Galactic Powers Strategy Guide

Credits

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Overview

Galactic Powers is an expansive high-tech playground for v3 ships. The design lacks restraint and there are no meaningful limits on any of the v3 ship types. Two techs are especially egregious. Jumpgates are so effective that both using and attempting to counter them are essential to any strategy. Builder tech is also mandatory because it permits a potentially runaway economy. Despite its flaws, Galactic Powers can be a fun and popular game. From my vantage, it is also an effective vehicle for learning about the v3 ships—all four types are ubiquitous, and the game is long enough to grant the opportunity to see many of their ordinary uses. Later in your career as a player, if you want to try a more subtle game where jumpgates and builders still have a role, but do not utterly dominate strategy or lead to runaway economy, you can try another series with the confidence that you know the fundamentals of the v3 ships.

Game Specifications

Format Sixteen-player daily, one ally per player, with 20 systems each, random map, peeking allowed
Homeworld 120 Agriculture, 120 Minerals, 120 Fuel
Average System 60 Agriculture, 60 Minerals, 60 Fuel
Initial Tech 1.00
Tech Advance Rate 4.00
Max Ships 200
Max Ag Ratio 5.00
Minimum Pop to Build 45
Developed Tech Colony, Science, Terraformer
Restricted Tech Attack, Cloaker (Built Cloaked), Minefield, Minesweeper, Satellite
Unrestricted Tech Builder (Build Cost +50, Maint Cost +8, Planet Create Cost 90), Carrier (Loss 0.25, Build Cost +50, Maint Cost +8), Doomsday, Engineer (Loss 1.00), Jumpgate (Loss 0.25, Build Cost +100, Maint Cost +16), Morpher (Loss 0.05, Build Cost +50, Maint Cost +8), Stargate, Troopship
Restricted Techs Allowed 3
Trade-Ins Allowed 0

Lesson 1: Points of Articulation

Your success at Galactic Powers is primarily dependent on your ability to rapidly achieve a runaway economy while simultaneously limiting the exploration of all empires that are not allied to you. Along the way, often in the order shown below, we can discern six landmark moments, or points of articulation that irrevocably alter the nature of the game:

- **First Turn** Your opening move will influence how quickly you meet your objectives
- **Jumpgate Tech** When you reach BR2, or soon after, you should start using jumpgates to accelerate exploration and colonization
- **Contact** Ally with the first empire you meet and limit the exploration of all others
- **Builder Tech** When you reach BR5, or soon after, you should start creating systems
- **Ship Limit** When you reach the limit of 200 ships, many aspects of your strategy must shift gears
- **System Limit** When the game reaches 1000 systems, builder tech can no longer create systems

Lesson 2: First Turn

Your initial build is a topic far too advanced for such an early Lesson, but I will make a few general suggestions so that those who are inclined to read this guide gradually can start a game right away.

- **Three Science** A mild overbuild suitable for one to three links
- **Four Science** A mild overbuild suitable for two to four links
- **Three Science and Three Colony** A severe overbuild suitable for three links
- **Four Science and Two Colony** A severe overbuild suitable for two to four links
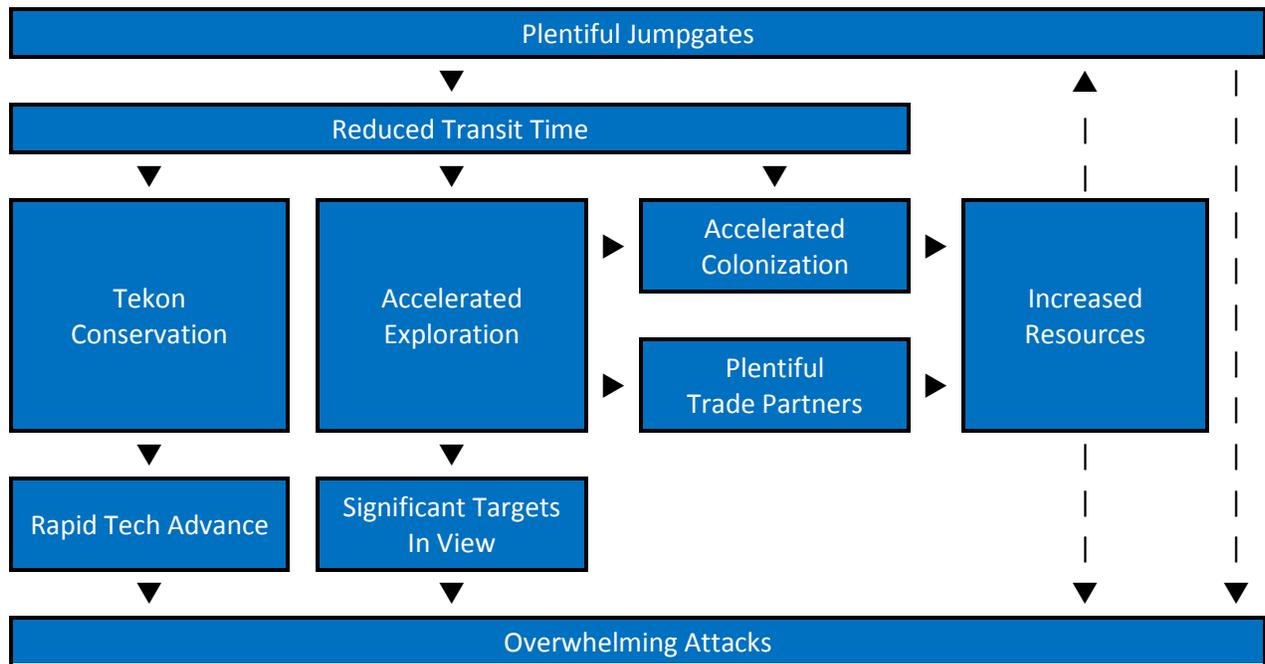
The mild overbuilds are the faster path to jumpgate tech, while the severe overbuilds are usually the faster path to economic growth. However, if your nearby systems are below average, the mild overbuilds can often outperform the severe ones.

