

# DRAGON QUEST IX 'GROTTO MECHANICS' GUIDE v1.00-pdf

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Please do not e-mail me about this guide. If you have questions or submissions to the knowledge base, please post on the [GameFAQs message board](#); the information will get to the correct people quicker this way, and you have a far better chance of getting an answer expediently.

## Version History

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# 1. Introduction

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## 1.1 About Grottos

Grottos are secret places located all around the world of Dragon Quest IX. Although there are only 150 locations where a grotto may be, there are hundreds of thousands of different grottos accessible from those places. As such, it is impossible to find a grotto until you open a map that unlocks that specific grotto.

Grottos are randomly generated according to a number of rules, so it is usually very difficult to ask how to find a particular grotto. Grottos with the same name and level may be very different inside, even if they're found in the same location.

There are two types of grottos available in Dragon Quest IX. One type contains only a single floor with a Legacy Boss waiting inside. These Legacy Bosses are storyline bosses from previous games in the Dragon Quest series, and are generally rewards from specific quests, particularly DLC ones.

This document, however, will cover the second and most common type of grotto, which are true random dungeons with treasure to be found and a grotto boss available at the end. We shall discuss how they are created, what may be found inside, how beset to identify them, and other related topics.

## 1.2 Getting Started

Your first grotto is likely to be earned from completing Quest #015 'Collapsus's Call'. Unlike every other normal grotto map in the game, the reward for this is fixed, and will be a specific grotto ("Granite Tunnel of Woe Lv. 1") found in a specific location (just west of Stornway).

Each grotto of this type will have a boss at the very bottom floor. Defeating this boss will (almost without exception) give you a treasure map to a new random grotto elsewhere in the world, as well as a chance at a couple of rare items that each grotto boss may drop. The quality of this new grotto is, however, based on the level of the grotto and the level (and later revocation level) of your main character, so at the start, you will only be able to get low ranking grottos.

This is considered a teaser into grottos: you are not expected to be able to complete it straightaway, as the first grotto boss is generally not easily taken on until you level up to mid-20s or higher, and future bosses only get more difficult. On top of that, although you can tackle the very lowest ranks of grottos until at least L30, and even that requires a lot of luck and having earned the highest level grottos of the bottommost rank. While you can tackle them earlier, the game intends that grottos be left after you have defeated the final boss of the storyline, where you will be better prepared for this postgame content.

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<sup>1</sup> Not exactly sure what this sentence should be.

## 1.3 FAQ

I'll attempt to cover some common questions here where they'll be easy to find. However, I will be using terminology from the Glossary (Section 1.4) as well as data from later sections, so it's well worth reading those for more details if the short answer seems too confusing. Furthermore, asking on the [GameFAQs Message Board](#) will often give a more direct response if there's a particular point you don't understand.

### **Where is "<name of grotto>" located?**

Other than the grotto you were given by Collapses at the end of his quest, the locations of all grottos are randomly chosen from one of 150 possibilities. While lower rank grottos can only pick from the first 47 of these locations, this still leaves a rather large number off possibilities. Since the location of any grotto is random, it is almost impossible to tell you where you'll find a specific grotto, especially if all you tell us is the name.

However, there are two main resources that can help:

<http://dq9.ffsky.cn/maplocation.htm>

A list of all 150 locations labelled with a hexadecimal number from 01 to 96. This is the in game order and is used to precisely identify specific locations for grottos. Since I'm unaware of a site that lists the location images labelled in decimal format, I will use the hexadecimal IDs in Section 4 "Grotto Identification Lists", even though the decimal IDs are used elsewhere in this guide.

<http://dq9.kalos.comoj.com/>

A site that allows you to filter locations by various landmarks you can see on your map, in order to search through the images very quickly. For example, you could select only those maps that have water and don't have trees. While not completely accurate (I noted at least one map that has mountains but was marked as not having any), it can be a way to quickly narrow down the possibilities.

### **Why won't Treasure Eye Land and Nose for Treasure work in grottos?**

Both Treasure Eye Land and Nose for Treasure only work on red treasure chests (which never reset and always have set rewards). Since grottos only contain blue treasure chests (which have random contents and can be opened multiple times), these abilities will not detect these chests.

Treasure Eye Land will, however, detect the staircases in uncompleted grottos, which can allow you to reach the bottom of new grottos a bit faster than you might normally.

### **Why wasn't the boss there when I reached the bottom of the grotto?**

When the boss of a grotto is defeated and you leave the grotto, the grotto stays completed until you reset it. You can reset it very easily by simply closing the treasure map or opening up a

different treasure map. Naturally, this also means that since treasure maps start closed when you reload at a Church, that all grottos are reset at this time.

### **Why didn't I get a new treasure map after completing my grotto?**

The 12th Grotto Boss, only found in Rank 10+ Grottos, drops a Yggdrasil Leaf as its 100% drop instead of a treasure map. You can not get normal treasure maps from this boss as a result. It does have a small chance of dropping the treasure map leading to the Dragonlord Legacy Boss, though.

### **How can I find a grotto with Moai Minstrels?**

The absolute minimum Base Quality for Moai Minstrels is 93, at which point you have a 0.57% chance of getting a grotto that will contain them. This quickly improves to 5.04% by 100 BQ, and further to 10.08% by 110 BQ. Higher quality beyond this produces continually better chances at seeing them, with it levelling off at just over a third of all grottos containing them by 155 BQ.

To reach 100 BQ, your main character's highest level in any vocation added to the level of the grotto you completed to get a new map must equal 100. It's difficult to see grottos that are high level enough for this before your main character is at least L50. Even then, 100 BQ only results in a 5% chance that your new treasure map will lead to a grotto containing Moai Minstrels, so consider levelling some more if you have troubles.

