>

4.3 Nether Fortresses

Nether fortresses are one of the essential structures since they are the only places you can find blazes, which drop blaze rods, which are essential to beating the game.

Each nether fortress spawns with two blaze spawners or blazes can spawn naturally around the fortress. Each blaze has a one out of two chance of dropping a blaze rod when killed by the player. To be safe, you generally want seven or eight blaze rods but can leave with fewer if you're pushing for time. These tend to be quite dangerous since wither skeletons roam the fortress and blazes can snipe you from quite a long distance.

There are two sections to the fortress: the chest section, which has walls and a ceiling on the corridors and the spawner section, which is more open with the two spawners. The chests can contain some useful stuff such as iron, gold and obsidian but mostly they won't be that useful. You want to find the spawner section since the spawners are generally the faster way to get blazes. The wither skeletons are more than 2 blocks high so blocking off sections of the fortress can be useful to ensure you don't get ambushed by them. If you have a fire resistance potion you should use it since it nullifies all blazes' ranged damage, although they can still melee you if you get too close. If you don't have fire resistance, using a shield can help to protect you although you can still get from behind and the shield doesn't cover your whole hitbox. Otherwise you should try to dodge the blazes' shots since blazes shoot three shots then have a cooldown before firing three shots again. Learning blazes' attacking patterns will help you to kill blazes without dying. Other tips are having plenty of food to regenerate health if you do get hit and using blocks to block blazes' shots.

5 Exiting Nether

When you have enough ender pearls and blaze rods, it's time to leave the nether. If you did classic bartering you likely don't have 10 obsidian so you will have to return to your entry portal to get back to the overworld. If you do have 10 obsidian then you can build a nether portal in the nether which can potentially land you much closer to the stronghold. There are mechanics with how the strongholds generate that determine where you should build your nether portal for optimal distance to the stronghold. Note one block in the nether corresponds to 8 blocks in the overworld so travelling through the nether is much more efficient.

Once in the overworld you want to craft eyes of ender and follow the direction they go to find the stronghold location. Sleeping in a bed will often save time and be safer as you won't be harassed by hostile mobs. You should try to not throw too many eyes since each eye throw has a 20% chance of breaking. Efficiently finding the stronghold is called triangulation since you want to go away from the direction the eye was thrown a little and throw another eye and the stronghold will be where the two eye throws intersect. This technique takes some practice and only really works when close to the stronghold location. Also note the eyes will go towards $8 \sim 8$ within the starting point of the stronghold's chunk. This means you can use the chunk coordinates to triangulate against as well.