One final observation—in this series, I am *not* a fan of including attack ships in your initial overbuild. First of all, you don't even start the game knowing attack tech, so it will cost you a tech selection, and that's a rather dear price at this stage of the game. Second, the game is large enough that you are unlikely to *immediately* meet hostile empires. You don't need to *support* your initial build so much as ensure that no aspect of it is wasted.

Lesson 3: Jumpgate Tech

Jumpgates have unlimited range, are no more expensive than an engineer, lose only 0.25 BR per jump, and to top it all off, aren't even restricted tech. If you've ever wondered where the term "jumpgate junkie" came from, look no further—it's because of this very series. Jumpgates are powerful tools for accelerating exploration, accelerating colonization, conserving tech by eliminating transit time, and creating overwhelming attacks—overbuilt surprise attacks, double attacks, and poly attacks. We will cover all of these topics in later Lessons.

Figure 1
Unconstrained Jumpgate Effects

Plentiful Jumpgates

Reduced Transit Time

Tekon Conservation	Accelerated Exploration	Accelerated Colonization	Increased Resources
		Plentiful Trade Partners	

Rapid Tech Advance	Significant Targets In View

Overwhelming Attacks

Lesson 4: The Jumpgate Feedback Loop

Take a look at Figure 1, Unconstrained Jumpgate Effects. It's essentially a graphical review of Lesson 3, but with arrows to illustrate enabling relationships. Funny how almost all of the arrows eventually converge on "Overwhelming Attacks", isn't it? However, that's not the primary focus of this Lesson. Instead, I want you to study the one arrow that bucks the trend—the arrow that leads back to "Plentiful Jumpgates". That arrow completes a positive feedback loop. It means that jumpgates create the potential for *more* jumpgates and hence an *even more* devastating chain of effects. In Galactic Powers, the chain hits its first and only constraint when you reach the limit of 200 ships.

Lesson 5: Accelerated Exploration

The key to unlocking the full power of the jumpgate is rapid exploration, and the key to rapid exploration is the jumpgate itself. That is the heart of the feedback loop we discovered in Lesson 4. As your science ships are destroyed, or as they discover more links than they can immediately explore, jump more science ships to the front and keep exploring. As Figure 1 shows, rapid exploration enables rapid colonization, and rapid colonization enables a rapidly increasing number of jumpgates and science ships that will accelerate your rate of exploration yet again. Furthermore, the power of the jumpgate to make overwhelming attacks is directly related to how much enemy territory is visible to you—again, a consequence of rapid exploration. Finally, rapid exploration enables you to make contact with a large number of potential trade partners.

Lesson 6: Accelerated Colonization

Accelerated colonization is essentially matter of jumping colony ships to suitable sites as rapidly and efficiently as possible. At first, you only possess a single jumpgate and can typically only afford to build a single colony ship per turn, so your task is very straightforward—jump to the best colony site you can find. Early on, your chief priority is agriculture, followed by balanced systems that do not require much terraforming, then mineral-rich systems, and finally fuel—though sometimes positional factors will trump your need for resources. Later, when you can drop multiple colonies with each jumpgate, strive for a tessellating pattern, so that the distance moved by all colony ships is minimized.

Lesson 7: Jumped Colony BR

In terms of pure economics, the best BR for a colony ship is usually the highest available BR that does not greatly overpopulate the system. By planting a larger population, you gain a higher return on investment that more than makes up for the higher initial cost. For a system with highly uneven resources, though, ideal BR isn't as simple. I use a couple of additional estimates—the square root of minerals (for growth), or the fourth root of the product of minerals and fuel (for tech). Economics aside, you might want an immediate builder if the system can been seen by the enemy or has positional importance. In that case, use BR 7—and remember to raise the Max Pop to 45 if needed.

Lesson 8: Jumpgate Tekons

Although economic growth is critical to your success in Galactic Powers, your tech level is important too. When comparing two courses of action, don't forget to look at the impact to tech. Because computing the *exact* effect on tech level can be quite messy, I often use a simple measure called the **tekon**. When you measure tekons, you are determining the total minerals and fuel that a course of action will consume over time. In the context of jumpgates, tekons are significant for two reasons. First, tekons provide a rough means of evaluating the savings in transit time that a jumpgate provides to other ships. Second, by studying the tekon consumption of the jumpgate itself, you can optimize its efficiency. For instance, the lifetime of a BR 1 jumpgate is five turns. On the first turn, you build it at a cost of 125 minerals. For the next four turns, you operate it at a cost of 18 minerals and 36 fuel. After jumping four times, the gate is consumed. The total cost is 341 tekons (125 + 4x18 + 4x36). More importantly, the cost per benefit is 85.25 tekons per jump. If each jump saves at least as many tekons in transit time, your jumpgate is conserving resources and hence tech.

Lesson 9: Jumpgate BR

I will save you some math. When measured in tekons per jump, the most efficient gate is a morphed jumpgate built at BR 2, or 53.4 tekons per jump. If you don't want to spend an early tech selection on morpher, the most efficient genuine jumpgate is also BR 2, weighing in at 77 tekons per jump. Past BR2, the cost climbs rapidly in both cases, so if you want to maximize tech development, build your gates at BR 2. Having said that, other considerations can sometimes be significant. If you expect the jumpgate will be involved in combat, build it at the highest possible BR.

Lesson 10: Overwhelming Jumpgate Attacks

I am covering this Lesson at this point in the guide only because it completes a series of Lessons on jumpgates. I don't mean to imply that just because you *have* jumpgates, you should immediately launch a series of overwhelming attacks! Indeed, the questions of *whether* and *when* and *who* to attack are rather difficult topics in Galactic Powers. Games are commonly won and lost on the consequences of such decisions, but I have no special insight in these matters. Instead, this Lesson covers how to proceed once you *do* decide to attack.

