Drip Irrigation Basics

How to Install a Drip Irrigation System

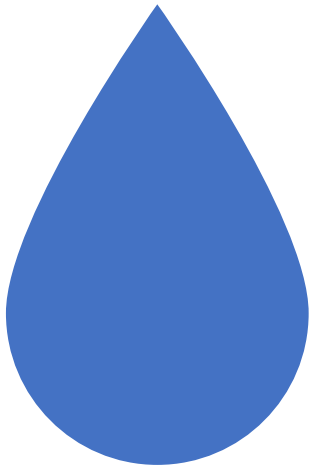
UCCE Master Gardener Program of Riverside County

Vetted by Riverside County Office of Education-STEM

Learning Goals

Educators will learn:

- The advantages of using drip irrigation
- The supplies needed to install a drip irrigation system
- An overview on how to install a drip irrigation system in a school garden bed, including how to adapt an existing watering system to drip irrigation



Why Is This Important?

California and many other parts of the nation are experiencing an ongoing drought. When properly installed, drip irrigation is the most efficient method for watering plants, putting every drop of water to good use.

Drip Irrigation Offers Several Advantages

:

- Water is placed more accurately and efficiently in the root zone.
- Water is applied at a slow rate that reduces water loss from runoff, plant foliage remains dry which reduces the potential for disease, and dry soil between plants permits work in the garden during irrigation.
- Drip systems usually provide guidance on the amount of water the system is designed to deliver. Emitters usually deliver 1-3 gallons of water per hour.

Points to Consider

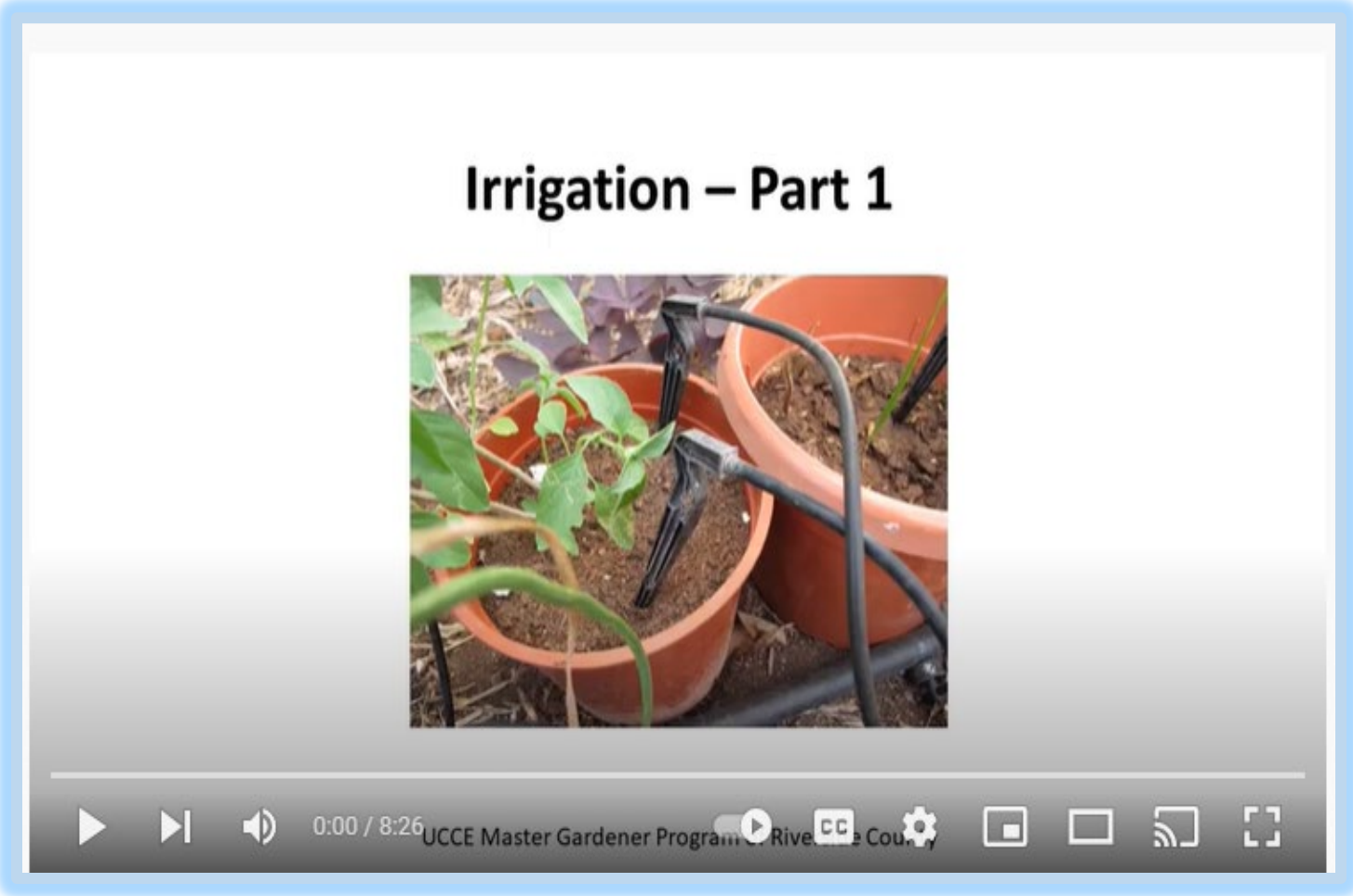
- The initial cost of the equipment.
- Possible problems with plugging of small drip openings require routine checking.
- Overirrigation is possible because the drip system applies water to a limited area, and deep percolation below the root system can occur if the run time is too long or too frequent. Use of a timer can prevent this from happening.
- Tubing can be vulnerable to animals chewing on it to access water. While this can be easily repaired, irrigation lines should be regularly monitored for breaks.

