

**EARTH SYSTEMS SCIENCE PRE-TEST**  
**INSTRUCTIONS FOR ADMINISTERING PRE-TEST**  
**Instructions to Teacher**

Dear Earth Systems Science Teacher,

This pretest is written to help you learn about your students' knowledge so that you may help them learn the earth systems science curriculum. Research indicates that teachers who use data from pre-tests to modify their instruction significantly improve their students' learning.

We suggest giving this whole test early in the school year, or, you may begin the year testing your students on the three standards you will teach in the fall and then later in the year testing students on the remaining standards. The complete pre-test should take most students approximately 35 minutes online. If given as a hard copy test, it may take students approximately 45 minutes to complete. The test contains items similar to those found on the State Criterion Reference Test that students will take in the spring.

The idea of giving a pretest is to determine which objectives will require more class time to teach and review with students. Help your students understand that they won't be penalized if they do poorly on the pre-test, but encourage them to do their best work. Tell students to do their own work. If students cannot read an item, read it to them.

Also, this pretest may be used to help your students review for the State Criterion Reference Test given in the spring of each school year.

The test may be given online using UTIPS, or you may print the test and give it hardcopy. If you give the test online, check that your students log into the test correctly. If you give the test hardcopy, each student will need a copy of the test, an answer sheet (preferably scanner) and a pencil. Be prepared with something for students to do if they finish early. Instructions for the administration of both formats follow.

## **Hardcopy Test Instructions to Students**

### **Please read to the students:**

This test is a pre-test. It measures some science material you have learned before, and it may measure some science material you have not studied yet. Don't worry if you don't know all the material—just do your best to answer all of the questions.

Please write your name on the answer sheet (bubble sheet).

There are 52 questions on this test. Please read each question carefully. Choose the **best** answer from the four choices. After you choose an answer, fill in the circle that matches your choice for that question on your answer sheet.

Mark only one answer for each question. If you wish to change an answer, erase the old mark completely before making a new one. Do not make any stray marks on your answer sheet.

If you do not know the answer to a question, continue on to the next question. Please try to answer all of the questions on this test. If you skip a question, make sure that you leave the answer circle for that question blank on your answer sheet.

Do not talk to other students. Raise your hand and ask the teacher if you do not know a word.

If you finish early you may go back and try to answer questions that you skipped or, check your work. When you are done with the test, turn the test over on your desk and follow your teacher's instructions.

## **UTIPS Online Test Instructions to Students**

### **Please read to the students:**

This test is a pre-test. It measures some science material you have learned before, and it may measure some science material you have not studied yet. Don't worry if you don't know all the material—just do your best to answer all questions.

There are 52 questions on this test. Please read each question carefully. Choose the **best** answer from the four choices. After you choose an answer, click the circle next to that answer.

Mark only one answer for each question. If you wish to change an answer, click on the circle next to your new answer.

If you do not know the answer to a question, continue on to the next question. Please try to answer all of the questions on this test.

Do not talk to other students. Raise your hand and ask the teacher if you have a question.

If you finish early you may go back and try to answer questions that you skipped, or check your work.

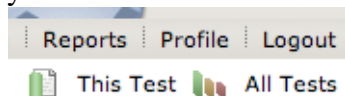
When you complete the test, **scroll to the top of the test and click the submit button**. Once you click submit, you will NOT be able to change any answers. Do not click on any other buttons on your screen at any time during the test or your test could be ruined. Once you are finished with the test, follow your teacher's instructions.

## EARTH SYSTEMS SCIENCE PRE-TEST INSTRUCTIONS FOR INTERPRETING AND USING TEST SCORES

When your students have finished taking the pre-test, print the **Earth Systems Science Pre-Test Diagnostic** page that follows.

The instructions below will help you know how your class did on each objective and ILO in the earth systems science curriculum.

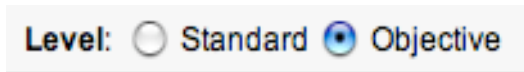
- Once your students have finished taking the test, be sure they have clicked the “**submit**” button. Then go to your UTIPS site. Click on the “**Reports**” menu.
- On the Reports menu, select “**All Tests**”. Then select the Earth Systems Pretest from the list.



- On the far right near the top of the screen, choose the **apple icon**.



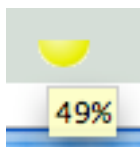
- In the title box, click the **Objective button**. This will display your students’ results by objective and ILO.



- Scroll to the bottom of the screen and note the **Average row**.

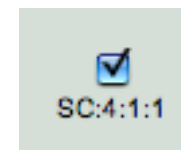


As you roll over each pie chart and pause, the **percent** of items correct for that objective will pop up. You will use this percent in instruction #6.



- Write the average percent for the corresponding **objective** in the far right column on the **Earth systems Science Pre-Test Diagnostic** page you printed. Write the average percent for the corresponding **ILO** in the row at the bottom of the table.

