

# **BASIC ECONOMICS TEST**

EXAMINER'S MANUAL  
*(Third Edition)*

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COUNCIL FOR  
**Economic  
Education**

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# FOREWORD

The Council for Economic Education (CEE) is proud to introduce the third edition of the *Basic Economics Test (BET)*. Publication of this updated assessment instrument continues the CEE's commitment to providing the highest quality products for teachers to use in their classrooms, to help them give their students the economic tools and skills that are required for every student.

This Examiner's Manual provides the test administrator with information on administering the test and also, because the test has been normed using different norming populations, provides the teacher with information to compare his/her students' performance with that of other similar students across the nation.

Great care was given during this revision of the *BET* to make the two forms of the test more parallel, both in content coverage and difficulty. Thus, teachers may give students a pre-test and post-test to ascertain their enhanced understanding of economics or they may give half of a class one form of the test and the other half of the class the other, for comparative purposes, with the knowledge that the content and the level of difficulty of the two tests are similar.

Revision of the *BET* was called for because, although many of the original questions were still relevant and performed well, others were in need of updating. In addition, since the *BET*'s initial publication the CEE developed the *Voluntary National Content Standards in Economics*. It was critical that a primary assessment tool such as the *BET* be updated to test the content covered in the *Standards*.

The CEE is truly indebted to many individuals who shared their multitudes of talent and precious time to review, revise, and correlate the questions in the *BET* to the *Standards*. Special thanks go to Bill Walstad, Ken Rebeck, and Roger Butters for undertaking and managing this work. Other economists, economic educators, and teachers (acknowledged by name and institution on pages 1 and 2) with testing expertise reviewed the questions in their various stages of development and contributed to revisions improving the quality of the questions and tests.

Last, but certainly not least, the CEE gratefully acknowledges the generous funding of the United States Department of Education, Office of Innovation and Improvement, Excellence in Economic Education: Advancing K-12 Economic & Financial Education Nationwide grant award U215B050005.

Council for Economic Education



# Basic Economics Test: EXAMINER'S MANUAL

## (Third Edition)

The *Basic Economics Test (BET)* is designed to measure the economic understanding of upper elementary and lower middle school students (grades 5 and 6). The publication of this third edition of the *BET* is another step in the process of improving the quality of cognitive achievement measures in economics available nationally through the Council for Economic Education. The *BET* is one of three nationally normed and standardized economics tests to assess student learning at the pre-college level. Teachers, researchers and other test users now have the *Basic Economics Test (BET)* for the fifth and sixth grades, the *Test of Economic Knowledge (TEK)* (Walstad, Rebeck and Butters, 2010) for the eighth and ninth grades, and the *Test of Economic Literacy (TEL)* (Walstad and Rebeck, 2001) for the eleventh and twelfth grades. Additional tests for measuring achievement in economics and personal finance at the above grade levels include the *Financial Fitness for Life tests (FFFL)* (Walstad and Rebeck, 2005a, b, c).

The purposes of this *Basic Economics Test Examiner's Manual* are threefold. First, it provides test users with a detailed description of the economics content on the test so they are fully informed about test coverage and the rationale for each item. Second, it explains how the test should be administered to students and discusses the possible uses of the test for assessment and instruction. Third, it provides test users with the test results from a national norming with a large sample of students in the fifth and sixth grades so this information can be used to interpret the test scores.

## 1. TEST DEVELOPMENT

There were several reasons why the *Basic Economics Test* was revised. First, the norming data for the second edition of the *BET* (Walstad and Robson, 1990) were collected in 1989. Over time, achievement norms become dated and more suspect as indicators of the relative achievement of students. Second, the content validity for the second edition was based on the *Framework for Teaching Economics: The Basic Concepts* (Saunders et al., 1984). With the replacement of the *Framework* with the *Voluntary National Content Standards in Economics* (CEE, 2010), there was a need to revise the *Basic Economics Test* to align the test with this newer content validity document. Finally, many of the test items were in need of revision to improve clarity, and to improve their usefulness for assessing economic content.

The revision of the *BET* began in January 2006 and continued through July of 2007. The first part of this work was the preparation of the *BET* by the test developers and a national committee. The second part of the work was the trial administration of test items and the creation of the version of the revised test that was used for national norming. The third part of the work was collection and analysis of the national norming data and preparation of this examiner's manual.

**National Advisory Committee.** In January 2006, a National Advisory Committee (NAC) was formed for the *BET*. The NAC was composed of five members with expertise in teaching, teacher training, and in the development of national tests (see Appendix 1 for a list of the NAC members).

On the NAC were one teacher and one school district supervisor for the social studies, each of whom had extensive training in economic education and experience in developing tests for students at different grade levels: Mark Quintana (Broward County School District, Fort Lauderdale, Florida) and Rebecca Reed (William Wallin School, Colonial School District, New Castle, Delaware).

Also on the NAC were three representatives from the CEE's affiliated centers for economic education. Each of these individuals had extensive experience with CEE materials either by serving as authors of educational materials or as instructors for teacher workshops in economic education. They were William Bosshardt, center director at the Florida Atlantic University Center for Economic Education; Bonnie Meszaros, associate director for the Center for Economic Education and Entrepreneurship, University of Delaware; and Mary Suiter, who at the time this work was done was the director of the Center for Entrepreneurship and Economic Education at the University of Missouri at St. Louis and now works with the St. Louis Federal Reserve Bank.

Two other individuals completed the NAC. Each had participated in the development of national tests in economics. William Walstad, a professor of economics at the University of Nebraska-Lincoln, directed this *BET* testing project and served as the NAC chair. His past test experience includes the preparation of the CEE's *Test of Economic Literacy* (high school), *Test of Economic Knowledge* (junior high/middle school), and *Financial Fitness for Life* tests (grades 3–12). The other test developer serving on the NAC was Ken Rebeck, an associate professor of economics at St. Cloud State University. He had worked with William Walstad on the development of the third edition of the *Test of Economic Literacy* (2001) and on the *Financial Fitness for Life* tests. The CEE representative on the NAC was Elizabeth Webbink, then Vice President for EconomicsAmerica at the CEE, until Richard MacDonald assumed those duties in late 2006.

The meeting of the NAC was held in January, 2006, in Fort Lauderdale, Florida. Several decisions were made prior to or at that meeting that

would affect the shape and content of the new test. First, the test would be designed to assess student understanding of economics at the fifth and sixth grades. The primary focus for test development would be the sixth grade to establish an upper boundary for the test as a measure of student achievement in economics at the end of elementary school or beginning of middle school. The fifth grade would be included in the testing because it was thought that the test would be a reliable and valid measure for these slightly younger students, who in some cases were completing elementary school. It was also decided to conduct some exploratory work with the test using fourth grade students to see how students in the latter years of elementary school performed on the test, but no firm commitment was made to norm the test with students at this grade level.

Second, the content of questions would be primarily targeted to cover the standards and associated benchmarks as stated in the *National Voluntary Content Standards in Economics* (CEE, 2010) (see Tables 1 and 2 for a list of the 20 standards and Appendix 3 for the full description of each standard). The test items would mostly cover material listed for the grade 5 benchmarks in the standards. This decision meant that some standards (12 and 17) would not be tested because there were only grade 12 benchmarks for these standards. In other cases, a grade 12 benchmark might be used if the content is likely to be taught by sixth grade.

Third, a multiple-choice format would be used for the test so it could more widely sample the extensive content found in the economic benchmarks and standards. There are twenty standards and over a hundred associated benchmarks. It is only possible to ask several questions per standard for the test, which resulted in a broad coverage of the content domain.

Fourth, the *BET* was designed as an achievement test and not a speed test. A decision was made to limit the test to 30 questions so that it could be completed in about a 30-minute testing period. This period should be within the attention span of most students, even for the youngest group of students taking the test. The test length also fits into the time allotment of most class periods in

schools and would allow ample time for teachers to make arrangements within a classroom for testing, present the test instructions, and administer the test. The content for most questions would not be overly complex so that test items could be easily answered in less than a minute, on average.

Each NAC member was responsible for reviewing the 47 unique items on the second edition of the *BET* to see if they could still be used or needed revision. Each NAC member also supplied 8–10 new questions for review based on assigned content standards. Some items were added to the pool that came from previous tests (e.g., *BET* and *FFFL*) and fit the content and grade levels tested. At its January meeting, the NAC reviewed and rated this pool of about 100 *BET*-appropriate items (previous and new) using five categories: (1) accept as is; (2) accept with minor revision; (3) needs major revision; (4) reject for now, but it might be used after revision if needed; and (5) reject and never use. Test items were assessed at the meeting and approved for possible use, rejected for possible use, or revised as necessary to make them acceptable for test use.

After the meeting, the project director made final revisions to all the acceptable items and arranged them in order by content standard. These revised items were sent to the NAC members for further review and rating using the same five-point scale stated above. Most items were still rated as acceptable for use, but for this review NAC members were also asked to select the items from the pool for each content standard they thought would be best to use for the *BET* revision.

The project director then compiled all the item ratings and recommendations and used them to select items for his Draft 1 of a field test version. The associate director followed the same procedure and produced his Draft 1. The two directors then met in Sioux Falls, South Dakota, in mid-March 2006 to review their two versions of Draft 1 and make additional changes. Most items underwent further revision. New items were also written and added to each test to fill content holes or to match content coverage across the two test forms. The result from this work was a Draft 2 that consisted

of two forms of the *BET* with 30 unique items on each form.

This Draft 2 was sent to the NAC in late March 2006 for a final review before field testing. The NAC members were asked to rate questions using the same five-point scale stated above. They approved most items for field testing, but did offer suggestions for additional changes to some items. Most of these changes were minor and consisted of changes to the wording of the item stem or to the item alternatives to improve clarity and make sure there was a valid and supportable correct answer as well as three incorrect alternatives for each item.

The project director and associate director then made the changes they thought would work best from the NAC recommendations. They prepared a Draft 3 that again consisted of two forms with each form containing 30 unique items. This Draft 3 was used for the field testing.

**Field Testing.** Draft 3 of the *BET* was field-tested in April and May, 2006. About 640 students took a printed version of Form A in 33 fourth and fifth grade classrooms in 22 elementary schools. About 962 students took a printed version of Form B in 45 fourth and fifth grade classrooms in 24 elementary schools. The students came from elementary schools located in Broward County, Florida (under the direction of Mark Quintana of the NAC) and in Delaware (under the direction of Rebecca Reed of the NAC). Data collected from teachers indicated that students completed the test in 30 minutes.

The project director then analyzed the data from the field testing and prepared a Draft 4. Test items were retained that showed reasonable difficulty levels and the ability to discriminate between students of greater or lesser understanding of economics. Eight items were discarded that had especially poor item statistics. This Draft 4 was sent to the NAC with suggestions for changes and with a request for any further revisions.

The feedback from the NAC was used to prepare Draft 5. Changes were made to accommodate most of the NAC suggestions. Item statistics from the field testing were also used to determine the

placement of items on a particular form so there would be a better balance of item difficulty across the two forms. In addition, an item was moved from one form to the other if it provided clues for answering later questions on a test form. Some item options (A, B, C, or D) were also re-ordered so that option placement for the correct answer appeared about an equal number of times on each form. This Draft 5 was sent to the NAC for final review and it received unanimous approval from the NAC for national norming.

**Final Version.** The norming version of the test was administered to students as an online test from April 1 to June 15, 2007. After the testing was completed, the test items were reviewed again during the summer of 2007 using the norming data to determine if any further changes needed to be made to any item on each form of the test before it was published by the CEE. A review of the results by the test developers showed each form was producing reliable and valid information on student achievement in economics. Individual test items were also performing well in almost all cases, and item content was sound. As a consequence of the norming analysis, the norming version became the final version.