### **How can I find a grotto with Bling Badgers?**

Since Bling Badgers are only found in Water Grottos, you will never have more than a 10% chance of getting a map to a grotto with them in. Furthermore, the minimum Base Quality required is 130, which gives you a starting chance of 0.22%. By 150 BQ, the chance has increased to 1.53%, and it only really starts to rise by around 180 BQ (4.30%).

Put simply, you'll likely need to be around L90+ clearing Lv. 90+ grottos before you have a respectable chance of seeing them. There's always the chance that you could find one early though, so keep a look out for any promising Water-type names.

### **How can I find higher level grottos?**

The short answer is usually 'level up'. The higher your Base Quality, the better chance you have of getting higher level grottos. And the only ways to increase your Base Quality are to increase your main character's highest Vocation Level or to complete higher level grottos. You can also revoke (reset a L99 location back to L1) to get bonuses to Base Quality, but by the time you can revoke, you're nearing the limit for grotto level anyhow.

It is, of course, possible to get as far as, say, a Grotto of Level 68 without levelling higher than L35. This requires a lot of luck though, since to generate Rank 2 Grottos, you need a L17+ Grotto, and to generate Rank 3 would require a L22+ Grotto. Rank 4 would require a L35+ Grotto, which is tough since the maximum level that you can get from Rank 3 is 38. And Rank 5 requires a L40+ Grotto. Finally, to reach Rank 6, you'd need a L58+ Grotto, and Rank 5 Grottos

only generate up to L59 if you're very lucky. Rank 7 would be completely out of your reach at this level, since you'd need a L75+ Grotto, but only Rank 6 Grottos can never be that high level.

To help answer questions on how high you have to level to reach certain level maps, here's a couple of tables related to this. The first shows the Quality and Level Range that each Grotto Rank has, as well as the Minimum Vocation Level required to break into that Grotto Rank simply by exploring lower ranked Grottos. (In this table, 'Rv1' stands for 1st Revocation: it's impossible to get Rank 12 Grottos before you have relocated for the 1st time.)

Grotto Rank	Quality	Level Range	Minimum Vocation Level Required
Rank 1	2-55	1-23	---
Rank 2	56-60	4-32	29
Rank 3	61-75	7-38	29
Rank 4	76-80	16-53	32
Rank 5	81-100	19-59	32
Rank 6	101-120	31-68	34
Rank 7	121-140	40-80	42
Rank 8	141-160	46-89	50
Rank 9	161-180	49-92	59
Rank 10	181-200	58-99	74
Rank 11	201-220	46-99	85
Rank 12	221-248	55-99	Rv1

The second table shows the minimum levels required to have a particular chance at higher level grottos. As an example, if you're exploring a Lv15 Grotto, then you'd need to be L38 in your highest Vocation in order to have at least a 20% chance of getting a treasure map from it that has a level *higher* than 15. 'Min' is the minimum level you need to be to get a higher map at *all*, and 'Max' is the level you need to be to always get a higher levelled map.

	Min	5%	20%	50%	90%	Max
Map L 1	1	1	1	1	1	61
Map L 5	1	1	1	1	53	62
Map L 10	1	1	1	44	51	74
Map L 15	1	1	38	43	59	69
Map L 20	1	33	37	44	61	92

	Min	5%	20%	50%	90%	Max
Map L 25	27	32	38	50	59	87
Map L 30	22	34	43	48	69	82
Map L 35	22	35	41	48	72	99
Map L 40	30	34	40	58	75	Rv4
Map L 45	25	33	49	60	82	Rv3
Map L 50	20	43	50	66	87	-----
Map L 55	20	43	58	71	99	-----
Map L 60	33	50	60	77	Rv3	-----
Map L 65	28	53	67	87	-----	-----
Map L 70	40	60	73	Rv1	-----	-----
Map L 75	35	63	87	Rv2	-----	-----
Map L 80	50	75	95	-----	-----	-----
Map L 85	45	85	-----	-----	-----	-----
Map L 90	58	91	-----	-----	-----	-----
Map L 95	71	-----	-----	-----	-----	-----
Map L 98	68	-----	-----	-----	-----	-----

As can be seen, while you often don't need to be very high to have a *chance* at a higher level grotto, you quickly need levels in order to find them reasonably often. And getting a L99 Grotto never has a decent chance, and requires a very high level for even the remotest possibility.

A lot of this analysis assumes that you're looking for these maps yourself, though. If you trade with friends, then you can potentially skip a lot of the hassle, or at least split some of the work.

## 1.4 Glossary

The following terms will be used repeatedly throughout the guide, so it is important to be familiar with them.

### 1.4.1 Grotto Map Terms

Rank:

This term is used to specify a number of different types of Rank, depending on context. The ones used in this guide are Grotto Rank, Monster Rank and Chest Rank. For more details, see their descriptions further on in the Glossary.

### Quality:

All grottos have a Quality, which is a number between 2 and 248 that helps determine how difficult the grotto will be. Starting Monster Rank, Grotto Depth and the Boss of the grotto are all restricted based on the Quality of the grotto, based on which Grotto Rank the Quality creates.

### Grotto Rank:

Solely based on the Quality of the grotto, this is a number from 1 to 12 that dictates what ranges of Monster Rank, Grotto Depth and Boss may be generated within the grotto. For example, a Rank 1 Grotto can only have a Depth of 2-4, a starting Monster Rank of 1-3 and only the first of three Grotto Bosses. A rank 5 Grotto, by comparison, can have a Depth of 6-10, a starting Monster Rank of 3-5 and Grotto Bosses #3 to #7.

