

BETTERGED

SGUs geologimod till Minecraft

“Lathund”:
nyheter, recept och tips!

SGU

Sveriges geologiska undersökning

BetterGeo (beta version)

BetterGeo is The Geological Survey of Sweden's modification (mod) for Minecraft. By introducing more realistic geology in the game, we want to increase the public knowledge and understanding of geology and its importance. The original version of Minecraft, Vanilla, is based on geology – to find, mine and refine different resources. We have continued with the geology theme and increased the geological content and also made it appear more like reality. This is a description for you as a gamer where we present the new content in BetterGeo.

For more information and how you can download BetterGeo, please visit:

www.sgu.se/bettergeo

www.minecraftforum.net/forums/mapping-and-modding/minecraft-mods/wip-mods/2421442-bettergeo-more-geology-in-minecraft.

RECIPES

Recept används för att bygga saker i Minecraft. Det går ut på att kombinera olika material för att få fram en färdig produkt. Nedan visas de recepten som vi har lagt till i BetterGeo med våra nya resurser.

Diabas, gabbro, gnejs, granit, kimberlit, kalksten, skiffer och skarn är nya block som ersätter stone och cobblestone (sten och kullersten) i recept.

Smeltery

A smeltery is needed when you want to extract your metals from the ore and use them in recipes. Blocks and drops that you can put in to the smeltery in order to get pure ingots are: bauxite, gabbro with titanium, gabbro with copper, iron from skarn and banded iron formations and sphalerite from marble. You need to put 8 pieces of each in the smeltery to make it start. Different amounts of waste slag will be produced during the process. You can put 10 slag pieces (of the same kind) in the smeltery once more to extract more of the metal. You will also need various amounts of coal or buckets of lava in the process as fuel. You can fill 1-3 slots in the oven for the extraction, which represents different energy levels for the process. The number of slots varies depending on which metal you want to extract.

Composed by: One oven and three blocks of feldspar.



Alloy furnace

The alloy furnace is used for mixing different metals and make alloys. No waste slag is produced in this process. Fuel in the alloy oven is coal or a bucket of lava. See the recipes of the alloys further down.

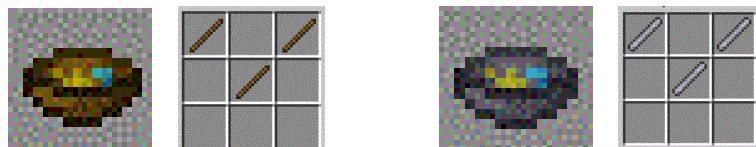
Composed by: One melting furnace and three blocks of bricks.



Prospector's pan of wood or steel

To pan gold and diamonds in the sand in river biomes you need a prospectors pan. The one in steel lasts longer than the one made of wood

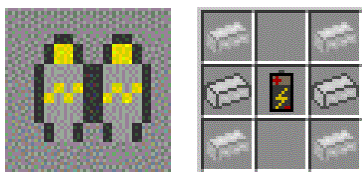
Composed by: Three pieces of wood or three pieces of steel.



Jet pack

The jet pack will enable you to fly around in the different worlds (in survival mode). It will therefore be exciting to explore the environments and it will also be easier to detect ores, veins and other resources. The jet pack works as long as the battery is charged, and then you have to connect it to the battery charger (the charge is visible through a bar when you have the jet pack on your back).

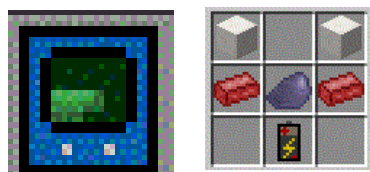
Composed by: Four aluminum ingots, two titanium ingots and one lithium battery.



Monster scanner

The monster scanner can be used to detect monsters at a distance and is turned on/off by right clicking. The monster scanner has to be charged in the battery charger prior to the first time you use it and then recharged after some time.

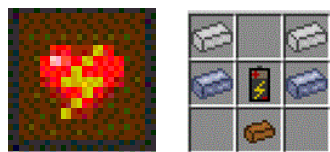
Composed by: Two quartz blocks, two copper ingots, one piece of cordierite and one lithium battery.