The First Step is to Create a List of Supplies

Video: Overview of Irrigation Supplies

Don’t be overwhelmed!

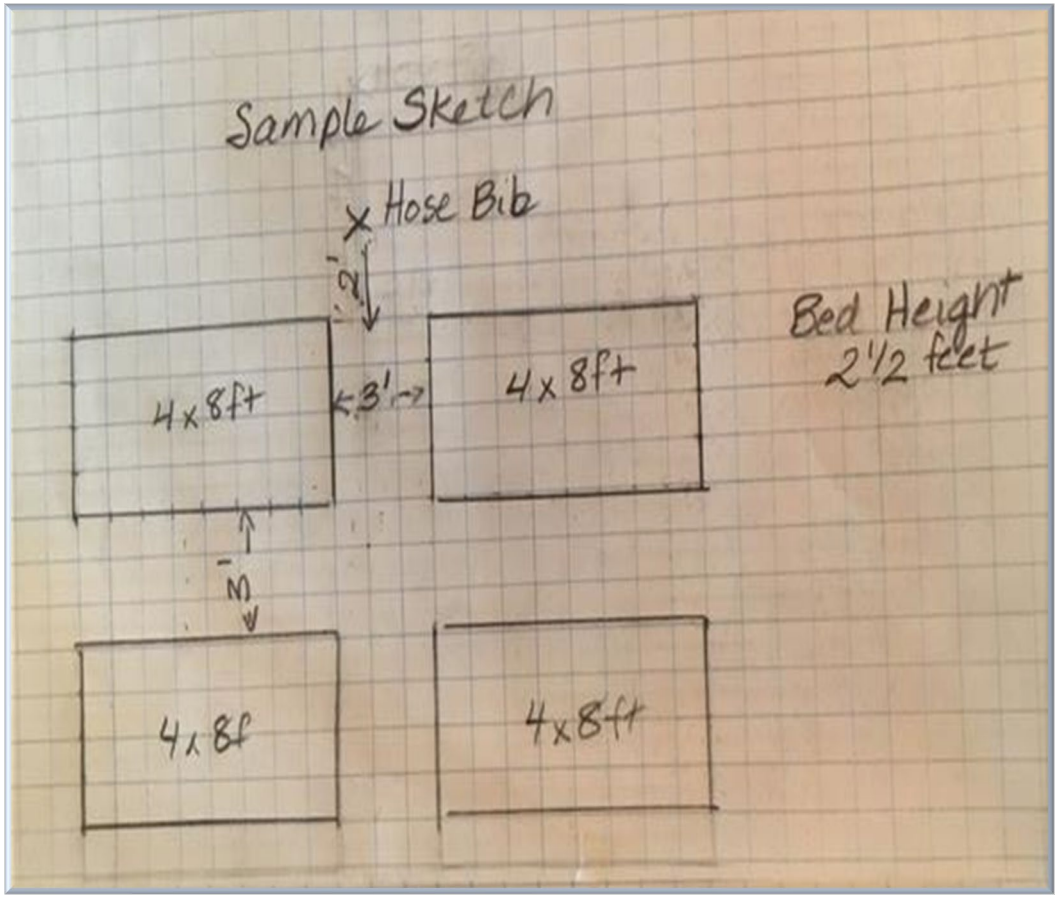
UCCE Riverside County Master Gardeners Kay and Gail will walk you through a basic list of supplies needed for school garden irrigation.



