

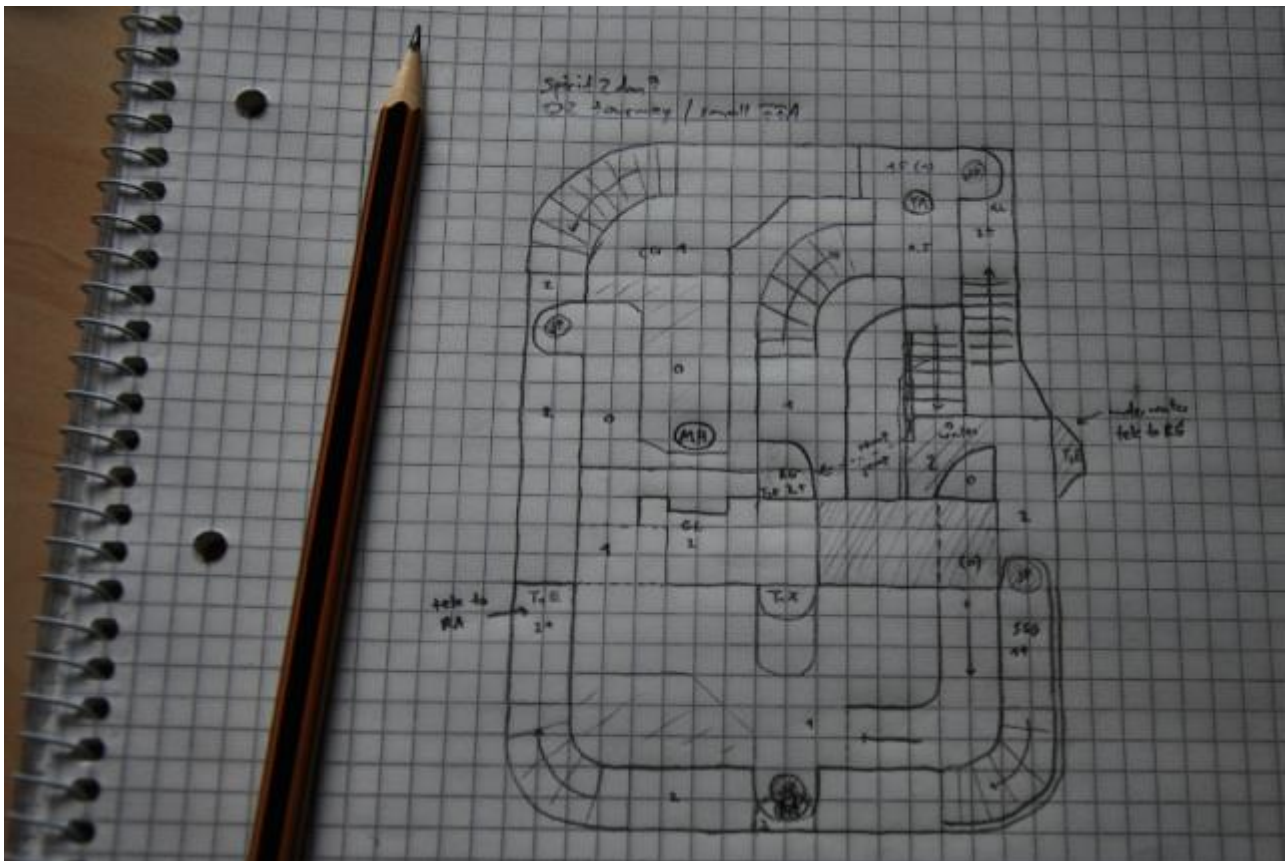
## Designing great 1vs1 FPS maps

This article gives some suggestions on level design and item placement for 1vs1 multiplayer maps. It is intended for level designers who want to improve their maps for 1vs1 games, i.e., make them more balanced for this game type, improve the flow, make players use the whole map, etc. This article uses Quake 2 as an example, but most of it applies to the duel modes of other FPS games as well. Note that this guide focuses on 1vs1. While many tips also apply to deathmatch item placement, team-based game modes like CTF are different in some aspects. And, of course: these are just my personal ideas, I'm not saying this is the truth. It's some suggestions, nothing more. Feel free to discuss them below.