### Seed:

The Seed of a grotto is an identifying number that controls how that grotto is built. It is a “random seed” (see [Wikipedia](#) for more info) that causes the random generator for grottos to create the same map for that specific number. Maps with the same Seed and Grotto Rank will be the same unique grotto, right down to floor design, locations of chests, encounter chances and so forth.

### Unique Grotto:

A grotto with a particular Seed and particular Grotto Rank is a unique grotto. All grottos found are unique grottos, and can be found in any game. However, sometimes we wish to specify a unique grotto because it has certain things about it that make it advantageous to find, like an abundance of chests or being easy to farm. In this case, being able to generate a unique grotto requires careful consideration of Base Quality and a lot of luck. More information about this will be covered in Section 3.1 “Unique Grottos”.

### Location:

Each Grotto, regardless of how unique it is, can be found in one of up to 150 locations around the world of DQ9. Lower quality grottos are more limited in which locations they can be found in. There are three ranges of Quality that determine these locations, and each unique grotto Seed can be found in up to 3 different locations per Quality range.

### Name:

The name of a grotto is formed of four parts: Prefix, Locale, Suffix and Level. It is the primary method that the player has of identifying a grotto. As an example, the first grotto you usually find is “Granite Tunnel of Woe Lv. 1”.

The Prefix for this map is Granite, and this gives a clue of the starting Monster Rank of the grotto. The Locale of this map is “Tunnel”, and this refers to both the Depth and Environ of the grotto. The Suffix is “Woe” and this is linked to which of the 12 Grotto

Bosses can be found at the bottom. And finally, the Level of this map is 1, which is a combination of Depth, starting Monster Rank and Boss with a small +/-5 variation.

It is possible to use a grotto's Name and Location to help narrow down which particular unique grotto you have. However, sometimes even this is not enough to completely identify a grotto. Other things that can help identify a unique grotto are its Base and possible Final Qualities.

#### BQ (Base Quality):

The Quality of a generated grotto is controlled in two stages. The first stage is the Base Quality (BQ for short), which is the sum of your Main Character's *highest* vocation level, the Level of the grotto that you just completed, and 5 times the Main Character's *highest* Revocation. So a Main Character that has no higher than 1 in all of their vocations and no revocations, that complete a Lv. 1 grotto, would have a BQ of 2. Similarly, a Main Character that has at least one vocation at 99 and a vocation that they have Relocated 10 times, that complete a Lv. 99 grotto, would have a BQ of 248.

The BQ then has a +/-10% variance that creates the Final Quality (FQ for short) of the grotto. BQ is the part of the formula you can control, and is therefore important when we start looking at the chances of finding certain unique grottos. FQ is the actual Quality of the grotto that is created, and is important to the grotto generation code because it dictates what grotto you get.

#### FQ (Final Quality):

Final Quality is another name for the Quality of the grotto, and refers to the Quality that the grotto is created with. Due to the way grottos are generated, there are a limited number of combinations of BQ variance, Seed and Location. As such, to get a particular FQ for unique grotto will often require that you have a specific BQ. Some FQs for particular unique grottos are even impossible to get, due to the way grottos are generated. More information about this will be in section 3.1 "Unique Grottos".

### 1.4.2 Grotto Attributes

#### Environ:

There are 5 different types of Environs a grotto may have, which determines both how a grotto looks and what monsters will be found there. Caves and Ruins are the most common Environs, whilst Fire, Water and Ice are equally rare.

#### Depth:

The depth of a grotto is simply how many floors deep it is. This number does not include the Boss Floor, so a grotto with a Depth of 16 would have its Boss Floor on the 17th floor. Depth is one of the factors that determines a grotto's level.

## Monster Rank:

There are 12 Monster Ranks, each forming a group of monsters found at that Rank. As the Monster Rank increases, the monsters chosen will be more difficult, and many of those found at the highest Monster Ranks can only be found in Grottos. Monsters also differ according to which Environ they're found in, so Rank 12 Monsters in Ruins will be different to Rank 12 Monsters in Ice grottos.

Each Grotto has a starting Monster Rank which dictates what Monster Rank can be found in the first four floors. For every four floors you descend, the Monster Rank increases by 1, so a grotto that has a starting Monster Rank of 9 would have Rank 12 Monsters on floors 13F to 16F. Starting Monster Rank is one of the factors that determines a grotto's level.

## Boss:

There are 12 possible Grotto Bosses, which lurk on the Boss Floor at the bottom of each grotto. With the exception of the 12th Grotto Boss, all bosses will have a 100% chance of dropping a random map to a new Grotto. They also each have two other items they can randomly drop, the rarest of which can usually be alchemised into some of the most powerful equipment in the game.

The Boss found within a particular grotto is one of the factors that determines the level of that grotto.

## Level:

The Level of a grotto has two purposes: it's both a rough indicator of how dangerous/rewarding the grotto is, and it helps determine the Quality of the grotto map that the boss will drop when you complete it. A grotto with a Depth of 2, a starting Monster Rank of 1 and Boss #1 (Equinox) has a base Level of 0. Each additional Depth, Monster Rank or Boss # increases the base Level of the grotto by 3; this means that a grotto with a Depth of 16, a starting Monster Rank of 9 and Boss #12 will have a base Level of 99.

The actual Level of the grotto varies between -5 and +5 of this base Level, and can be no lower than 1 and no higher than 99. Like many other things, the Seed of the grotto dictates what variation in level will take place, so a particular grotto will always have the same level with the same variation.

## Chest Rank:

One important reason for delving into grottos are the chests found within. with the exception of the boss floor and the first two floors of every grotto (which have no chests at all), every floor will have between 1 and 3 Blue Chests to be found. The Chest Rank of a chest determines which list of items will be used to randomly determine a specific chest's contents. Rank 1 Chests tend to have fairly weak items, whilst Rank 10 Chests can contain some of the best equipment in the game, if you're lucky.