- **Overbuild** You can often achieve a significant degree of surprise simply by jumping an overbuilt fleet to your target of choice. Since jump range is unaffected by the BR of the gate, this is usually an easy task—provided, of course, that the gate can still pay for jump loss in the middle of your overbuild.
- **Lead the Fleet** While your fleet is busy nuking a target, you can jump additional ships to an adjacent target. On the following turn, the fresh ships nuke while the fleet moves to support them. By continuing in this manner, you can maintain double the normal rate of nuking.
- **Jumped Fork** By using two jumpgates to simultaneously land ships on two adjacent targets, you have achieved a form of double attack. A variant occurs when you have an existing fleet and use two jumpgates to simultaneously Lead the Fleet in two different directions.
- **Jumped Fleets of Unpredictable Strength** You can use two jumpgates to send ships to two targets that are well separated from one another. What converts the scenario from *two unrelated attacks* to a *double attack*—something that *multiplies* your real force— is the fact that the strengths of the two fleets are concealed. Perhaps one fleet is a BR1 diversion and the other is full strength, or the other way around, or anywhere in between. The defender cannot defend against both threats with his full strength at the same time. A variant occurs when cloakers are used to conceal the true strength of the visible ships.
- **Poly Attacks** In Galactic Powers, jumpgates are so plentiful and efficient that a mere *double attack* is often only the beginning. In theory, you can set up an attack with a force multiplier as large as the number of credible targets visible to you. The best way to achieve a very large force multiplier usually involves a relatively small number of visible ships with a large number of cloakers supporting some of all of them.

Lesson 11: Jumpgate Confinement

We saw in Lesson 5 that the key to unleashing the full power of the jumpgate is rapid exploration. Conversely, the key to confining the power of hostile jumpgates is to limit the exploration of any empire that is not your ally. Considering the implications of Lesson 10, this objective is an absolute imperative. In particular, you must keep non-allied science ships out of the area near your homeworld. We will cover the methods for doing so in the next series of Lessons, starting with alliance.

Lesson 12: Alliance

Most players agree that you should ally with the first empire you meet that is both active and available. That is very sound advice, particularly in a game with unconstrained jumpgates. If I may offer a rather pointed tautology, your nearest neighbor has the best view of the area near your homeworld. If possible, try to ensure that the empire that enjoys such a view becomes your ally, not your enemy. Sometimes you will meet two or more players at the same time, but the same principle applies. Try to ally with the one whose science ships are harder for you to stop. Good communication and cooperation skills are essential to getting the most out of any alliance—something especially important in a game with the scope and complexity of Galactic Powers.

A Contrarian View

There are often significant advantages to killing your neighbor if you can do it very quickly and ally with the next empire. If you go that route, you just need to be pretty sure of success so you avoid a protracted early fight that limits your econ and tech growth and dooms your chance for success. No different than most series.   —*BackStabber*

Lesson 13: Other Empires

As we've stressed several times now, you must try to limit the exploration of all empires that are not allies. In an ideal world, you would wave your magic wand and prevent them from exploring anything, anywhere. Since that's not possible, you will focus on keeping their science ships as far away as you can from the homeworlds of both you and your ally. Your principal methods:

- **Diplomacy** Perhaps you can persuade your nosy neighbor to mind his own business for a while?
- **Kill the Science Ships Already** An obvious and important technique, but deeply flawed unless combined with other methods
- **Seal Off** So useful that it is almost mandatory, using engineers to seal off territory immediately converts the problem from *stopping enemy science ships* to *stopping enemy engineers*
- **Doomwall** A wall of annihilated systems is the surest defense against jumped science ships, but setting one up properly is complex and difficult
- **Offense** If you take the battle to the systems of the enemy, perhaps they will be forced to focus more on defense than exploration.
- **Official Secrets Act** If an empire knows too much, do your best to eliminate it!

Throughout this guide, I refer to non-allies as your enemies. That shouldn't necessarily stop you from *trading* with them, however. From Figure 1, we can see that trade is an important contributor to the jumpgate feedback loop. The more trade bonuses you can accrue, the more quickly your jumpgates will propel you to power. There are two drawbacks. First, it is much more difficult to limit the exploration of a trade partner than an empire you are at war with. Second, if you lose several trade bonuses at once, you might develop Ag Ratio or even Fuel Ratio woes. You will have to judge the most appropriate diplomatic status with each enemy on a case-by-case basis.

Lesson 14: Screening Out Science Ships With Diplomacy

This is a difficult Lesson to write, if only because there are so many different ways to use diplomacy. For instance, if you manage to get your neighbor embroiled in a war on some other front, his chief efforts at exploring will likely be away from you. However, I am going to ignore the more inventive possibilities to focus on something far more ordinary—a mutual agreement between you and your neighbor not to explore each other's territory. Such agreements are quite useful, but have serious weaknesses. Eventually, the agreement will end—perhaps abruptly. Make sure you have other protective measures in place before that moment arrives. The other tricky thing is that for an agreement to be clear, you must provide some rather sensitive information about the places where you won't tolerate any nosing around. If your agreement falls apart, guess where the other guy is going to start looking?

Lesson 15: Kill the Science Ships Already

Let's be clear. If you have incoming enemy science ships, you need to kill them. Unfortunately, if you are trading with the intruder, his science ships have free passage for a turn as you downgrade first to truce, then finally war. We also know from Lesson 5 that killing a science ship is a very short-term solution to a long-term problem. Next turn, the intruder can simply jump in more science ships. So the problem resurfaces turn after turn, but a step deeper into your territory each time. You will achieve a lasting solution only when you combine this technique with further forms of protection.

Lesson 16: Sealing Off—Preparations

Engineering is the first technique on our list that provides any degree of certainty with regard to stopping science ships. A science ship can't explore a link that is no longer open! Indeed, it is difficult to envision an effective defense against jumped science ships that does not include some form of engineering. For that reason, I consider engineer one of the more important techs—not quite as critical as jumpgate and builder, but vital nonetheless.

Before you can properly seal off, you need two things:

- **An Available Tech Selection** Engineer tech requires a tech selection, and a rather early one at that. At least one member of your alliance—but preferably both—should save a slot for engineer by BR 3.
- **A Tracking System** To cut the proper links, you need an accurate record of which systems are visible to a given enemy and which aren't. Your goal is twofold. It is certainly useful to cut any link that, from the vantage of the enemy, leads from a known system to an unknown one. But even better is to cut and thereby conceal links leading to your territory before an enemy even knows they exist. You will never have a better chance to deny such valuable clues to the enemy—clues that can easily mean a difference of several turns when that enemy comes looking for your homeworld.