## When to first think about item placement

Most people *plan* their maps, i.e., they roughly think about a layout (and maybe a theme) *before* starting a level editor and actually starting to build a 1vs1 map.

You should start thinking about item placement rather early in the planning phase of your map, but there is no need to go into detail early. I suggest that while you plan the layout, you already think about 2 – 4 spots where to place the major items on your map.



*Layout sketch of a Quake map on paper, with item positions.*

## Basic concepts — the up-player and down-player

The player who kills his opponent in a fight in 1vs1 often has an advantage for a short time frame (unless he barely survived and is extremely low on health). He has more weapons and ammo than his opponent, has the chance to score another spawn-kill very quickly, and maybe he got an important item that the players were fighting for, and thus has more health and / or armor than a freshly spawned player. The player who picked up an item also knows when exactly it was picked

up, and may have an advantage timing the next spawn of the item (the down-player can often guess the time point though, or maybe he heard the pickup sound).

I will call the player with a current advantage the *up-player*, and the other one the *down-player*. These roles change very often and very quickly in Quake 1vs1, but understanding them is key to good 1vs1 map design.

The up-player usually plays *offense*: he can try to hunt the down-player for a quick kill or go where ever he wants (e.g., spawn point of next major item) on the shortest way possible, even if it is dangerous or in the open. The down-player is often forced to play *defense*: avoiding the up-player and exposed areas of the map, sneaking, waiting for an opportunity to hit the up-player off-guard or to grab an important item without being caught.

**Giving the down-player the opportunity for a come-back is one of the most important goals of 1vs1 map design.** Some games and mods have introduced game mechanics that try to make it easier for the down-player to come back, e.g., via item properties. An example is the CPM mod for Quake 3, where a player with lots of armor cannot grab the weaker armors anymore.



Placement of the MH and RG on 'Chastity Belt Duel' (q2rdm2, by JaLisk0).

## Major item combinations

The major items are the ones that players fight for, and the ones they try to time perfectly.

These major items often are 1 combat armor (CA, yellow, +50 a), 1 mega health (MH, +100 h) and 1 body armor (BA, red, +100 a). Note: I am using the Quake 2 item names here, it would be yellow armor and red armor for Quake 3.

With the CA-MH-BA combination, you will often find the CA and MH rather close together, while the BA is far from them (especially from MH).

Some maps use 1 MH and 2 CAs instead. Other combinations are less frequent, but of course possible.

In some games, certain powerful weapons could also be considered major items. An example is the railgun in Quake 2, which is very powerful on open maps.



*Placement of a combat armor close to the megahealth on 'The Edge' (q2dm1, by id software).*

## **Major item placement**

When thinking about placement of the major items, keep the up-player and down-player in mind. The up-player will try to stay up and use his advantage to secure the most powerful items, often BA and MH. Do not make this too easy, i.e., do not place them too close to each other.

Also, be sure to add an area for the down-player to your map. It often contains a CA and an at least o.k. weapon, and should be impossible to control from the location of the BA. This area must NOT be a dead-end, it should have at least two ways out of it. If all major items are visible and/or can be controlled from one point in the map, you will get very imbalanced gameplay.

It is also advisable to place an important weapon the up-player wants away from the most powerful items (often the RG in Quake 2) to force him to give up control from time to time. Be careful with the placement of ammo for that weapon as well, of course.



Placement of the second CA on 'Chastity Belt Duel' (q2rdm2, by JaLisk0). Grabbing this CA means giving up control over MH, the second CA and RG.

