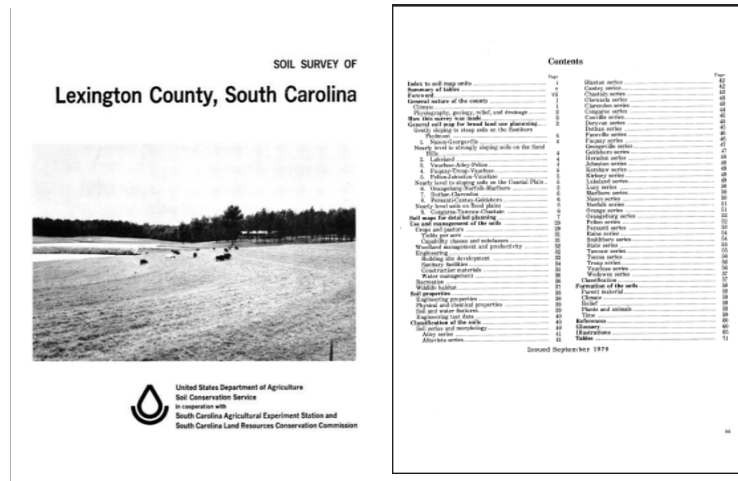


2026 South Carolina Envirothon Soils Practice Questions and Notes

Lexington County Soil Survey Section:

- This uses the Physical Copy of the Lexington County Soil Survey, published in 1976, that will be available to students during the competition and was featured during the Training Day. Being able to navigate through the different sections of and determine which section the information the question is asking about is the key here. The Tables Section (Pg.6, Pg. 45-Pg.51, Pg. 54- Pg.77, Pg 81. - Pg. 83) is a large portion of this part of the test.



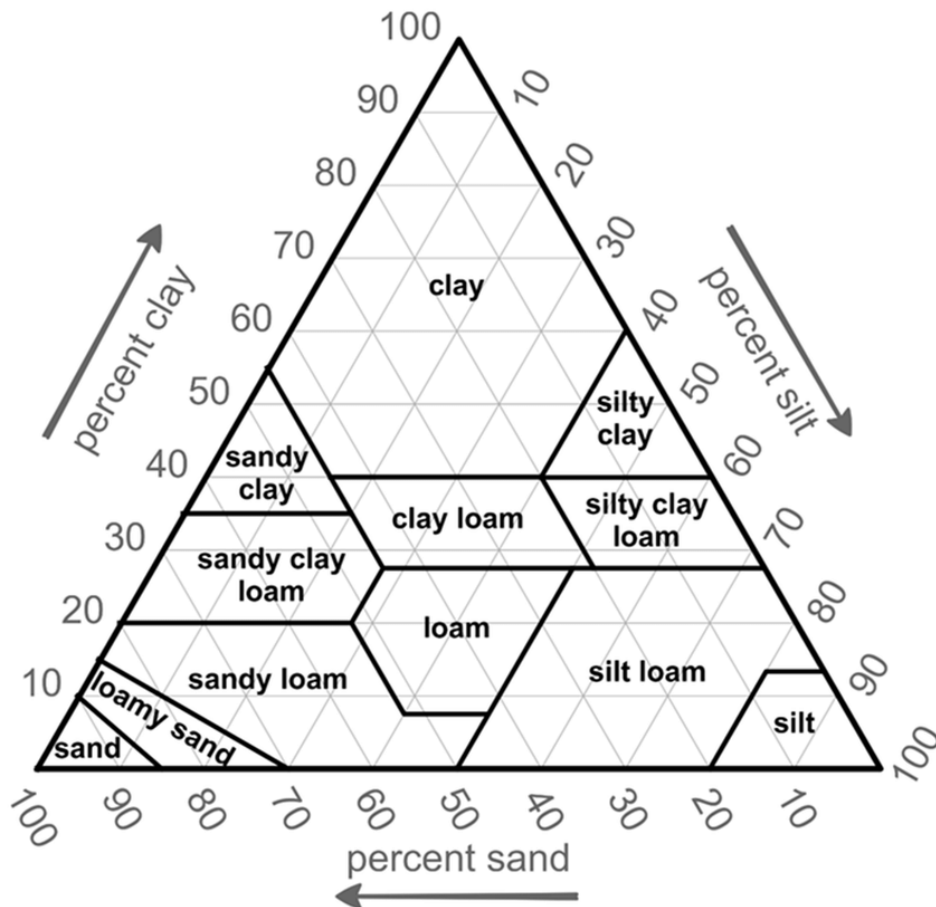
1. Which Soil Series has the largest number of Acres Mapped in Lexington County?
 - a. Goldsboro sandy loam, 0 to 2 percent slopes GoA)
 - b. Lakeland soils, undulating (LaB)
 - c. Fuquay loamy sand, 0 to 6 percent slopes (FaB)
 - d. Water (W)