Lesson 17: Sealing Off—Execution

When you've determined that it's time to seal off:

- **Be Quick and Thorough** Don't leave the job partway done. A science ship that slips past a single unprotected link will probably discover several others, so the problem can escalate.
- **Use Existing Bottlenecks** It may be worth conceding a system or two to enemy exploration if it greatly reduces the amount of engineering you must perform.
- **Use Genuine Engineers** Not only are genuine engineers faster than morphed engineers, they also consume fewer tekons per severed link. At 113 tekons per link, the most efficient BR is 4, but it is usually more important to do the job quickly than to save a few tekons.
- **Mind the Cost** Don't build more ships than you need to do the job in the required amount of time. On the other hand, if the job is finished and some of the ships still haven't been completely consumed, you can consider using them to close links deeper within your territory—provided they can do so with a minimum of movement. Otherwise, dismantle.
- **Reevaluate For Each New Enemy** As you encounter additional empires, you will need to decide whether it is worth the expense to repeat the process, or just rely on your existing defenses.

Does That Make Me Paranoid?

Take neer and close homeworld and other links early if you quickly meet more than a couple other empires. One of them will likely figure out where you are and try to nuke you.

—BackStabber

Lesson 18: Stopping Enemy Engineers

As mentioned in Lesson 14, successfully sealing off redefines the problem from *stopping enemy science ships* to *stopping enemy engineers*. The methods of doing *that* will sound rather familiar:

- **Diplomacy** If you already have a non-exploration agreement with a neighbor, consider amending that agreement to preclude opening links.
- **Kill The Engineers Already** This technique is reasonably sound as long as you can build in the system that the engineers must enter, and you are not at trade with the intruder.
- **Doomwall** A good doomwall works just as well against engineers as it does against science ships
- **Offense** The same is true of forcing the enemy to defend himself
- **Official Secrets Act** The same is true of ridding yourself of the enemy entirely

Lesson 19: Doomwall Fundamentals

A doomwall is founded on the fact that no jumpgate can land ships on an annihilated system. To turn this simple fact into a map advantage, your doomwall must exploit an important asymmetry between you and your opponent—you can see some systems that he can't. The whole point of the doomwall is to help you keep it that way!

An ideal doomwall has the following elements:

- **Moat** One or more outer layers of annihilated systems, the thicker the better
- **Portcullis** A *closed* link between the Moat and the Gatehouse
- **Gatehouse** The innermost layer of annihilated systems—the area the enemy is trying to get science ships past
- **Murder Hole** An *open* link between the Gatehouse and the Hidden Sentinel
- **Hidden Sentinel** A system adjacent to the Gatehouse, capable of building ships, and not visible to the enemy

These elements work together to create *differential access* to the Gatehouse. If access to the Gatehouse is easy for you and difficult for your enemy, your doomwall has a good chance of functioning properly. The idea is that any enemy science ships that manage to reach the Gatehouse will be destroyed by the boiling oil that pours through the Murder Hole from your Hidden Sentinel. Even if your doomwall doesn't stop the enemy, it can take so long to penetrate—and tie up so many enemy ships—that you can very likely make advances against that enemy elsewhere.

Doomwall Rationale

Q: Why do you need a doomwall anyway?
A: To slow down or stop enemy exploration.

Q: Why is that important?
A: Galactic Powers is won by finding the enemy's homeworld before he finds yours. Once found, you can jump in an overwhelming overbuilt force that he cannot defend against.

Q: So when do you need a doomwall rather than just killing science ships and neers?
A: A lot of times. For example:

- When your enemy is much larger than you and you cannot both fight his ships and explore his territory.
- When your enemy is much closer to your homeworld than you think you are to his.
- When you have multiple enemies all trying to nuke you and you can't go after them all at once.
- When you have a large front and can't reasonably defend all the paths back to your homeworld.

—BackStabber

Lesson 20: Doomwall Construction Challenges

In Galactic Powers, realizing the ideal doomwall is often difficult to achieve. For one thing, doomsday tech requires a tech selection. Around the time you are interested in getting a doomwall, many other techs are also in great demand. Most often, you will not be able to afford the tech selection until BR 7 or so. Occasionally, one member of an alliance can find a slot for it earlier. If just one member takes it, it should be the empire that is in the more protected position. The reason will be clear in the next paragraph.

The messier problem is that usually, your outermost colonies are already visible to enemies. Even if you left a gap between your outer and inner colonies, it probably isn't large enough to permit an effective doomwall. In this case, your best chance to set up a proper wall is usually right after a middle empire is eliminated and before more distant empires have had a chance to explore your border systems. Or, your ally can temporarily drop to war in order to annihilate some of your systems. Finally, consider the rather chancy Rope a Dope tactic—allow your enemy to nuke a system or two that he can already see, then before he can explore any further, suddenly fight back and annihilate those systems.

Lesson 21: Moat

The function of the Moat is to provide as much delay and advance warning as possible before enemy ships can approach your Portcullis. Since the enemy can't jump ships into the area, he must march them across one step at a time. Though the outermost layers of Moat are the most expendable portion of a doomwall, a doomwall that lacks a Moat altogether will have a serious weakness—if the Portcullis is ever opened, your doomwall no longer produces differential access to the Gatehouse.

Lesson 22: Portcullis

The Portcullis achieves three purposes:

- Much like an extra layer of Moat, the Portcullis provides you with one more step of advance warning before ships can approach the Gatehouse—but it requires less space to do so
- While the Portcullis is closed, it keeps cloaked ships from entering the Gatehouse
- It forces any enemy that wishes to crash your Gatehouse to bring an extra tech, and an expensive one at that, especially considering that the engineers cannot simply be jumped into position.