## What to avoid with item placement

- **Too many major items on the map.** This is a problem for beginners only, who tend to place too many items on the map. It is easy to fix. Example: A map with 4 rooms of similar size, 3 of which contain a BA and 1 contains a MH. This is bad because it leads to:
  - random gameplay: Players randomly run through the map, game play is not focused around a few the item locations.
  - limited tactical options: there are so many items that nobody remembers which spawned when, so item timing is not possible or relevant anymore.
  - easy pickups during fights: players can stock up on armor and health during the fight too easily
- **Too few major items on the map.** This is rather uncommon and easy to fix, but in the extreme case (like many rooms, 1 of which contains a BA), it leads to the problems mentioned for the next, more common problem, so go read those:
- **Too many powerful items in one spot.** An example would be that the location of the BA also gives you full control over the MH. I've seen similar problems on some maps. They lead to some serious problems, including:
  - total domination of the up-player: If you place BA and MH very close to each other, and the railgun or rocket launcher closeby, the up-player can control all of it at once and will stay up all the time. This leads to a situation where the first player to get a kill wins the whole map.
  - camping: Why would the up-player ever leave the place?
- **Major items in boring spots.** This is a big lost chance for great gameplay on your map! Major items spawns draw both players to the same location *at the same time*, so a lot of the fighting will happen close to them. Placing a major item on the ground in the middle of a large room is a terrible idea, and what it leads to is obvious and rather common:
  - boring gameplay: Fights on a large plane, with no cover or chances to outsmart your opponent. No chance to get an advantage from good movement, timing, anything. Think of cowboys in a Western. Fights like this are about nothing but aim (and Quake is not a rifle simulator). But what is even worse:



- disadvantage for the down player: such fights in the open are almost always won by the up-player: one of the cowboys has a better gun and bulletproof vest. The down-player *needs* some cover or way to escape. And **taking a powerful item should put the one who gets it at a risk!** The player who does NOT get the item should have the chance to deal damage to his opponent during pickup in return.

This is the core of competitive maps imo: powerful items draw players towards them, and they **create a risk** during pickup.

That's nice, but rather vague. **So what exactly makes a great location for a major item?** A hard question, but we are lucky: there already are great maps out there.

## Placing items in a good spot

In the last part, it turned out that placing the major items in *good spots*, and designing such spots of course, is essential for great 1vs1 gameplay. But what makes a good spot? Remember the idea that the player should risk something to get an item, and let's look at some more or less famous examples now.

## Some examples

**Tight spot, placed on low level, dangerous dead-end: *Reclamation* railgun, *Killing Machine* body armor, *Phrantic* red armor**



*Railgun placement on 'Reclamation' (q2rdm7, by Kamarov).*

This is a rather typical placement of the RG: in a tight spot where it is of rather limited use. The place is also dangerous due to the lava and potential splash damage from the walls. Camping here would NOT be a good idea, that's for sure.

A very similar item placement can be seen in the next shot, this time it is in a room which gets more traffic though:



*BA placement on 'Killing Machine' (ztn2md2 by ztn).*

BA is placed low and in a tight spot on 'Killing Machine'.

