**Garden-based Learning Activity Guide**

**15 lessons from 15 bean soup (in 15 minutes)**

Explain that there are many lessons available for garden-based learning, and that we will showcase a few of the many lessons that can completed with a common 15 bean soup mix found in the grocery store.

Divide teachers into groups of 2-4 by grade level.

Give each group a separate five-minute activity to complete from the bean lessons.

In addition to completing the activity, have each group come up with two more lessons or activities to use with the beans, which they will briefly describe on a post-it note

Each group will give a brief synopsis of the activity they completed, as well as the ideas for the two new activities. They will put the the post-it notes describing the activities on the appropriate subject poster (math, science, social studies, language arts, other).

\*there are nine mini-lessons here, the other 6 are fill in the blank from the new ideas generated.

**15 Bean Soup Activities and Supplies**

**Sorting**

Divide the seed into as many groups as possible based on bean type. Can you can identify all 15 different beans? What other ways could you group the beans?

Supplies: beans, ice-cube trays

**Graphing**

Sort the beans into as many categories as possible. How many are in each category? Create a \_\_\_\_\_\_ graph showing the beans in each category.

Supplies: beans, containers, graph paper, rulers, markers

**Classification**

Create a dichotomous key for five of the beans.

Supplies: beans, pen, paper

**Measurement**

Measure each of the bean sprouts in centimeters and inches. Which is the tallest? Which is the shortest?

Supplies: pre-sprouted beans, rulers, paper

**Experimental Design: Seed Depth**

Design an experiment with the beans using seed depth as the variable.

Supplies: beans, pen, paper

**Experimental Design: Racing Beans**

Design an experiment to see which type of bean grows the fastest

Supplies: beans, paper, pen

**Germination**

In each bag, place a damp paper towel, napkin or coffee filter. Place the seed between the paper and the plastic bag and seal. Put somewhere warm, or tape to the window. Each day at the same time, examine the bags. Record days to germination (first observation of the white root radicle emerging from the seed), the number of seed that germinate each day, and the total length of the root. Also note when the shoot emerges.

Supplies: paper towel, bean. plastic bag, water, sharpie. Bean sprouts at various stages of growth.

**Garden Math**

If spacing for beans is 3” in a row and each row is 3’ apart, how many seeds would you need to fill a garden plot that is 12’x24’?

Supplies: pen, paper,

**Beans of the World**

Pick one bean each out of the 15 bean soup. Identify the bean, determine where in the world it originated, research its cultural significance, and finally, find a recipe that uses your bean.

Supplies: paper, pen, phone/tablet