The location and Rank of chests within a grotto is fixed and determined by the Seed of the grotto, so they will not change between visits. However, the item you get when you open the chest is randomly picked from the appropriate Chest Rank list, so it's possible to get different items from the same chest when you revisit a grotto.

Chest Rank is partially determined by the Monster Rank of the floor, so grottos with stronger monsters will have the chance of better items to be found.

## 2. Basic Grotto Generation

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When a new grotto map is created, it is given a Quality, Seed and Location. From the Quality and Seed, all the details of the grotto, right down to map design and chest location, can be determined by the game.

The first part to concentrate on is the Quality of the grotto, since this determines both the possible Locations and the Grotto's Rank.

### 2.1 Quality and Grotto Rank

#### 2.1.1 Base and Final Quality

The Final Quality (FQ) of a map is an approximate +/-10% of the calculated Base Quality (BQ), which is determined by your Main Character's highest vocation and revocation count, as well as the Level of the grotto you completed to get the new map.

The Base Quality of a map one from a Grotto Boss can be stated as follows:

$$\text{BQ} = \text{Hero's Maximum Vocation Level} + 5 * \text{Hero's Maximum Revocation} + \text{Level of Completed Grotto}$$

Your Maximum Vocation Level is the level of your highest vocation, no matter what your current vocation is. For instance, if your Main Character was a L15 Minstrel, but had L99 in Priest as well, then your Maximum Vocation Level would be 99. Furthermore, for random maps from Grotto Bosses, this is calculated *after* you defeat the boss, so if you gain a level during the battle and this increases your Maximum Vocation Level, then the formula will use your new level, not the level you started the battle with.

Your Maximum Revocation is the number of times you've used the Revocation option at Alltrades Abbey on a single vocation. Revocation is when you take a L99 character and reset them to L1, whilst keeping whatever skills they've learned but having to level up from the beginning again. The Revocation count caps at 10, so further revocations will not increase the Base Quality of your maps. Also, only the highest Revocation Count of all your vocations count. relocating your Minstrel vocation 3 times and your Warrior vocation 5 times would give you a Maximum Revocation of 5, resulting in a 25 point increase in Base Quality.

There are a couple of occasions where a random map will be given to you without having completed a grotto. In these cases, the Base Quality is calculated as if you had completed a Grotto that is *half* your Maximum Vocation Level, rounded down. So if you had a Maximum Vocation Level of 99, the BQ would be calculated as if you had just completed a Level 49 grotto.

The reward for Quest #015 'Collapsus's Call' is not random though, and will always be the unique grotto "Granite Tunnel of Woe Lv. 1", found west of Stornway (Location #5). This set reward is intended to be your first grotto. Note that tis is not a unique *name*: there are 21 other maps called "Granite Tunnel of Woe Lv. 1", one of which may even be found in the exact same

location just west of Stornway. Further, the location given for Collapsus's map is not one that it could ever have gotten if the map had been randomly generated.

Once BQ has been calculated, the Final Quality of the grotto is calculated as such:

$$FQ = BQ + \text{Rnd}(-[BQ/10]..+[BQ/10])$$

If  $FQ > BQ$  and BQ is not divisible by 10:

$$FQ = FQ - 1$$

As an example, let's say you have a BQ of 152 (which could be a L82 character with no revocations completing an L70 grotto).  $[BQ / 10]$  would be equal to  $[152 / 10] = [15.2]$ . The square brackets indicate that we truncate or round down this result to 15.

So, we have  $FQ = 152 + \text{Rnd}(-15..+15)$ , which means that we have add a random number from -15 to +15 inclusive to the Base Quality of 152. This gives us a result of 137 to 167.

Finally, if the Final Quality happens to be greater than 152, then we subtract 1 from the result, because the Base Quality of 152 is not divisible by 10. There's no special reason for this adjustment, only that it's a quirk of the way it calculates the random deviation. That gives us a range of 137 to 166 for the Final Quality of this grotto.

## 2.1.2 Grotto Rank

Once the Final Quality of the grotto has been determined, we can calculate the Rank of the grotto. These ranks determine the Depth, starting Monster Rank and Boss of the grotto.

Each of these three attributes have their own ranges of Quality within which they change, but we can combine all three into a single list of 12 Grotto Ranks. As we climb the Grotto Ranks, sometimes the range of Bosses will change, and sometimes the possible Depth and/or Monster Rank ranges will change, but it will generally result in stronger and higher Level grottos.

The table of Grotto Ranks, Quality Ranges and associated attributes are as follows:

	Quality	Depth	1F Monster Rank	Boss ID
<b>Rank 1</b>	2-55	2-4	1-3	1-3
<b>Rank 2</b>	56-60	4-6	2-4	1-3
<b>Rank 3</b>	61-75	4-6	2-4	2-5
<b>Rank 4</b>	76-80	6-10	3-5	2-5
<b>Rank 5</b>	81-100	6-10	3-5	3-7
<b>Rank 6</b>	101-120	8-12	4-6	4-7
<b>Rank 7</b>	121-140	10-14	4-6	5-9
<b>Rank 8</b>	141-160	10-16	5-7	6-9

	Quality	Depth	1F Monster Rank	Boss ID
<b>Rank 9</b>	161-180	10-16	5-7	7-10
<b>Rank 10</b>	181-200	11-16	6-9	8-12
<b>Rank 11</b>	201-220	12-16	8-9	1-12
<b>Rank 12</b>	221-248	14-16	9	1-12

From this, we can see a Rank 1 grotto can have a Depth of 2-4, a Monster Rank of 1-3 on its first floor, and any of the first 3 bosses. The highest Rank of grotto can, by comparison, have a Depth of 14-16, a Monster Rank of 9 on its first floor, and any of the 12 possible bosses.