It's worth noting that though the Portcullis is usually adjacent to the Gatehouse, it doesn't absolutely have to be. You can cut links further out in the Moat instead of, or in addition to, the normal Portcullis location. However, the further from the standard location, the easier the links will be for the enemy to open and the harder for you to reclose.

Lesson 23: Gatehouse

If an enemy science ship survives entering the Gatehouse, it will explore your Hidden Sentinel on the next turn. Therefore, the Gatehouse is the final killing zone. Get the job done here, or the doomwall will be seriously compromised. If you have set the doomwall up correctly, you will be able to respond to most attempts at intrusion. An enemy can crash the Gatehouse only by committing significant resources for a significant period of time. In the meantime, by committing his forces, the enemy may leave you an opening elsewhere. One last thought—if the enemy forgot to bring a minesweeper to support his science ships, consider putting a morphed mine in the Gatehouse.

Lesson 24: Murder Hole

If you do not include a Murder Hole, your doomwall has a fatal weakness—you have no access to your own Gatehouse. The Gatehouse cannot function unless you have better access to it than the enemy. Of course, from the *outside*, your doomwall will look as good as any other—the enemy might assume the closed link is just the Portcullis, with the Gatehouse behind *that*. But if he ever tests the defense, he will discover that your doomwall was mostly for show.

Of course, you can always open the Murder Hole at the last instant. But one of the goals of the doomwall is to give you enough time to respond to a variety of threats at penetrating it. An engineer is an expensive ship to build at the last instant, especially when you need to build additional forces to deal with the incoming threat.

Having said all that, there *is* one time that you might want to close the Murder Hole—when despite your best efforts, there is a chance that science ships can survive entering the Gatehouse. So, pour your boiling oil into the Gatehouse and close the link at the same time. If you're lucky you kill the science ships. If you're not quite as lucky, maybe you can kill his engineers! And if you don't kill any of the key ships, at least you bought a one turn delay before the failure of the doomwall.

> **The Case of the Missing Murder Hole**
>
> One time another empire and I were the only survivors of two warring teams. My foe had 1.5 times my econ and a big doomwall. But he closed his end. Indeed, he just annihilated every system he conquered and made the wall bigger and bigger. Whenever he attacked one of my systems where I had a morphed jumpgate, I morphed it into a cloak and slipped in. Then he attacked one of my systems where I had a sizable army with all types of ships (neers, science, morphers, etc). His army was bigger than mine. But I did not defend—instead I moved forward into his wall. His army followed. As I neared the end of the wall, my waiting morphers uncloaked and changed into neers. My army moved in and the neer closed behind with his army outside. Then I opened many links. After that, he agreed to draw (or ally out, don't remember). I was only 2 systems away from his home. Ok, he was only 3 or 4 systems away from my home as well :-)   —*Lucky*

Lesson 25: Hidden Sentinel

Per Lesson 19, the Hidden Sentinel should be a builder. That is true in most games, but in Galactic Powers, you have plentiful jumpgates, so it's not an absolute rule. If you can jump an overbuilt fleet to the Hidden Sentinel, it can still fulfill its primary role.

Expendable Intermediate Sentinels

If the doomwall is deep enough, it makes sense to have additional Hidden Sentinels embedded in the middle of it. They should be *created systems* and therefore not visible to foes—but *not colonized*. If you are no longer able to defend a sentinel, annihilate it before the foe explores it and start using the next sentinel. *—Lucky*

Having a hidden jump point within a thick wall will allow you to interdict forces as they proceed through. This can be very helpful, say, when your opponent did not bring enough science ships or neers, and is now trying to reinforce the fleet with a smaller force composed of the replacements for the key ships. It's also helpful if your opponent has a larger force than you can destroy in a single fight. By killing some ships in the doomwall, you may be able to rebuild and destroy the rest before they get through.

—BackStabber

Lesson 26: Defeating a Doomwall

I am going to simply make a long list of potentially useful techniques:

- **Probing Pair** Probe a doomwall with one science ship and one engineer and see how the enemy reacts—you'll either succeed or learn something about the defense
- **Cheap Sniffer** Send a BR 1 builder to analyze the hidden structure of the doomwall
- **Sneak Around** Use created systems to secretly outflank the doomwall
- **Create a Landing Zone** You will often find voids in or near a doomwall. If you can create a system there, your access is greatly improved because you have a place to land jumped ships.
- **Brute Force** Just rush the wall with enough force to break through. Your attack will be time-consuming, and you run the risk of being attacked elsewhere while your forces are bogged down. Consider bringing morphers to replace any key ship types you might lose, or to jump the fleet out of the doomwall if you suddenly need to be elsewhere.
- **Exploration Fork** An exploration fork is a double threat where your science ships, plus support, can move to two different annihilated systems with unexplored links. Even a well-constructed doomwall can permit such forks, because the designer faces a peculiar dilemma. He can either leave voids (which you can exploit by Creating a Landing Zone), or fill them. If he fills them, you can often create an exploration fork with a pair of engineers.
- **Fleets of Unpredictable Strength** This is the same technique we saw in Lesson 10, except that you will need to march the fleets into position one move at a time
- **Mixed Threat** A mixed threat is any double or poly threat where one arm of the threat is aimed at penetrating the doomwall and another is aimed at nuking an important enemy system
- **Cloaker** Get cloakers into the Gatehouse, and uncloak just as your science ship arrives
- **Morphed Science or Engineer** Your opponent might not bother building a defense fleet if it appears that you lack the necessary tools to penetrate the wall—science and/or engineer. Unknown to him, one or two of your useless-seeming ships is actually a morpher.
- **Cloaked Morpher** Hide a cloaked morpher in the Gatehouse, and wait for a quiet moment when you suspect there are no ships in the Hidden Sentinel. Uncloak, morph to science, and explore.
- **Morphed Mine** If you can get a morpher into the Gatehouse, change to minefield just at the moment the opponent expects your main forces to arrive. Instead, you hang back for a turn, watch the explosion, and saunter forward unopposed on the following turn.

Lesson 27: Doomwall Failure

Guest Lecture

Q: Why do doomwalls fail?
A: They are not thick enough. The standard 3-system thick model is ok if you are big, but will not stop a larger opponent who can bring enough ships to force his way through it.