Heart starter

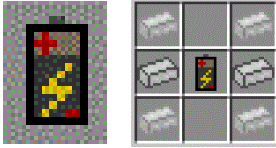
If you lose all your hearts by dying or getting hurt during the game, the heart starter will allow you to continue and keep the possessions that you found so far. The heart starter needs to be charged in the battery charger prior to the first time you use it and then every time it has been used.

Composed by: Two titanium ingots, two tantalum ingots, one lithium battery and one REE ingot.



Lithium batteries

Lithium batteries are used in several products, e.g. the heart starter, jet pack and monster scanner. Composed by: Steel and one lithium ingot.



Battery charger

Is used to charge the products that have a lithium battery. The battery charger is driven by solar power and hence it will only work during day time and when it is sunny. Products with a lithium battery like the jet pack, heart starter and monster scanner can be plugged in to the charger.

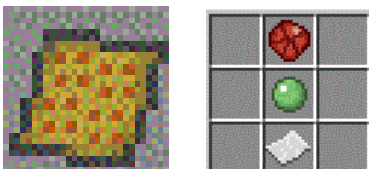
Composed by: Three REE ingots, one day light sensor and three copper ingots.



Sand paper

Is used to polish blocks, slaps and stairs. The sand paper will work on the following rock types: gabbro, marble, granite, gneiss, diabase, limestone, quartz, shale and schist.

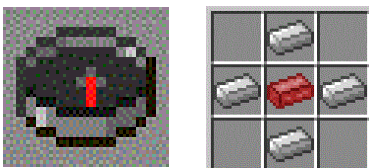
Composed by: a garnet, slime and a paper.



Magnetic compass

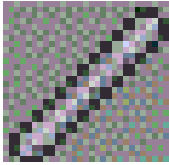
Is a tool to help you localize iron ores. The magnetic compass will start to react when you are less than 20 blocks away from the ore. The closer you get to the ore, the bigger reaction from the compass.

Composed by: Four iron ingots and one copper ingot.



Steel

Is an alloy made of seven iron ingots, one piece of coal and one tungsten ingot.



Bronze

Is an alloy made of seven copper ingots and two tin ingots.



Brass

Is an alloy made of six copper ingots and three zinc ingots.



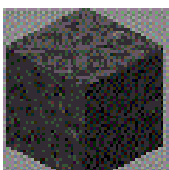
Igneous rocks

Rock types formed when magma or lava from different levels of the Earth's crust cool and crystallize.

Granite can be found both on land, in continental crust and on the sea floor in the oceanic crust. Granite is a building block that can be polished by the sandpaper and can also replace stone and cobblestone in recipes. The block can contain the gemstone cordierite and the mineral feldspar.



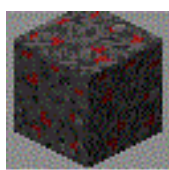
Gabbro is mostly found in the oceanic crust under the sea, but can be found in some environments in continental crust on land. Gabbro is found under layers of sedimentary rocks, granite and gneiss. You can also find blocks of gabbro with titanium and copper. You can polish blocks of gabbro with the sandpaper and the blocks also replace stone and cobblestone in recipes.



Gabbro

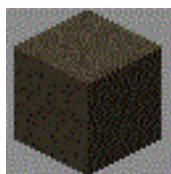


Gabbro with titanium



Gabbro with copper

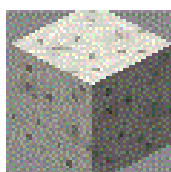
Basalt is found in the oceanic crust under the sea, either as a smooth layer directly under the oceans or with gabbro on top. Copper can be found in basalt (which partly replaces the former block of red stone ore).



Obsidian is formed where water is poured onto lava. We have altered the hardness from a value of 50 to 9.



Pumice is formed where lava is poured onto water. In reality pumice floats on the water surface and of course it does in this mod too. So be careful if you use pumice as a building block, it can be carried away by water or break if you put it in water. Is only visible in creative mode so far.



Metamorphic rocks

Rocks that have undergone changes in minerology and texture as a result of a change in heat and/or pressure.