Do remember that the Monster Rank increases for every four floors you descend in any grotto. A grotto that has a starting Monster Rank of 9 would have Rank 10 Monsters on 5F to 8F, Rank 11 Monsters on 9F to 12F and Rank 12 Monsters on 13F to 16F. This is, in fact, the only possible way to encounter Rank 12 Monsters in a grotto.

For Depth and starting Monster Rank, the chance of each value in the range is equal. So Rank 1 grottos would have a 1 in 3 chance each of having 2, 3 or 4 floors, and a 1 in 3 chance each of having Monster Rank 1, 2 or 3 on its first four floors.

Bosses, however, are weighted in such a way that the easier bosses are more likely to be encountered. The chances of each boss depend on the exact range and are as follows:

	Rank 1-2	Rank 3-4	Rank 5	Rank 6	Rank 7	Rank 8	Rank 9	Rank 10	Rank 11-12
<b>Equinox (#1)</b>	4/11 (36%)	----	----	----	----	----	----	----	20/112 (18%)
<b>Nemean (#2)</b>	4/11 (36%)	4/12 (33%)	----	----	----	----	----	----	20/112 (18%)
<b>Shogum (#3)</b>	3/11 (27%)	3/12 (25%)	15/56 (27%)	----	----	----	----	----	15/112 (13%)
<b>Trauminator (#4)</b>	----	3/12 (25%)	15/56 (27%)	15/41 (37%)	----	----	----	----	15/112 (13%)
<b>Elusid (#5)</b>	----	2/12 (17%)	10/56 (18%)	10/41 (24%)	5/17 (29%)	----	----	----	10/112 (9%)
<b>Sir Sanguinus (#6)</b>	----	----	10/56 (18%)	10/41 (24%)	5/17 (29%)	5/12 (42%)	----	----	10/112 (9%)
<b>Atlas (#7)</b>	----	----	6/56 (11%)	6/41 (15%)	3/17 (18%)	3/12 (25%)	3/9 (33%)	----	6/112 (9%)
<b>Hammibal (#8)</b>	----	----	----	----	2/17 (12%)	2/12 (17%)	2/9 (22%)	2/8 (25%)	4/112 (4%)

	Rank 1-2	Rank 3-4	Rank 5	Rank 6	Rank 7	Rank 8	Rank 9	Rank 10	Rank 11-12
Fowley (#9)	----	----	----	----	2/17 (12%)	2/12 (17%)	2/9 (22%)	2/8 (25%)	4/112 (4%)
Excalipur (#10)	----	----	----	----	----	----	2/9 (22%)	2/8 (25%)	4/112 (4%)
T Wrecks (#11)	----	----	----	----	----	----	----	1/8 (13%)	2/112 (2%)
Grey gnarl (#12)	----	----	----	----	----	----	----	1/8 (13%)	2/112 (2%)

In short, Rank 1 to 10 grottos have their own distinct range of bosses, with a slightly lesser chance of meeting the stronger bosses in each range (less than 10% though). But Rank 11 and 12 grottos allow the entire range of bosses, but have a very small chance of generating the toughest bosses. Depending on which goals you're working towards, you may sometimes find it worthwhile to search lower ranked grottos for certain bosses, rather than rely on the final two ranks to complete your collection.

## 2.2 Grotto Details

### 2.2.1 Location

By now, we have the Quality and Grotto Rank of the grotto. After this, the Seed is generated. The Seed will use the details of the Grotto Rank to help generate the exact grotto, including its environ, name and level.

Finally, the grotto will be given a location. There are 150 possible locations, and the location chosen depends on the quality.

For Qualities 2-50, the location chosen will be from #1 to #47

For Qualities 51-80, the location chosen will be from #1 to #131

For Qualities 80+, the location chosen will be from #1 to #150

The location is chosen without any weighting from within each range.

Due to the way FQ, Seed and Location are generated, each Seed has between one to three locations it can appear at, and those locations can vary between the three Quality ranges (2-50, 51-80, 80-248). This means that a unique Rank 1 grotto (quality 2-55) can have up to 6 locations it could possibly appear at, depending on Quality. We call this a "valid combination", and we will use it later to help identify unique grottos.

Locations #1 to #47 comprise of all the places visited in the story up to Bloomingdale, before you get access to the ship. The exception is #47, which is the lighthouse near Bloomingdale.

Locations #48 to #131 are scattered throughout the world, many of which require ship travel to get to, and you will have access to all of these locations by the time you reach Upover.

The final series of locations (#132 to #150) comprise almost entirely of places that can only be reached by air, with the exception of #132 and #133 which are found in the Gittish Empire.

The full list of locations by area are as follows:

#1-#4	Angel Falls
#5-#8	Western Stornway
#9-#11	Eastern Stornway
#12-#16	Zere
#17-#19	Doomingale Forest
#20-#24	Eastern Coffinwell
#25-#28	Western Coffinwell
#29-#33	Newid Isle
#34-#36	Slurry Coast
#37-#39	Dourbridge
#40-#42	Lonely Plains
#43-#46	Bloomingdale
#47 [Sea]	Bloomingdale
#48-#50 [Sea]	Lonely Coast
#51 [Sea]	Pluvi Isle
#52-#53 [Sea]	Djust Desert
#54-#58	Djust Desert
#59	Hermany
#60 [Sea]	Hermany
#61-#62	Hermany
#63-#67	Snowberian Coast
#68-#72	Snowberia
#73-#75	Cringle Coast
#76-#82	Urdu Marshland
#83-#87	Iluugazar Plains
#88-#91	Mt Ulzuun

