Name: _____

CASE Curriculum for Agricultural Science Education

Activity 3.4.1 Getting the Feel for Soil

Purpose

It is time to play in the mud! The best way to determine the particles found in a sample of soil is to separate them. For this activity, you will work like a detective and use clues to interpret soil texture.

The three soil particles you will distinguish in a soil sample are sand, silt, and clay. You can use a soil textural triangle as a tool to pinpoint the exact classification of the soil texture based on the percentage of each particle size found in the sample.

Materials

Per student:

- Pure samples of sand, silt, and clay
- Five garden soil samples
- Water bottles
- Pencil
- *Agriscience Notebook*

Procedure

You will conduct soil texture tests to determine the differences in feel among sand, silt, and clay. Once you have a relative idea for the feel of the three main soil particles, you will conduct an examination using five samples of garden soil to determine soil classification of each sample. Because garden soil is a mixture of soil particles, you will need to use the soil texture flowchart to classify each soil sample.

Part One – Calibrating Feel

Take a small handful of sand, add enough water to the sand to moisten it and rub it between your forefingers and thumb. You should feel the coarseness and grittiness of the sand. Record your observations in Table 1 below.

Wash the sand from your hand and repeat this process for the silt and clay samples. Note that silt will feel smooth but not sticky. Clay on the other hand will be very slick and sticky. These are important characteristics you will use as reference when you conduct the tests on the garden soil samples.

Table 1 ***Texture of Sand, Silt, and Clay***

Describe your observations for the following particles. Use "feels like" examples to help reference the texture:

Particle	Feels like:
Sand	
Silt	
Clay	

Part Two – Garden Soil Analysis

Conduct a texture test on each of the five different garden soil samples provided.

1. Place approximately two tablespoons of soil in your hand.
2. Follow the steps in Figure 1 to determine the texture of the sample. Record your observations in Table 2.
3. Repeat the textural test for each sample of soil.

Table 2 *Texture Determination of Soil Samples*

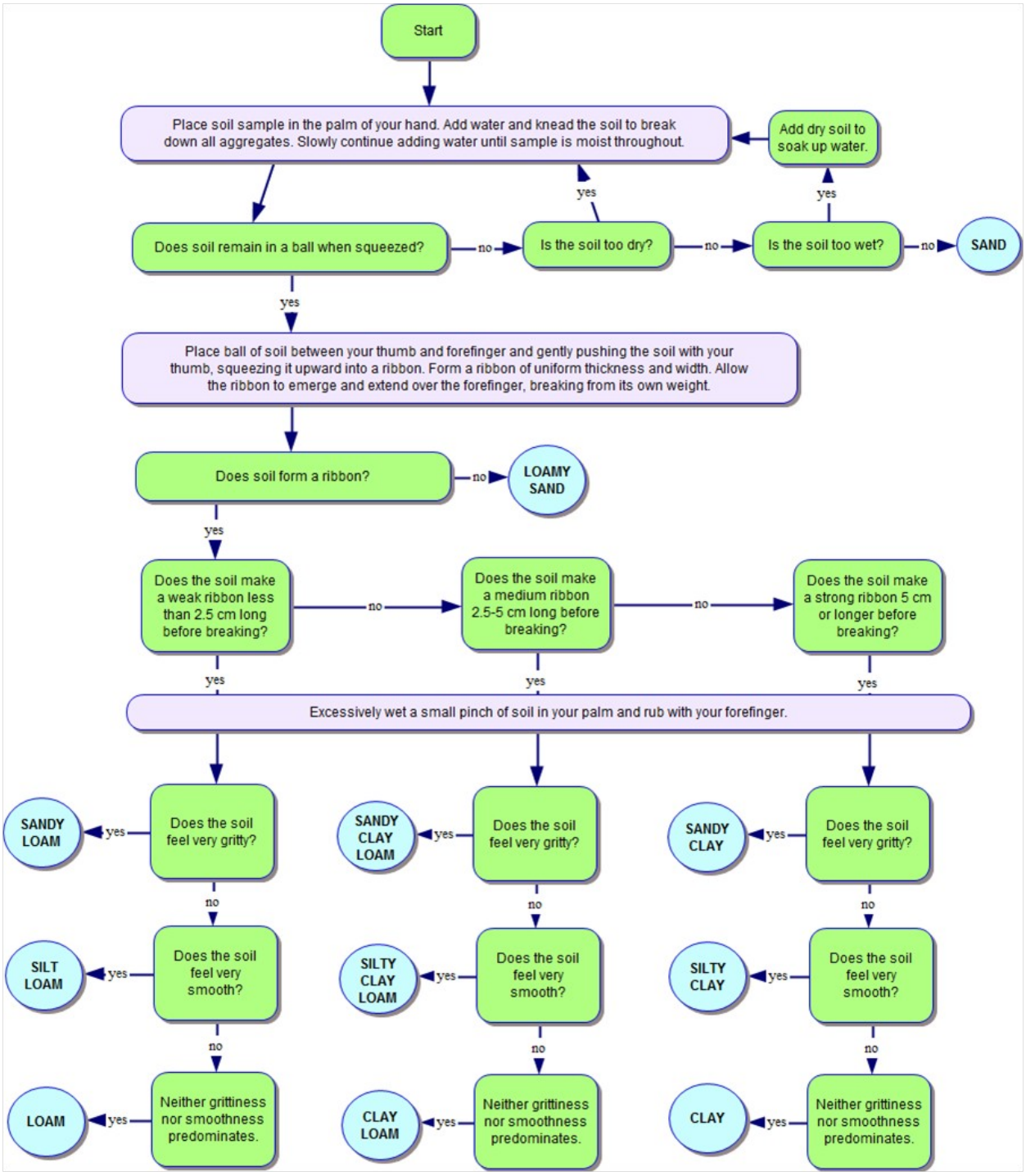
Soil Sample	Your Classification Determination	Organic Matter Present
1		Yes No
2		Yes No
3		Yes No
4		Yes No
5		Yes No

Conclusion

1. Explain the differences between sand and silt in a soil sample.

4. Explain how a soil textural flowchart is used to determine soil type.

5. Discuss what constitutes a loam soil classification.



Source: Thien, S. J. (1979). A flow diagram for teaching texture by feel analysis. *Journal of Agronomic Education, 8,* 54-55.

Figure 1. Soil Texture Flow Chart