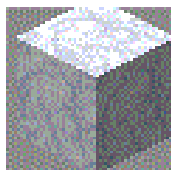
Gneiss can be found in the continental crust in mountains, often close to granite sequences and with other rock types above. You can also find gneiss under the oceans (the continental crust continues from land and out under the ocean). You can polish the blocks with the sandpaper and the gneiss blocks replace stone and cobblestone in recipes. In gneiss you can find the gemstone cordierite.



Skarn can be found at deeper depths in the crust and is often seen as the contact surface between limestone, marble and granite. Skarn is one of the new iron and copper ores, and replace the former blocks of iron ore and red stone ore. It contains iron, copper, rare earth elements and tungsten. You can polish the blocks with the sandpaper and the skarn blocks replace stone and cobblestone in recipes.

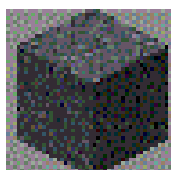


Marble is found adjacent to banded iron formations (BIFs), other metamorphic rocks (e.g. schist) or by itself in big masses underground. It can also be found in the contact zones where skarn is present. You will be able to extract zinc from marble since it contains sphalerite (a zinc-bearing mineral). You can polish the blocks with the sandpaper.



Schist is placed deep down in the continental crust along with other metamorphic rocks.

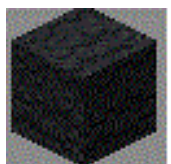
You can polish the schist blocks with the sandpaper and the schist blocks replace stone and cobblestone in recipes.



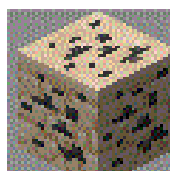
Sedimentary rocks

Rock types that are formed in low-temperature and low-pressure environments through the compaction and solidification or precipitation (cementation) of sediments, rock fragments and minerals that have been transported and deposited on the surface of the Earth.

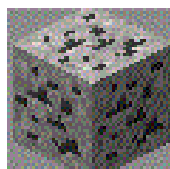
Shale occurs in horizontal layers in mountains and below ground above metamorphic and igneous rock types, together with limestone or sandstone. You can polish the blocks with the sandpaper.



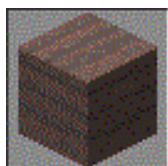
Sandstone occurs in horizontal layers of mountains and below ground above metamorphic and igneous rock types, together with limestone. Sandstone already exists in Vanilla, but we have added coal to some sandstone blocks and hence it is now a new source of coal (replacing the former coal ore blocks). We have also given the sandstone blocks a new color.



Limestone occurs in horizontal layers of mountains and below ground above metamorphic and igneous rock types, together with shale or sandstone. Limestone is like sandstone one of the new coal ores and replaces the former coal ore blocks. You can polish the blocks with the sandpaper and the limestone blocks replace stone and cobblestone in recipes.



Banded Iron Formation (BIF) is found in masses or single blocks next to other sedimentary rocks like shale, limestone and sandstone, but also near marble. Banded iron formations are one of the new sources of iron ore which can be extracted in the smeltery. You will be able to track iron by using the magnetic compass. The compass will react when you are less than 20 blocks away from an iron source.



Veins and pipes

Veins and pipes are formed when magma intrudes lateral and vertical fracture zones and other weak points in the host rock. This can happen near spreading zones between tectonic plates, rift systems etc.

Veins and pipes are exciting geological features in this mod! They are visible from the ground level by the soil surface. They vary in length, width and direction and do not occur in oceanic crust under the sea (in reality they can but we have simplified it in this mod so you can only find them in the continental crust on land).

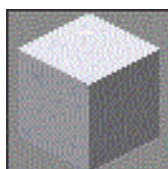
Diabase can replace stone and cobblestone in recipes.



Pegmatite blocks can weather after some time (if you have placed it on the ground yourself). Pegmatite contains several resources: garnet, aquamarine, tantalum, tourmaline, emerald, feldspar, tin and lithium.



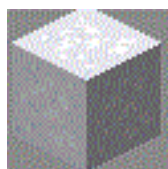
Quartz is a common mineral in reality as well as in this mod. Quartz is found in veins, sometimes bearing gold or gold and silver together. The former gold ore block is replaced by quartz with gold in this mod. Quartz blocks replace stone and cobblestone in recipes.