Q: How thick do you recommend?
A: At least 5-6 systems with Hidden Sentinels to weaken any larger fleets coming through it. But bigger is better. I've found 7-10 systems to be very robust, and have stopped single players five times my size and opposing teams with several times my resources.

Q: Isn't that a lot of planets to forego resources from?
A: You can always build more. But you can't move your homeworld farther from the front. Being able to build a few extra ships is of little value when 150 carriers have been deposited on your homeworld. Having another 15-20 turns to try to find their homeworld is much more valuable.

Q: What can I do if it looks like my doomwall will fail?
A: A few choices:

* If you have an ally, drop to war and doom more systems on your side to thicken it. Fight in the doomed area to weaken his fleet so you can destroy it.
* Send in neers to close off whatever links lie within it to slow your enemy's progress.
* If he gets close to the side edge, build systems there to expand the doom wall laterally. Remember, he doesn't know where you are and may explore in the wrong direction.
* **Explore frantically!** If you find his homeworld or even get close, he will likely dismantle his expeditionary force in an attempt to defend.   If he doesn't, you can jump in an overbuild, nuke his homeworld, and solve your problem.
* Expand the doomwall by dooming systems on the enemy side of it. If you do stop his forces from breaking through, he will have a longer way to send the next force, buying you more time to find his homeworld.

Q: What is the best way to stop a large expeditionary force?
A: Most players bring too few neers not realizing how many they might need against a thick wall—and wanting to conserve tech. If you have a thick doom wall, you may be able to kill all the neers before he can open all the links and get through.   —*BackStabber*

Lesson 28: Sniping Within a Doomwall

Sniping is useful anytime you want to kill a single ship that is slightly lower BR than the rest of an enemy fleet—but it's especially handy against a slightly used engineer inside a doomwall. If most of the fleet is BR N, ram it with two ships that—by virtue of overbuilding elsewhere—have a BR *just barely* below N. Since your pair of ships doesn't have enough firepower to destroy any of the BR N ships (or trigger the special ability of a BR N carrier), a lower BR target—hopefully the engineer—will be destroyed.

Lesson 29: Builder Tech

You can create a system using three BR 3 builders, a BR 5 plus BR 4, or a BR 9—but the high BR ships are significantly more efficient. The BR 3 combination is rarely used because at that stage in the game, random systems are still plentiful and much cheaper than creating systems. At BR 5 or soon thereafter—when unclaimed random systems are becoming scarce or overly exposed to enemy view— builder tech joins jumpgate as one of the game's dominant technologies.

You are well-positioned to exploit builder technology if you:

- Reach BR 5
- Have a tech selection available (easiest if you aren't in a big fight)
- Have access to a significant portion of the map edge

The last point is critical and can sometimes prove challenging. If you don't have access to the map edge but your ally does, ask him to share. Otherwise, you will have to push aside someone who does.

Lesson 30: Builder Phases

There are three strategic phases of planet creation:

- **Minerals** At first, your rate of planet creation is limited by your minerals
- **Geometry** Later, minerals are no longer the limiting factor, but your build rate is limited by the length of your border with the void
- **Ship Limit** If you overcome the problems with geometry, you will reach a final phase where your growth is constrained by the limit of 200 ships

The final phase ends when the game reaches 1000 systems total. After that point, any builder ordered to create a system will evaporate into the ether.

Lesson 31: The Mineral Phase of Planet Creation

During this phase, jumpgates will help conserve minerals. Conserving minerals is a very similar process to conserving tekons, but the details are slightly different. The most efficient genuine jumpgate is BR 4 at 34.3 minerals per jump. The best morphed jumpgate is BR 3 at 24.3 minerals per jump. Consider using them if you don't mind a slightly bigger hit to your tech development.

However, the most important thing you can do during this phase doesn't actually concern minerals. It concerns preparing for the next phase. You must strive for a favorable geometry *well before* the next phase arrives.

Lesson 32: The Geometry Phase of Planet Creation

Favorable geometry for planet creation involves your linear border with empty space—the longer the better. There are two principal tools for increasing your border.

As implied in Lesson 29, you can seize or conquer a bigger share of the map edge. The downside to this method is that the area may not prove secure if other players can see the systems where you start building. You should consider such areas expendable, so do not let them adjoin your more secure areas.

Another method is to create an efficient structure within the space you already possess. Just as the brain is highly wrinkled to increase its surface area, your border with the void should be corrugated, with protrusions at regular intervals—exactly three systems apart. Like a growing crystal, these protrusions will develop into trunks, and the outermost trunks will develop protrusions of their own.

The spaces between trunks can be filled in at your leisure, but extend the trunks themselves as quickly as possible. The turn after creating a new planet at the end of a trunk, jump a colony ship and a set of builders there. You will need at least one jumpgate dedicated to this task for every two trunks.

Lesson 33: The Ship Limit

When you reach the limit of 200 ships, you must start minimizing the number of *orders* it takes to perform any given task. If it appears when you load the Ships screen, it counts as an order. That includes build, standby, and dismantle. Some observations:

- **Jumpgate** Use genuine jumpgates of the highest possible BR. Jump any time it saves you two or more movement orders. In fact, if the gate would otherwise be ordered to standby, go ahead jump even if it only saves you a single movement order. Use morphed jumpgates only if you need to put a gate somewhere you cannot build.
- **Builder** You will certainly breathe a sigh of relief when you reach BR 9 and your creation orders require only a single ship instead of two
- **Carrier** Ship for ship, carriers offer the same damage-dealing capability as any other ship but nearly twice the survivability, so are much harder to stop
- **Cloaker** Ghost fleets are obsolete, but cloakers are still effective as a deceptive force multiplier

On Economy

Q: Isn't Galactic Powers just a race to build the biggest economy?
A: NO. While a bigger economy is rewarded early, once you can build to the 200 ship limit, it just allows quicker rebuild and tech growth. Even before that, it won't save you if your homeworld is threatened.