(If you are unsure which objective or ILO each column in UTIPS corresponds to, go to the top of the column and click on the box. The standard and objective for that column will appear at the top of the screen.)



- You have now recorded all the data from the pre-test that will help you to make decisions about how to plan your science instruction. If students did well on certain objectives, then you may spend less time teaching those objectives and spend more time teaching the standards, objectives and ILOs on which your students did poorly.

## EARTH SYSTEMS SCIENCE PRE-TEST DIAGNOSTIC

Standard	Objective	ILO 1	ILO 3	ILO 4	ILO 5	ILO 6	Class Percent
<b>1 Theories of universe development</b>							
	1 Describe big bang theory			2	1	3	
	2 Relate composition of solar system to universe processes	6	4	5			
<b>2 Earth's unique environment</b>							
	1 Describe physical features of Earth that make life possible		7		8	9	
	2 Analyze how ecosystems differ	12	11			10	
	3 Examine Earth's diversity of life as it changes over time	13		15	14		
<b>3 Plate tectonics</b>							
	1 Explain evidence for plate tectonics		16	17	18		
	2 Describe processes that result in plate motion		21	20	19		
<b>4 Water cycles</b>							
	1 Explain water cycles in terms of water movement		22	24	23		
	2 Analyze physical and biological dynamics of oceans	26		25, 27			
<b>5 Earth's atmosphere</b>							
	1 Describe how matter in the atmosphere cycles	28	30			29	
	2 Trace ways the atmosphere has been altered by living systems	31	32	33			
<b>6 Energy</b>							
	1 Describe the transformation of solar energy	34	36			35	
	2 Relate energy sources to their effect on Earth systems		38		39	37	
<b>ILO Percent</b>							

**EARTH SYSTEMS SCIENCE PRE-TEST  
INSTRUCTIONS FOR INTERPRETING AND USING TEST SCORES  
WHEN YOU ADMINISTER A HARD COPY OF THE TEST**

As you prepare copies of the test for your students, make a copy of the “Earth Systems Science Pre-Test Diagnostic” that follows on the next page.

Your students should have used scan-tron answer sheets on which to record their answers to the test. If they did not, find the paragraph in these directions entitled “Scoring the test without scan-tron answer sheets.”

**Scoring the test if students recorded their answers on scan-tron answer sheets**

Prepare a scan-tron item analysis sheet, which summarizes the performance of all of the students in your class. It will list how many of your students missed, or answered correctly, each question.

Referring to the diagnostic sheet, find the row for Standard one, Objective one. (Note that objective one is measured by test items 2, 1 and 3.) Find how many of your students missed these three test items on your scan-tron item analysis sheet, add the total number of students missing items 1, 2 and 3 and record the sum in the objective one box named “Class Percent.” This number represents the number of students who missed objective one.

Next, find the row for Standard 1, Objective 2 on the diagnostic sheet. Find the number of students who missed questions 6, 4 and 5 and record this sum in the “Class Percent” box. (You are not calculating percents but by recording the number of students who missed the three items for an objective you will be able to determine where your students need the most help or conversely where, on which objectives, your students know the most.)

Continue to record total number of students who missed each *objective*.

Now determine the number of students who missed ILO 1 by adding the number of students who missed items 6, 12, 13, 26, 28, 31 and 34 (in the column labeled ILO 1). Record this total in the “ILO Percent” box at the bottom of column ILO 1. Do the same for ILO 3, ILO 4, ILO 5 and ILO 6.

You can now look at the numbers and determine on which Core objectives and ILOs your students need the most help. If you recorded the number of students who missed an item, then the **higher** numbers indicate core objectives about which your students know the least.

**Scoring the test without scan-tron answer sheets:**

Without scan-tron answer sheets you will first need to score your students' tests. Next, count the number of students who missed questions 2, 1 and 3. Record this number on your diagnostic sheet at the right hand end of the row "Standard 1, Objective 1" in the "Class Percent" box.

Now count the number of students who missed Objective 2 (The total students missing questions 6, 4 and 5). Record this total at the end of the row. Continue recording the total number of students missing the items for each objective in the appropriate boxes named "Class Percent." (You are not calculating percents but by recording the number of students who missed the three items for an objective you will be able to determine where your students need the most help or conversely where, on which objectives, your students know the most.)

Finally, determine the number of students who missed ILO 1 by adding the number of students who missed items 6, 12, 13, 26, 28, 31 and 34 (in the column labeled ILO 1). Record this total in the "ILO Percent" box at the bottom of column ILO 1. Do the same for ILO 3, ILO 4, ILO 5 and ILO 6.

You can now look at the numbers and determine on which Core objectives and ILOs your students need the most help. If you recorded the number of students who missed an item, then the **higher** numbers indicate core objectives about which your students know the least.

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