



The Crafting Compendium

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Welcome to the complete Minecraft crafting guide. You'll find every crafting recipe here grouped by function, from the essentials to the functional to the purely decorative.

Reading each table is easy; the item's name is shown on the left. The next column shows the ingredients required, including all possible alternatives. You'll then see the crafting recipe and, finally, a quick note about the crafted item's function.

In some cases, the recipes are known as "shapeless," meaning that the recipe ingredients can be placed in any location on the crafting grid. I've indicated these with an asterisk next to the list of ingredients.

You can create any recipe whose ingredients fit a 2x2 grid in the smaller crafting grid built into the inventory window. All others require the 3x3 grid provided by a crafting table.

Quite a few of the recipes create variations on an object, depending on the provided ingredients. For example, you can create a pickaxe from two sticks, and then your choice of three blocks of wood,

stone, iron, gold, or diamond. Instead of repeating that same recipe multiple times, I've simply provided a list of the different ingredient choices.

Minecraft is a constantly evolving work in progress, and at times some recipes disappear or are simplified, and new ones pop into existence. The tables that follow contain all the recipes from v1.6.2, as well as a few, mostly relating to color crafting, that have appeared in early versions of v1.7.

Essential Recipes

The table that follows lists all the recipes you'll need to get through the first few nights and set up a decent home base. See Chapter 2, “First-Night Survival,” for a complete walk-through.

TABLE A.1

| Name | Ingredients | Recipe | Description |
|----------------|----------------------------|---|---|
| Bed | Wood planks and wool |  | Resets your spawn point to the bed's location and enables you to skip the night if no hostile mobs are nearby. |
| Chest | Wood planks |  | Creates a storage container for your items and blocks that will survive any respawn. |
| Crafting Table | Wood planks |  | Expands the crafting grid to a 3x3 square, making it possible to create a much larger variety of items. |
| Door | Wood planks or iron ingots |  | Protects your base or house with a door. You'll need to create a button or send another type of redstone signal to open an iron door. |



| Name | Ingredients | Recipe | Description |
|-----------------|------------------------------|--------|---|
| Furnace | Cobblestone | | Smelt wood in the furnace to make charcoal for torches and cook food items. The furnace also transforms ore into minerals and has many other functions. |
| Jack-o'-Lantern | Pumpkin and torch | | Use as a decorative item, a source of light, or to light up the landscape underwater. |
| Sticks | Wood planks | | Provides a multitude of uses, including the handles for tools, torches, ladders, fences, and more. |
| Torch | Stick and Charcoal (or Coal) | | Creates a permanent light source and prevents hostile mobs spawning nearby. |
| Trapdoor | Wood planks | | Keeps out mobs and can be opened with a click or via a redstone signal. |
| Wood Planks | Any wood block* | | Used as the base material for many other items and tools, and as a construction block. |

*Shapeless recipe

Useful Tools

You can't get far in Minecraft without the right tools for the job. The following table below lists all those that will help you get through the game.

TABLE A.2

| Name | Ingredients | Recipe | Description |
|---------|--|---|--|
| Anvil | Iron blocks and iron ingots |  | Repairs tools, weapons, and armor; renames items, including name tags; applies enchantments from books; and combines enchantments. |
| Axe | Sticks and wood planks, cobblestone, iron ingots, gold ingots, or diamonds |  | Speeds up the harvesting of wood and many other types of block. |
| Bucket | Iron ingots |  | Allows you to collect and carry water, lava, and milk. |
| Clock | Gold ingots and redstone |  | Provides a rough indication of the time of day by showing the position of the sun and moon. |
| Compass | Iron ingots and redstone |  | Points to your original spawn point but isn't functional in The Nether or End regions. |



