Home

This site is dedicated for the people who follow and LOVE the game KSP.

I wanted to create this to support inexperienced players with information on specific parts of the game that you many have trouble with. I also wanted to stop people being confused with what needs to go where.

This site is not 100% reliable and any may not include information on specific parts. I still promote that you to the official KSP site for information, this is just a simple site for information dumping.

What is KSP

Kerbal Space Program is a single-player sandbox game that allows for players to create what every they can think of. KSP uses active based physics and orbital mechanics to allow for plays to go from planet to planet and land where ever they need. There are many modes to the came including a career and sandbox modes as well as a custom mission builder.

The only limit to what you build is your computer and your imagination.

The Facts

Tips for…

- Take-off
- Planes and SSTO's
- Orbiting
- Interplanetary travel
- Re-entry
- Powered landings on Atmospheric planets
- Powered landings on a plant without an Atmosphere/Moon landings
- Moon landers
- Rovers

Parts list

The official KSP site

Tips for…

Rockets

Rockets are your go to launch systems for KSP, and the building block for the game. Rockets consist of several stages. From top to bottom: The rocket's command pod, the orbiting stage, the accent stage then the initial take-off stage. The first stage often needs the biggest engines and the accent stage needs to then push it out of the atmosphere. Note though that a big engine uses large amounts of fuel. The final orbiting stage needs to then finalize the orbit and have enough spare fuel to bring the rocket back down through re-entry.

The take-off stage needs to be able to overcome the force of gravity then the accent stage needs to start the final orbit [20-40%]. The orbit stage then finish's the orbit off. The orbit stage also should

contain reaction control systems [RCS] to easily turn the vehicle then needs to then be able to de-orbit to bring the command pod back safety.

Solid Rocket Boosters (SRB's) pack a very high thrust to weight ratio but can't be shut down or throttled once active. SRB's are recommended to only be used on the first stage/in atmosphere only as they also can't gimbal [turn the engine to alter the direction of travel]

Planes and SSTO's

Planes and Single Stage To Orbit's (SSTO's) are both fun and challenging to build, coming with both advantages and disadvantages. Planes in KSP are very efficient, when using jet engines. Jet engines do have the advantage of low fuel to trust consumption but can't be flown above certain altitudes due to the lack of air. Jet engines always require air. SSTO's are a mix between a plane and a rocket. SSTO's take of like a plane via a runway and fly up as high as it can go via the jet engines. The rocket engine should then take over, allowing for non-atmospheric flight.

To build planes always start with the basic then work your way up… SSTO's last. Planes should always have the trust in line with the center mass, same with rockets. The lift generated by the wings ALWAYS needs to be behind the center mass, not to far that it still flips. The only issues with this is if an SSTO's uses all its fuel, when landing the center mass will change. This thus results in the issue of the plane becoming uncontrollable.

Take-off

Take-off is often the hardest part of the entire mission as the gravitational pull and atmospheric drag is at its highest. The rocket's first stage often needs to have the highest Trust to weight ratio to overcome these effects. Be careful though that you can over-speed, atmospheric drag will cause heating and thus burn-up. When on the launch pad it is recommend to set the engines to full throttle before launching, thus meaning you can't accidently under-throttle. Launch clamps are also useful when you're rocket is very heavy and can't rest on the first stage engine. Launch clamps also allow for a continues electric flow into the vehicle.

While ascending you need to turn at an angle, this is because if you don't you will go straight up and down. Recommending flight path: straight up till 3km then rotate to 30^0. Once you get to around 45km cut the engines then rotate to be horizontal then warp around 20 seconds to the apoapsis [peak of the orbit]. Continue the burn until you circulated the orbit.

Orbiting

Orbiting is often one of the first challenges to get past often due to having the limit of fuel on the orbiting stage. The orbit needs to have both the apoapsis and periapsis [lowest point of the orbit] out of the atmosphere. The orbit also needs to have a slight circle shape as this allows for an easy retrograding [reverse thrust]. To perform the orbit you need to start with a parabolic (arcing) trajectory at a (recommended) 80 to 100km apoapsis. You then need to start the engine before you get to the apoapsis, facing a prograde direction. Full throttle the engine and keep burning until the prograde marker appears. Keep burning the engines until the orbit turns into a circler orbit, with your ship being halfway around the orbit.

Interplanetary travel

Interplanetary travel is the next step in your plan to take over the galaxy… wait wrong game. Interplanetary travel is an important factor In your plan to visit every planet in kerbol (the galaxy the kerbal's live in). Interplanetary travel requires a large amount of knowledge about orbiting, mainly

how to set up encounters with other planets. Depending on what planet you intend to land on you, it requires specific build vehicles. Planets with atmosphere require parachutes but lower density atmospheres require more parachutes. Planets with dense atmospheres can allow you to even fly a plane, the only downside is that it requires a heavier lifting stage to get back into orbit.

Re-entry

Re-entry only requires a heatshield a parachutes, re-entry means landing on atmospheric planets. The first stage of re-entry requires you to bring your orbit down until it allows for you to fly into the ground. The second stage of re-entry is to stage so only your heatshield is facing the planet and the direction you're traveling. The third stage is that you need to keep the heatshield pointing prograde, stopping the command pod, probe or payload from burning up. The last stage is to separate the heatshield then deploy the parachutes to land safely. Note: You can use fairing as heatshields but they have less tolerance to the heat and can cause issues when re-entry or aero breaking for long periods of time.

Powered landing on planets with an atmosphere

Powered landings in planets with an atmosphere is way harder than on one without an atmosphere. The engines used for the final landing burn need to have a heat shield attached to stop then burning up. I also recommend you use aero brakes and parachutes to keep the vehicle pointed straight up to stop it falling to fast and loss of control due to lack of aerodynamic control surfaces.

When you start getting close to the ground start your burn then increase or decrease throttle accordingly, depending on height and speed. You should aim to land at around 5 m/s or lower to stop bouncing and tipping over. ALSO make sure you equip SAS and reaction wheels to keep the vehicle stable when it hits the ground.

Powered landings on planets without an atmosphere

Powered landings on planets without atmospheres is harder as even though there is no atmosphere to burn up in you need to have a decent thrust to weight (TTW) ratio. Non-atmospheric planets won't allow you to deploy parachutes and means you must rely only on your engines and landing gear. The TTW needs to be quite high as a suicide burn (activating your engines at the last second) requires it. Long deceleration burns also work with lower TTW but you need to get a powerful engine as if you start the burn to late, you don't slow down enough and crash.

Moon landers

Moon landers require a large amount of skill to build, often needing a good balance between both efficiency and effectiveness. Moon landers need to have very low center of mass (COM) if it is too high the lander will tip over when it lands on uneven surfaces. Moon landers also require a decent distance between the end of the lander legs and the engine. If the suspension is too soft the engine hits the ground and is destroyed. The lander also needs to have a ladder that is longer than the landing legs. If the atmosphere is too dense the kerbals can't jump to the pod and will be stuck outside the atmosphere.