2. You are a Peach Grower who needs to grow more peaches for an upcoming Peach Festival, to prove once and for all that South Carolina grows the best peaches. You have the choice to buy 4 different farms in Lexington County, all for the same price. Each one is the same size but they all have a different soil type (listed below). Which Farm do you buy and why?
 - a. Farm 1: Soil Type: Cecil Fine, Sandy Loam, 2 to 6 % Slopes
 - b. Farm 2: Soil Type: Georgeville, Very Fine Sandy Loam, 6 to 10% Slopes
 - c. Farm 3: Soil Type: Orangeburg, Loamy Sand, 0 to 2% Slopes
 - d. Farm 4: Soil Type: Troup Sand, 0 to 6 % Slopes

Farm: _____ because _____

Textural Triangle:

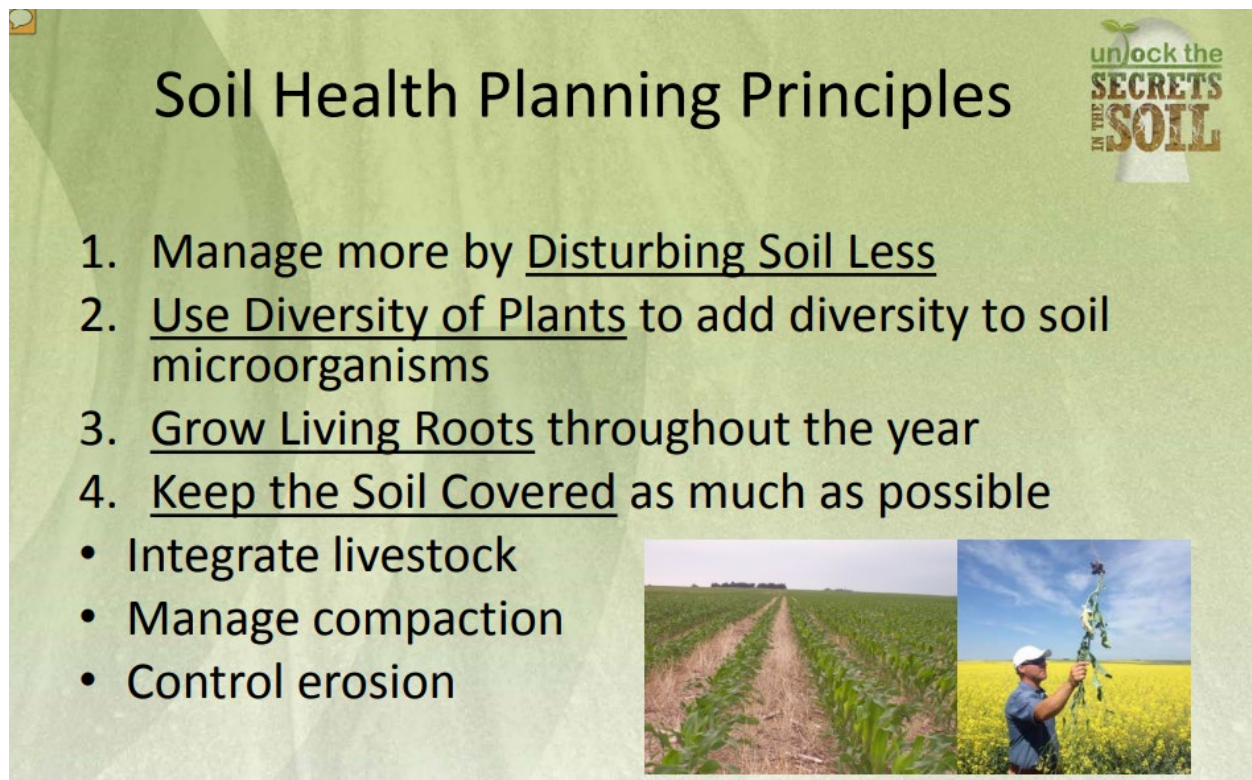
This section uses the USDA Soil Texture Triangle also known as the Textural Triangle. Based on the percent of Sand, Silt and Clay a soil will fall into one of the 12 Textures below. Using a pen, pencil or your finger to trace the line can be helpful based on the given percentages of Sand, Silt, and Clay. The intersection of these percentages on the triangle will give you the texture.