#92-#94		Mt Ulbaruun
#95-#97		Mt Ulzuun
#98-#100	[Sea]	Khaalag Coast
#101-#103	[Sea]	Ondor Cliffs
#104	[Sea]	Western Coffinwell
#105-#108		Eastern Wormwood
#109-#112		Western Wormwood
#113	[Sea]	Western Wormwood
#114-#115		Wormwood Canyon
#116-#119		Wyrmtail
#120-#122		Wyrmwing
#123-#124		Wyrmtail
#125-#128		Wyrmsmaw
#129-#130		Wyrmtimeck
#131	[Sea]	Wyrmtimeck
#132-#133		The Gittish Empire
#134	[Air]	Angel Falls
#135-#136	[Air]	Eastern Stornway
#137-#138	[Air]	Western Coffinwell
#139-#140	[Air]	Newid Isle
#141-#143	[Air]	Lonely Coast
#144	[Air]	Djust Desert
#145	[Air]	Hermany
#146	[Air]	Cringle Coast
#147	[Air]	Ondor Cliffs
#148	[Air]	Eastern Wormwood
#149	[Air]	Western Wormwood
#150	[Air]	Wyrmtimeck

[Sea] means you require either sea or air travel to get to this location even with all Zoom targets available. [Air] means you require air travel to get to this location.

In summary, Rank 1 grottos can almost always be found before Bloomingdale, and Rank 5+ grottos have an ~11% chance that they'll require air travel.

## 2.2.2 Environ, Name and Level

As we've seen, the Grotto Rank helps determine the ranges of Depth, starting Monster Rank and Boss of a grotto. The Seed then determines the *exact* Depth, starting Monster Rank and Boss of the grotto from those ranges, as well as the grotto's Environ, Name, Level and other attributes.

As an example, a Seed of 0 for a Rank 1 Grotto would generate a Depth of 4 (from 2-4), a starting Monster Rank of 1 (from 1-3) and Equinox (#1 from #1-3). It would also generate the maps Environ (Ruins in this case), Level (3 in this case) and Name: "Graphite Mine of Doubt Lv. 3".

We've already seen how the primary stats of Depth, Monster Rank and Boss are determined. Let's look at the other three.

Environ is a simple percentage chance of one of five possibilities. They are as follows:

30% chance:	Caves	(Natural brown cave walls)
40% chance:	Ruins	(Brick corridors and straight angles)
10% chance:	Fire	(Red rock floor and magma chasm instead of walls)
10% chance:	Water	(Rock walls with ankle-deep water)
10% chance:	Ice	(Ice floor and walls)

As such, the vast majority of grottos will be either Caves or Ruins. Only 30% will have either Fire, Water or Ice Environs. This can sometimes be frustrating, since there are many monsters in the different environs that people will wish to find earlier rather than later.

Next, the Level is generated. As alluded to earlier, the Level of a grotto indicates roughly how dangerous it can be. First, we generate a Base Level by way of the following formula:

$$\text{Base Level} = 3 * (\text{Depth} + \text{Starting Monster Rank} + \text{Boss} - 4)$$

So a Depth of 2, a starting Monster Rank of 1 and Equinox (Boss #1) would create a Base Level of  $3 * (2 + 1 + 1 - 4) = 3 * 0 = 0$ .

A Depth of 16, a starting Monster Rank of 9 and Greygnarl (Boss #12) would create a Base Level of  $3 * (16 + 9 + 12 - 4) = 3 * 33 = 99$ .

The weakest grotto thus starts with a Base Level of 0, and we increase the Level by 3 for every increase of Depth, starting Monster Rank and Boss.

Then, to get a true level of the grotto, we add a random value from -5 to +5:

$$\text{Base Level} = 3 * (\text{Depth} + \text{Starting Monster Rank} + \text{Boss} - 4)$$

This value is capped at 1 minimum and 99 maximum.

Since Level is calculated solely from Depth, starting Monster Rank and the chosen Boss, we can use this to calculate minimum, maximum and average Levels for each of the Grotto Ranks. These are as follows:

Grotto Rank	Quality	Level Range	Average
Rank 1	2-55	1-23	8.868
Rank 2	56-60	4-32	17.724
Rank 3	61-75	7-38	21.742
Rank 4	76-80	16-53	33.743
Rank 5	81-100	19-59	37.769
Rank 6	101-120	31-68	48.509
Rank 7	121-140	40-80	58.407
Rank 8	141-160	46-89	66.251
Rank 9	161-180	49-92	69.999
Rank 10	181-200	58-99	79.858
Rank 11	201-220	46-99	68.060
Rank 12	221-248	55-99	72.551

As such, we can see that it can be rather difficult to find higher level maps, and a fair amount of luck is required, even at higher levels and Grotto Ranks. Some of the analysis on how higher levels affect the levels of grottos you find can be found in the FAQ (Section 1.3).

Last, the Grotto needs a Name. The Name has four parts to it: Prefix, Locale, Suffix and Level. We've already calculated the Level, so all we need is the Prefix, Locale and Suffix. Let's take a look at this in order:

There are 16 possible Prefixes, and these are determined by the starting Monster Rank of the grotto. They are chosen as follows:

Starting Monster Rank	Prefix
Monster Rank 1-2:	Clay, Rock, Granite, Basalt or Graphite
Monster Rank 3-4:	Basalt, Graphite, Iron, Copper or Bronze

Monster Rank 5-6:	Copper, Bronze, Steel, Silver, Gold or Platinum
Monster Rank 7-8:	Copper, Bronze, Steel, Silver, Gold, Platinum, Ruby, Emerald, Sapphire, or Diamond
Monster Rank 9:	Platinum, Ruby, Emerald, Sapphire or Diamond

Again, the Prefix is chosen completely at random from the possibilities. The more valuable the mineral, the higher the Monster Rank it can indicate.