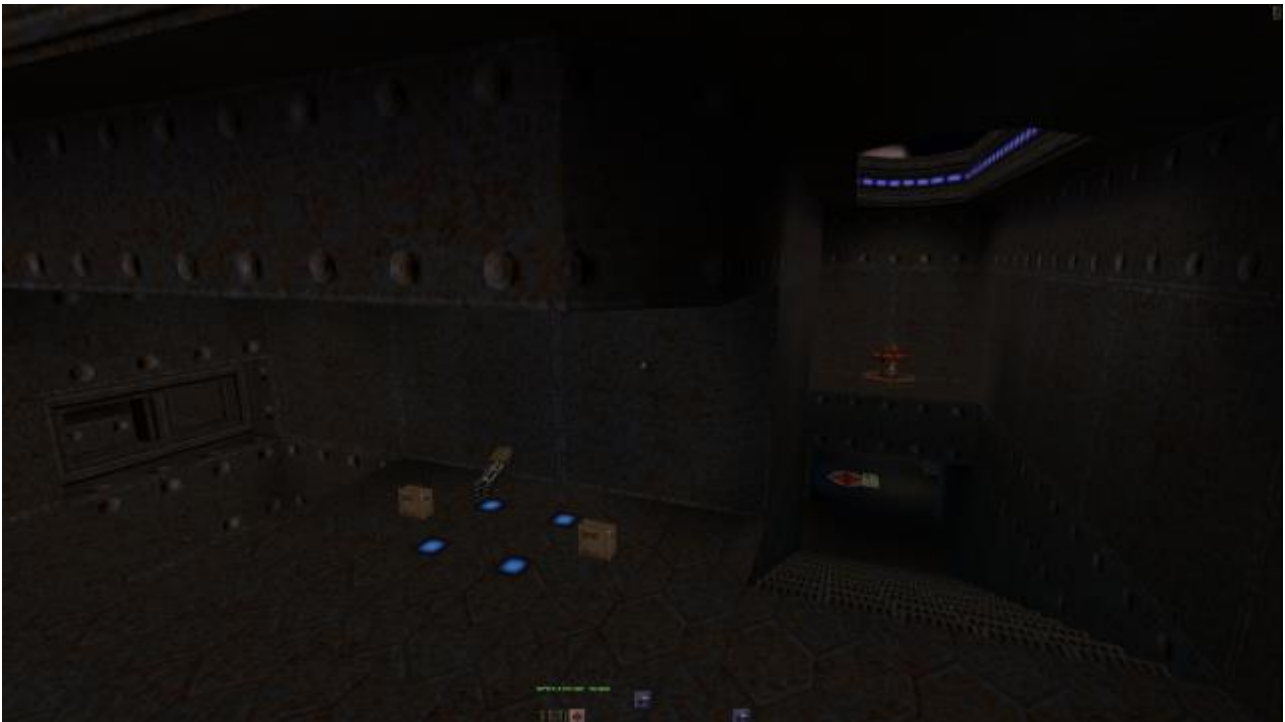
A similar placement can be seen for the red armor on 'Phrantic':



*Quake 3 / cpm: red armor placement on 'Phrantic' (cpm24, by swelt).*

It is in a tight dead-end which has 2 entrances, but one of them in a drop-down, and thus there is only 1 exit.

**Exposed jump: body armor on *Aerowalk* and *Blood Run***



*BA placement on 'Aerowalk' (aerowalk, by Preacher).*

The player has to do a rather hard jump to get the BA which takes a sec to prepare and is very predictable. And in many situations, he has to jump towards/into the fire of his opponent on the lower level. After pickup, he is in a dead end, and needs to get out of it.

A very similar item placement can be seen on 'Blood Run':



*Quake 1 red armor (RA) placement on ztn (Blood Run, by ztn).*

The jump ain't that hard, but is is very predictable and places you in a dangerous spot — especially with the GL and rocket ammo for your opponent on the lower level. Note a difference to Aerowalk

though: on Blood Run, the player on the lower level has direct line of sight to the item and could rocket jump to it, which is not possible on Aerowalk.

**In the open and in dangerous environment: *Chastity Belt Duel* megahealth and railgun**



*Placement of the MH and RG on 'Chastity Belt Duel' (q2rdm2, by JaLisk0).*

The MH is placed in the open. It can be grabbed from 2 different spots, but for both of them, the jump is dangerous because it exposes the player. You can try to control the MH from the CA spot in the same room if you have the RG, but to actually grab it, you have to give up line of sight and thus control over it.

(Also note that the RG position is close by, but it takes rather long to get there.) The RG is on a small ledge above lava.