A Review of Supplies Needed

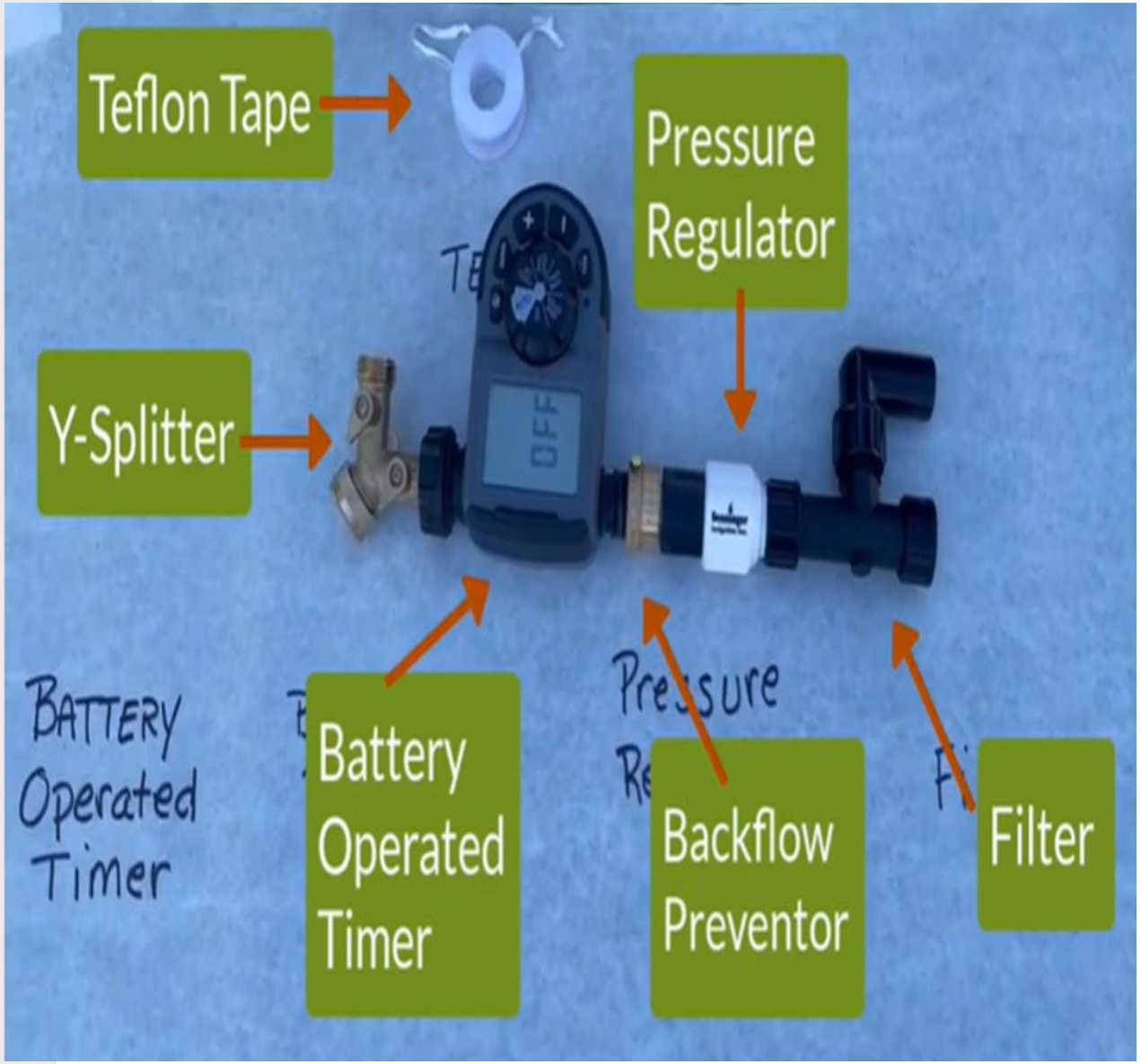
Start With a Diagram

- Measure the length, width and height of the garden bed(s). Include the location and distance from the water source to your garden bed.
- This diagram will help you to plan the layout of the irrigation lines.
- A local irrigation supply store will use this diagram to guide you through your purchase options.