As will be discussed in the next section (2), there was good coverage of the economic content to establish the content validity of the test. The final version of the *BET* contains 30 items on Form A and 30 items on Form B. The economics content of items is matched across forms. That is, item 1 on Form A covers the same basic economic content as item 1 on Form B. Items are also ordered so that they move sequentially through economic content as outlined in the national standards for economics. The last two sections (7 and 8) of the manual present the 30 test items on each *BET* form and provide an explanation of the rationale for the correct response to a test question and gives page references to national standards related to that content.

National norms were prepared for this final version based on test data collected from fifth and sixth grade students. Test users can compare the achievement results in economics from their students with those from a national sample of students. These norms are reported in Section 6 of this examiner's manual.

## 2. THE CONTENT AND STRUCTURE OF THE TEST

The content validity of the *Basic Economics Test* is based on the *Voluntary National Content Standards in Economics* (CEE, 1997). The left sides of Tables 1 and 2 show major economic concepts or topics related to each standard. A complete listing of the 20 standards statements can be found in Appendix 3. The right sides of Tables 1 and 2 show the classification of those *BET* items that address some aspect of the economics standards.

Several points should be remembered in evaluating the coverage of the test across economics standards in Tables 1 and 2. First, the *BET* is not designed as a test of each economic standard listed in Tables 1 and 2. There are too few test items per lesson or standard to make a sound judgment about mastery of a particular lesson or standard. It was not feasible for the test to include the number of items needed to assess all the benchmarks associated with each standard.

Second, the classification of a test item by standard is not exact. Some items may fit into more than one standard, or may not be a good fit. The distribution in Tables 1 and 2 reflects the best judgment of the test developers and NAC on the placement of an item.

Third, the distribution of test items reflects the test developers' interpretation of what *ought* to be included in a general test of economics in upper elementary school or lower middle school grades based on the national standards in economics. The weights for the test content were determined in consultation with members of the NAC.

Fourth, within each standard there are benchmarks that explain in more detail what economic content should be taught for that standard by grade 4, grade 8, or grade 12. In most cases, the test item focused on the grade 4 benchmarks. For some standards a grade 8 or a grade 12 benchmark was used if the content was valid for economics instruction with fifth or sixth graders (see item rationales in Sections 7 and 8).

**TABLE 1. Voluntary National Standards in Economics: Content Coverage for BET-A**

<b>Standard</b>	<b>Selected Key Concepts*</b>	<b>Items</b>	<b>Total</b>
1.	Scarcity, choice, productive resources	1, 2, 3, 4, 8	5
2.	Decision-making, marginal analysis	5	1
3.	Economic systems & allocation mechanisms	6	1
4.	Economic incentives — prices, wages, profits, etc.	7	1
5.	Voluntary exchange & trade	9, 10, 11	3
6.	Specialization & comparative advantage	12, 13	2
7.	Markets & price	14	1
8.	Supply & demand	5	1
9.	Competition	16, 17	2
10.	Economic institutions	18, 19	2
11.	Money & inflation	20, 21, 29	3
12.	Interest rates	NA	NA
13.	Labor markets & income	22, 23	2
14.	Entrepreneurship	24, 25	2
15.	Physical & human capital investment	26, 27	2
16.	Economic role of government	28	1
17.	Government failure, special interest groups	NA	NA
18.	Output, income, employment, & the price level	NA	NA
19.	Unemployment & inflation	30	1
20.	Fiscal & monetary policy	NA	NA
<b>Total Number of Questions</b>			<b>30</b>

Notes: (1) Items 7, 8, 12, 15, 16, 20, 21 and 29 are on both forms of the *BET*;

(2) \*For a complete description of each standard, see Appendix 3;

(3) NA = Standard not applicable to age group tested.

**TABLE 2. Voluntary National Standards in Economics: Content Coverage for BET-B**

<b>Standard</b>	<b>Selected Key Concepts*</b>	<b>Items</b>	<b>Total</b>
1.	Scarcity, choice, productive resources	1, 2, 3, 4, 8	5
2.	Decision-making, marginal analysis	5	1
3.	Economic systems & allocation mechanisms	6	1
4.	Economic incentives — prices, wages, profits, etc.	7	1
5.	Voluntary exchange & trade	9, 10, 11	3
6.	Specialization & comparative advantage	12, 13	2
7.	Markets & price	14	1
8.	Supply & demand	5	1
9.	Competition	16, 17	2
10.	Economic institutions	18, 19	2
11.	Money & inflation	20, 21, 29	3
12.	Interest rates	NA	NA
13.	Labor markets & income	22, 23	2
14.	Entrepreneurship	24, 25	2
15.	Physical & human capital investment	26, 27	2
16.	Economic role of government	28	1
17.	Government failure, special interest groups	NA	NA
18.	Output, income, employment, & the price level	NA	NA
19.	Unemployment & inflation	30	1
20.	Fiscal & monetary policy	NA	NA
<b>Total Number of Questions</b>			<b>30</b>

Notes: (1) Items 7, 8, 12, 15, 16, 20, 21 and 29 are on both forms of the *BET*;

(2) \*For a complete description of each standard, see Appendix 3;

(3) NA = Standard not applicable to age group tested.

**Cognitive Levels.** Test items can also be classified by cognitive level. Although many taxonomies for the cognitive domain have been proposed, the most widely used taxonomy is the one developed by Bloom (1956). This work has six levels: knowledge, comprehension, application, analysis, synthesis, and evaluation. Only the first three levels were used to classify test items for the *BET*. A description of these cognitive levels is found in Table 3.

**TABLE 3. Cognitive Levels for the *BET***

Level	Emphasis
I Knowledge	recognition and recall — ability to remember facts in a form close to the way they were first presented
II Comprehension	grasp the meaning and intent of information — ability to tell or translate in own words
III Application	use of information — ability to apply learning to new situations and circumstances

One reason for this change is that test experts have found Bloom’s *Taxonomy* to be more useful for classifying instructional objectives than it is for classifying test items (Ebel & Frisbie, 1991, pp. 51-52). This problem applies to the *BET* because cognitive ratings of test items can be arbitrary, especially at the three highest levels — analysis, synthesis, and evaluation. To address this problem, the number of levels was reduced to the first three (knowledge, comprehension and application) because they were the ones most well-defined and justified. *BET* items that could be classified as analysis or evaluation could be considered application items, so they were placed in the application category in the three-level taxonomy. Educators have found it easier to work with these three levels, or a modification of them, rather than the entire six that were described by Bloom (Davis, 2001, p. 242).

Tables 4 and 5 display the distribution of *BET* items across the three cognitive levels. On form A, there are eight knowledge, 13 comprehension, and nine application items. On form B, there are 10 knowledge, 12 comprehension, and eight application items. In percentage terms, 26.7-33 percent of all items are knowledge, 40-43.3 percent of all items are comprehension, and 27-30 percent of all items are application. These results show that the test contains several cognitive levels, but the cognitive specification for each form is weighted at the lower levels of Bloom’s *Taxonomy* for this age group.

### 3. USES OF THE TEST

The *Basic Economics Test* was designed primarily to aid teachers in assessing and improving the quality of the teaching of economics near the end of elementary school or the beginning of middle school. There are several ways of using it to achieve this objective.

**As a Pre-test.** The *BET* can be administered as a pre-test at the outset of a unit of instruction in economics to assess the students’ prior knowledge of economic concepts. This use is important to teachers because some school districts now provide instruction in economics sometimes only on a limited basis. If this prior instruction in economics has been effective, many students will have acquired some knowledge of economics. Thus, a teacher will want to know the students’ areas of strength and weakness to balance the course’s content appropriately.

To make this determination, teachers can compare the scores of their students with the scores for each test item provided in this manual from the national norming data. The manual provides brief rationales for each question (Sections 7 and 8). Teachers might want to examine those rationales before deciding whether the particular concept tested deserves greater attention in the classroom. If still in doubt, the teacher should refer to the *Voluntary National Content Standards in Economics* (see standards

**TABLE 4. BET: Cognitive Level Coverage by Standards in Economics for BET-A**

<b>Standard</b>	<b>Selected Key Concepts*</b>	<b>I Know- ledge</b>	<b>II Compre- hension</b>	<b>III Appli- cation</b>
1.	Scarcity, choice, productive resources	3, 8	1, 2, 4	
2.	Decision-making, marginal analysis			5
3.	Economic systems & allocation mechanisms		6	
4.	Economic incentives — prices, wages, profits, etc.	7		
5.	Voluntary exchange & trade		9, 10, 11	
6.	Specialization & comparative advantage		12	13
7.	Markets & price			14
8.	Supply & demand			15
9.	Competition	16		17
10.	Economic institutions	18		19
11.	Money & inflation	29	20, 21	
12.	Interest rates	NA	NA	NA
13.	Labor markets & income		22, 23	
14.	Entrepreneurship	24		25
15.	Physical & human capital investment			26, 27
16.	Economic role of government		28	
17.	Government failure, special interest groups	NA	NA	NA
18.	Output, income, employment, & the price level	NA	NA	NA
19.	Unemployment & inflation	30		
20.	Fiscal & monetary policy	NA	NA	NA
		<b>26.7%</b>	<b>43.3%</b>	<b>30.0%</b>
	<b>Total Number of Questions</b>	<b>8</b>	<b>13</b>	<b>9</b>

**Notes:** (1) For cognitive levels, I = Knowledge; II = Comprehension; and III = Application (See Table 3);  
(2) \*For a complete description of each standard, see Appendix 3;  
(3) NA = Standard not applicable to the age group tested.

**TABLE 5. BET: Cognitive Level Coverage by Standards in Economics for BET-B**

<b>Standard</b>	<b>Selected Key Concepts*</b>	<b>I Know- ledge</b>	<b>II Compre- hension</b>	<b>III Appli- cation</b>
1.	Scarcity, choice, productive resources	2, 3, 4, 8	1	
2.	Decision-making, marginal analysis			5
3.	Economic systems & allocation mechanisms			3
4.	Economic incentives — prices, wages, profits, etc.	7		
5.	Voluntary exchange & trade		10, 11	9
6.	Specialization & comparative advantage		12	13
7.	Markets & price	14		
8.	Supply & demand			15
9.	Competition	16	17	
10.	Economic institutions	19	18	
11.	Money & inflation	29	20, 21	
12.	Interest rates			
13.	Labor markets & income	22	23	
14.	Entrepreneurship		25	24
15.	Physical & human capital investment			26, 27
16.	Economic role of government		28	
17.	Government failure, special interest groups			
18.	Output, income, employment, & the price level			
19.	Unemployment & inflation		30	
20.	Fiscal & monetary policy			
		<b>33.3%</b>	<b>40.0%</b>	<b>26.7%</b>
	<b>Total Number of Questions</b>	<b>10</b>	<b>12</b>	<b>8</b>

**Notes:** (1) For cognitive levels, I = Knowledge; II = Comprehension; and III = Application (See Table 3);  
(2) \*For a complete description of each standard, see Appendix 3;  
(3) NA = Standard not applicable to the age group tested.

and benchmark numbers listed with item rationales) or lesson materials developed by the CEE ([www.councilforeconed.org](http://www.councilforeconed.org)).

Teachers can group their students' responses by content as shown in Tables 1 and 2. This work will enable the teacher to compare scores on several different standards. Students' incorrect responses often tend to cluster about specific topics; the identification of such topics may lead teachers to give these topics greater emphasis in their instruction. Whether a comparison is made with individual items or broad categories, the *BET* can be used to discover the areas in which students have strengths and weaknesses before formal teaching begins so that the teacher can make appropriate adjustments in allocating time and emphasis to various topics for which students show relatively limited understanding.