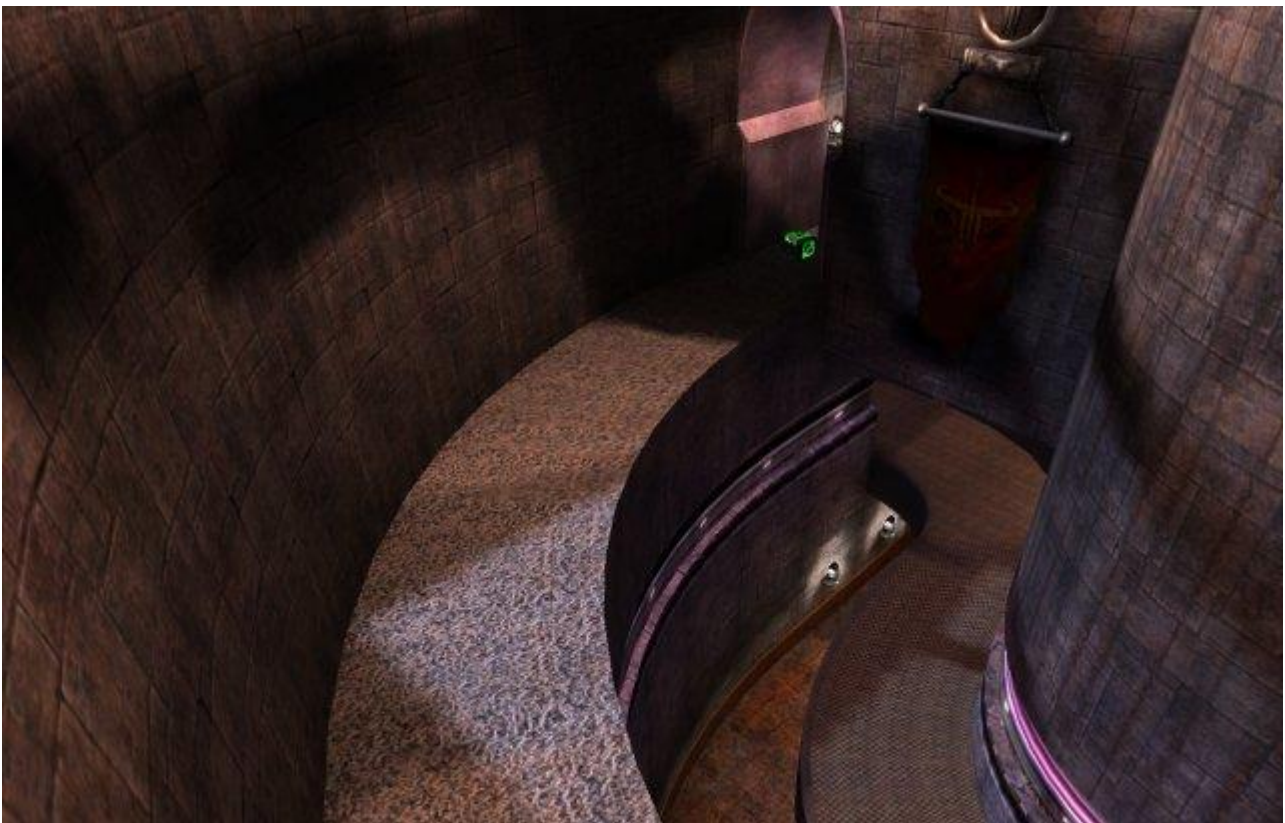
**Drop-down and predictable movement before pickup: *The Campgrounds II* megahealth and railgun**





*Quake 3 Arena: mega health (MH) placement on 'The Campgrounds II' (pro-q3dm6, by id software).*

The MH is in an open and dangerous space on the lower level, players will often drop down from above to get it. Down in the pit, opponents can shoot at you from all directions and multiple height levels.



*Quake 3 Arena: rail gun (RG) placement on 'The Campgrounds II' (pro-q3dm6, by id software).*

The RG is in a spot that takes a bit to get there, and the route to it is very predictable. The pickup position can be denied from the bridge above RA (not shown) via rocket/grenade/plasma spam.

