**Making a Bottle Earth**

**Prepare the bottle**

1. Spread the newspaper over your workspace.
2. Using a ruler measure 6 inches from the bottom of your bottle up, mark it
3. Cut the top of your bottle off from that mark. Place it to the side
4. Mix the pea-sized gravel and activated charcoal. Use a cup to pour this mixture into the bottom of the plastic container. You should have 4-5 cm of material- in a 2 liter bottle. Or 2-3 in a glass jar
5. Use a cup to pour a 5-6 cm/ cm layer of soil over the gravel mixture.
6. Lightly spray the soil with water to moisten (but not saturate) the soil.

**Insert the houseplants**

5. Remove 2 - 4 plants from their containers, and gently shake some of the soil from their roots so they will fit through the opening of the plastic bottle.

6. Arrange the plants so the smallest are toward the outside and the larger/taller plants are near the center. Using your finger, make a hole in the soil down to the gravel and wide enough to fit the roots of the plant. Drop the plant into the hole, roots first. Push some soil around the plant stem to cover the roots. Gently pack the soil around the roots and stem of the plant. Repeat this process with the remaining plants, leaving about 2-3 cm of space between them.

**Add water and decorations**

7. The soil should be moist, but not wet. Use the sprayer to mist the plants. Be sure to spray down any soil that clings to the walls of the container.

8. Drop in the twigs and bark materials and place them around the soil between the plants. A decorative stone may add some visual appeal.

**Seal the bottle**

9. Seal the bottle using the cap and some tape. Be sure you can reopen it again to add more water, if needed.

10. Monitor the condition of the plants over the next several days. If the leaves appear to be wilting, add more water with the plant sprayer. Do not overwater. If the soil becomes saturated, the roots will rot and undesirable bacteria and fungi will take over and kill the plants.

**Maintaining the Biosphere**

Very little care and maintenance is required to keep the biosphere healthy. Be sure to keep the bottle away from direct sunlight. Place the bottle near a fluorescent grow light, or where it can get indirect sunlight, maybe near a north-facing window. Keep the bottle sealed, as there is no need to water or fertilize the plants. The plants will adjust to the amount of water and nutrients it needs. It is best to leave the soil a little too dry and add small amounts of water with the sprayer.