There are also 16 possible suffixes, and these are based onto boss of the grotto. The range of suffixes allocated to each boss are as follows:

<b>Boss</b>	<b>Suffix</b>
#1-#3:	Joy, Bliss, Glee, Doubt, Woe or Dolour
#4-#6:	Doubt, Woe, Dolour, Regret, Bane or Fear
#7-#9:	Regret, Bane, Fear, Dread, Hurt or Gloom
#10-#12:	Dread, Hurt, Gloom, Doom, Evil, Ruin or Death

So the more dangerous the Suffix sounds, the stronger the boss at the bottom may be. As with the Prefix, there's quite a bit of variation possible though: Dolour, for example, could indicate any of the first six bosses.

Finally, the Locale of the grotto is based on two things: the Depth and Environ of the map. The Depth picks the "rank" of Locale chosen from within a range, and then the Environ picks from the chosen "rank" is used. These are as follows:

2 to 3 Floors:	Locale Ranks 1 to 2
4 to 5 Floors:	Locale Ranks 1 to 3
6 to 7 Floors:	Locale Ranks 1 to 4
8 to 9 Floors:	Locale Ranks 2 to 5
10 to 11 Floors:	Locale Ranks 2 to 6
12 to 13 Floors:	Locale Ranks 3 to 7
14 to 15 Floors:	Locale Ranks 4 to 8
16 Floors:	Locale Ranks 6 to 8

<b>Locale Rank</b>	<b>Environ</b>
Locale Rank 1:	Tunnel [Ruins], Cave [Caves/Fire/Water/Ice]
Locale Rank 2:	Marsh [Water], Crevasse [Ice], Mine [Caves/Ruins/Fire]

Locale Rank 3:	Crater [Fire], Lake [Water], Iceptit [Ice], Lair [Caves/Ruins]
Locale Rank 4:	Dungeon [Fire], Moor [Water], Snowhall [Ice], Path [Caves/Ruins]
Locale Rank 5:	Crypt [Caves/Ruins/Fire/Water/Ice]
Locale Rank 6:	Ruins [Ruins], Waterway [Water], Tundra [Ice], Nest [Caves/Fire]
Locale Rank 7:	World [Caves/Ruins/Fire/Water/Ice]
Locale Rank 8:	Abyss [Caves], Maze [Ruins], Void [Fire], Chasm [Water], Glacier [Ice]

If we go back to our example grotto now, which was a Rank 1 grotto with a Seed of 0, we'll remember that it had a Depth of 4, a starting Monster Rank of 1, a Boss of Equinox and its Environ was Ruins.

From this, the game calculated a base level of  $3 * (4 + 1 + 1 - 4) = 3 * 2 = 6$ . The random -5 to +5 for this Seed was -3, so  $6 - 3$  gave it a final level of 3.

The starting Monster Rank of 1 gave it the following possibilities of Prefix: Clay, Rock, Granite, Basalt, Graphite. The Seed chose Graphite out of those possibilities.

Equinox is Boss #1, and gave the map the following possible Suffixes: Joy, Bliss, Glee, Doubt, Woe, Dolour. The Seed chose Doubt.

Finally, the Depth of 4 allowed a Locale Rank of between 1 and 3. The Seed chose Locale Rank 2. The Environ of Ruins grants the Locale of "Mine" for that rank.

So we finally have our full name for the grotto: "Graphite Mine of Doubt Lv. 3".

### 2.2.3 Understanding a Name

We've almost finished with the basic aspects of a grotto, and we've seen how its most important statistics and name is generated. That's from the game's point of view, though. As a player, we'll be looking at "Graphite Mine of Doubt Lv. 3", and we'll be wondering what that means.

In order to help use identify this grotto, there's a few things that are useful to know. First, we should remember what we know about the Quality of the grotto, and their associated Grotto Ranks:

	Quality	Depth	1F Monster Rank	Boss ID	Level Range
<b>Rank 1</b>	2-55	2-4	1-3	1-3	1-23
<b>Rank 2</b>	56-60	4-6	2-4	1-3	4-32
<b>Rank 3</b>	61-75	4-6	2-4	2-5	7-38

	Quality	Depth	1F Monster Rank	Boss ID	Level Range
<b>Rank 4</b>	76-80	6-10	3-5	2-5	16-53
<b>Rank 5</b>	81-100	6-10	3-5	3-7	19-59
<b>Rank 6</b>	101-120	8-12	4-6	4-7	31-68
<b>Rank 7</b>	121-140	10-14	4-6	5-9	40-80
<b>Rank 8</b>	141-160	10-16	5-7	6-9	46-89
<b>Rank 9</b>	161-180	10-16	5-7	7-10	49-92
<b>Rank 10</b>	181-200	11-16	6-9	8-12	58-99
<b>Rank 11</b>	201-220	12-16	8-9	1-12	46-99
<b>Rank 12</b>	221-248	14-16	9	1-12	55-99

There's several ways we can work out the Grotto Rank of this map. First, if we found the map ourselves, then we'd know the possible Final Qualities the map could have. For example, let's say we had a Main Character whose highest Vocation Level was 40 with no Revocations, and we'd just completed a Level 16 Grotto. The Base Quality would be 56, and that gives us a Final Quality of between 51 and 60. So we'd already know without even looking at the name that the map we get will be either Grotto Rank 1 or 2.

If we got the map from someone else, then we wouldn't be able to determine the Quality that way. Instead, let's look at the Level. The only Grotto Rank capable of producing a Lv. 3 map is Grotto Rank 1. From just the level, we were able to narrow down the Grotto Ranks to one possibility.