| Name | Ingredients | Recipe | Description |
|-----------------|--|---|--|
| Eye of Ender | Ender pearl and blaze powder* |  | Allows you to find dungeons by throwing in the air and following their trail. Allows you to collect ender pearls by trading with villagers or by defeating Endermen. |
| Fire charge | Coal or charcoal, blaze powder, and gun powder* |  | Like a flint and steel, can set objects on fire without consuming the fire charge itself. Load into a dispenser to shoot out one fire charge per activation. Also gives fireworks the shape of a large ball. |
| Fishing rod | Sticks and string |  | Catches fish and pulls in other mobs. |
| Flint and steel | Iron ingot and flint |  | Set fire to blocks and activate The Nether portal. |
| Hoe | Sticks and wood planks, cobblestone, iron ingots, gold ingots, or diamonds |  | Tills dirt and grass to create farmland suitable for planting crops. |
| Lead | String and slimeball |  | Ties up passive mobs (horses, cows, and so on) to prevent them from wandering away and to lead them to a new location, such as a farm. |

| Name | Ingredients | Recipe | Description |
|---------|--|---|--|
| Map | Compass and paper | <p>Crafting</p>  | Shows the area around you that you've already explored. Surround a map with more paper to create a zoomed-out version that covers more ground. |
| Pickaxe | Sticks and wood planks, cobblestone, iron ingots, gold ingots, or diamonds | <p>Crafting</p>  | Mines stone, iron, and other types of ore. You need an iron pickaxe to mine redstone, gold, and diamonds and a diamond pickaxe to mine obsidian. |
| Shears | Iron ingots | <p>Crafting</p>  | Harvest leaves, cobwebs, vines, grass, and wool from sheep. Can also cut tripwire. |
| Shovel | Sticks and wood planks, cobblestone, iron ingots, gold ingots, or diamonds | <p>Crafting</p>  | Digs soft blocks (dirt, grass, clay, sand, and so on) faster than by hand, and collects snowballs. |
| TNT | Sand and gunpowder | <p>Crafting</p>  | Lights with flint and steel or activates with a redstone current to cause explosions. Collect gunpowder from downed creepers. |

*Shapeless recipe

Weapons and Defense

There's no need to channel Sun Tzu; the table that follows provides all the items essential for both attack and defense. For actual strategies, see Chapter 5, "Combat School."

**TABLE A.3**

| Name | Ingredients | Recipe | Description |
|----------------|--|---|--|
| Arrow | Stick, feather, and flint |  | Used with the bow to hit mobs from a distance. |
| Boots | Leather, gold ingots, iron ingots, or diamonds |  | Increase damage protection from $\frac{1}{2}$ to $1\frac{1}{2}$ points depending on the material. |
| Bow | Sticks and stones |  | Allows you to attack other mobs from a distance (requires arrows or an infinity enchantment). |
| Chestplate | Leather, gold ingots, iron ingots, or diamonds |  | Increases damage protection from $1\frac{1}{2}$ to 4 points depending on the material. |
| Helmet | Leather, gold ingots, iron ingots, or diamonds |  | Increases damage protection from $\frac{1}{2}$ to $1\frac{1}{2}$ points depending on the material. |
| Leather (dyed) | Leather armor and any combination of dyes* |  | Applies unique colors to your leather armor. |
| Leggings | Leather, gold ingots, iron ingots, or diamonds |  | Increase damage protection from 1 to 3 points depending on the material. |

| Name | Ingredients | Recipe | Description |
|-------|---|--------|--|
| Sword | Stick and wood planks, cobblestone, iron ingots, gold ingots, or diamonds | | Allows you to attack other mobs. Even a basic wood sword is much more effective than just fist-flailing. |

*Shapeless recipe

Food and Related Ingredients

There's plenty of food scattered around The Overworld, from passive mobs, such as chickens, cows, and pigs, to naturally occurring pumpkins. All the recipes that follow turn the naturally occurring items into something that provides more sustenance. They're easy to craft and worth carrying to keep the hunger bar full so your health also stays in tip-top shape in any battle with hostile mobs. Chapter 6, "Crop Farming," provides detailed information on crop farming so you can keep up a steady supply of raw ingredients at all times, and Chapter 7, "Taming Mobs," helps you set up a mob farm.

