Appendix 5: Sample Garden Designs

Below are four types of garden designs/beds in which to grow plants.

1. Raised Beds

   Raised beds are commonly used in school gardens because they help to prevent compaction. They can be placed almost anywhere and serve both practical and decorative roles as a focal point in the garden. A typical height is anywhere from 10-24”. Keep them narrow enough for small people to reach the center of the planting area. Raised beds are often sized at 4’ x 8’ and 24” tall.

   **Advantages of Raised Garden Beds**
   - Turn almost any area of land into a healthy place to grow. Even parking lots can raised planting beds.
   - Lessen the physical strain of gardening and provide an easier reach for daily weeding and harvesting the bounty.
   - Create healthier soil conditions with reduced labor
   - Easier maintenance of soil from year to year by preserving soil ‘tilth’ (quality and texture), by avoiding foot traffic on the beds.
   - Extend the growing season with soil temperatures. Soil in raised beds averages 5°F warmer than ground temperatures
   - Plants can be featured in elevated areas, and more easily arranged by design, or tiered for greatest impact
   - Provide opportunity to utilize interesting and attractive materials to build raised bed structure
   - Provide a fun and straightforward project for the school community
   - Allow for better drainage, especially if original soil drains poorly

   **Disadvantages of Raised Garden Beds**
   - Can create warmer soil in high summer heat
   - Slightly faster rate of moisture loss of the soil
   - Soil quality can deteriorate if it is not amended regularly
   - Does not improve the quality of surrounding soil the way in-ground planting can
   - Does not provide the same opportunity for youth to learn about improving and maintaining the native soil.

   **Most Commonly Used Materials for Raised Beds**

   Wood (new or recycled) or recycled plastic lumber - use 6-8” boards in twos vs. a single 10- 12” plank because the wider boards tends to warp. Be sure that the wood is free of chemical treatments and do not use railroad ties. Cedar or redwood is more expensive but has the advantages of resisting rot and bug damage. Wood does not last as long because of the strong sun and soaking rains in New Mexico.

   **Dry stack stone** - simple but expensive unless you have the material available. Stone may increase evaporation. Water leakage may occur if stones are not mortared with grout to fill the space in between the stones.

   **Border bricks** - easy, expensive. Bricks are made of clay so they may wick water away from

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soil and increase evaporation. Water leakage may occur if bricks are not mortared.

**Cinder blocks** - very inexpensive, and often found for free if donations are requested from the neighborhood. Cinder blocks create quick and easy raised beds that will last a long time and can be painted by the students for color and creativity. Blocks may wick water away from the soil and increase evaporation. Painting the blocks can reduce this problem. Water leakage may occur if blocks are not mortared.

**Adobe bricks** - use them if someone has the bricks, but be aware they will deteriorate, especially when they come into contact with water regularly. One layer with un-stabilized adobe will disintegrate in a year. Two layers of stabilized adobe bricks will last 4 to 6 years. Use only for flowers since there might be contamination of the soil from materials used in the bricks. Adobe bricks are good borders for ground level beds or slightly raised beds; they are cheap, heavy, and when they melt into the ground another layer can be added on top.

**Filling Raised Garden Beds**
Fill your garden beds with a combination of soil from the site, compost, potting soil, purchased garden soil or soil imported from another location (test it before using). Possibly sand for drainage.

2. **Waffle Gardens**
Waffle gardens, or ‘deep beds’, are a type of in-ground garden developed hundreds of years ago by local cultures living in New Mexico to combat difficult growing conditions. The waffle garden is created using low wells for collecting and keeping water surrounded by a mounded earth grid that provides a path for gardeners to access the square garden beds. When completed, the garden looks similar to a waffle and provides a flexible growing space for warm season varieties. In this fashion Native Americans developed a “Three Sisters Garden” with beans, squash and corn in a combined planting: vine beans supported by the tall straight corn and squash to shade the soil.

**Advantages of Waffle Gardens**
- Conserve water, capture rain
- Facilitate discussion of local planting practices

**Disadvantages of Waffle Gardens**
- Require careful watering of each well, hand watering usually
- Require investment of time to build wells and mounded earth and maintain them
- More time spent bending over deeply

3. **Double-Dug Garden Beds**
This method creates prepared beds that can be used for more than one crop season. The method emphasizes creating defined beds with airy soil that is **never** walked on and planted densely to create a cool microclimate. Completed double-dug beds can be covered by mulch and with hoop supported plastics for season extension.

**Advantages of Double-Dug Gardens**
- Creates defined beds, and allows all areas of the bed to be within easy reach.
- Increase the depth of the top soil for greater root growth and nutrient uptake
- Creates an excellent quality soil in which to grow.
- Encourages a healthy soil structure and teaching about soil maintenance.
- Building the initial beds is a great project for students and volunteers. The hard work
is very rewarding!

**Disadvantages of Double-Dug Gardens**
- Requires an initial investment of time and labor.
- The technique is labor intensive when building the garden for the first time. Requires hard work.

**4. Traditional In-Ground Garden Beds**
Growing in-ground is the most commonly understood means of growing a garden in the US and follows the farming tradition seen in almost every part of the country.

**Advantages of In-Ground Gardens**
- Can be easy to install
- Many people are familiar and comfortable with this method
- In-ground gardens are easily maintained if the planting areas are clearly taped off with string and ribbons. The students should tape off the areas for planting themselves to increase understanding of the boundaries of the paths and the beds. The paths can be marked with a mulch of pine needles, bark or wood chips, and the beds can be marked with a mulch of another type of biomass such as alfalfa, straw or grass clippings. Posting signs can help define the space.

**Disadvantages of In-Ground Gardens**
- Very difficult to prevent soil compaction and requires clear, defined pathways through the garden. Imagine 20 little feet scampering among the rows and the damage this can do!
- The soil types in southern New Mexico can become depleted when growing edible crops and will require amending every year. Use mulch, organic fertilizers and crop rotation to maintain soil quality.