**As a Post-test.** The *BET* can be used at the end of a unit of instruction to measure the extent to which understanding has improved. Post-test scores for a given group of students may be compared to their pre-test scores and to the scores for students in the norming sample as presented in Tables 12 and 13. A pre-test and post-test use of the *BET* should help to provide evidence of the effect of instruction for improving knowledge and understanding of economics during a unit or course of instruction in school.

Such assessment will be particularly useful if the test is administered on both a pre-test and post-test basis to classes in which varying degrees of emphasis are placed on economics and when different teaching approaches are employed. When used in this way, the *BET* can measure the effects of varying teaching treatments on student performance in economics. Such research of this kind can contribute significantly to the improvement of teaching effectiveness of economics in upper elementary school or lower middle school classes.

Researchers employing the *BET* in experimental and non-experimental settings should pay particular attention to the technical data reported in Section 6 of this manual to make sure that the *BET* serves as a reliable and valid measure for their specific applications and research

needs. For the *BET* to measure a meaningful change between a pre-test and post-test there needs to be sufficient instruction in economics given to students.

When used as a post-test, the *BET* should be administered early enough to allow one or two class periods to be used for discussion of test scores and results. The teacher can take advantage of the students' natural interest in their relative standing in the class and in relation to the sample of students who have had previous economics training.

**Item Discussion.** When students cannot answer a question or find it most difficult to select the correct answer, they are often interested in what the correct answer is and why it is correct. Students' incorrect responses tend to be concentrated on specific topics. It is on those topics that review time can be spent most profitably, since the clustering of errors is an indication of confusion about the topic. The teacher may wish to read the rationale for each correct answer from the Item Rationales (see Sections 7 and 8) or refer students to pages of some lesson materials for teaching economics (see [www.councilforeconed.org](http://www.councilforeconed.org)). Discussion can then continue between students and the teacher, using the test or supplementary materials on economics for further information. The *BET* can become a powerful teaching tool if used in this way.

Caution should be used in reading or paraphrasing item answers from item rationales, particularly if the test is used on a pre-test and post-test basis. After post-testing, reading the correct response and its rationale should cause no harm and is likely to be effective as a teaching/learning activity. This practice, however, should not be followed after *pre-testing* if a subsequent post-test is to be administered. The reason is that the same items would be used both as a pre-test and a post-test, and students would know the correct answers based on the pre-test discussion of items, thus invalidating a pre-test and post-test comparison.

**During a Course.** A third use of the *BET* is to administer one of its forms midway during a course or unit of instruction and to use the results for *formative* evaluation purposes. Data on student

performance near the halfway point can then be used to alter instructional strategies for the balance of the course or unit, thereby more closely reaching the instructional goal — greater student understanding of economics.

It should be remembered if all or parts of the *BET* are administered during a course and also as a post-test, it is likely that some student “learning” will result because students will then answer a test item twice. Students may “remember” items from one test administration to the next, thus making any comparison invalid.

**Research.** The second edition of the *BET* led to a number of evaluative studies and research on the teaching of economic concepts in elementary and middle schools. The authors hope that revision of the *Basic Economics Test* will result in renewed interest in economic education research and evaluation in grades 5 and 6.

## 4. ADMINISTERING THE TEST

The *Basic Economics Test* was designed for teachers or administrators to use with upper elementary school or lower middle school classes taking units in economics. It is also possible to use this test in units that do not directly cover economics (e.g., history) because the test covers concepts that would typically be taught in many courses. The decision, however, about whether the *BET* should be used to measure student achievement in these other units should be based on a careful review of test items and course content.

Those individuals who administer the *BET* should be familiar with the test procedures that are described below. Specific directions for the students are provided in the student test booklet. Although these instructions will be adequate for most situations, it is suggested that the examiner carefully look over the test and the answer sheet to anticipate any problems before the testing session begins. Unless standard procedures are followed when the *BET* is given to upper elementary school or lower middle school students, the re-

sults obtained at different times may not be strictly comparable with those published in this manual. For most uses, the *BET* should be easy to administer and it may be scored by hand or machine.

**Materials.** The *BET* booklets are reusable, provided students follow instructions and do not write in them. After each testing session, you should inspect the booklets for pencil marks. Either erase any marks completely before using the booklets again or discard them.

The test questions may be answered on a facsimile of the blank answer sheet provided in Appendix 4, or on a machine-readable answer sheet having at least 30 answer positions, each with at least four options. If answers are to be machine scored, the teacher must use answer sheets that are compatible with the scoring equipment to be used, and the students must mark the answer sheets with the appropriate pencils (usually No. 2 lead). In any event, students should be cautioned not to use a ballpoint pen. Use of a pen will make it difficult to change responses and most machines will not score ballpoint markers. For machine scoring, it is advisable to have additional pencils of the appropriate type on hand.

The room in which the test is to be administered should be well lighted, well ventilated, and quiet. The students should have sufficient working space to accommodate both the test booklet and answer sheet. Students should be seated so as to minimize opportunities to see each other’s answers (unless a group-testing method is used), or alternative forms of the test can be given to students.

All test materials should be counted and assembled prior to the testing session. Placing an answer sheet under the front cover of every test booklet so that both answer sheet and test booklet can be distributed together saves testing time. Students should each receive only one booklet.

**Timing the Test.** The *BET* requires about 30 minutes of testing time for students in upper elementary school or lower middle school grades, depending on the group. If testing is done in a class period that is shorter than 30 minutes, and the time cannot be extended, allowance should be

made for this factor when test scores are evaluated and compared to the published test results.

The *BET* was designed as a power test of economics achievement rather than as a speed test, so it is probable that most students will complete it in less than 30 minutes. If students change classes and there are set class periods, the testing should begin as soon as possible after the start of class and 30 minutes of class time should be allowed for the testing. To ensure that students do not arrive late, it may be helpful to remind them in the class prior to the test to try hard to be on time and to bring No. 2 pencils.

**Directions for the Examiner.** If the test booklets and answer sheets are passed out together (with No. 2 pencils if necessary), instruct those taking the test to fill in the requested information on the answer sheet before opening the test booklet. If the test booklets and answer sheets are not passed out together, distribute the booklets while the students are filling out information on the answer sheet. In either case, test booklets should remain face up and closed until the examiner gives the signal to begin.

When everyone has received all the necessary materials, say:

Read the directions to yourselves as I read them aloud:

1. Please fill out the information requested on the answer sheet before beginning your test.
2. Do not write in this booklet or make other marks in it unless your teacher tells you to do so.
3. When marking your answer sheet, use *only* a regular No. 2 pencil. **DO NOT USE A PEN.** Do not make any stray marks on the answer sheet. If you make a mistake, erase completely the answer you wish to change.
4. This test is designed to measure your understanding of economics. Not all students who take this test will have taken a separate unit in economics, but most have learned something about the subject in their other courses,

through reading newspapers, listening to the radio, watching television, browsing the Internet, or from some other source. These questions will measure how well you understand the basic economic ideas and their applications.

5. The *BET* has 30 questions. After you complete each question you should move to the next one. Continue this work until you complete all questions. After you are finished you can return to questions to check or complete any answers.
6. You should try to answer *every* question by marking what you think is the best choice. You might not know the answers to some questions, but use the information you *do* have to eliminate those choices you think are incorrect and select your best answer. Work at a comfortable speed, but do not spend too much time on any one item. The test consists of 30 questions or incomplete statements, for which you should choose the **one best answer**. With some items more than one answer may appear to be correct, but your task is to choose the *best* answer.

After reading the directions say:

“The sample question on the front cover of the test booklet gives an example of a properly marked answer. Notice that response D has been completely filled in. When you begin the test, read each question carefully and choose your answer. Then use your pencil to blacken the lettered space *on the answer sheet* that corresponds to the letter of the answer you have chosen.”

If the answer sheet will be machine scored, say:

“The test will be scored by machine, so be sure that you use only a No. 2 pencil to mark your answers on your answer sheet. Fill in the space under the letter that corresponds to the letter of the answer you have chosen. Be certain to make each mark heavy and black. If you change an answer, be

sure to erase your first mark completely before making another mark. Erase all stray marks on your answer sheet.”

Whether the sheets are to be scored by hand or by machine, say:

“When you finish the test, go back and check your answers. If you have any questions, raise your hand now. I cannot answer *any* questions about the test content after it has begun. However, if your pencil breaks or if you find you have a faulty booklet or answer sheet, raise your hand.”

When you have answered all questions, say:

“You will have 30 minutes for the test. Remember: Make no marks on the test booklet itself. All right. Begin.”

During the first minutes of the test, check to see if the students are marking their answer sheets properly. When testing is completed, collect all materials. Verify that all materials have been collected before students leave the room.

## 5. SCORING THE TEST

The score for the *Basic Economics Test* is the number of correct responses. The maximum possible score is 30. A single answer sheet should be used, and it may be scored by hand or machine.

Each question on the *BET* has four choices: one correct answer and three distractors. Chance would dictate an aggregate correct score of 25 percent (about 7-8 points on the *BET*) for those who had no knowledge of economics. If some students score below 25 percent on the test, their answer sheets in particular should be carefully checked for systematic errors in test marking, scoring, or test administration. For instance, the key for Form A might have been used inadver-

tently to score a Form B test. Such a low score may also mean that a student has not taken the test seriously and is just randomly supplying answers, so check such test forms to make sure that the test was taken seriously by the student. It may be necessary to omit that test form from the analysis of the test data.

To score the test by hand, use the key and facsimiles of the answer sheets in Appendix 4. Scan each answer sheet to be sure the student marked only one answer for each question; if more than one answer was marked, the response to that question is considered wrong. To use the scoring key, punch out the blackened circles and place the key over the answer sheet. The raw score is the total number of answer marks showing through the holes minus any multiple-marked items.

After the tests have been graded and returned to the students, the teacher can read each test item aloud (as the students read silently from their test booklets and take note of their responses), asking those who answered correctly to raise their hands. The number of correct responses divided by the number of students taking the test and multiplied by 100 is the class percentage correct for that item. Such activity may lead to additional discussion of the economic content and provide an opportunity for a teacher to clarify or reinforce the reasons for a correct answer to a test question.

Most schools are equipped to machine score tests. In such cases, a special answer sheet is required that is compatible with the available scoring machine. Usually, No. 2 pencils *must* be used to mark answers. If machine scoring will be used, check with the scoring service in advance about required answer sheets and pencils.

Machine scoring of tests often produces a printout of the student roster with raw scores and percentiles for the scores by group tested. The group mean, standard deviation, and a frequency distribution are often provided. Such data can be useful in the interpretation of results. The results can be compared against the national norms shown in Tables 10-13.

## 6. TECHNICAL DATA

### Norm Testing

To conduct the national norming, a testing website was created. The reason for collecting the data online was to make the testing process more efficient and to permit easier access for all teachers. A survey of members of the NAC determined that most schools had ready access to computers for such online testing and that teachers would prefer this method of testing so they could obtain fast feedback on the results.

The construction of the website at the University of Nebraska-Lincoln (UNL) was done under the direction of Roger Butters, an assistant professor of economics and president of the Nebraska Council on Economic Education. He worked in conjunction with the information technology staff in the UNL College of Business Administration to establish the website, put the questions online, and monitor website use by teachers.