3. What Texture is a Soil that contains 60% Silt and 20% Clay?
 - a. Silt loam
 - b. Clay
 - c. Loam
 - d. Loamy Sand
4. What Texture is a Soil that contains 70% Clay and 20% Sand?
 - a. Loamy sand
 - b. Sandy loam
 - c. Clay
 - d. Silty clay

Soil Health:


- Soil Health can be defined simply as “the capacity of the soil to function as a vital living ecosystem that sustains plants, animals, and humans.” On a more detailed level, Nutrient cycling, Water Infiltration and Availability, Filtering and Buffering, Physical Stability and Support and Habitat/Biodiversity are all functions that a soil performs and the degree which a soil can perform these functions are part of the overall Health of a Soil. The principles of Soil Health are Found Below or through this link: <https://www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/soil/soil-health>



Soil Health Planning Principles

unlock the
SECRETS
IN THE
SOIL

1. Manage more by Disturbing Soil Less
2. Use Diversity of Plants to add diversity to soil microorganisms
3. Grow Living Roots throughout the year
4. Keep the Soil Covered as much as possible
 - Integrate livestock
 - Manage compaction
 - Control erosion



5. Which of the following techniques or practices would not improve soil health?
 - a. Leaving soil bare and uncovered without a cover crop on it for most of the year
 - b. Continuously Planting Cotton with no cover crops or crop rotation schedule
 - c. Using maximum tillage and not avoiding disturbance while planting, harvesting, etc.
 - d. All of the above
6. Which of the following are Physical Indicators that a person would test to determine the soil health of a particular farm or field?

- a. Compaction
- b. Infiltration of Water
- c. Bulk Density
- d. All of the above

Soils in South Carolina and How they are Organized:

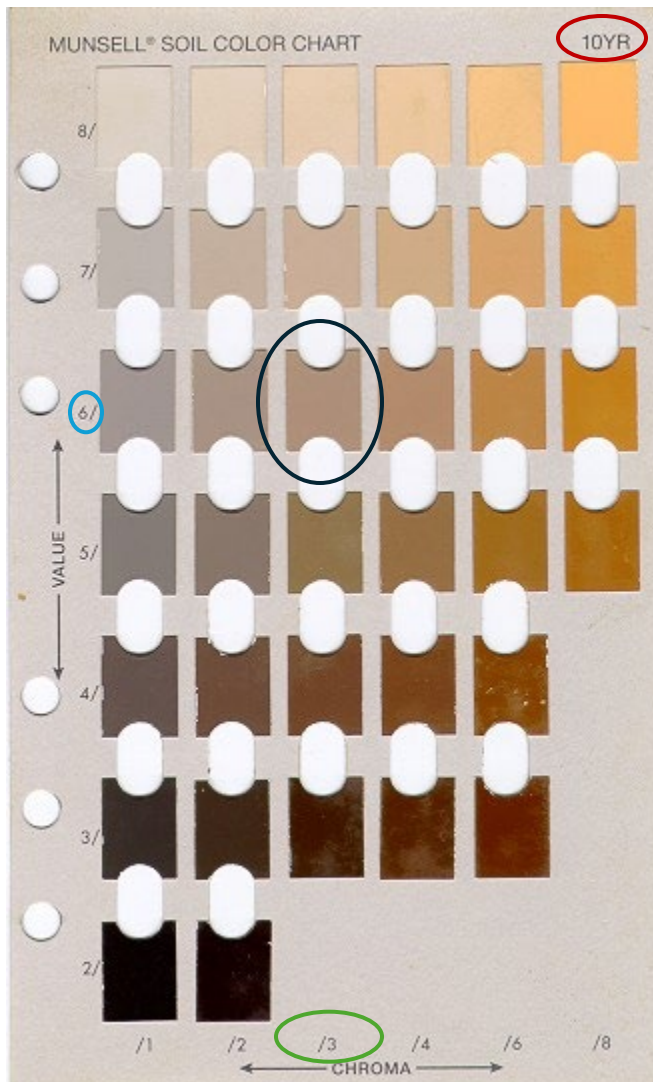
- When the soils across the United States were first being mapped and classified, soil scientists and folks in charge of getting this information out to the public needed a way to organize this data in a way that was logical, accessible and easy to follow for the general public to utilize soils information from the USDA in making land use decisions. These systems ultimately evolved into Land Resource Regions which are comprised of Major Land Resource Areas that group specific parts of the U.S together and share common terrain, topography, land use and soils based on their parent material. Land Resource Regions are denoted with Capital Letters like “G” and Major Land Resource Areas are denoted with a combination of numbers and letters such as “135A” The Link below has a map of the Land Resource Regions and Major Land Use Areas in the U.S and is a great resource for the questions asked in this section.

https://www.dnr.sc.gov/education/Envirothon/pdf/MLRA%20map_conterminousUS.pdf

- 7. Which 3 Land Resource Regions are present in South Carolina?
 - a. T, P, and N
 - b. U, S, and A
 - c. P, O, and K
 - d. J, O, and B
- 8. A landowner has a small farm on John’s Island outside of Charleston, which Major Land Resource Area would this farm fall under?
 - a. 153A
 - b. 153B
 - c. 137
 - d. 154
- 9. Major Land Resource Area 153A refers to what region?
 - a. Gulf Coast Marsh
 - b. Arkansas River Alluvium
 - c. Atlantic Coast Flatwoods
 - d. Carolina and Georgia Sandhills

Soil Color:

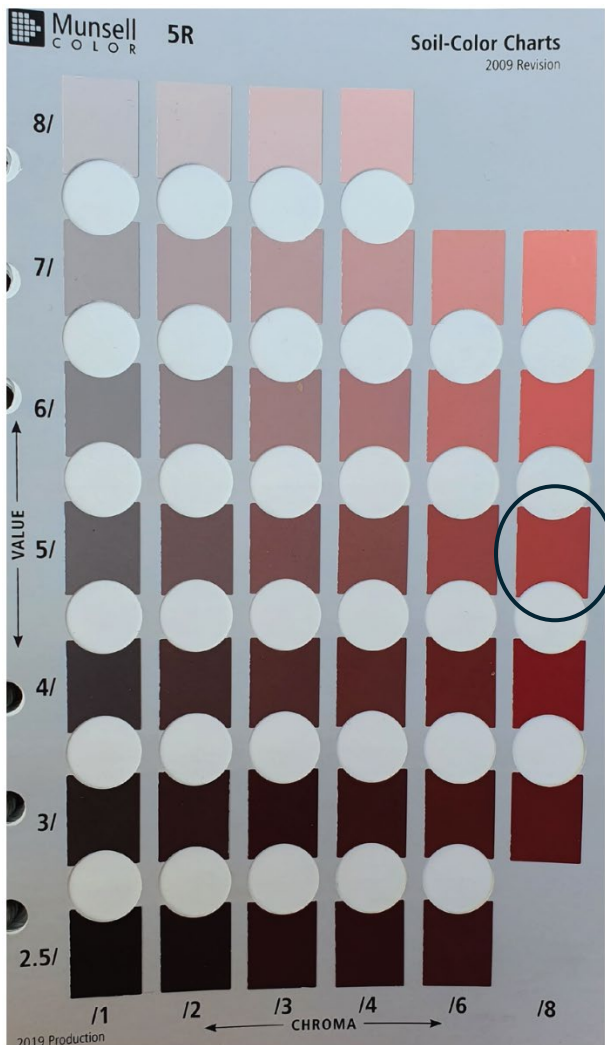
- Soil Color is one of the most important physical soil characteristics that help determine soil horizons and can also be indicative of certain chemical characteristics of a soil. Some determinants of soil color include moisture, the seasonal water table, organic matter, the type of minerals present, proximity to bodies of water, drainage. Normally Soil colors are recorded moist, so a spray bottle will be provided for students to wet down soil samples before determining the color.
- Soil Color Link: <https://www.nrcs.usda.gov/sites/default/files/2022-11/color-of-soil.pdf>
- Soil Color is determined using the Munsell System, packaged in a portable book called the Munsell Soil Color Book. The Munsell system has three different components that are used in the following order to convey Soil Color; Hue, Value, a Chroma. The adage “HVC is the Color for Me” can be used to remember the order of these components



- **To properly write the circled color here, we would start with the Hue listed at the top right corner of the page. (Circled in Red, Hue is a Combination of Letters and Numbers) 10YR**
- **Next, we would go to the column on the left hand side of the page and write the number of the row to which the color chip corresponds to. (Circled in Blue) 6**
- **Finally, we would look to the bottom row of the page labelled Chroma and look at the corresponding Column of the color chip of the Soil (Circled in Green) 3**

- **Written out, the color of this Soil would be: 10YR 6/3**

10. What color is the soil that matches the circled color chip below?



- a. 7.5YR 5/1
- b. 5R 5/8
- c. 5R 4/2
- d. 10YR 3/4

11. What color would you expect a soil with a high amount of the iron mineral Hematite to be?

- a. Green
- b. Brownish Yellow
- c. Red
- d. White

Soil Land Use, Limitations and Interpretations:

- A wise old soil scientist once said “there are no bad soils, just bad uses for soils.” That statement can be a a guiding quote for this section of questions utilizing Pg.62 – Pg.77 of the Lexington County Soil Survey. In regard to soil land use limitations are listed out as slight, moderate, and severe. Slight limitations indicate that a soil is a good candidate for the proposed activity. Moderate limitations indicate that a soil can be used for that activity but its not the absolute best for it and has certain unfavorable properties that must be planned around. Severely limited means a soil is not well suited for the proposed activity require heavy alteration, planning, engineering, planning, etc. Conversely, Soil Suitability measures how well suited a soil is for use as a material source using ratings such as Well Suited, Moderately Suited, Poorly Suited, or Unsited
12. Lexington County wants to build a local road connecting two parts of town to each other to reduce traffic on the way to I-26. The area where the town wants to build the road has Cecil Sandy Loam as the dominant soil series. What level of limitation would you expect in this area from the construction of a local road and why?
- a. Slight
 - b. Moderate
 - c. Severe
 - d. None

Because: _____

13. Due to the elevation difference between of the Interstate and proposed local roads, Lexington County has to bring in Road Fill to build the part of the road that connects to I-26. Due to time and budget constraints, the county only has 4 soil types to choose from. Which soil is the most suitable as a source for road fill?
- a. Brogdon
 - b. Enon
 - c. Congaree
 - d. Appling

Answer Key for Coaches

Next page

Answer Key for Coaches:

1. B

2. A, Because it has the highest yield rating on pg.45

3. A

4. C

5. D

6. D

7. A

8. B

9. C

10. B

11. C

12. B, due to it possessing a fair traffic supporting capacity

13. A