TABLE A.4

| Name | Ingredients | Recipe | Description |
|-----------|-------------|--------|---|
| Bone meal | Bone* | | Can quickly grow tall grass to provide seeds and can speed up the growth of other crops. It's also used to create various lighter dye colors. Collect bone from downed skeletons. |
| Bowl | Wood planks | | Used for making mushroom stew and milking a mooshroom. |
| Bread | Wheat | | Allows you to gain 6 hunger points. |



| Name | Ingredients | Recipe | Description |
|------------------------|-----------------------------|--------|--|
| Cake | Wheat, sugar, egg, and milk | | Allows you to gain up to 12 hunger points from 6 bites. |
| Cookie | Wheat and cocoa beans | | Restores 2 hunger points. |
| Enchanted golden apple | Apple and gold blocks | | Expensive to craft (requires a total of 72 gold ingots), but heals up to 15 health points over 30 seconds and provides fire resistance and slightly higher damage protection. |
| Gold nuggets | Gold ingot | | Used to craft a golden carrot or a glistening melon for brewing potions. Reverse the recipe by placing 9 gold nuggets to recover a gold ingot. |
| Golden apple | Apple and gold ingots | | Provides just 4 hunger points, but also directly provides 4 health points and 4 additional temporary hearts (the absorption effect). Can also cure zombie villagers and tame horses. |
| Golden carrot | Carrot and gold nuggets | | Provides 6 hunger points and a huge 14.4 saturation points and is useful in potions. Also used to breed horses, donkeys, and mules. |

| Name | Ingredients | Recipe | Description |
|---------------|----------------------------------|--------|---|
| Hay bale | Wheat | | Use as a compact storage for wheat and as a food to help tame horses. Can also add some nice decorative touches to a farm. |
| Melon block | Melon | | Provides a way to store melon slices but is inefficient because breaking the block on the crafting grid yields only 3–7 melon slices, not the original 9. Melon blocks can also be used for construction, according to taste. |
| Melon seeds | Melon* | | Produces melon blocks when you plant the seeds. Each melon block produces 3–7 slices of melon, with each melon slice restoring 2 hunger points. |
| Mushroom stew | Red & brown mushroom and a bowl* | | Allows you to gain 6 hunger points. |
| Pumpkin pie | Pumpkin, egg & sugar* | | Allows you to gain up to 8 hunger points. |
| Pumpkin seeds | Pumpkin* | | Produces pumpkins for jack-o'-lanterns and pumpkin pie when you plant the seeds. |



| Name | Ingredients | Recipe | Description |
|-------|-------------|---|---|
| Sugar | Sugar cane* |  | Used in other recipes, for making paper, and for brewing potions. |

*Shapeless recipe

Mechanisms and Redstone

The ability to mechanize, automate, and add electrical (redstone) systems to Minecraft can become something of an endless fascination. Combine the items that follow in an infinite variety of ways to produce amazing results. You can learn more about automation and redstone in Chapters 6, “Crop Farming” and 9, “Redstone, Rails, and More.”

TABLE A.5

| Name | Ingredients | Recipe | Description |
|-----------------|--|---|---|
| Button | Wood planks or stone* |  | Sends a redstone signal when pressed. (Smelt the stone from cobblestone.) |
| Daylight sensor | Glass, nether quartz, and wooden slabs |  | Outputs a signal proportionate to the current amount of daylight. |
| Dispenser | Cobblestone, redstone, and bow |  | Fires out any items stored in its inventory and can dispense water and lava from buckets. |
| Dropper | Cobblestone and redstone |  | Drops items stored in its inventory and can move them vertically between droppers. |

| Name | Ingredients | Recipe | Description |
|----------------|--|---|--|
| Hopper | Iron ingots and chest |  | Moves items between containers, including fuel into a furnace and smelted items out. |
| Jukebox | Wood planks and diamond |  | Plays music discs found in some dungeon chests. Discs are also dropped when a creeper is killed by a skeleton's arrow. (This is tricky, but possible—just make sure you're between them both and get out of the way the moment the skeleton shoots.) |
| Lever | Stick and cobblestone |  | Sends a constant stream of redstone power when turned on. |
| Noteblock | Wood planks and redstone |  | Plays a note when activated with a redstone signal. Vary the note by right-clicking the block, and change the instrument by placing the noteblock on different materials. |
| Piston | Wood planks, cobblestone, redstone, and iron ingot |  | Pushes blocks and mobs when activated with a redstone signal. |
| Pressure plate | Wood planks or stone |  | Sends a redstone signal when stepped on by a player or mob. |