Quartz



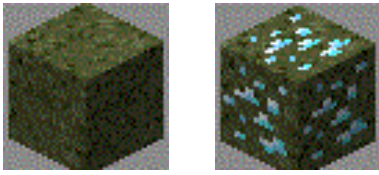
with gold



with silver

Kimberlite is placed in pipes in this mod. Some of the kimberlite pipes contain diamonds. The former diamond ore block is replaced with blocks of kimberlite with diamonds in this mod.

Kimberlite blocks can replace stone and cobblestone in recipes.



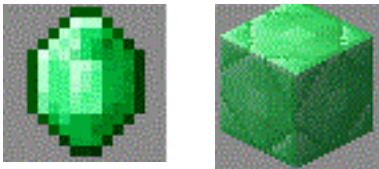
Gemstones

Gemstones are rock types, minerals, pearls, corals or amber which after certain treatment (e.g. splitting or polishing) become attractive and are often kept as personal possessions.

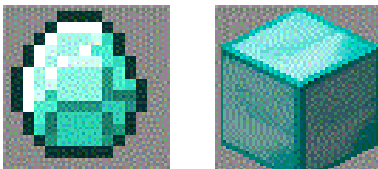
Except diamonds and emeralds that you already get in Vanilla, there are several new gemstones in this mod. By putting nine pieces of the same gemstone together in the crafting table you will get a block.

Function: Colorful building blocks, decoration and as part in some of the recipes.

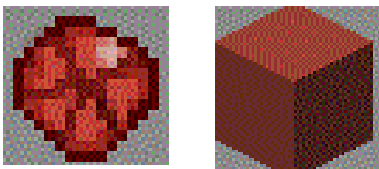
Emerald is a green mineral that is found in pegmatite veins as a gemstone. The former block emerald ore is no longer present in this mod.



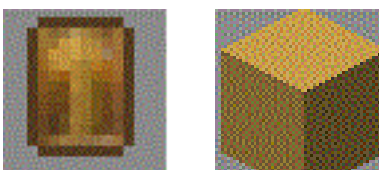
Diamond is a mineral that is found in kimberlite pipes but can also be mined in placer deposits in the sand near rivers (in river biomes). The former block diamond ore is no longer present in this mod, it has been replaced by kimberlite blocks with diamonds.



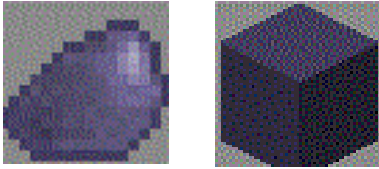
Garnet is a mineral that will be found in pegmatite blocks.



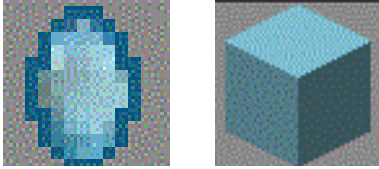
Topaz is a mineral will be found in pegmatite blocks.



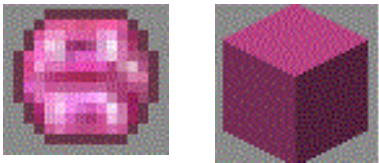
Cordierite is a mineral that will be found in granite and gneiss.



Aquamarine is a blue mineral that will be found in pegmatite blocks.



Tourmaline is a mineral that will be found in pegmatite blocks.

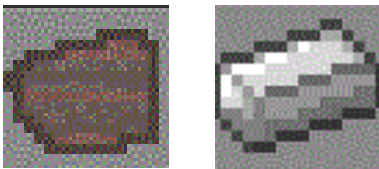


Metals and other resources

Metals and other resources like minerals, rock types and elements are found in the soil or bedrock in different environments. We extract them and produce several products that we need in our everyday life. We have introduced a lot of metals and other resources in this mod since they play such a big part in our society. We want to emphasize this and make you aware of wherefrom these resources originate.

Iron (Fe) is a metal that can be found in skarn and banded iron formations (BIFs), and these blocks replace the former iron ore block. Iron can be tracked by using the magnetic compass.