Several steps were required to obtain the norming data via the website. First, a teacher recruitment letter was sent to the national network of directors of state councils and centers for economic education and other individuals working in economic education. The letter explained the purpose of the testing and requested that they help by sending the e-mail with the website link to teachers and school administrators in the relevant grades. Second, teachers interested in participating in the national norming went to the website and registered with their names and school addresses. They were also asked the number of classes and number of students in each class who would be tested and whether students had been taught economics. Teachers did not have to teach economics to have their students participate. Third, the teacher-supplied information was reviewed by Roger Butters to eliminate any odd or extraneous signups, or to obtain more complete information. Fourth, once approved, teachers returned to the website and created class groups by completing a classroom

questionnaire and declaring the number of students in each class. Teachers were then able to download spreadsheets containing unique access codes for each student in each class. Access codes were assigned to students by teachers to protect student anonymity. Fifth, teachers took the students to a computer lab or used classroom computers for the testing. Students were given instructions from the teacher, logged into the website with their student codes, and then completed the test.

Potential issues also had to be considered with the online testing. To minimize any problems with the computer testing, teachers were given detailed instructions about how to conduct it in several e-mail communications as well as online instructions and updates on the website. Teachers also were able to contact Roger Butters to obtain advice on how to handle any testing problems.

To reduce the potential for cheating, teachers were asked to proctor students during testing. Students within each class were randomly assigned by the computer server to take either form of the test. Question order for each student was determined randomly, questions were displayed individually, and students were unable to revisit a test question once an answer was submitted. Randomization of test forms and question order made it difficult for students to compare or see each other's answers. Another advantage of this randomization of test forms was that it produced about equal sample sizes of students taking each form of the test within each class.

Testing time was another concern. The specified time period for the test was 30 minutes, and students were told that time limit. To allow for possible problems with website logins or computers, a general decision was made to set the computer-allowed testing time for up to two hours once a student began taking a test. After the two-hour period, the computer server logged out the test as incomplete and these test data were considered invalid. This timing concern did not turn out to be a problem because in almost all cases, students completed the test within the specified 30 minutes (mean time was 13 minutes).

## Student Sample

The period for teachers to access the website for testing was near the end of the 2006–2007 school year, from April 1 to June 15, 2007. A total of 4,481 students participated in the testing (2,300 on form A and 2,181 on form B). Not all these data, however, could be used for the national norming because some of the data were outside the final target of the fifth and sixth grades for testing. That restriction eliminated 51 students who were enrolled in the seventh through twelfth grades.

In addition, it was originally thought by the NAC that fourth grade students could be included in the testing to provide a wider range of grade levels, so the testing invitation included this grade level. After the norming analysis, a decision was made to omit the fourth grade from the manual, and this change eliminated another 1,209 cases (623 for form A and 586 for form B). The reasons for this decision were several. The norming results showed that the overall test was quite difficult for most fourth grade students (39–42 percent correct, on average). Also, the differences in test and item scores between those students with and without economics were small or negative — most likely because of the limited amount of economics instruction in most fourth grade classrooms. The results for the fourth grade were not considered to be sufficiently reliable and valid to report for norming purposes.

The final norming sample for the third edition of the *Basic Economics Test* consisted of 3,221 fifth and sixth grade students (1,652 form A and 1,569 form B). Of this group, 1,899 were in sixth grade (971 form A and 928 form B). Another 1,322 students were enrolled in fifth grade (681 form A and 641 form B).

The test data were collected using the 145 schools listed in Appendix 2. The final sample for norming included 176 classes, taught by 85 teachers in 23 states. The approach taken in conducting the norming was to invite a large group of teachers to participate who would test a broad and diverse

group of students from different types of communities, different regions, and different sizes of schools. The composition of the students would also vary by gender, race, and ethnicity.

These data were collected from students, teachers, and schools, so that information was available for judging the characteristics of the *BET* sample and the test results. The data are subdivided into categories by gender, grade level, school size, student/teacher ratio, the composition of schools by race (percent black), ethnicity (percent Hispanic), estimate of poverty level (percent free lunch), type of community, and region. A case can be made that the norming sample contains a broad and diverse distribution of students. Data supplied later in this section reports the test scores broken down across these subsample characteristics (see Tables 14 and 15).

No claim is made that the group tested is *exactly* representative of the student population enrolled in the fifth and sixth grades in schools throughout the nation. It was not possible to obtain a stratified, random sample of students in these grades. The test data, however, are probably indicative of the general results that would be obtained if a teacher provided substantive economics instruction to students and compared those results to students without such instruction. The particular results from each school, however, are likely to vary based on the above characteristics and other factors that can affect test scores.

Table 6 reports the aggregate statistics obtained from the 3,221 students who took the test. These results are shown by test form (A or B) and by type of instruction (with or without economics). Overall, the means for the two forms of the test are roughly equivalent (difference = 0.76 points) and the standard deviations are essentially the same. These similarities also hold for those students with and without instruction. In addition, the alpha estimate of reliability and the standard errors of measurement are about the same on both forms of each test. (The meaning of these two terms will be discussed later in this section of the examiner's manual).

**TABLE 6. Aggregate Statistics for *BET* Norming Sample**

	Form A	Form B
<b>Sample Size</b>		
Number of Students	1,652	1,569
Percent with Economics	50	49
<b>Reliability</b>		
Coefficient alpha	.78	.76
Standard error of measurement	2.49	2.51
<b>Means</b>		
<i>Overall</i>	14.62	13.86
[A = 1,652; B = 1,569]	(5.28)	(5.10)
<i>With Economics</i>	15.83	14.70
[A = 821; B = 772]	(5.17)	(5.06)
<i>Without Economics</i>	13.43	13.05
[A = 831; B = 797]	(5.10)	(5.02)

Notes: (1) Sample sizes are in brackets.  
 (2) Standard deviations are in parentheses.

## Tables of Norms

The purpose of collecting the norming data was to make the test scores as meaningful as possible. The test data in this manual provides national norms against which test users may compare the scores of their students. In addition, statistical data obtained from the norming data were used both to judge the technical adequacy of this edition of the *BET* and to make the two forms of the test as equivalent as possible.

The norming data should not be considered as indicating the absolute standard of achievement in economics in the fifth and sixth grades. Rather, the norms provide a relative standard. They are an aid to teachers in comparing their students with others. The comparisons will be meaningful to the extent that composition of the student body in any class is similar to the norming sample.

Tables 7 and 8 present the raw test scores and corresponding percentile ranks based on the test data obtained from the norming sample of fifth and sixth grade students. The percentile ranks were obtained by calculating the total percentage of students in a given grade who scored at or below a

certain raw score. These tables permit the conversion of raw scores to percentile ranks according to whether students have had prior instruction in economics or not. The *with economics* norms show the results for those students taking a unit of instruction in economics. The *without economics* norms show the results from the sample of students who reported that they had no prior economics instruction.

Percentile ranks allow comparisons to be made among students in different groups. For example, a student who completes a course in economics and obtains a raw score of 15 on Form A of the *BET* has a percentile rank of 48. A raw score of 15 on Form A for a student who has no prior economics instruction would be the equivalent of a percentile rank of 67. Therefore, a student with an economics course and a raw score of 15 on Form A is performing as well as, or better than, 67 percent of students with the same score without prior economics instruction.

## Equivalence of Test Forms

The test forms are parallel in content structure. Each item on Form A covers essentially the same content as each item on Form B. This parallel structure in content contributes to the equivalence of the two test forms. In addition, the inclusion of eight common items that were the same on both *BET* forms contributes to the equivalence of scores between the two forms (see Table 6). These common items are distributed across the test in seven of the content standards. These common items were 7, 8, 12, 15, 16, 20, 21, and 29. They represent 26.7 percent of each test.

Several empirical methods can be used to equate the raw scores on the two forms of the *BET*. The methods produce somewhat different conversions, so test users will have to decide which one to use for their purposes. A case can be made for either equating method. For each method, the changes in a raw score from Form A to a scale on Form B will be relatively minor given the similarity in scores by test form.

**TABLE 7. Percentile Norms: *BET-A***  
(Grades 5-6)

Raw Score	With Economics (n = 821)	Without Economics (n = 831)	Overall (n = 1,652)
30			
29			
28			
27	99		
26	99		99
25	98	99	98
24	96	98	97
23	92	97	95
22	89	95	92
21	86	94	90
20	81	91	86
19	74	87	81
18	69	84	76
17	61	79	70
16	54	72	63
15	48	67	57
14	41	61	51
13	34	53	43
12	28	44	36
11	21	36	29
10	16	30	23
9	12	23	18
8	8	17	12
7	6	12	9
6	3	8	5
5	2	5	3
4	1	3	2
3		2	1
2		1	1
1		1	1

**TABLE 8. Percentile Norms: *BET-B***  
(Grades 5-6)

Raw Score	With Economics (n = 772)	Without Economics (n = 797)	Overall (n = 1,569)
30			
29			
28			
27			
26			
25	99	99	99
24	98	98	98
23	96	97	96
22	94	96	95
21	89	95	92
20	85	92	89
19	82	89	85
18	77	84	81
17	69	80	75
16	63	75	69
15	57	69	63
14	50	64	57
13	42	56	49
12	36	49	42
11	29	42	36
10	22	36	29
9	16	27	22
8	12	20	16
7	8	13	11
6	5	7	6
5	3	4	3
4	1	2	2
3		1	1
2		1	
1			

**Equipercntiles.** Using the equipercntile method a score on Form A and a score on Form B may be viewed as equivalent if the corresponding percntile ranks of any given group are equal (Angoff, 1984, p. 86). Tables 7 and 8 show that a score of 15 on Form A is associated with the 57th percntile of overall scores. The 57th percntile on Form B would be associated with a score of 14. Thus, a score of 15 on Form A is equivalent to a score of 14 on Form B based on an equipercntile comparison test score.

Following a similar procedure with all scores yields a table for the conversion of raw scores on Form A to scores on a scale for Form B (Table 9). The results show slight differences in a raw score on Form A and its equivalent on Form B. This outcome was expected because there was great similarity in the norming samples of Forms A and B. The test development process also was designed to make the two tests as parallel as possible. Items were often written so they would be a matched pair covering the same content.

**TABLE 9. Equivalent Scores of *BET* Forms A and B Norming Sample**

Score on		Score on	
A	B	A	B
30	30	15	14
29	29	14	13
28	28	13	12
27	27	12	11
26	25	11	10
25	24	10	9
24	23	9	7
23	22	8	7
22	21	7	6
21	20	6	6
20	19	5	5
19	18	4	4
18	17	3	3
17	16	2	2
16	15	1	1

**Linear equating.** A more precise method for equating uses a formula to transform the raw scores on one test to a scale on another test (Angoff, 1984, pp. 104-106). In essence, the sample of students tested on Form A and Form B are two random halves because students were randomly administered Form A or Form B within their classes. Given this randomization, the means and standard deviations for each form of the test (Table 6) can be used to produce an equation that converts the raw scores on Form A to the scale of Form B:  $B^* = (S_b/S_a)(A) + [M_b - (S_b/S_a)(M_a)]$ , where  $B^*$  is the raw score of A transformed to the B scale, A is the raw score on A,  $M_a$  and  $M_b$  are the respective test means, and  $S_a$  and  $S_b$  are the respective test standard deviations.

For students with economics instruction, the equation is:  $B^* = .978(A) - .783$ . Using this formula, a score of 15 on Form A would be equivalent to a score of 13.89 on the scale for Form B, which when rounded produces a score of 14. For students without economics, the equation is:  $B^* = .983(A) - .149$ . For the total group of students, the equation is:  $B^* = .995(A) + .074$ .

## Item Analysis

Test administrators may want to know how their students performed on certain items of the *BET*. This information would be important in cases where the teacher covered only some of the concepts included in the test. Information on item difficulty and discrimination will help teachers evaluate student performance on particular items.