| Name | Ingredients | Recipe | Description |
|---------------------|--|--------|---|
| Redstone block | Redstone | | Provides continuous redstone power and is the only power source that can be moved with pistons without breaking, making it a useful circuit switch. |
| Redstone comparator | Stone, redstone torches, and nether quartz | | Compares the strength of two redstone signals, providing an output specific to its mode of comparison, and can relay the fullness of a container. |
| Redstone lamp | Redstone and glowstone | | Provides a strong light source when activated by redstone power. |
| Redstone repeater | Stone, redstone, and redstone torches | | Amplifies a redstone signal while adding a delay. |
| Redstone torch | Stick and redstone | | Creates a permanent source of redstone power and acts as an inverter. |
| Sticky piston | Piston and slimeball | | Works just like a piston but also pulls back blocks into their original position. |
| Trapped chest | Chest and trip-wire hook | | Sends a redstone signal when opened. |

| Name | Ingredients | Recipe | Description |
|-------------------------|-------------------------------------|--------|---|
| Tripwire hook | Iron ingot, stick, and wooden plank | | Emits a redstone signal when the string between two hooks is disturbed by a player or mob. |
| Weighted pressure plate | Iron ingots or gold ingots | | Generates a redstone signal whose strength varies according to the number of items on the plates. |

*Shapeless recipe

Transport

For some players, transportation systems become the raison d'etre for playing Minecraft. You can read all about transport in Chapter 9.

TABLE A.6

| Name | Ingredients | Recipe | Description |
|----------------|---|--------|---|
| Activator rail | Iron ingots, redstone torch, and sticks | | Starts the fuse on a minecart with TNT, creating a more powerful explosion the faster the minecart travels. Also turns on the hopper in a minecart with a hopper and can execute the stored command in a minecart with a command block. |
| Boat | Wood planks | | Moves rapidly over water. |



| Name | Ingredients | Recipe | Description |
|-----------------------|---|--------|--|
| Carrot on a stick | Fishing rod and carrot | | Allows you to steer when riding pigs. |
| Detector rail | Iron ingots, stone pressure plate, and redstone | | Transmits a redstone signal when a minecart passes over the top. |
| Minecart | Iron ingots | | Transports players and other mobs on rails. |
| Minecart with chest | Chest and minecart | | Transports blocks and items in a minecart. |
| Minecart with furnace | Furnace and minecart | | Adds a source of fuel to create a self-propelled minecart that can also push others carts in either direction. |
| Minecart with hopper | Hopper and minecart | | Allows you to collect items laying on the tracks or in containers, such as hoppers or chests located above the track, and transport them in the minecart to another container. |
| Minecart with TNT | TNT and minecart | | Used with an activator rail to explode the TNT. |

| Name | Ingredients | Recipe | Description |
|--------------|----------------------------------|---|---|
| Powered rail | Gold ingots, redstone, and stick |  | Speeds up a minecart when powered with redstone and slows it down when not. |
| Rail | Iron ingots and a stick |  | Creates tracks for minecarts. |

Construction

The table that follows lists all the blocks that are craftable, but construction usually includes these and other blocks obtained directly from The Overworld and The Nether regions—everything from wood blocks to cobblestone and more. You can read more about creative construction techniques in Chapter 8, “Creative Construction.”

TABLE A.7

| Name | Ingredients | Recipe | Description |
|-----------------------|-------------------------------|---|---|
| Block of quartz | Nether quartz |  | Used where white blocks are required and need to be fireproof, unlike white wool. |
| Bricks | Brick, stone, or Nether brick |  | Obtained by smelting clay in a furnace or Nether brick from fortresses in The Nether. |
| Chiseled quartz block | Quartz slab |  | Have an interesting, decorative texture. |



