

Basic Principles of Soil Science Study Guide

1. *Soil and How It Supports Life*

- a. Define Soil.

- b. Soil supports life in the following ways:
 - i. Oxygen -
 - ii. Temperature -
 - iii. Water -
 - iv. Carbon -
 - v. Nutrients -

2. *Soil Components*

- a. In addition to numerous living organisms such as _____, _____, and _____, soil is composed of the following 4 primary components:
 - i. _____ -
 - ii. _____ -
 - iii. _____ -
 - iv. _____ -

- b. Solid portions account for _____ % of soil volume.

- c. Pore space accounts for _____ % of soil volume.

- d. Draw a pie graph to show the **average** components of the soil.

3. *Agricultural and Non-Agricultural Uses of Soil*

- a. The following agricultural uses of soil include:
 - i. _____ -
 - ii. _____ -

iii. _____ -

iv. _____ -

v. _____ -

b. The following nonagricultural uses of soil include:

i. _____ -

ii. _____ -

iii. _____ -

iv. _____ -

4. Living Organisms Found in Soil

a. The following organisms play an important role in soil:

i. Bacteria –

ii. Mycorrhizae fungi –

iii. Earthworms, ants, crawfish, moles, etc. –

5. How Do Plants Use Soil

a. Plants depend on soil to provide the following basic needs:

i. _____ -

ii. _____ -

iii. _____ -

1. Define Soil Aeration.

iv. _____ -

6. Soil Texture

a. Define soil texture.

b. Draw a soil texture triangle.

c. Soil texture (the amount of sand, silt, and clay) is important because of several reasons. Please describe each of those reasons below.

i.

ii.

iii.

iv.

d. Which soil texture is said to be “perfect”? Why?

7. Soil Profile

a. Define Soil Profile.

b. Each layer of soil may be different from the rest in a _____ or _____ way. The differences are developed from the interaction of such soil-forming factors as:

i. _____ -

ii. _____ -

iii. _____ -

iv. _____ -

v. _____ -

c. Soil profiles are studied at a depth of _____.

8. How Soil Profiles Change Over Time

a. Soils change over time due to their _____. The causes of these changes can be classified into the following four different categories:

i. _____ -

ii. _____ -

iii. _____ -

iv. _____ -

- b. Each of these changes occurs at various _____, therefore as soil ages, _____ layers develop and changes result.

9. The Major Horizons of a Soil Profile

- a. Label the 5 horizons and discuss the characteristics of each.

