**Substrate:**

Many cacti and other succulents do well in a substate mix consisting of roughly 75% inorganic material (mineral) and 25% organic material (compost). This percentage can be adjusted based on the climate and growing conditions, but 75/25 is a good starting place. For the inorganic component of their substrate, many cacti and succulent growers use pumice or lava rock. Some may also add akadama, turface, decomposed granite, perlite, vermiculite, zeolite, limestone, etc. These ingredients can be mixed and combined if desired, but pumice or lava rock both work well on their own. The organic component can be made up of a variety of materials, but a store-bought cactus mix is a good place to start. These mixes typically contain a much higher percentage of organic material than is recommended and need to be diluted with the previously mentioned mineral component. The grain size of the inorganic component should also be considered. Too fine, and the substrate won’t let water pass freely, too large and it won’t hold onto enough water. Typically, particles between 4-6mm (1/16th-1/4thin) are used. A mixture of sizes is recommended.

**Water:** Frequency of watering will vary dramatically based on climate and substrate. In Tucson, AZ, watering plants in a well-draining, 75/25 substrate mix weekly to monthly works well. If a more natural appearance is desired, cut back watering frequency.

**Light:** Most cacti and succulents will thrive in partial sun. The shade of a tree, or 50-30% shade cloth works well. Some species can be acclimated to nearly full sun with time, and this can result in a more natural appearance. When moving a cactus or succulent, be careful that lighting isn’t too different in its new location, as a drastic change in light intensity will result in new growth looking noticeably different which can be unattractive. Make sure to mark the side of the plant that was facing south in its original location so it can remain south facing in its new location.

**Repotting:**

When potting a cactus in a new pot or substrate, ensure the soil is dry. When finished, DO NOT water the cactus for at least 7 days. This includes rain, so if repotting during rainy season, keep the cactus under shelter where it will not receive rainwater.

Keep in mind that terra cotta pots are porous, and soil will dry faster in them than plastic or other non-porous pots. Both porous and non-porous pots will work, but watering frequency may vary depending on the pot material.

Note: Always purchase seed grown cacti and succulents or grow them from seed yourself. DO NOT remove wild plants from the wild.

**Growing From Seed:**

Growing cacti and succulents from seed can be very easy and rewarding. There are many methods employed to propagate these plants from seed. Below is a general procedure that works well for most cacti and succulent plants.

Fill a small plastic pot with a pre-moistened potting mix composed of 2 parts inorganic and 1 part organic substrate. Mixing substrate while damp allows for better distribution of ingredients. Place pot in a shallow container of water (or 3% hydrogen peroxide to reduce risk of fungal pathogens), allow the substrate to soak it up and once the surface of the soil is visibly wet, remove the pot from the water and allow it to drain fully. Sprinkle seeds on soil surface being careful not to overcrowd one area or use too many seeds. Place the pot in an air-tight plastic container or zip-lock bag, and spray soil surface and inside of container with 3% hydrogen peroxide. Seal the container and place under LED light indoors or on a windowsill in bright indirect sunlight where the temperature will be between 20 and 25°C (mid 70s – low 80s F). DO NOT water seedlings when they are in the sealed container.

Seeds will germinate in 1-2 weeks. If seedlings appear to be stretching upwards and look skinny or pale, prevent this etiolation from continuing by placing them in brighter light. If they are vibrant red or purple-tinged, reduce light intensity slightly. After several months to a year under high humidity, the pots can be slowly vented to acclimate seedlings to lower humidity before moving outdoors.