Functions: Iron will be used in recipes for e.g. steel, prospector's pan and batteries with lithium.

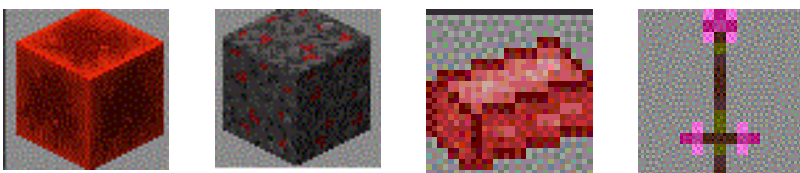


Ore

Ingot

Copper (Cu) is a metal that is found in blocks of skarn, basalt and gabbro which are new copper ore blocks and replace the former block red stone ore. You will be able to track copper since the flower Viscaria can be used as an indicator of copper deposits in the nearby ground.

Function: Copper will be used in alloys, the magnetic compass, the monster warning system and the battery charger.



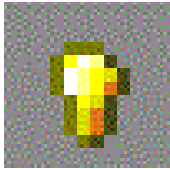
Copper ore

In gabbro

Copper ingot

Viscaria flower

Gold (Au) is a metal that can be found in quartz veins or by placer mining in sand.



Drop



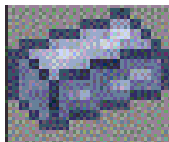
Ingot

Tantalum (Ta) is a metal that can be found in pegmatite veins.

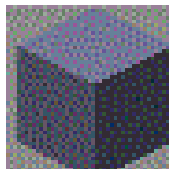
Function: Is used in the recipe for making the heart starter.



Drop



Ingot



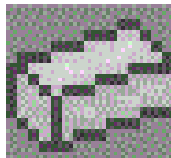
Block

Titanium (Ti) is a metal that can be found in gabbro.

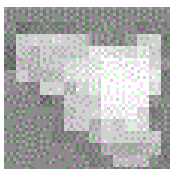
Function: In recipes for heart-starter and jet pack.



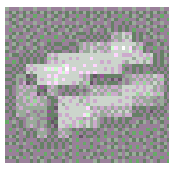
Titanium in gabbro Ingot



Silver (Ag) is a metal that can be found in quartz veins where gold also is present.



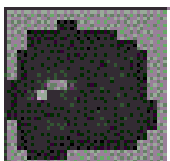
Drop



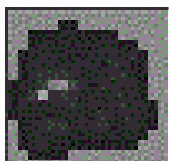
Ingot

Tungsten (W) is a transition metal that can be found in skarn.

Function: Is used in the process for making steel.



Drop



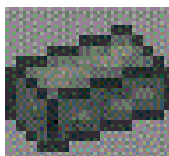
Ingot

Lithium (Li) is a metal that can be found in pegmatite veins.

Function: Lithium can be widely used in the mod since the batteries are made of lithium. The batteries will be used in the heart starter, jet pack and monster warning system.



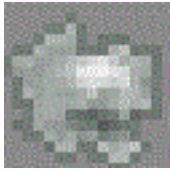
Drop



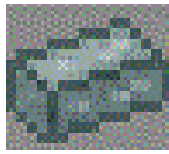
Ingot

Tin (Sn) is a metal that can be found in pegmatite veins.

Function: Is part of the recipe for brass alloys



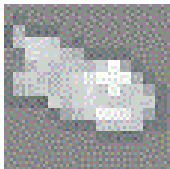
Drop



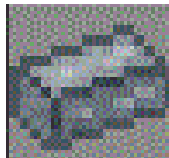
Ingot

Sphalerite is a mineral that contains zinc and can be found in blocks of marble.

Function: Is used for making brass alloys.



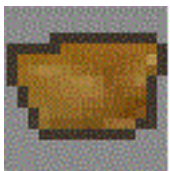
Drop



Ingot

Feldspar is a mineral that occurs as a resource in pegmatite.

Function: Is used as a building block for the melting furnace.