**Item Difficulty.** Tables 10 and 11 show the percentage of correct responses for each item for students with and without economics — or item difficulty. This percentage is an estimate of the difficulty of an item for a particular group of students. Theoretically, this percentage can range from 0 to 100 percent, but most items will fall in the 30 to 80 percent correct range for those students with economics instruction. Students without economics instruction will generally have a lower percentage correct for each item.

**TABLE 10. Item Discrimination and Percentage of Correct Responses: *BET-A***  
*Grades 5-6*

Item	Correct Answer	Corrected Item — Total Correlation ( <i>n</i> = 1,652)	Percent Correct	
			With Economics ( <i>n</i> = 821)	Without Economics ( <i>n</i> = 831)
1	D	.44	73.3	64.4
2	A	.34	44.6	33.3
3	D	.36	48.2	27.0
4	D	.23	33.1	21.7
5	C	.33	49.1	37.9
6	C	.29	48.7	40.0
7 <sup>†</sup>	B	.27	38.3	33.7
8 <sup>†</sup>	C	.10	41.4	36.5
9	A	.38	61.6	53.7
10	C	.11	46.5	42.7
11	A	.38	73.6	70.0
12 <sup>†</sup>	D	.35	51.2	41.5
13	A	.30	44.2	33.6
14	A	.21	49.1	37.9
15 <sup>†</sup>	B	.34	59.1	48.7
16 <sup>†</sup>	C	.28	40.8	33.1
17	A	.33	50.6	44.2
18	D	.35	46.4	44.2
19	A	.42	85.8	76.8
20 <sup>†</sup>	D	.30	52.4	40.7
21 <sup>†</sup>	B	.11	55.5	50.1
22	D	.34	50.2	44.2
23	B	.34	69.1	65.1
24	B	.27	58.2	45.9
25	C	.36	80.5	71.2
26	B	.10	32.3	28.0
27	C	.12	34.0	31.7
28	B	.35	77.3	67.5
29 <sup>†</sup>	D	.35	41.1	37.6
30	B	.14	46.7	40.0

Note: (1) <sup>†</sup>item on both forms

**TABLE 11. Item Discrimination and Percentage of Correct Responses: *BET-B***  
*Grades 5-6*

Item	Correct Answer	Corrected Item — Total Correlation ( <i>n</i> = 1,569)	Percent Correct	
			With Economics ( <i>n</i> = 772)	Without Economics ( <i>n</i> = 797)
1	A	.35	85.1	75.5
2	D	.37	56.2	43.9
3	B	.19	47.0	27.7
4	C	.20	37.3	22.3
5	C	.20	34.8	31.6
6	B	.22	25.9	25.1
7 <sup>†</sup>	B	.25	37.6	34.3
8 <sup>†</sup>	C	.09	42.4	38.4
9	B	.23	49.0	45.6
10	D	.36	55.6	47.9
11	A	.40	67.8	66.5
12 <sup>†</sup>	D	.35	50.4	41.2
13	B	.10	33.0	32.1
14	A	.26	51.0	44.0
15 <sup>†</sup>	B	.35	55.1	47.1
16 <sup>†</sup>	C	.29	41.5	32.6
17	A	.24	37.1	32.5
18	B	.23	33.3	31.0
19	A	.10	46.4	39.7
20 <sup>†</sup>	D	.31	50.9	46.9
21 <sup>†</sup>	B	.11	59.5	54.6
22	A	.37	54.9	54.3
23	D	.44	72.8	64.2
24	A	.36	60.4	50.3
25	D	.38	46.4	41.4
26	C	.21	38.6	34.1
27	D	.27	31.9	35.1
28	C	.32	75.1	74.5
29 <sup>†</sup>	D	.31	41.7	39.5
30	C	.19	51.2	50.9

Note: (1) <sup>†</sup>item on both forms

Data on item difficulty should be interpreted with care. Item difficulty (percentage of correct responses) depends on many things besides the complexity of the fact, concept, or principle being tested. Such matters as classroom emphasis on the specific point in question, the closeness or plausibility of incorrect alternatives or “distractors” and the relation of the item content to students’ outside activities, experiences, reading, and awareness may also affect item difficulty. It is worth emphasizing, therefore, that undue attention should not be placed on small differences between the percentage reported in this manual and those obtained in the classroom.

In one case, the percentage correct for those students with economics is slightly lower than the percentage correct for students without economics.

This statement applies to item 27 on Form B. From a content perspective, there are no problems with this item, at least in the opinion of the NAC and the test developers. What may be occurring in these cases is that students may not have been taught much about that economic concept or idea, and therefore the item percentage correct for those students with and without economics will be about the same. Before attaching too much weight to the item results or to judge an item, it is important to know whether an economic concept or idea has been taught to students.

**Item Discrimination.** Also reported in Tables 10 and 11 is a discrimination coefficient for each *BET* item. It is the corrected item-to-total score correlation or point-biserial correlation. The coefficient measures the correlation between the students’ total test scores (less the particular item) and their scores on a particular item. It is an assessment of the functioning of that item with the students who were tested.

This correlation coefficient ranges from 0 to 1. The *higher* the value of the coefficient, the better the item functions as a discriminator between those students who know more or know less economics. If this coefficient is zero, it would indicate that this item fails to discriminate between those with more and less knowledge of economics as measured by their total score.

In general, if an item has a discrimination coefficient below 0.20, the item may either be a weak discriminator or it may indicate that there is limited classroom coverage of the tested concept. The latter concern probably applies to items 8, 10, 21, 26, 27, and 30 on Form A and items 3, 8, 13, 19, 21, and 30 on Form B. From a content perspective, there is no problem with these items, so it is probably the case that this content was not taught to students, or that they received only limited instruction. Questions with a *negative* coefficient are *reverse discriminators* (indicating that more lower-scoring students get the question right than do higher-scoring students). No item in the *BET* norming fell into this category.

Teachers also should be aware that the item discrimination coefficient does *not* adjust for the reading level or general ability of students. Thus, higher ability students may do well on a given question regardless of whether or not they have been taught economics. It is unlikely, however, that higher ability students without economics will do better than higher ability students with economics on the overall test.

**Item Responses.** Tables 12 and 13 show the percentages of students responding to the four options on a *BET* test item, with the percentage for the correct response in bold face and with an asterisk. An analysis of item responses can be useful. For example, if a substantial percentage of students answered A when the correct answer was C, the teacher would do well to study distractor A to determine the reason why students selected the incorrect response. It should also help to consult the Item Rationales (Sections 7 and 8) for explanations for the correct answers.

One note of caution should be offered for Tables 12 and 13. What is reported is the combined percentage correct on items for all students in the norming sample, both with and without economics. This percentage correct may be lower than expected because a large portion of the total sample has not been taught economics.

**TABLE 12. Percentage Response to Each Alternative:**  
**BET-A** ( $n = 1,652$ )  
Grades 5-6

Item	A	B	C	D	Blank
1	12	9	7	<b>69*</b>	4
2	<b>39*</b>	31	11	7	13
3	15	19	15	<b>38*</b>	13
4	6	44	13	<b>27*</b>	11
5	20	5	<b>44*</b>	23	9
6	9	12	<b>44*</b>	27	8
7†	13	<b>36*</b>	17	20	14
8†	19	9	<b>39*</b>	22	11
9	<b>58*</b>	13	10	12	8
10	28	17	<b>45*</b>	3	7
11	<b>72*</b>	6	9	10	4
12†	8	26	11	<b>46*</b>	9
13	<b>38*</b>	28	15	8	10
14	<b>44*</b>	26	10	13	8
15†	5	<b>54*</b>	17	18	6
16†	20	11	<b>37*</b>	21	11
17	<b>47*</b>	19	20	8	5
18	18	12	22	<b>45*</b>	3
19	<b>81*</b>	5	5	6	3
20†	12	30	6	<b>47*</b>	5
21†	20	<b>53*</b>	7	15	5
22	10	19	18	<b>47*</b>	6
23	12	<b>67*</b>	8	8	5
24	7	<b>52*</b>	12	20	9
25	5	7	<b>76*</b>	9	4
26	21	<b>30*</b>	16	23	10
27	16	12	<b>33*</b>	31	8
28	8	<b>72*</b>	9	6	4
29†	14	15	21	<b>39*</b>	11
30	23	<b>43*</b>	15	12	6

Notes: (1) \*Correct answer  
(2) †item on both forms

**TABLE 13. Percentage Response to Each Alternative:**  
**BET-B** ( $n = 1,569$ )  
Grades 5-6

Item	A	B	C	D	Blank
1	<b>80*</b>	2	8	6	4
2	7	18	15	<b>50*</b>	10
3	27	<b>37*</b>	22	8	6
4	19	8	<b>30*</b>	35	8
5	16	17	<b>33*</b>	24	9
6	29	<b>26*</b>	18	12	16
7†	15	<b>36*</b>	14	22	13
8†	19	7	<b>40*</b>	25	9
9	7	<b>47*</b>	8	34	3
10	9	18	10	<b>52*</b>	12
11	<b>67*</b>	18	6	6	4
12†	8	28	10	<b>46*</b>	8
13	19	<b>33*</b>	19	12	17
14	<b>48*</b>	14	19	12	8
15†	6	<b>51*</b>	17	20	7
16†	20	13	<b>37*</b>	20	11
17	<b>35*</b>	15	12	28	10
18	31	<b>32*</b>	21	10	5
19	<b>43*</b>	16	21	15	5
20†	10	30	4	<b>49*</b>	7
21†	17	<b>57*</b>	6	15	5
22	<b>55*</b>	29	7	7	3
23	16	5	5	<b>69*</b>	5
24	<b>55*</b>	21	8	10	6
25	24	16	10	<b>44*</b>	6
26	6	40	<b>36*</b>	10	7
27	10	26	26	<b>34*</b>	5
28	10	7	<b>75*</b>	5	4
29†	13	15	21	<b>41*</b>	11
30	19	22	<b>51*</b>	4	4

Notes: (1) \*Correct answer  
(2) †item on both forms

## Reliability

The reliability of a test is the degree of consistency with which a test measures student performance. For example, two students taking the same test are likely to obtain different scores, but each student taking the test again (without intervening instruction in the subject tested) should obtain about the same score as the first time. Many factors (including practice in taking the test and guessing) cause changes in student performance from day to day. As a result, we can never measure a student's performance perfectly (that is, obtain a student's "true" score).

**SEM.** Fortunately, it is possible to estimate the amount of variation in test scores that is due to measurement error, and therefore to specify a range within which one can be relatively certain the "true" score will fall. By taking account of such measurement error, the reliability of the test as a whole can be estimated.

The standard error of measurement (SEM), which is reported in Table 6 for Forms A and B, is an estimate of the amount of variation that can be expected in a test score (Linn & Gronlund, 2000, pp. 119-125). A raw score of 15 on a test with an SEM of 2.49 indicates about 67 percent certainty that a person's "true" score lies in a range from 12.51 to 17.49 ( $15 \pm 2.49$ ), or that we can be 95 percent certain that the "true" score lies in a range from 10.02 to 19.98 [ $15 \pm (2 \times 2.49)$ ]. The smaller the SEM, the more accurate a test is as a measuring instrument. Individual test scores are best thought of as lying within a range, rather than as a single score, because of our inability to measure perfectly (the SEM is never zero).

**Alpha.** Another measure of test reliability is the coefficient alpha (Cronbach, 1951). It measures the internal consistency among test items for assessing the common content of the test, which for the *BET* is economics achievement in the fifth and sixth grades. A way to conceptualize internal consistency is to think of splitting the test in half

and correlating student scores on both test halves. The alpha coefficient provides an estimate of the average of all possible split half correlations.