| Name | Ingredients | Recipe | Description |
|-----------------------|---------------------------|---|---|
| Chiseled sandstone | Sandstone slab |  | Has the appearance of two large sandstone bricks stacked atop each other. |
| Clay block | Clay |  | Used for construction or for making hardened clay by smelting the clay block in a furnace. Clay is usually found in shallow water; dig it up with a shovel. |
| Cobblestone wall | Cobblestone or moss stone |  | Acts like a fence and is useful for decoration. |
| Fence gate | Sticks and wood planks |  | Creates an opening through a fence, but can be used anywhere. Gates work like doors, opened manually or via redstone. |
| Fence panels | Sticks or Nether brick |  | Creates a barrier 1.5 blocks high, impervious to all mobs except spiders and jumping equines. |
| Glass block (stained) | Glass blocks and dye |  | Used for construction and for making stained glass panes (Minecraft v1.7 and above). |
| Glass pane | Glass |  | Creates window panels. Obtain glass by smelting sand in a furnace. Stained glass blocks become stained glass panes of the same color. |

| Name | Ingredients | Recipe | Description |
|-------------------------|-----------------------|---|--|
| Hardened clay (colored) | Hardened clay and dye |  | Used for construction and decoration. Harden clay by smelting clay blocks in a furnace. |
| Iron bars | Iron ingot |  | Create barriers, decorative windows, or your own personal mob jail. Unlike fences, iron bars are one block high. |
| Item frame | Sticks and leather |  | Shows and stores any item placed inside the frame for viewing pleasure and later retrieval. |
| Ladder | Sticks |  | Place against vertical surfaces to climb. |
| Pillar quartz block | Block of quartz |  | Converts 2 blocks of quartz into 2 blocks with a vertical stripe texture. |
| Sandstone | Sand |  | Used for construction. Sandstone acts like a normal construction block, unaffected by gravity. |



| Name | Ingredients | Recipe | Description |
|------------------|---|--|---|
| Slabs | Wood planks, cobblestone, stone, sandstone, bricks, Nether brick, quartz blocks, and stone bricks |  | Creates a block ½ the normal height. Used to create long staircases and ceiling cornices, hide redstone wiring, and many other decorative purposes. |
| Smooth sandstone | Sandstone |  | Has a smoother texture than regular sandstone. |
| Snow block | Snowballs |  | Used for construction and creation of snow golems. Collect snowballs by digging up snow cover with a shovel. |
| Stairs | Wood planks, cobblestone, stone, sandstone, bricks, Nether brick, quartz blocks, and stone bricks |  | Allows you to run up stairs without having to jump. Also serves many decorative purposes, such as adding more interesting profiles to a building's walls. |

*Shapeless recipe

Decorative and Miscellaneous

Many of the items in the following table serve a functional and decorative purpose. You can also create many other decorative items such as furniture, fountains, larger plants, and so on by combining multiple regular items in different ways. Minecraft v1.7 has also introduced new plant species such as rose bushes, tulips, sunflowers, peonies, and more that can add enormous character to a garden. Clipping trees with shears also provides a variety of leaf blocks that work well both for construction and decoration. See Chapter 8 for more construction and decoration ideas.

TABLE A.8

| Name | Ingredients | Recipe | Description |
|-------------------|--|--------|--|
| Beacon | Nether star, glass, and obsidian | | Placed atop a pyramid of iron, gold, emerald, or diamond blocks, emit a beam into the sky. When supplied with an emerald or a diamond gem or a gold or an iron ingot, provide various potion effects. Nether stars are dropped by a defeated wither. (See the following "Withering Heights" Note.) |
| Blaze powder | Blaze rod* | | Creates various potions and is required for Eyes of Ender. |
| Book | Paper and leather | | Allows you to make a bookshelf that can empower an enchantment table. |
| Book and quill | Book, feather, and ink sac* | | Allows you to add your own text to the game with the book and quill. Most useful in Adventure and Multiplayer worlds or for storing your own notes in-game. |
| Bookshelf | Wood planks and books | | Used as a decorative item or for increasing the effectiveness of an enchantment table. |
| Carpet | Wool | | Used as a decoration on almost any surface. Use dyed wool (by dying sheep directly and then shearing, or by dying a wool block in the crafting grid) to create different colored carpet. |