Drop



Block

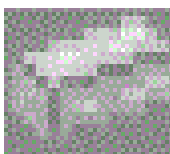
Bauxite is a soil type (and sometimes referred to as a rock type) found in tropical environments (in the jungle biome) in big and sustained masses above granite and adjacent to or surrounded by limestone, shale or gneiss. Bauxite is one of the larger sources of aluminum both in reality and in this mod.

Function: Source of aluminum, which will be used for making the jet pack.



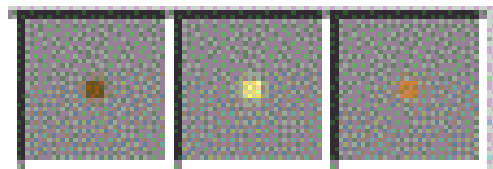
Aluminum (Al) is a metal that can be extracted from bauxite in the smeltery.

Function: Is part of the recipe for the jet pack.

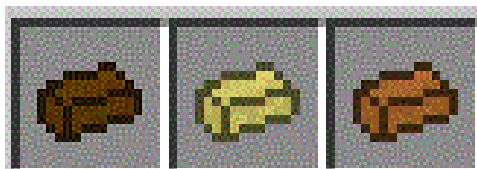


Rare Earth Elements (REEs) can be found in skarn deep down in the crust and between different biomes where skarn is present. In the smeltery you can make REE-ingots that are useful in different recipes. The ingots vary in color, just like the drops. In reality there are 17 different REEs with different names. We have made a simplification in the mod and hence the REEs is referred to as a group, and the drops and ingots have six different colors.

Function: REEs are used in recipes for heart starter and battery charger.



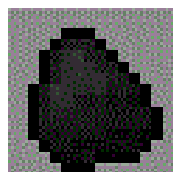
REE drops



REE ingots

Coal (C) is one of the elements in Vanilla that could be found in coal ores, but in this mod coal is found in limestone and sandstone.

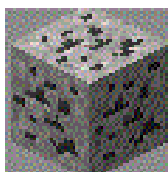
Function: Fuel



Coal



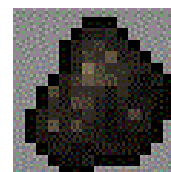
Block of coal



Limestone and coal



Sandstone and coal



Charcoal

Placer deposits

Are grains and fragments of gems and metals that have been transported from the source of origin (usually by streaming water) and deposited by gravity separation through sedimentation. These can be found in sand and streaming water near the original source. It can be mined by placer mining where you use a prospector's pan.

Placer deposits in this mod will contain gold and diamonds and can be found in sand near rivers (in river biomes). You need a prospector's pan in wood or steel for placer mining.

Summary of alterations and new blocks

Alterations from the original version Vanilla

Block	Alteration
Copper	Can be found in blocks of skarn and gabbro, which replaces former blocks of red stone ore.
Diamond	Is now found in sand as a placer deposit and in kimberlite pipes instead of the former diamond ore blocks.
Emerald	Can be found in pegmatite blocks, that replaces the former emerald ore blocks.
Iron	Blocks of skarn and banded iron formations are new sources of iron, replacing former blocks of iron ore.
Obsidian	Changed hardness from a value of "50" to "9".
Sandstone	There is a new color of the blocks and they can contain coal, hence it (together with limestone blocks) replace the former coal ore block.
Stone and cobblestone	Is replaced by new blocks: diabase, gabbro, gneiss, granite, kimberlite, limestone, schist and skarn.

New blocks

Basalt	Replacing former gold- and copper ores.
Banded iron formation (BIFs)	Replacing former iron ores.
Bauxite	
Coal	
Diabase	
Gabbro	
Gabbro with copper	
Gabbro with titanium	
Gneiss	
Granite	
Kimberlite	
Kimberlite with diamonds	Replacing former diamond ores.
Limestone	
Limestone with coal	
Marble	
Pegmatite	
Pumice	
Quartz	Replacing former gold ores.
Schist	
Shale	
Skarn	Replacing former iron and copper ores.

New resources

Aluminum
Aquamarine
Cordierite
Feldspar
Garnet
Lithium
Rare Earth Elements (REEs)
Silver
Sphalerite
Tantalum
Tin
Titanium
Topaz
Tourmaline
Tungsten

Publisher

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