Q: Why can't I defend if my economy is big enough?
A: Again, the 200 ship limit combined with carriers. It takes almost 2 ships to kill a carrier. And if you don't kill the entire fleet, all the carriers will survive. Once your opponent can field about 110 carriers, your 200 ships will not stop the nuke. If you gain a tech advantage, you might, but not a larger force. You will need such a large tech advantage to stop a fleet of 150 carriers plus other support ships that you can't obtain it in most GPs.   —*BackStabber*

Lesson 34: The System Limit

As the game approaches the limit of 1000 systems, it is momentarily more important to create systems than colonize them. You can colonize them after the system limit is passed. Once the system limit has been reached:

- You don't receive any official warning or notice—builder ships simply fizzle when ordered to create a new system
- One of the best techniques for defeating a doomwall—creating systems—is no longer available
- Though a builder ship can't create systems anymore, it can still detect hidden systems more cheaply than an engineer
- Economic growth will stall, so more ships are available for nuking systems, defending them, or struggling for access to hidden areas of the map

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Anticipating the System Limit

Even though you cannot see the entire map in Galactic Powers, you can estimate the number of existing systems if you are in contact with all remaining empires in the game. If fully populated, 1000 average systems would give a total econ of 1800. But many systems are not exactly average. Indeed, total econ is increased by:

- 1.8 times the number of surviving empires (intact homeworlds are 120, 120, 120)
- Terraforming
- Trade bonuses

Total econ is decreased by:

- Annihilated systems
- Systems not yet colonized
- Systems not fully populated (usually at the edge of the building campaign)

To get an idea how close the game is to the system limit, compare:

- The total econ of all empires combined (actual econ)
- The total econ you would expect at 1000 systems, given the visible map (expected econ)

For example, if the actual econ is 1500 and you expect 1600, it is close to the limit. But if you expect 1800 or the actual is only 1200, there is still some time until the limit is reached.

—Lucky

Q: Even a huge economy cannot defend a threatened homeworld. So why keep building planets?
A: Some good reasons:
- Extra resources allow quicker rebuilds and tech growth—something that helps over time
- Deny opponents the ability to grow by building to 1000 total systems
- Prevent enemy tunneling by reaching 1000 systems
- Buffer against enemy attempts to outflank your systems and surprise you from behind

—BackStabber

Lesson 35: Builder Burnout

Creating systems is fun for a while, but it can turn into a chore. Updating a mature game of Galactic Powers can take a couple hours, much of that rather mindless planet creation. I have two recommendations. First, don't enter more than one Galactic Powers at a time. Second, periodically try another series—there are several v3 designs that do not have a problem with runaway builders. Decide for yourself what type of game you prefer.

Lesson 36: Tech Selections

You will probably want jumpgates at BR 2, builders at BR 5 or 6, and at least one member of your alliance will need engineer by BR 3. Your final two tech selections will be at troopship at BR 10 and stargate at BR 11, the least useful techs in this series. Your six other slots will be filled with elective techs—carrier, morpher, doomsday, and three of the five restricted techs. We already covered doomsday in Lessons 19-28. We will cover the other electives in the next few Lessons.

> **Historical Note**
>
> When Galactic Powers first appeared on the Stargate server, there were only two restricted techs, satellite and minefield, so you could choose one or the other. Later, attack and minesweeper were also restricted, with three restricted techs allowed. On the Lugdunum server, the series evolved further still when cloaker was added to the list. In my opinion, these two changes enriched the game.

Lesson 37: Morpher Tech

Morpher is one of those techs that you might take early or late or anywhere in between. Possible uses:

- **Morphed Jumpgate** If you take this tech early, you will realize a lot of savings in minerals and tech when measured over the course of the game. You can also place a morphed gate somewhere you cannot build.
- **Morphed Minefield** A great surprise attack against a variety of targets. Requires a restricted tech you might not otherwise take.
- **Morphed Minesweeper** Another great surprise maneuver. The enemy sees your jumped fleet and thinks you did not bring sweep capability, so builds a mine. You change to sweep and nuke the system.
- **Morphed Engineer** In Lesson 16, I advised genuine engineers, but if the engineers require any movement or idle time, morphed engineers can be more efficient if you don't mind the one turn delay before opening or closing links
- **Morphed Carrier** A good way to keep your morpher alive while accompanying a fighting fleet
- **Defeating a Doomwall** In Lesson 26, we mentioned additional uses for morphed engineers, morphed science ships, and morphed cloakers, as well as the idea of replacing key ship types you might lose.

Lesson 38: Carrier Tech

Here is a rundown of the strengths and weaknesses of carrier tech:

- Carriers are a poor choice for any situation that calls for destroying enemy ships. Despite the higher expense, they deal no more damage than any other ship.
- Carriers are a poor choice below BR 5. At that point, its special ability is just too expensive for routine use. And in Galactic Powers, your first four tech selections are too important to dedicate for an obscure or niche purpose.
- At BR 5, the carrier has slightly more "survivability" than an attack ship when measured against the minerals and fuel required to build and operate the ship. At BR 6 and up, the improvement in survivability becomes more and more pronounced.
- Because carriers can actually negate a portion of incoming damage, other ships in the fleet also have improved odds of survival. In fact, combats involving carriers can often have surviving ships on both sides of the battle.
- Any ship that survives combat can help achieve an *active objective*—nuke, open, and close are the most obvious, but the concept conceivably extends to any order that takes place after one combat and before the next. For instance, carriers can help a science ship survive entering an enemy Gatehouse—thereby allowing an explore order the following turn.
- Even at low BR, a lone carrier is an extremely reliable nuker if you have a fleet moving in support of the nuke. If any ships in the fleet survive, the carrier will too and the nuke will go through. This makes carriers exceptional tools for Leading the Fleet, Jumped Forks, and various Poly Attacks (Lesson 10).
- The value of carrier tech only increases when you hit the Ship Limit.

On balance, your decision will largely be shaped by whether or not your position is secure against enemy incursion. If most of your fighting will be taking place over enemy territory, carrier tech will serve quite well. If not, you likely need to take attack and/or minefield tech instead, so you won't have a slot available for carrier until later.

