

# Science Pacing

## Learning Targets

1. Summarize the importance of pace during the ACT.
2. Compare the time limit to the number of questions on a subject test to calculate an effective pace.
3. Practice using a pacing plan during a mini-test.

## Instructions

Complete the mini-test.

### Passage V

A particular area's soil horizons can be broken down into three distinct layers: permeable topsoil, highly plastic clay, and limestone bedrock. A company engineer is attempting to collect calcium carbonate,  $\text{CaCO}_3$ , from the area in order to produce a range of industrial materials. He projects calcium carbonate to be present in varying levels throughout the various soil horizons, as shown below in Table 1. In order to ensure stable mining conditions, he additionally collects information on the average water capacity of the various soil horizons, as shown in Table 2.

Table 1	
Soil texture	% $\text{CaCO}_3$
permeable topsoil	5%
highly plastic clay	32%
limestone bedrock	88%

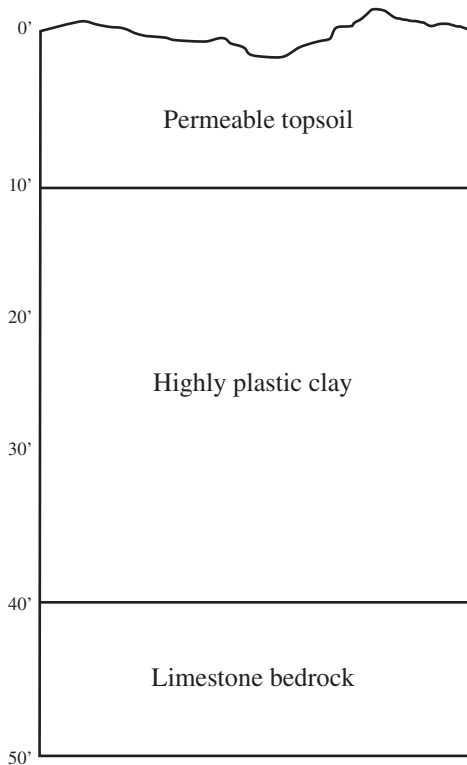


Figure 1

Table 2	
Soil texture	Water capacity ( $\text{in}^3/\text{ft}^3$ )
permeable topsoil	0.9
highly plastic clay	1.4
limestone bedrock	0.3

23. Highly plastic clay causes significant problems for heavy structures because it is prone to liquefaction. The engineer determines that for a stable foundation, there must be at least 10 feet of permeable topsoil under any heavy structure the company will be using. Can the company build on this area?
- A. Yes, the company can build everywhere in this area.
  - B. Yes, but the company can only build on a portion of the area.
  - C. No, the company cannot build anywhere on the area.
  - D. This cannot be determined.
24. A sample is taken of minerals 18 feet below the surface. What is the projected percentage of calcium carbonate content in the sample?
- F. 5%
  - G. 18%
  - H. 32%
  - J. 85%
25. Suppose  $\text{CaCO}_3$  cannot be collected from permeable topsoil or highly plastic clay but can only be found in limestone bedrock. How far must the company dig in order to begin the collection of calcium carbonate?
- A. 10 feet
  - B. 30 feet
  - C. 40 feet
  - D. 50 feet
26. Suppose that actual water capacity varies uniformly according to depth, with the values given in Table 2 representing the actual water capacities at the middle portions of the three soil horizons. The engineer takes a sample of soil and finds that it contains  $1.1 \text{ in}^3/\text{ft}^3$  of water. Which of the following is the least likely depth from which he could have taken this sample?
- F. 5 feet
  - G. 15 feet
  - H. 25 feet
  - J. 45 feet
27. Soil liquefaction occurs when stress or pressure is applied to soil with water content too large to allow for the soil to remain in a dry solid state. Highly plastic clay is itself prone to liquefaction due to its high average water capacity. Which of the following is least likely to contribute to the soil's potential to liquefy?
- A. The low average water capacity of limestone bedrock, because water cannot enter the bedrock and becomes stuck in the permeable topsoil and highly plastic clay
  - B. The high calcium carbonate content of limestone bedrock, because it makes the bedrock more porous
  - C. The plasticity of highly plastic clay when the clay mixes with water, which causes it to move more freely
  - D. The permeability of the permeable topsoil, because it allows water to flow through it and become absorbed more quickly

**Instructions**

Fill in the table as your teacher leads the discussion.

**ACT (Not So) Secrets:**

ACT Science questions do not become more difficult as you go along. The difficulty levels are mixed up, so the most challenging questions could be followed by the easiest. There's no pattern. On top of that, sometimes the easiest questions show up in the back of the test, in the last passage.

For that reason, you should pace yourself and split your time relatively evenly across the passages of the Science test. You have a total of 35 minutes to answer 40 questions, split among 6 passages that each have either 6 or 7 questions that go along with them. Pacing yourself well means getting the opportunity to answer all of the questions.

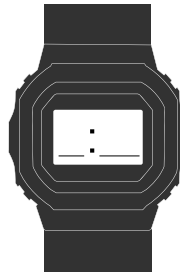
Subject	Time	Questions	Sections	Pace Guidelines
Science	_____ minutes	_____ questions	_____ passages	<ul style="list-style-type: none"> <li>• Two 6-Question passages: _____ min</li> <li>• Four 7-Question passages: _____ min</li> <li>• Save _____ _____ for last</li> </ul>

**Instructions**

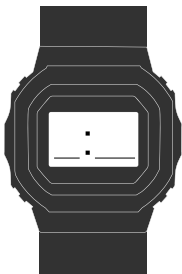
Fill in the blanks with the time you should begin each passage.



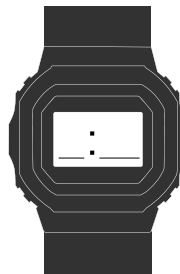
Set your watch to 12:00 at the beginning of the test. Passage 1 has 6 questions.



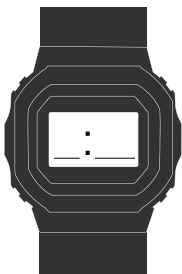
Science Passage 5 (7 Questions, Conflicting Viewpoints)



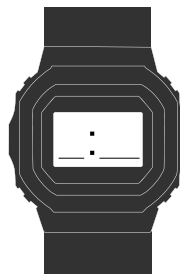
Science Passage 2 (7 Questions)



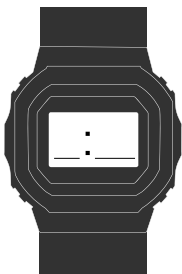
Science Passage 6 (7 Questions)



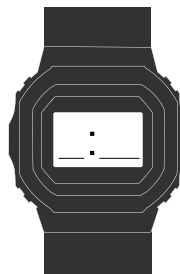
Science Passage 3 (7 Questions)



Check your answers.



Science Passage 4 (6 Questions)



The test ends.