| Name | Ingredients | Recipe | Description |
|---------------|---|--------|--|
| Ender chest | Eye of Ender and obsidian | | Allows you to share between all Ender chests in the world, including across all three regions, by placing items in one Ender chest. |
| Flower pot | Bricks | | Serves as a decorative item. Plant flowers, saplings, mushrooms, cacti, ferns, and even dead bushes, and then place them on almost any horizontal surface. |
| Glowstone | Glowstone dust | | Creates a permanent light source that's brighter than a torch and works underwater. Obtain glowstone dust by mining glowstone in The Nether. |
| Mineral block | Iron ingots, gold ingots, diamond gems, Lapis Lazuli dye, emeralds, coal, or redstone | | Provides a space-effective way to store chunks of 9 blocks at a time; once converted to blocks, a single inventory or container slot can store the equivalent of 576 original items. Place any mineral block on the crafting grid to convert it back to the original 9 pieces. |
| Painting | Sticks and wool | | Put some random art on your walls. Place a painting in front of a door, and then open the door from behind the painting to create a hidden passageway. (It works! Just walk straight through the painting. Disapparition made easy!) |
| Paper | Sugar cane | | Allows you to create books (and therefore bookshelves and enchantment tables), maps, and rockets. |

| Name | Ingredients | Recipe | Description |
|------|----------------------------|--------|--|
| Sign | Wood planks and a stick | | Placed freestanding or against vertical surfaces, it displays any text you enter. |
| Wool | String | | Used to make carpet, beds, and paintings. You can dye white wool blocks any available color. |

*Shapeless recipe

NOTE

Withering Heights

The wither is a player-created mob. Place soul sand in a T shape (similar to creating snow and iron golems), and then top it with three wither skulls. Wither skulls are occasionally dropped by defeated wither skeletons found stalking Nether fortresses. The wither is extremely difficult to defeat, but upon doing so drops the Nether Star used for crafting a beacon.

Enchanting and Brewing

The table that follows provides the basic items required for enchanting and brewing. These and other ingredients are combined on the enchantment table or in the brewing stand to obtain specific enchantments and potions. See Chapter 10, “Enchanting, Anvils, and Brewing,” for a complete list of each.

**TABLE A.9**

| Name | Ingredients | Recipe | Description |
|----------------------|--|---|--|
| Blaze powder | Blaze rod* |  | Creates various potions and is required for Eyes of Ender. |
| Brewing stand | Cobblestone and a blaze rod |  | Brews potions. |
| Cauldron | Iron ingot |  | Used for filling water bottles and to wash dye off leather armor. A cauldron can fill only three water bottles, so it's generally better just to create a permanent water source nearby. |
| Enchantment table | Obsidian, diamond gems, and a book |  | Enchants weapons, tools, armor, and books. |
| Fermented spider eye | Spider eye, sugar, and a brown mushroom* |  | Forms the basis of potions with a negative effect. |
| Glass bottle | Glass |  | Stores water and potions. |

| Name | Ingredients | Recipe | Description |
|------------------|--------------------------------|---|--|
| Glistening melon | Melon and gold nuggets | <p>Crafting</p>  | Brews potions of health restoration. |
| Magna cream | Blaze powder and a slime-ball* | <p>Crafting</p>  | Primarily used to brew potions of fire resistance. |

*Shapeless recipe

Colors and Dyes

All the dyes listed next can be used to color wool, sheep, leather armor, hardened clay, and stained glass, as well as to create colored fireworks. Some of the dyes also act as ingredients for other dyes. The many new flower types in Minecraft v1.7 also provide ways to fast-track the creation of most of the dyes. Pick them up on your travels, and try them on the crafting table. I've noted all those in the upcoming table that are known at the time of this writing prior to the final v1.7 release.

Several colors also occur naturally and can be used directly on the crafting table with the target item:

- **Black**—Use the ink sacs obtained by killing squid.
- **Brown**—Use cocoa beans gathered by breaking cocoa pods growing in jungles.
- **Blue**—Mine Lapis Lazuli ore found in the deeper layers of The Overworld to color items blue.
- **Green**—Smelt cactus blocks in a furnace to obtain cactus green and color items green.