Higher levels would give us more possibilities, but the idea is the same: what we want from all this is the possible ranges of Depth, starting Monster Rank and Boss. For a Lv. 3 map, this is 2-4 for Depth, 1-3 for Monster Rank and #1-#3 for Boss. IF it had been Lv. 4, we would have used the full ranges of both Grotto Ranks 1 and 2, which are 2-6 for Depth, 1-4 for Monster Rank and #1-#3 for Boss.

Now let's look at the name itself. The Prefix tells us the possible starting monster ranks, and the Suffix tells us the possible bosses. The full list would be:

	Prefix => MRank		Suffix => Boss
Clay:	12	Joy:	123
Rock:	12	Bliss:	123
Granite:	12	Glee:	123
Basalt:	1234	Doubt:	123456
Graphite:	1234	Woe:	123456
Iron:	34	Dolour:	123456
Copper:	345678	Regret:	456789

Bronze:	345678	Bane:	456789
Steel:	5678	Fear:	456789
Silver:	5678	Dread:	789ABC
Gold:	5678	Hurt:	789ABC
Platinum:	56789	Gloom:	789ABC
Ruby:	789	Doom:	ABC
Emerald:	789	Evil:	ABC
Sapphire:	789	Ruin:	ABC
Diamond:	789	Death:	ABC

(\*) A stands for Boss #10, B stands for Boss #11, C stands for Boss #12

Since the map's Prefix is Graphite, we know that the starting Monster Rank must be from 1 to 4. The Suffix is Doubt, so the Boss must be from #1 to #6. But we also know that the Grotto Rank is 1, so that means the starting gMonster Rank cannot be greater than 3, and the boss cannot be higher than #3.

Lastly, let's look at the Locale. There are 8 Locale Ranks, and they each determine a range of possible Depths. These are as follows:

Locale Rank	Depth	Names
1	2-7	Tunnel [Ruins], Cave [Caves/Fire/Water/Ice]
2	2-11	Marsh [Water], Crevasse [Ice], Mine [Caves/Ruins/Fire]
3	4-13	Crater [Fire], Lake [Water], Icepit [Ice], Lair [Caves/Ruins]
4	6-15	Dungeon [Fire], Moor [Water], Snowhall [Ice], Path [Caves/Ruins]
5	8-15	Crypt [Caves/Ruins/Fire/Water/Ice]
6	10-16	Ruins [Ruins], Waterway [Water], Tundra [Ice], Nest [Caves/Fire]
7	12-16	World [Caves/Ruins/Fire/Water/Ice]
8	14-16	Abyss [Caves], Maze [Ruins], Void [Fire], Chasm [Water], Glacier [Ice]

The Locale for our map is Mine. So we can see that this is a Rank 2 Locale with a possible Depth of 2 to 11, and Caves, Ruins and Fire as possible Environs. However, we still know that the Grotto Rank is 1, which only permits a Depth of 2 to 4.

So from the name alone, we know that the Depth is between 2 to 4 floors, the starting Monster Rank is between 1 and 3, the Boss is #1, #2, or #3, and the Environ is either Caves, Ruins or Fire.

Lastly let's look at the Level again. It was a Lv. 3 map. This means that the Base level could not have been higher than 6, since that's the highest multiple of 3 that is not more than 5 levels

higher than the Level of our map. Also, the Base Level can be no lower than 0, since that is the lowest possible Base Level that is still within the +/-5 levels of Lv. 3

Remember that a Depth of 2, a starting Monster Rank of 1 and Boss #1 would create a Base Level of 0, and that each increase would push the level up by 3. From this, we know that only two increases are possible, so we can further narrow the choices to the following possible combinations:

Depth of 2, MRank of 1, Boss #1	Depth of 3, MRank of 1, Boss #1
Depth of 2, MRank of 2, Boss #1	Depth of 2, MRank of 1, Boss #2
Depth of 4, MRank of 1, Boss #1	Depth of 3, MRank of 2, Boss #1
Depth of 3, MRank of 1, Boss #2	Depth of 2, MRank of 3, Boss #1
Depth of 2, MRank of 2, Boss #2	Depth of 2, MRank of 1, Boss #3

We could visit the grotto next and take note of the monsters on the first floor, and identify what Monster Rank it is. If we did that, we would find that the Monster Rank was 1, thus further narrowing the choices. We'd also learn at this point that the grotto's Environ was definitely Ruins. Eventually, after fully exploring the grotto, we would learn that it had a Depth of 4 and Equinox as its boss.

A different grotto might have had a name that could've allowed us to narrow things down further. For instance, if you knew you had a Grotto Rank of at least 6 (FQ of 101-120), then you'd know that the Monster Rank could be no lower than 4. So if you got a Prefix of Graphite, then you'd also know that the starting Monster Rank of that grotto must be *exactly* 4, since Graphite only allows a range of 1 to 4.

Could we have identified "Graphite Mine of Doubt Lv. 3" better? Well, for unique grottoes, we noted that they can only be in one of up to 3 possible locations. Our FQ 2/Seed 0 grotto has two possible locations, in fact: just outside of Slurry Quay (#34) and a bit to the north of the Heights of Loneliness (#42). From just the name and the location, could we have known exactly which grotto it was? Well, not without the proper tools or outside information that tell us exactly where that FQ/Seed combination can be, and in this case, we would actually only narrow it down to two possible grottoes. There's another "Graphite Mine of Doubt Lv. 3" that resides at #34 which as a Depth of 2 (instead of 4) and a Monster Rank of 3 (instead of 1). And another identically named map at Location #42 which has a Depth of 2 (instead of 4) and the Caves Environ (instead of Ruins). These two grottos also have completely different seeds, which means that the grotto interiors would be very different as well.