## Conclusion

So, let's summarize it. What makes a good spot for placing key items? Here are some suggestions. The player who gets an important item gains something, but to get it he has to risk something. A good spot for a major item could be a combination of:

- **interesting to fight at:** allow for vertical fighting, have different height level than surroundings (or be in an area with many different height levels in general)
- **accessible from different routes:** non-linear gameplay, flow, opportunity for 2nd player, ...
- **risky:**
  - **hard to camp at:** It should be dangerous to camp at. Many things can make a spot dangerous, including: tight places (due to splash damage), environmental hazards (like a small ledge above lava), exposed places without cover, little space to move/evade attacks, ...
  - **predictable movement before/after pickup:** The player who goes for the item could also be in a place after pickup that makes his next steps predictable, e.g., because there is only one way out. Or because a predictable trick-jump is required to get to the item.
  - **exposure during/after pickup:** The pickup should expose the player who gets the item (at pickup or directly afterwards) to the enemy.
  - **height drop:** Another disadvantage could be that the item is placed on a low level of the map, so that the player who jumps down and gets it has to give up a height advantage for it.
- **far away:** Some places are simply far away from the rest of the important items, forcing the player who wants them to give up control over the rest (think of the RG on 'The Edge'). Use this one sparingly, and not more than once per map.

Maybe you can come up with more properties. And certainly, a single place cannot and should not fulfill them all.



*Typical placement of CA close to MH on 'The Edge' (q2dm1, by id software).*

## **Weapon placement and Item dependance**

Of course, whether a spot is good for a certain item *also depends on the item* (and other items which are close-by). This is especially true for weapons and ammo. Weapons have different strengths and weaknesses depending on the situation (distance to other player, line of sight, splash damage, ...). An extreme case is the grenade launcher, which is almost exclusively used for blocking paths or spamming from above.