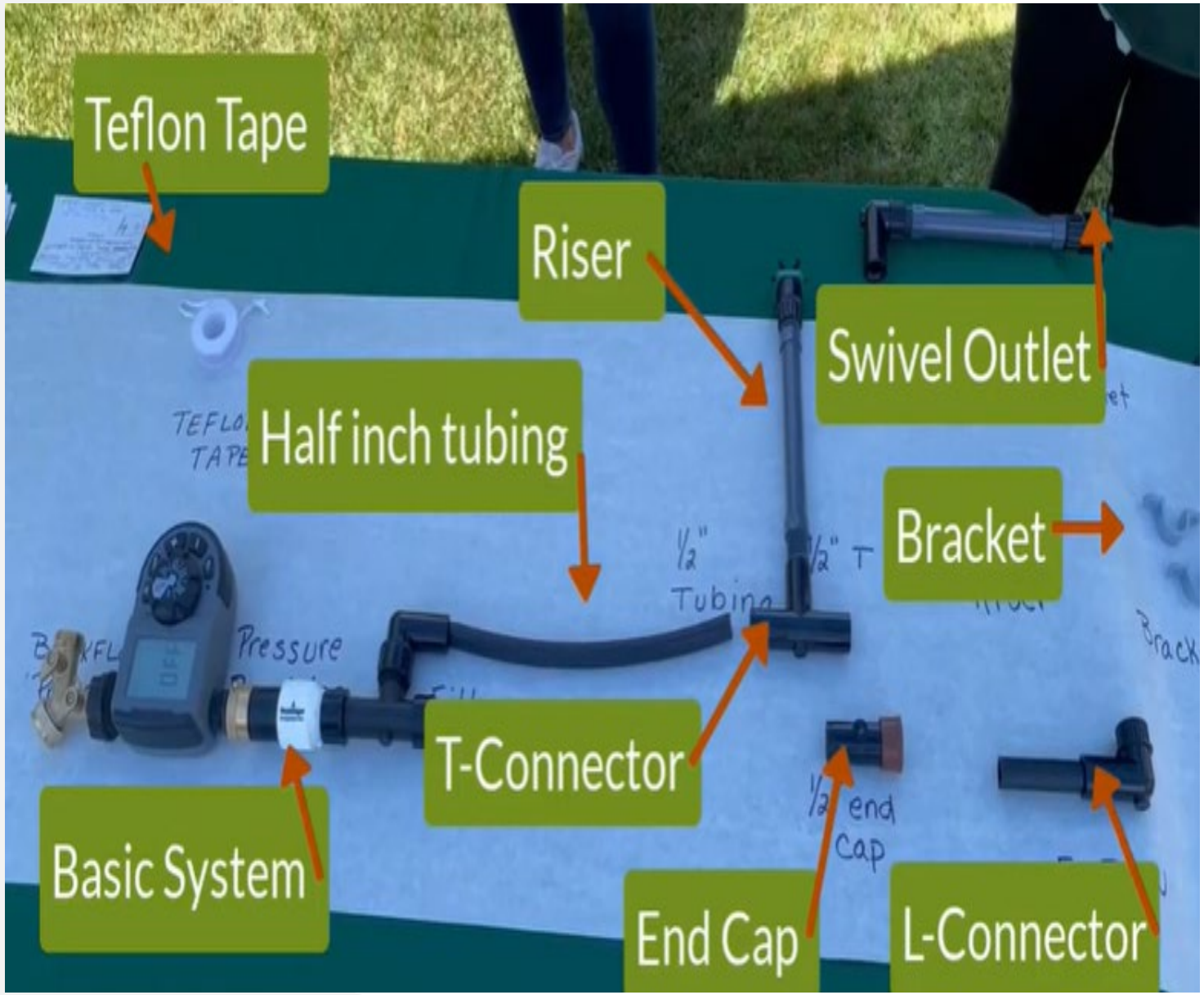
Supplies Needed to Connect to a Water Source

- **Y-Connector** to allow for drip system and a hose if a hose bib is being used as the water source.
- **Timer** to ensure the bed is not overwatered.
- **Backflow Preventer** to prevent water from the drip system flowing back into the main water line.
- **Pressure Regulator** to ensure that drip lines are not stressed.
- **Teflon Tape** to insure tight seals.