TABLE A.10

| Name | Ingredients | Recipe | Description |
|----------|--------------------------------|---|-----------------------------------|
| Cyan dye | Lapis Lazuli and cactus green* | <p>Crafting</p>  | Colors the applicable items cyan. |



| Name | Ingredients | Recipe | Description |
|------------------|--|---|--|
| Dandelion yellow | Dandelion or sunflower* |  | Colors the applicable items yellow. |
| Gray dye | Ink sac and bone meal* |  | Colors the applicable items a light gray and can be used to create light gray dye. |
| Light blue dye | Lapis Lazuli and bone meal, or a blue orchid* |  | Colors the applicable items light blue. |
| Light gray dye | Ink sac and 2 bone meal; gray dye and bone meal; Azure Blue flower, white tulip, or Oxeye daisy* |  | Colors the applicable items a light gray. |
| Lime dye | Cactus green and bone meal* |  | Colors the applicable items lime. Obtain cactus green by smelting a cactus block in the furnace. |
| Magenta dye | Purple and pink dye; or Lapis Lazuli, pink dye, and rose red; or the Allium or lilac flowers* |  | Colors the applicable items magenta. |

| Name | Ingredients | Recipe | Description |
|------------|---|---|-------------------------------------|
| Orange dye | Rose red * dandelion yellow or an orange tulip* |  | Colors the applicable items orange. |
| Pink dye | Rose red and bone meal; or the pink tulip or Peony flowers* |  | Colors the applicable items pink. |
| Purple dye | Lapis Lazuli and rose red* |  | Colors the applicable items purple. |
| Rose red | Any red flower such as a rose, red tulip, or poppy* |  | Colors the applicable items red. |

*Shapeless recipe

Fireworks

Fireworks are easy to make and fun to set off. They're created through crafting by first making a firework star. Optional colors, effects, and a shape for the burst are added at the same time, and then a fade to the firework is included in an optional further crafting operation. Finally, the star is added to a rocket. There are numerous combinations of ingredients, so I'll provide a quick decode here and then a table showing the prototypical examples for each step.

The firework star itself uses a basic recipe of gunpowder and any combination of up to 8 dyes. Build in either or both of the two explosive effects at the same time that you create the firework star using the following:

- **Trail**—Add a diamond gem to the basic recipe to create a trail behind the burst particles when the firework explodes.



- **Twinkle**—Add glowstone dust to the basic recipe to cause the particles to crackle before the firework fades.

Adding one further ingredient to the same recipe gives the firework a shape other than the default small ball:

- **Large ball**—Add a fire charge (see Table A.2) to give the firework's explosion a much larger radius.
- **Star-shaped**—Add a gold nugget to give the explosion a star shape.
- **Burst**—Add a feather to give the explosion a random effect.
- **Creeper-shaped**—Add a mob's head (you can find one in the Creative inventory) to make the firework explode in the shape of a creeper.

If desired, place the completed firework star and any dye on the crafting grid to add a fade effect into a secondary color. Then craft the completed firework star into a rocket to complete the firework. Right-click on the ground at night, in an open area, for best effect, or load into an upward-facing dispenser and activate the dispenser to launch the firework.

TABLE A.11

| Name | Ingredients | Recipe | Description |
|-------------------------------------|---|---|--|
| Firework star | Gunpowder and up to 8 dyes* |  | Creates a basic firework star that explodes with the selected colors. |
| Firework star with effect and shape | Gunpowder and any dye, and items required for effect and shape* |  | Creates a firework star with a yellow color, trail and twinkle effects, and a burst shape. |
| Firework star with fade color | Firework star and up to 8 dyes* |  | Adds a fade effect to the firework into the colors indicated by the placed dyes. |

| | | | |
|-----------------|--|---|--|
| Rocket | Paper and up to 3 gunpowder* |  | Creates a basic rocket that flies into the air leaving a trail, but without a firework explosion. Add additional units of gunpowder to make the rocket fly higher. |
| Firework rocket | Firework star, paper, and up to 3 gunpowder* |  | Creates a firework rocket with the effects of the included firework star. Increase the explosion height by adding more gunpowder. A setting of 1 or 2 gunpowder is usually sufficient because a height of 3 gunpowder is quite difficult to see from the ground. |

*Shapeless recipe