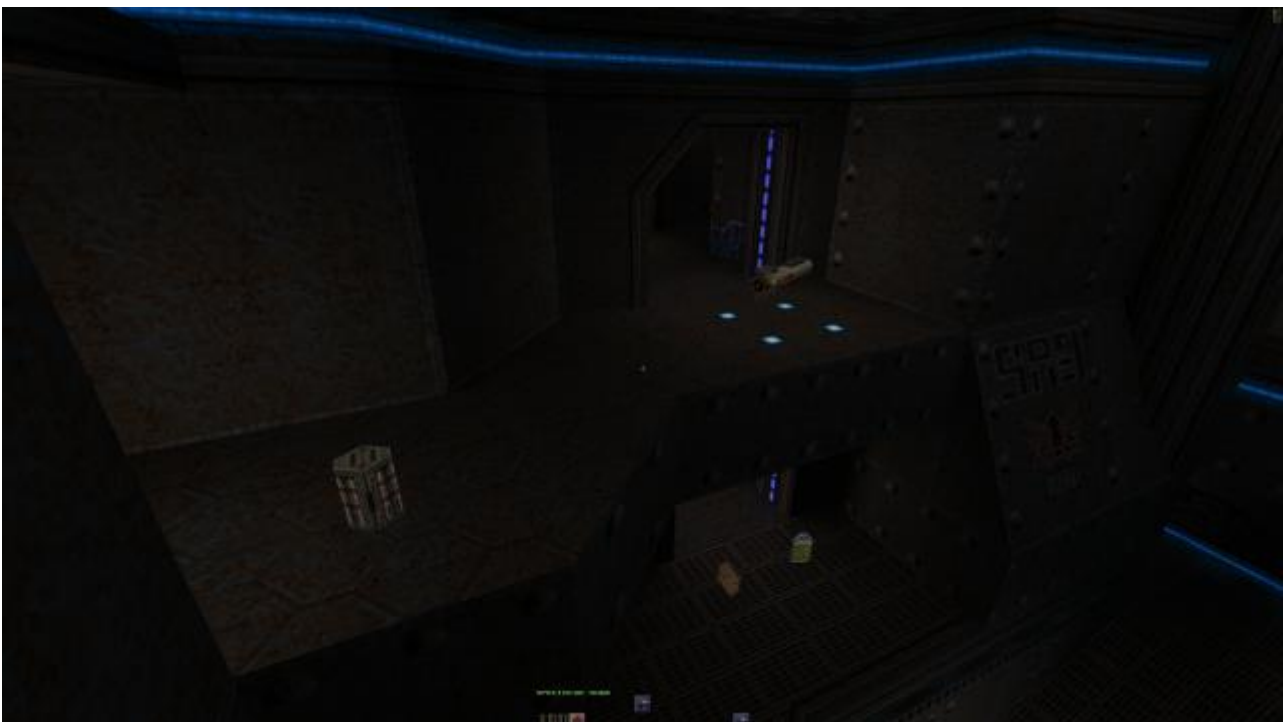


*The Quake 2 grenade launcher (GL), a very situational weapon that is weak in many situations, placed where it is useful on 'Painkiller' (ztn2dm1, by ztn). The placement encourages grenade spamming into the predictable pathway to the BA, making it more dangerous.*



But in most games, especially ones which also have single-player, some weapons are superior to others in **many** situations. Let's take Quake 2 as an example. In Quake 2, I would say there are 3 kinds of weapons as far as item placement is considered:

- **mostly weak:** machine gun (MG), shotgun (SG), grenades (GR). Place them near spawns or in gaps where no other weapons are available, nothing special. Players will not take extra routes to get these. Supply one package of ammo directly next to them (because weapon change times are very long in Quake 2 and the blaster sucks hard).
- **normal:** hyper blaster (HB), super shotgun (SSG), grenade launcher (GL). The down player needs to get one of these quickly, so they should not be in too dangerous spots. Same goes for their ammo.
- **mostly strong:** rocket launcher (RL), railgun (RG), chain gun (CG). These are very powerful, and should be discussed one by one. For these, you should NOT place ammo very close to the weapon, make the player move to get it.
  - **RL:** powerful and versatile tool for simple damage dealing, splash damage, blocking paths, predicting enemy movement, movement (rocket jumps), spawn kills. Not having it when your opponent does is a big disadvantage. Many maps offer two RLs to avoid this situation. So useful that players will move a bit to get several packages ammo for it, but one pack close to it does not hurt because it is used so frequently. For the same reason, be sure to add enough ammo for it on the map.
  - **RG:** extremely powerful in Quake 2, especially on open maps. Could be considered a major item on them. Many maps offer this one in a tight place where it is of little use, and to prevent camping at the RG spawn with a RG (which sucks hard). A single package of ammo on the whole map should be enough, very far from the weapon itself, but easier to get than the RG itself. If you do *not* place the ammo, it gets more dangerous for the player who does not have the RG to grab it (because the up-player needs the weapon again to get ammo)!
  - **CG:** very powerful *if* you have enough ammo *and* some health/armor. Less useful if you are low on health, due to the time it takes to start firing, thus an up-player weapon. A place with 2 or 3 packs of ammo for it becomes interesting once you have it. Do not place lots of ammo too close to it. (The CG is even more powerful in deathmatch.)



*The Quake 2 rocket launcher (RL), with a pack of rockets close to it.*



## Which items NOT to place

You should think carefully before placing very powerful ('over-powered') items on 1vs1 maps. This includes power-ups like the QUAD (which is great for team-based game modes) but also very powerful weapons, like the BFG in some Quake games. The reason is that they lead to one-sided or random gameplay, or to hide-and-seek. For Quake 2, these items include:

- **Adrenaline:** I have my doubts on this one. The reason is that it's very annoying to fight somebody near it, then he takes it and is back to 100. You are not gonna fight for this usually, so it's a bit random whether a badly hurt player is near it in a fight. It should take him some time to get back, by collecting health packages in more than a single spot imo. Better have 2 different places on the map which offer 2 large health (+25h) each. This is a matter of taste though, go ahead and place it if you like it.
- **Quad damage:** So powerful that the player who does not have it can only run and hide. Go make a CTF or TDM map if you like the quad!
- **Invulnerability:** The worst item you could place on any multiplayer map. Go play singleplayer on easy with the god mode cheat if you like invulnerability.

OK, that's it. I hope this article helped you. It is not the truth, it's some ideas. You may or may not like them, so feel free to discuss them.