Supplies Needed To Provide Irrigation to the Garden Bed

- **1/2-inch drip tubing** as a main line connecting the water source to the garden bed**.**
- **Riser** which is essential if planting in raised beds
- **Barbed Connector** to attach tubing to a riser.
- **Swivel Outlet** which is optional as you can continue 1/2-inch tubing into the bed and connect 1/4-inch tubing directly to it.
- **End Cap**



Supplies Needed to Irrigate Plants Using 1/4-Inch Tubing

Goof Plugs (end caps) to close the ends of 1/4- inch lines

Stakes to hold the irrigation lines in place.

If attaching ¼ inch line directly to 1/2-inch line:

- **Hole Punch** to pierce 1/2–inch tubing

- **Barbed Coupler** used to insert 1/4-inch tubing to 1/2- inch tubing or additional 1/4- inch tubing

Video: Pulling It All Together!

Watch a Master Gardener demonstration on how to install a drip irrigation system in a raised bed.

- To observe the actual installation process, **begin the video at 2 minutes/10 seconds.**

Using Drip Irrigation in Your Garden with OSU Master Gardeners

Adapting an Existing Sprinkler System To Drip Irrigation

Some school gardens are in areas with no hose bibs, but one or more nearby sprinklers.

- To adapt an existing watering system, educators must first receive approval from their school district.
- It is also recommended that school district landscape/maintenance personnel oversee the process of adapting the existing system to drip.
- Supplies include a drip converter that is often sold as part of a conversion kit and may also require a pipe cutter.

Converting From Spray to Drip Irrigation

Video: Converting From Spray to Drip

Watch an overview on how to convert an existing sprinkler system to drip.

California Standards For the Teaching Profession

Standard 1: Engaging and Supporting All Students in Learning

- 1.3 Connecting subject matter to meaningful, real-life context

Standard 2: Creating and Maintaining Effective Environments for Student Learning

- 2.2 Creating physical or virtual learning environments that promote student learning, reflect diversity, and encourage constructive and productive interactions among students

Standard 3: Understanding and Organizing Subject Matter for Student Learning

- 3.4 Utilizing instructional strategies that are appropriate to the subject matter
- 3.5 Using and adapting resources, technologies, and standards-aligned instructional materials, to make subject matter accessible to all students

Resources

- Drip Irrigation in the Food Garden, S. Wrightson, Food Garden Specialist, Master Gardeners of Sonoma County
- Instructions and Shopping List for Installing Drip Irrigation in a 4x8 Foot Bed, Sonoma County Master Gardeners
- Sprinkler to Drip Irrigation Conversion, UC ANR
- The Real Dirt Blog, Butte County Master Gardeners
- **Images:** Butte County Master Gardeners; Creative Commons; Open Clip Art; Riverside County Master Gardeners; Sonoma County Master Gardeners; Stock
- **Videos:** OSU Master Gardeners of Clackamas County; trwdtv; UCCE Master Gardeners of Riverside County

Master Gardeners

The University of California Cooperative Extension (UCCE) Master Gardener Program (MGP) is an educational program designed to teach and effectively extend information to address home gardening and non-commercial horticulture needs in California.

UCCE is the outreach arm of UC's division of Agriculture and Natural Resources (ANR). Master Gardener volunteers (MG volunteers) promote the application of basic environmentally appropriate horticultural practices through UCCE-organized educational programs that transfer research-based knowledge and information.

University of California
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UCCE Master Gardener Program

Gardening Questions?

Email the UCCE Master Gardeners of Riverside County

- Email Helpline: anrmgriverside@ucanr.edu
- School Gardens: mgschoolgardens@gmail.com

Website Resources

- Riverside Master Gardeners Website

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