5.1 Stronghold

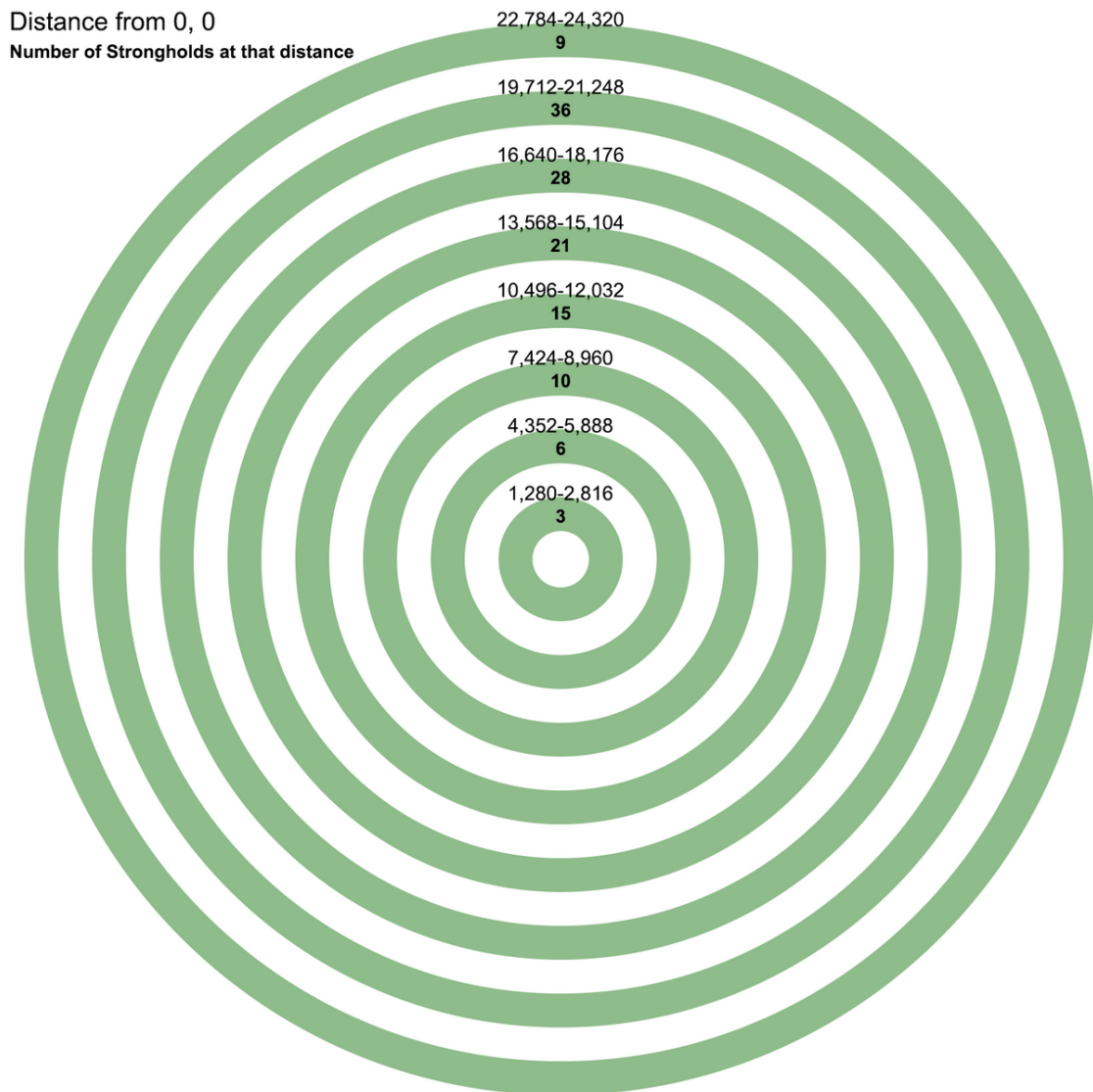


Figure 1 Where strongholds generate in Minecraft version 1.9+ in Java Edition

Strongholds are structures that generate naturally in the overworld. They spawn in rings.

If you followed the ender eye perfectly you will dig down to the starting staircase of the stronghold. This is a staircase which extends into a room which has five possible rooms extending from it. Mainly you want to just go through rooms looking for the end portal room. Up to four stronghold chests can spawn and they can contain ender pearls, apples and bread mainly. The main principle for finding the end portal room is that it must spawn at least five rooms from the starting staircase, but tends to spawn within seven or eight rooms from it so you shouldn't go too deep into the stronghold looking for it and should return to the starter staircase and choose a different route. There can be quite a lot of variance and randomness with finding the portal.

Once you find the end portal, there will be 12 end portal frames. Each of these frames has a 10% chance to contain an eye pre-filled. This means you will need at most 12 eyes of ender to fill the end portal and because of the way the probabilities work, it is quite unreliable to rely on two or more eyes.

Resources to gather before entering the End:

- Either a bow with at least 32 arrows, or at least 32 snowballs
- At least 10 blocks of dirt
- At least X beds
- Preferably a bucket of water.

5.2 Ender Dragon Fight

You will need to have gathered some resources at some point throughout the run. Minimal resources are some beds which you can use to "one cycle" the dragon. This works since beds explode when you try to sleep with them in the end. This means when the dragon flies to the middle, you place a bed on the bedrock and explode it at the right time, dealing damage to the dragon and pushing it up so you can use another bed to also deal damage and push up the dragon again. This can take a lot of practice and the best runners can consistently kill the dragon in 4-5 beds.

Probably the easiest way to kill the dragon is to have a bow and at least 32 arrows. Then you can shoot arrows at the end crystals to take them down while making sure to not look at the endermen and move away when the dragon shoots dragon breath at you. When the dragon perches you can move around to the side or behind the dragon to enter the fountain underneath the dragon and hit it with an axe or sword until it flies away. If you are not in the fountain when it flies away from the fountain be careful since it will fly towards you, potentially knocking you up into the air. As long as you've shot down every crystal the dragon won't heal. Note that when shooting at the dragon or hitting it with an axe/sword hitting its head does much more damage than hitting its body.

After killing the dragon and you enter the end portal, timing ends and you've completed a speedrun!

There are still many, many advanced, complex and varied strategies left unmentioned here. Check out other guides, resources, streams, runs and discord servers for information on these.

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¹⁸ Chapter 7 on page 27

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