Quote from Succulent Garden - Australia

“Succulents are water-retaining plants endemic to arid areas of the tropics and subtropics.”
They have evolved to withstand high temperatures and low precipitation by collecting and storing water in their leaves, stems and roots to survive long dry periods."
What they are

Xerophytes
Store Water
Fleshy Leaves
Plump Bodies

CAM Plants
CAM
Crassulacean Acid Metabolism
Succulents are **CAM** Plants

Reverse Photosynthesis

- Adaptation to arid conditions
- Stomata open at night instead of daytime to preserve moisture
CAM Overview

• During the night, the CAM plants stomata are open CO2 enters and is stored
• Stomata closed during the day, carbon is released, photosynthesis takes place
Need to Know

1. KYP
2. KYS
What You Need to Know

Know Your Plant (KYP)

Native Habitat

1. High elevation to desert temperatures
2. Dormancy Periods to growth Stages
What You Need to Know (continued)

Know Your Space (KYS)

A. How to Meet Their Needs
   1. Indoors/Outdoors
   2. Methods of Protection
What They Need

A. Soil
   • Sand to Clay
B. Good Drainage
C. Light
   • Full sun to part shade
What They Need (continued)

D. Moist
   • Dry to Wet

E. Correct Temperature
   • Heat to Freezing
What They Need (continued)

F. Fertilizer

• N1; P7; K6; Ca 1
• Only in growing season
What You Need To Know (continued)

Pests and Diseases

• Aphids and Black Mold – non-toxic spray and/or systemic
• Mealy Bugs - non-toxic spray and/or systemic
• Fungus Flies and Rot- mostly from overwatering.
Protect From Frost

• Succulents that are not frost hardy need to be protected from freezing temperatures and hail
• Plants will be permanently scarred from either one
• Can be purchased at big box stores
• Fold for easy storage
Mammillaria (Cactus)

- 300 Species of Mammillarias
- Most are native to Mexico
- Found at sea level and high elevations
- Require excellent drainage
Gasteria

- South Africa origin
- Closely related to Haworthias and Aloes
- Winter growers
- Little water in hot weather
- Excellent potted plants
- Like a lot of light but will burn in direct sun
Aloe (Succulent)

- 400 Flowering succulents species in this genus
- Native to mountains of tropical Africa
- Closely allied genera are Haworthia and Gasteria
- Need well drained soil
Crassula Ovata (white form)

- Crassula are the largest genus of succulent plants
- Native to South Africa and Madagascar
- Require light but not direct sun
- Requires winter protection in our area
Sedum

- Sedum are often referred to as stonecrop
- Sedum spathifolium pictured
- Most are frost hardy
- Like sun and good drainage
Zygocactus
Succulents As Houseplants

• Same rules of KYS and KYP
• Many succulents do well in bright (not hot) windows.
• Watering cautions; beware of overwatering or letting soil dry out
Propagation of Succulents
Succulent Propagation

- Seeds
- Cuttings
Principles of Succulent Propagation

• Always take cuttings from clean healthy plants
• Take cuttings or sow seed at the appropriate time of year
• Use clean tools (saws, pruners, knives, etc. to remove cuttings)
• Plan ahead, have all the correct tools and other materials readily available
Advantages of Seed Propagation

• Relatively inexpensive
• No greenhouse normally required
• Produces numerous plants
• Produces numerous ‘types
Disadvantage of seed propagation

• Some seeds are very small, dust like
• Large seeds (match head size) are slower to germinate
• Cactus seeds can take up to a year to germinate
Seed basics

- Timing mid spring
- Best to use Individual pots at least 1.5 inches deep
- Can use all purpose seedling mix
- Temp 60°-70°
- Keep moist
- Cover to keep in moisture
Seed Propagation

• Once seed is sown, water regularly to keep soil mix damp
• Always label the pot or propagation tray with the date sown, the botanical name and seed supplier
• Keep track of your successes and disappointments
Propagation by Cutting

• Take cuttings from healthy plants
• Take cuttings at the start of the growing season
• Decide whether to cut individual leaves or a larger cutting
Stem & Leaf Cuttings

• Strip leaves from the lower part of the stem
• Dip the cut end in a rooting hormone (optional)
• Let the cutting/leaf dry out in a lightly shaded location
• Prepare a succulent potting mix
• Select an appropriately sized pot
• Plant the cutting/leaf
Stem & Leaf Cuttings

- Place the plant in a warm, airy location 68°
- Keep the soil slightly moist
- Reduce watering as the plant develops
- Use fertilizer cautiously
Making Succulent Gardens
Sources of Information

Nurseries
Specialty Books
Internet - Google Is Your Friend