The alpha statistic ranges from zero to 1.00. The higher the coefficient, the better items work together in measuring the test construct, and thus the greater the statistical reliability of the test. An alpha of 1.00 would indicate a perfectly reliable test, while a coefficient of zero would indicate a totally unreliable one. The alphas of 0.78 for Form A and 0.76 for Form B of the *BET* indicate that there is good internal consistency among items and that both forms of the *BET* are highly reliable measures of economic achievement among elementary and middle school students.

It should be stressed that the reliability of the *BET* is substantially higher than that of most teacher-made tests in economics for fifth or sixth grades. The major question to be determined by each user of the *BET* is whether the test as a whole — and the individual questions on it — are appropriate for the testing of his or her students. The use of a normed, reliable, and valid standardized test such as the *BET* has much to recommend it to the teacher. National instruments such as the *BET* are carefully designed and developed to reflect the subject matter that *ought* to be taught (and tested). The national norming data provided significant detailed evidence on the properties and characteristics of the instruments, including substantial statistical support. Classroom tests made by teachers are unlikely to attain these standards for test development and norming, and thus are less reliable and valid for measuring student achievement in economics.

Some teachers may feel that the questions on national tests have too broad a focus and cover concepts that the teacher does not teach. The concept coverage in national tests, however, is broad simply because they reflect consensus among a panel of national experts as to what ought to be taught in a given subject. In short, the use of standardized achievement tests such as the *BET* for measuring achievement in a subject has many advantages (cf. Linn & Gronlund, 2000, pp. 406-409).

## Validity

Substantial evidence was collected for establishing the validity of the *Basic Economics Test* as an achievement measure of economic understanding among fifth or sixth graders. This evidence was of two types: content and construct.

**Content.** A most important question for an educational achievement test such as the *BET* is whether or not it measures what *ought* to be measured. This question cannot be answered by reference to statistics. The work that was done to establish the *content validity* of the *BET* was described in detail in Sections 1 and 2 of this manual. In brief, the specification of the economic content that should be represented on this test was explained in the *Voluntary National Content Standards in Economics* (CEE, 2010). This document served as the guide for the development and selection of test questions to be included on the *BET*. The results of this work are shown in the content specification tables (Tables 1 and 2). In addition, the item rationales in the next two sections give an explanation for the correct answer for each test item that is based on the economic content in this document. Finally, the *BET* covers economic content that is considered to be important in instruction for students in elementary school or the beginning of middle school.

The process used for test development also ensured that the items on the *BET* would contain valid content as outlined in the *Standards*. This work was conducted by members of the national committee (NAC), who collectively had expertise in teaching economics, developing economics curricula, training teachers in economics, and in the preparation of national tests in economics (see Appendix 1 for a list of NAC members). The NAC and the test developers also evaluated the content of questions for any potential bias or reading problems that would affect the performance by different types of fifth or sixth grade students. All items were field tested with students and checked by teachers before they were included on the norming version of the test.

The content validity of the *BET* was determined by comparing the test questions with the content judged to be important by authoritative academic experts and sources in economics and economic education. It is not a test of faddish or popular notions of economics. Nevertheless, there is no one standard for content validity. Whether the *BET* is a valid test often depends on the purpose for which it is used. Some teachers or test users may disagree with the economic content emphasized by the test developers and the academic economists, council and center directors, and teachers who served on the national committees for this test project. For those teachers, the *BET* may not be content valid for the purposes for which they want to use the test.

**Construct.** There is substantial evidence from the norming sample on the *construct validity* of the *BET*. Construct validity refers to the ability of the test to measure the underlying construct or focus of the test. The *BET* is designed to measure “economic understanding” among elementary school and middle school students. One type of evidence for construct validity that is presented is whether the test performs well with different groups of students and in the expected direction.

As shown in Table 6, fifth and sixth grade students with economics instruction scored 2.40 points higher on Form A, compared to students without economics instruction. On Form B, the difference for students with economics was +1.65 points relative to students without economics. These are statistically significant differences in performance in the expected direction. The probability that the differences arise due to chance is virtually zero (probability less than 0.001).

A further check on the construct validity of any individual test item may be made by reviewing the performance on each item for students with and without economics instruction (Tables 10 and 11). By comparing the percent correct from each group, it is clear that the “with economics” group performed better than the “without economics” group on almost all of the 30 items on each form of the *BET*.

**Score Breakdowns by Other Factors.** Tables 14 and 15 present some additional descriptive statistics derived from the total norming sample by form of the *BET*. The data are broken down by gender, grade level, size of the school, student/teacher ratio at the school, the composition of schools by race (percent black), ethnicity (percent Hispanic), estimate of poverty level (percent free lunch), the type of community, and geographic region. For each subgroup, the mean *BET* score, standard deviation, and subgroup sample sizes are given. As the tables show, the distinctions between those students with and those without economics prevail across almost all categories for which there are complete data. Performance on the *BET* is responsive to instruction in economics, regardless of the characteristics. These breakdown data indicate that there is *construct* validity to the *BET*.

The compilations by gender and grade level were obtained from student replies. The data on school size, student/teacher ratio, the composition of schools by race (percent black), ethnicity (percent Hispanic), estimate of poverty level (percent free lunch), the type of community, and region were obtained from school information in a U.S. Department of Education database.

There are the expected differences for those with and without economics across these categories. There are also differences within categories (e.g., gender) that may suggest that there is some bias in test items. The test developers and national committee, however, reviewed all items for bias in the content and wording that would disadvantage particular groups.

At this point, it is important to stress that these categorical breakdowns must be interpreted with caution. The reason is that some of the cell sizes (the subgroup *n*'s) are small. The breakdowns are also for single characteristics without control over other characteristics. To control for confounding caused by other factors requires the use of more advanced statistical procedures (e.g., regression analysis) and careful model development that are beyond the scope of this manual.

**Testing at Other Grade Levels.** Teachers at higher or lower grade levels may wish to use the *BET* with students, but there are no norms for those grade levels. This design was intentional. The test developers did not want to stretch the test across too many grade levels. Fourth grade teachers may use the *BET*. Fourth grade students should perform *below* the norms for fifth and sixth graders on the *BET*. Seventh grade teachers may use the *BET*, or alternatively the *Test of Economic Knowledge (TEK)* (Walstad, Rebeck, and Butters, 2010), that is normed for the eighth and ninth grades, if the seventh graders are more capable. Seventh grade students should perform *above* the norms for fifth and sixth graders on the *BET* and *below* the norms for the eighth and ninth graders on the *TEK*. Whether the *BET* is a valid or reliable test for students at lower or higher grades beyond the norming range must be determined by the teacher who wants to use the *BET*.

**Reading Level.** The reading level of the *BET* was checked using the Flesch-Kincaid readability formula. The results show a 4.5 reading grade level for test items on form A of the *BET* and a 4.9 reading grade level for items on form B of the test. The reading level for the *BET* should be appropriate for most fifth and sixth grade students who take either form of the test.

**Conclusion.** The *Basic Economics Test* should be a valuable tool for assessment of instruction for the elementary school and lower middle school grades. It should also be useful for researchers and curriculum developers, as well as teachers. The test has sound content validity and each item was carefully written and revised as needed to provide reliable information about the economic understanding of students.

With the discussion of the validity of the *BET* now complete, the focus turns to the economic content of each test question and the rationale for the correct answer for each item. The information is presented in the next two sections of the manual (7 and 8).

**TABLE 14. Descriptive Statistics for Groups within the Total Norming Sample: *BET-A***

	With Economics			Without Economics		
	Mean	Std. Dev.	Number	Mean	Std. Dev.	Number
<b><i>By student sex</i></b>						
Females	15.55	5.02	400	13.10	4.94	404
Males	16.10	5.31	421	13.74	5.24	427
<b><i>By grade level</i></b>						
Grade 5	14.82	5.13	409	13.01	5.16	272
Grade 6	16.83	5.03	412	13.63	5.06	559
<b><i>By school size</i></b>						
< 500 students	14.83	5.29	387	13.51	4.93	283
>= 500 students	16.72	4.91	434	13.44	5.19	530
<b><i>By teacher/student ratio</i></b>						
< 16.50 students	16.35	5.00	499	14.14	5.09	288
>= 16.50 students	15.02	5.34	322	13.04	5.03	478
<b><i>By % black in school</i></b>						
< 5%	16.26	5.16	493	13.13	5.16	333
>= 5%	15.18	5.14	328	13.70	5.04	480
<b><i>By % Hispanic in school</i></b>						
< 4%	15.75	5.42	505	14.05	5.14	319
>= 4%	15.95	4.76	316	13.08	5.04	494
<b><i>By % free lunch in school</i></b>						
< 22%	15.75	5.34	263	14.27	5.06	348
>= 22%	15.83	5.10	358	11.89	4.85	313
<b><i>By type of community</i></b>						
Large city	14.47	5.11	148	14.24	6.39	63
Mid-size central city	16.36	5.29	189	11.60	4.88	45
Urban fringe large MSA*	16.50	4.48	155	13.31	4.85	434
Urban fringe mid-size MSA	13.55	5.41	55	13.05	4.96	75
Small town	17.30	5.38	79	13.74	5.05	19
Rural outside MSA	16.43	4.30	90	14.03	4.20	33
Rural within MSA	15.36	5.69	105	14.22	5.40	144
<b><i>By USA region</i></b>						
Northeast	15.60	3.36	5	14.75	3.86	4
Midwest	15.51	5.34	541	13.02	4.94	293
South	16.39	4.82	263	13.83	5.14	479
West	18.00	4.33	12	11.95	5.36	55
<b><i>All students</i></b>	<b>15.83</b>	<b>5.17</b>	<b>821</b>	<b>13.42</b>	<b>5.10</b>	<b>831</b>

\*metropolitan statistical area

**TABLE 15. Descriptive Statistics for Groups within the Total Norming Sample: *BET-B***

	With Economics			Without Economics		
	Mean	Std. Dev.	Number	Mean	Std. Dev.	Number
<b>By student sex</b>						
Females	14.33	4.77	398	13.10	4.61	377
Males	15.09	5.33	374	13.00	5.36	420
<b>By grade level</b>						
Grade 5	14.37	5.25	380	12.61	4.91	261
Grade 6	15.01	4.85	392	13.26	5.06	536
<b>By school size</b>						
< 500 students	13.84	4.95	368	12.89	4.56	264
>= 500 students	15.48	5.04	404	13.18	5.23	517
<b>By teacher/student ratio</b>						
< 16.50 students	14.87	4.93	480	13.30	5.66	273
>= 16.50 students	14.40	5.26	292	12.93	4.63	460
<b>By % black in school</b>						
< 5%	15.10	5.10	461	13.07	4.62	318
>= 5%	14.10	4.95	311	13.09	5.27	463
<b>By % Hispanic in school</b>						
< 4%	14.82	5.14	468	13.74	5.23	299
>= 4%	14.51	4.93	304	12.67	4.83	482
<b>By % free lunch in school</b>						
< 22%	15.66	5.27	243	13.64	4.98	339
>= 22%	13.95	4.72	344	11.56	4.65	295
<b>By type of community</b>						
Large city	13.18	4.46	146	14.51	5.68	61
Mid-size central city	14.61	4.76	178	12.30	4.96	43
Urban fringe large MSA*	16.10	5.12	145	12.77	4.56	419
Urban fringe mid-size MSA	14.90	6.05	55	12.08	5.25	74
Small town	16.29	4.83	69	11.68	5.75	19
Rural outside MSA	13.46	4.56	89	12.42	5.70	26
Rural within MSA	14.93	5.58	96	14.47	5.34	139
<b>By USA region</b>						
Northeast	17.00	0.00	1	14.50	5.07	4
Midwest	14.58	5.03	505	12.53	4.60	272
South	14.96	5.18	251	13.33	5.27	463
West	14.00	4.24	15	13.19	4.66	58
<b>All students</b>	14.70	5.06	772	13.05	5.02	797