Lesson 39: Satellite Tech

Of the five restricted techs, this is the one you want the least. Even though it is the cheapest tech, its lack of mobility is a fatal weakness in Galactic Powers. There is no such thing as a permanent choke point in a game where everyone takes builder tech. However, it can be useful in two situations—when an enemy finds your homeworld, and when you have a fairly solid doomwall but the enemy has managed to explore exactly one system behind the lines.

Lesson 40: Minefield Tech

Even though it is more expensive than satellite and suffers exactly the same weakness—lack of mobility—minefields are quite useful in Galactic Powers. The vital difference is that with the morphed mine, this tech can go on the offense as well as defense. In addition, the "minewall" can be a useful tactic in some situations. What makes a minewall interesting is that in a fight, you either lose all the mines or none of them. The surviving mines will take more damage than in a typical fight, but you won't need to rebuild them unless they are so damaged that they won't repair quickly. Combined with the fact that minefields consume no fuel, the minewall can save considerable tech over time.

Lesson 41: Minesweeper Tech

This tech is all but mandatory despite being restricted. Not only do you need it to deliver nukes, you may very well need it to defend against morphed mines. Finally, if you have morpher tech yourself, you can use the morphed minesweeper as a surprise maneuver (Lesson 35). The only real question is *when* to take minesweeper. In my opinion, at least one member of your alliance should take it by BR 4. If only one of you takes it at first, it should be the one that is most exposed to enemy attack. Even if neither of you actually takes the tech at BR 4, one or preferably both of you should at least preserve an open selection so that you can protect yourselves against flying mines if needed.

Lesson 42: Attack Tech

If you get in an early fight, you will likely want attack tech despite the fact that it is restricted. It is cheap and versatile—useful for both offense and defense. However, the advantage of cheapness is one that erodes over time. If you can postpone a decision on attack tech until after BR 5, you may be able to look to other techs to fill the roles that attack tech normally occupies—carrier, cloaker, and/or mines for offense, and sweeps and/or mines for defense.

Lesson 43: Cloaker Tech

This restricted tech occupies the middle ground between mandatory and suboptimal. If you eschew this tech, it is most likely that you are aiming for the trio of attack, minefield, and minesweeper—an excellent combination. But cloaker is a solid choice if you have a protected position and don't mind giving up attack or minefield. Cloaker is perhaps at its strongest after you reach the ship limit, when concealed ships that operate in support of poly attacks become the best way to deliver a large force multiplier. Cloakers are also useful for defeating a doomwall by deception (Lesson 26). In addition, here is an idea for defending a doomwall—place a morphed cloaker on the far side of your portcullis, uncloak as the enemy engineers approach, then change to minefield as they reach the portcullis.

Lesson 44: Pop-Tricking

Pop-tricking is moderately constrained by the Max Ag Ratio of 5. At BR 1 or 2, only slow tricking is possible. From BR 3 to 6, a fast trick is conceivable, but problematic if you want to keep a lot of ships in play—which you probably do. By BR 7, pop tricking is essentially obsolete because a colony ship will immediately plant enough pop to build. As a result, you will usually only see a pop trick in the early stages of the game. The slow trick can be achieved by lowering your homeworld population just enough each turn to get an Ag Ratio of exactly 5. At a BR 1 colony, your population progression will be 1, 5, 25, builder. At a BR 2 colony, the progression is 4, 20, builder.

Lesson 45: Early Moves

The Friendly Approach

If you're planning a friendly approach, consider not letting your overbuilt science and colony ships heal to full BR. If your first contact will ally with you—and most will—who cares if you don't kill his sci? You can gain extra exploration early with more science ships at a small tech cost which you can make up for later with a greater system base. And a BR 0.5 colony ship works as well as a BR 1.

The Other Approach

For a more hostile approach, BR 2 science ships will squash your opponent's tech-conserving BR 1s and allow you to explore closer to his homeworld before he seals off.

—BackStabber

Lesson 46: Early Wars

When to Consider One

- When you're in the middle. Nuking another player when might gain you access to the edge for your subsequent building program, as well as securing 15-20 more systems that maybe only you can see.
- When you're on the edge and have met more than one player. Nuking an empire towards the middle will give you systems that you can convert for use as a doom wall. If you have an ally, you might consider colonizing them, then fighting a cooperative "war" with your ally to doom them if you need to later. Just be sure he's agreeable to it *before* you make the choice to colonize.
- When you have found his homeworld. This virtually assures a quick victory at the tech cost of just one overbuild. The extra resources will benefit your cause, and at least you've collected a nuke for your game efforts.
- When you can win quickly—always a requirement for an early war. But possibly sufficient justification as well. Definitely justification for easy nukes like idlers.
- When you're attacked or being explored. Kind of obvious—if they're hostile, you'd better be too if you plan to stick around in the game. If you can't talk them out of it, then nuke them out of it.

—BackStabber

Update Log

7/26/2011	Initial Publication—Lessons 1 to 16, 18 to 19, and 21 to 26, 29 to 44
7/30/2011	Split Lesson 16 into two Lessons, 16 and 17
	Split Lesson 19 into Lessons 19 and 20
	Added Lessons 27, 28, 45 and 46
	As a result of additions and insertions, many Lessons have been renumbered
	Lesson 12 now stresses good communication and cooperation with you ally
	Lesson 12 now includes an inset from BackStabber on killing your neighbor
	Lesson 13 now discusses trade partners
	Lesson 16 now emphasizes concealing links before an enemy knows about them
	Lesson 18 now includes bullets for attacking and killing the intruding enemy
	Lesson 19 now includes a dialog from BackStabber on doomwall rationale
	Lesson 20 now expands a bit on the timing of the tech selection
	Lesson 33 now includes an inset from BackStabber on the limits of a large economy
	Lesson 34 made more succinct, and added material from BackStabber
	Lesson 40 now mentions the importance of keeping a slot open for minesweeper
	Moved *The Case of the Missing Murder Hole* from Lesson 26 to 24
	Minor edits to Lessons 26 and 43 (word choice and the like)
	Cosmetic improvements to all inset quotes and added titles