\*metropolitan statistical area

## 7. ITEM RATIONALE: **BASIC ECONOMICS TEST**

### FORM A

ITEM	RATIONALE
<p>1. <i>Marti paid to get her haircut. At the hair salon, she also bought some shampoo. Which is true about her purchases?</i></p> <p>a. <i>The haircut and the shampoo are both goods.</i></p> <p>b. <i>The haircut and the shampoo are both services.</i></p> <p>c. <i>The haircut is a good, and the shampoo is a service.</i></p> <p>d. <b><i>The haircut is a service, and the shampoo is a good.</i></b></p>	<p>Goods are tangible things (objects) that satisfy economic wants. Shampoo is a consumable product that satisfies people's wants for a hair cleaning product. Other examples of goods are milk, computers, and cars. Services are activities that people perform for others to satisfy economic wants. A haircut is provided by a barber or stylist for others. Other examples of services are plant watering, car washing, and babysitting. [1/4/2] [Code for bracket item: Standard / Grade Level / Benchmark (CEE, 2010)]</p>
<p>2. <i>Why do people make economic choices?</i></p> <p>a. <b><i>Their wants are greater than their resources.</i></b></p> <p>b. <i>Their resources are greater than their wants.</i></p> <p>c. <i>Government makes them choose.</i></p> <p>d. <i>Businesses make them choose.</i></p>	<p>Because scarcity exists, people must choose how to use limited resources in order to best satisfy their wants. [1/4/1]</p>
<p>3. <i>What is opportunity cost?</i></p> <p>a. <i>The time you spend deciding what to buy.</i></p> <p>b. <i>The amount of money you pay for something.</i></p> <p>c. <i>The money you have left after you buy something.</i></p> <p>d. <b><i>The best thing you give up in order to get something else.</i></b></p>	<p>When a person chooses one thing, he or she must give up something else in order to get it. All choices involve an opportunity cost, or a foregone alternative. [1/4/5]</p>
<p>4. <i>Which of the following would be the best example of a capital good?</i></p> <p>a. <i>sand</i></p> <p>b. <i>water</i></p> <p>c. <i>truck driver</i></p> <p>d. <b><i>cement truck</i></b></p>	<p>Societies use productive resources to produce goods and services. Capital goods, such as a cement truck, are goods produced and used to make other goods and services. Other types of productive resources are natural resources (e.g., sand and water) and human resources (e.g., a truck driver). [1/4/9]</p>

ITEM	RATIONALE
<p>5. Erin wanted to buy five pairs of jeans, but decides to buy only two pairs so she can save more money to buy a computer. Erin's decision is an example of</p> <p>a. paying interest.  b. borrowing money.  c. <b>making a tradeoff.</b>  d. choosing a service.</p>	<p>A trade-off is giving up some of one thing to get more of another thing. Erin gave up buying three pairs of jeans so she could save more money for a computer. The other options have nothing to do with the trade-off decision. Interest payments are made for the use of borrowed money. Money is deposited at a bank. Services are activities people do for others. [2/4/1]</p>
<p>6. In a market economy, which group has the most influence on what is produced?</p> <p>a. Unions.  b. Banks.  c. <b>Consumers.</b>  d. Government.</p>	<p>In a market economy, consumers have the most influence over what is produced. Competitive markets force businesses to produce products consumers demand at the lowest prices that will cover costs. If consumers do not like a particular product that businesses offer for sale, that product will not survive in the market. [3/4/1 or 3/8/2]</p>
<p>7. A reward or penalty for how people behave is</p> <p>a. a trade-off.  b. <b>an incentive.</b>  c. an economic want.  d. a voluntary exchange.</p>	<p>An incentive is a reward or penalty that influences how people behave. Paying people a bonus for being the best seller of a product is an example of an incentive that is a reward. Fining people for violating the law is an example of an incentive that is a penalty. The other options are different concepts and not definitions of an incentive. A &amp; B. [4/4/3]</p>
<p>8. Human capital consists of</p> <p>a. stocks and bonds.  b. plant and equipment.  c. <b>knowledge and skills.</b>  d. savings and investment.</p>	<p>Human capital results from investment in people through education and training. More human capital produces additional knowledge and skills. Stocks and bonds, or savings and investments, refer to financial investments and not human capital. Plant and equipment are capital goods. A &amp; B. [1/4/10]</p>
<p>9. Alex trades his ice hockey stick for Sam's soccer ball. What is this exchange called?</p> <p>a. <b>Barter.</b>  b. Export.  c. Borrowing.  d. Allocation.</p>	<p>Alex bartered when he exchanged the hockey stick directly for Sam's soccer ball without the use of money. [5/4/2]</p>
<p>10. Kevin offers to trade two of his books for one of Julie's games. Julie accepts Kevin's offer. After this trade is made, which is most likely true?</p> <p>a. Julie is better off but Kevin is worse off.  b. Kevin is better off but Julie is worse off.  c. <b>Both of them are better off.</b>  d. Both of them are worse off.</p>	<p>Voluntary exchange occurs when each person is able to trade one item for another item that he or she values more than the first item. No one <i>expects</i> to be worse off due to the exchange; otherwise the trade would not take place. [5/4/3]</p>

ITEM	RATIONALE
<p>11. <i>The United States sells soybeans to Japan. Soybeans are</i></p> <p><b>a. exported goods.</b>  b. <i>durable goods.</i>  c. <i>capital goods.</i>  d. <i>public goods.</i></p>	<p>Exports are domestic goods and services sold to buyers in other countries. Soybeans are not durable (they do not provide benefits to the consumer over a long period of time), are not capital goods (factories, machines and tools), and are not public goods because people cannot consume them unless they pay for them. [5/8/6]</p>
<p>12. <i>Specialization allows people to produce more goods and services because it results in</i></p> <p>a. <i>less trade.</i>  b. <i>more jobs.</i>  c. <i>lower wages.</i>  <b>d. higher productivity.</b></p>	<p>Specialization allows more goods and services to be produced because it results in higher output per worker. Specialization means that each worker does what he or she does best, which enables people to generate higher incomes (and produce more) than would be the case if they did not specialize. Specialization also leads to more trading among workers (and among nations). A &amp; B. [6/4/3]</p>
<p>13. <i>What can be a problem with specializing to produce bookmarks in a class project?</i></p> <p><b>a. One of the students could get behind and slow down production.</b>  b. <i>Students will take more time to make the bookmarks.</i>  c. <i>It helps students develop special skills.</i>  d. <i>Students will make more bookmarks.</i></p>	<p>Specialization means that each worker does what he or she does best, which allows more goods and services to be produced. Specialization, however, requires more cooperation or interdependence among workers. If one person is slower at his or her task than the others are at their tasks, then production may be reduced. [6/4/4]</p>
<p>14. <i>In a competitive market for bananas, what will most likely change to cause the amount sellers produce to equal the amount buyers want to buy?</i></p> <p><b>a. The price of bananas.</b>  b. <i>The quality of bananas.</i>  c. <i>The taxes paid on bananas.</i>  d. <i>The profit from selling bananas.</i></p>	<p>In competitive markets, the market-clearing or equilibrium price is determined by the intersection of supply and demand. If the price is above the market-clearing price, the quantity supplied will exceed quantity demanded and the price will fall. If the price is below the market-clearing price, the quantity demanded will exceed quantity supplied, and the price will rise. These price changes will work to equate sellers' production decisions with buyers' wants. [7/8/3]</p>
<p>15. <i>An increase in the price of a good or service usually leads to</i></p> <p>a. <i>no change in the amount people will buy.</i>  <b>b. a decrease in the amount people will buy.</b>  c. <i>an increase in the amount people will buy.</i>  d. <i>either an increase or a decrease in the amount people will buy.</i></p>	<p>The law of demand states that as the price of a good or service increases, the quantity demanded of that good or service will decrease. A &amp; B. [8/8/1]</p>

ITEM	RATIONALE
<p>16. A market with only one seller of a good or service is called</p> <p>a. demand. b. competition. c. <b>a monopoly.</b> d. an economy.</p>	<p>A monopoly exists when there is only one seller of a product in a given market. A &amp; B. [9/8/2]</p>
<p>17. At a beach popular with local students, which situation would probably lead to the lowest price for hotdogs?</p> <p>a. <b>Having many hotdog sellers.</b> b. Having only one hotdog seller. c. Having more students who like hotdogs. d. Having fewer students who like hamburgers.</p>	<p>When there are many sellers in a given market, no one seller is able to control prices because any attempt to increase prices will drive customers to another seller. So, having many hotdog stands increases the supply of hotdogs and will probably lead to the lowest price for hotdogs. Having more students who like hotdogs will typically increase the demand for hotdogs and therefore the price. [9/8/2]</p>
<p>18. A bank pays you for saving your money. What is this payment called?</p> <p>a. Loan. b. Profit. c. Credit. d. <b>Interest.</b></p>	<p>Banks pay interest on savings as an incentive for people to deposit money at the banks. Banks use the money deposited to finance loans to businesses, consumers, and government. [10/4/1]</p>
<p>19. Juan has a weekly income of \$600. He spends \$200 a week to pay rent for his apartment and spends \$300 for all other goods and services. How much does Juan save each week?</p> <p>a. <b>\$100.</b> b. \$200. c. \$300. d. \$400.</p>	<p>Saving is after-tax income not spent on current consumption, or money not spent on goods and services. Juan spends \$200 a week for rent and \$300 for all other goods and services. The difference between the total income of \$600 and \$500 in spending on rent (\$200) and for all other goods and services (\$300) is the \$100 in savings. [10/4/2]</p>
<p>20. Why do most people use money to buy things instead of bartering to get them?</p> <p>a. People like to spend their money. b. Money is a productive resource. c. Banks give people money. d. <b>Money is easier to use.</b></p>	<p>When bartering, it is not always possible to find two people with things they want to exchange. Using money as a medium of exchange makes transactions easier and more efficient for people. A &amp; B. [11/4/2]</p>
<p>21. The value of a dollar depends on how much</p> <p>a. you spend. b. <b>you can buy with it.</b> c. gold the government owns. d. price changes on the stock market.</p>	<p>The value of a dollar depends on how much you can buy with it, or on its purchasing power. The amount of gold owned by the government has no impact on the value of the dollar. A &amp; B. [11/4/3]</p>

ITEM	RATIONALE
<p>22. <i>Most people earn their income by exchanging their human resources for</i></p> <p>a. <i>rent.</i>  b. <i>interest.</i>  c. <i>profits or losses.</i>  d. <b>wages or salaries.</b></p>	<p>Most people earn their wage or salary income in return for providing labor resources. Rents are a form of income received by owners of land or natural resources, interest by capital owners, and profits (losses) by entrepreneurs. [13/4/2]</p>
<p>23. <i>Jobs usually pay a higher salary when</i></p> <p>a. <i>they have a job title.</i>  b. <b>more education is required.</b>  c. <i>people must be interviewed.</i>  d. <i>an ad has to be placed in a newspaper.</i></p>	<p>People with more education are typically paid a higher salary because their education gives them more unique and valuable skills for their jobs. The other options do not have any effect on generating a higher salary. [13/8/5]</p>
<p>24. <i>An entrepreneur is someone who</i></p> <p>a. <i>manages a bank.</i>  b. <b>starts a new business.</b>  c. <i>works for the government.</i>  d. <i>trades goods with foreign countries.</i></p>	<p>Entrepreneurs are individuals who are willing to take risks in order to develop new products and start new businesses. [14/4/1]</p>
<p>25. <i>Chris started a summer business selling tomatoes. He sold tomatoes for \$300 and his business costs were \$250. The \$50 that was left over was his</i></p> <p>a. <i>price.</i>  b. <i>costs.</i>  c. <b>profit.</b>  d. <i>revenue.</i></p>	<p>Profit is the amount of revenue left over after all costs of production are considered. Profit is the payment to entrepreneurs for taking the risk to start a business, or to continue in the business. The other options are not what is left over from the situation. Price is what an item is sold for. Costs are the expenses associated with selling a good or service. Revenue is income from sales. [14/8/2]</p>
<p>26. <i>One way to improve human capital is to</i></p> <p>a. <i>buy stocks.</i>  b. <b>gain job experience.</b>  c. <i>sell new equipment.</i>  d. <i>increase worker wages.</i></p>	<p>Workers acquire many of their skills while working at their jobs. More job experience helps workers develop more job skills and contribute to the productivity of the business. None of the other options are valid ways to increase human capital. [15/4/1]</p>
<p>27. <i>Which of the following is most likely to improve the productivity of workers at a factory?</i></p> <p>a. <i>Increasing the taxes on their income.</i>  b. <i>Adding rules that increase work time.</i>  c. <b>Giving them more capital goods to use.</b>  d. <i>Hiring more workers for the same jobs.</i></p>	<p>Productivity of workers is output per worker. When workers use capital goods (e.g., machines, computers and other equipment) they can improve their ability to produce goods and services in a given amount of time. Increasing income taxes, work time, or number of workers for the same job (which excludes specialization) is not expected to increase output per worker. [15/4/2]</p>

ITEM	RATIONALE
<p>28. <i>Most of the money used to pay for police departments comes from</i></p> <p>a. <i>prices paid for police services.</i>  <b>b. taxes paid to the government.</b>  c. <i>insurance paid for police services.</i>  d. <i>donations given to police departments.</i></p>	<p>Police protection is considered to be a public good. Public goods are paid for by people in a society through taxes to government. [16/4/2]</p>
<p>29. <i>What does inflation mean?</i></p> <p>a. <i>Fewer people have jobs.</i>  b. <i>More people have jobs.</i>  c. <i>A fall in most prices.</i>  <b>d. A rise in most prices.</b></p>	<p>Increases in the general level of prices of goods and services are known as inflation. It can result from increases in the money supply, increases in demand for goods and services, or from increases in the costs of producing goods and services. A &amp; B. [11/4/5]</p>
<p>30. <i>To be counted as unemployed, a person does not have a job and</i></p> <p>a. <i>receives money from government.</i>  <b>b. is looking for work.</b>  c. <i>has few job skills.</i>  d. <i>is poor.</i></p>	<p>To be classified as unemployed by the U.S. Labor Department, a person must not have a job <i>and</i> must be looking for a job. If he or she does not have a job, but is not looking for one, then he or she is not considered part of the labor force. [19/4/1]</p>

## 8. ITEM RATIONALE: *BASIC ECONOMICS TEST*

### FORM B

ITEM	RATIONALE
<p>1. Which is an example of a service?</p> <p>a. <b>A taxi ride.</b> b. A new shirt. c. A computer. d. A washing machine.</p>	<p>A service is an activity that people do for others. A taxi driver giving a customer a ride would be a service. Goods are tangible things (objects) that satisfy economic wants. All of the other options are goods. [1/4/2] [Code for bracket item: Standard/Grade Level/Benchmark (CEE, 2010)]</p>
<p>2. Scarcity means</p> <p>a. not wanting more of something. b. there is enough of something for everyone. c. not having as much of something as someone else. d. <b>there is not enough of something for all people who want it.</b></p>	<p>“Scarcity” in economics means that society has more wants than it has available resources to satisfy those wants. This is a fundamental concept of economics, and the problem of scarcity is faced by all people in every society. [1/4/1]</p>
<p>3. The opportunity cost of going to a movie is</p> <p>a. the value you get for seeing the movie. b. <b>what you give up to go to the movie.</b> c. the cost of showing the movie. d. the cost of making the movie.</p>	<p>The opportunity cost (or “real cost”) of going to a movie is the next best alternative that a person gives up by attending the movie. The time spent and the money for the ticket can be used for another purpose. By choosing to attend the movie, a person gives up the opportunity to participate in another activity and/or purchase another good or service. [1/4/5]</p>
<p>4. Machines and tools used to make products are called</p> <p>a. public goods. b. credit goods. c. <b>capital goods.</b> d. consumer goods.</p>	<p>Societies use productive resources to produce goods and services. Machines and tools are called capital goods, which are goods produced and used to make other goods and services. Other productive resources are human resources, or labor, and natural resources such as land, minerals and other “gifts of nature.” [1/4/9]</p>
<p>5. Randy can use his money to buy six games or six shirts. He decides to buy three games and three shirts. This decision would be an example of</p> <p>a. buying now and saving later. b. making an all or nothing choice. c. <b>trading off one good for another.</b> d. economic resources being greater than economic wants.</p>	<p>Few choices people make are all-or-nothing decisions. Most choices involve trading off something to get something else due to scarcity. Randy’s money is limited, or scarce. If he spends it all on games, he can not buy any shirts, and vice versa. His decision to give up three games to buy some shirts is an example of a trade off. [2/4/1]</p>

ITEM	RATIONALE
<p>6. Which is true about who gets the goods and services that are produced?</p> <p>a. Most societies have an equal distribution of goods and services.</p> <p>b. <b>No method of distributing goods and services will satisfy everyone.</b></p> <p>c. All methods of distributing goods and services will satisfy everyone.</p> <p>d. All societies use the same method for distributing goods and services.</p>	<p>Because productive resources are scarce, all societies must decide what goods and services to produce, how they should be produced, and who will get the goods and services that are produced. Different societies use different methods to answer these questions, but because of scarcity, no method can provide enough of all products to satisfy everyone. [3/4/1]</p>
<p>7. A reward or penalty for how people behave is</p> <p>a. a trade-off.</p> <p>b. <b>an incentive.</b></p> <p>c. an economic want.</p> <p>d. a voluntary exchange.</p>	<p>An incentive is a reward or penalty that influences how people behave. Paying people a bonus for being the best seller of a product is an example of an incentive that is a reward. Fining people for violating the law is an example of an incentive that is a penalty. The other options are different concepts and not definitions of an incentive. A &amp; B. [4/4/3]</p>
<p>8. Human capital consists of</p> <p>a. stocks and bonds.</p> <p>b. plant and equipment.</p> <p>c. <b>knowledge and skills.</b></p> <p>d. savings and investment.</p>	<p>Human capital results from investment in people through education and training. More human capital produces additional knowledge and skills. Stocks and bonds, or savings and investments, refer to financial investments and not human capital. Plant and equipment are capital goods. A &amp; B. [1/4/10]</p>
<p>9. Your friend has a game you want. To get it from her, you will have to give her something</p> <p>a. you don't want anymore.</p> <p>b. <b>she wants more than the game.</b></p> <p>c. you value more than the game.</p> <p>d. that costs the same as the game.</p>	<p>Voluntary exchange occurs when each person is able to trade one item for another item that he or she values more than the first item. No one <i>expects</i> to be worse off due to the exchange; otherwise the trade would not take place. [5/4/3]</p>
<p>10. International trade usually</p> <p>a. decreases worldwide living standards.</p> <p>b. increases worldwide unemployment.</p> <p>c. decreases worldwide cooperation.</p> <p>d. <b>increases worldwide production.</b></p>	<p>International trade allows for greater specialization among the countries in the world. This specialization increases each country's production, the surplus of which is traded to other countries, resulting in a total increase of goods and services available in the world. [5/8/2]</p>
<p>11. The United States buys airplanes from Brazil. For the United States, these airplanes would be an example of</p> <p>a. <b>an imported good.</b></p> <p>b. an exported good.</p> <p>c. a natural resource.</p> <p>d. human capital.</p>	<p>Imports are foreign goods and services purchased from sellers in other nations. Airplanes are not a natural resource (land and other "gifts of nature"), nor are they human capital (the skills or abilities of workers). [5/8/5]</p>

ITEM	RATIONALE
<p>12. <i>Specialization allows people to produce more goods and services because it results in</i></p> <p>a. <i>less trade.</i>  b. <i>more jobs.</i>  c. <i>lower wages.</i>  d. <b>higher productivity.</b></p>	<p>Specialization allows more goods and services to be produced because it results in higher output per worker. Specialization means that each worker does what he or she does best, which enables people to generate higher incomes (and produce more) than would be the case if they did not specialize. Specialization also leads to more trading among workers (and among nations). A &amp; B. [6/4/3]</p>
<p>13. <i>Specialization and trade lead to</i></p> <p>a. <i>less economic interdependence.</i>  b. <b>lower costs of goods and services.</b>  c. <i>fewer choices of goods and services.</i>  d. <i>fewer exchanges of goods and services.</i></p>	<p>Specialization increases output per worker and therefore lowers production costs. Specialization combined with trade forces more economic interdependence and exchange of goods and services because people must rely on the production of others. The greater productivity from specialization leads to more production and thus more choices of products. [6/4/3]</p>
<p>14. <i>When buyers and sellers trade with one another, this is called</i></p> <p>a. <b>a market.</b>  b. <i>production.</i>  c. <i>an economy.</i>  d. <i>specialization.</i></p>	<p>A market exists whenever buyers and sellers exchange goods, services, or resources. Production and specialization can occur without trade. An economy is a broad system that distributes resources, goods and services and can exist without buyers and sellers. [7/4/2]</p>
<p>15. <i>An increase in the price of a good or service usually leads to</i></p> <p>a. <i>no change in the amount people will buy.</i>  b. <b>a decrease in the amount people will buy.</b>  c. <i>an increase in the amount people will buy.</i>  d. <i>either an increase or a decrease in the amount people will buy.</i></p>	<p>The law of demand states that as the price of a good or service increases, the quantity demanded of that good or service will decrease. A &amp; B. [8/8/1]</p>
<p>16. <i>A market with only one seller of a good or service is called</i></p> <p>a. <i>demand.</i>  b. <i>competition.</i>  c. <b>a monopoly.</b>  d. <i>an economy.</i></p>	<p>A monopoly exists when there is only one seller of a product in a given market. A &amp; B. [9/8/2]</p>
<p>17. <i>In our economy, competition</i></p> <p>a. <b>helps keep prices down.</b>  b. <i>helps prevent recessions.</i>  c. <i>means that all workers will have jobs.</i>  d. <i>means that all businesses will make a profit.</i></p>	<p>When there are many sellers in a given market, no one seller is able to control prices because any attempts to increase prices will drive the customers to another seller. [9/8/2]</p>

ITEM	RATIONALE
<p>18. Jason borrows money from a bank by taking out a loan. The payment Jason makes for the use of the money from a bank is</p> <p>a. investment.  <b>b. interest.</b>  c. credit.  d. profit.</p>	<p>Banks are institutions that channel money from savers to borrowers. Banks take deposits and use them to make loans to borrowers and charge them a higher rate of interest than they pay depositors. Jason is a borrower and must pay the bank interest. Because the payment received by the bank from Jason does not include costs, it is not profit. Investment refers to the use of money or resources to increase future value. Credit refers to the agreement between the borrower and the lender. [10/4/1]</p>
<p>19. The part of a person's income that is not spent on goods or services or paid to the government is called</p> <p>a. <b>saving.</b>  b. credit.  c. profit.  d. interest.</p>	<p>Saving is after-tax income not spent on current consumption, or money not spent on goods and services. The other options are not money left over after taxes and consumption. Interest is the price of a loan, credit is the agreement between borrowers and lenders, and profit is revenue minus costs. [10/4/2]</p>
<p>20. Why do most people use money to buy things instead of bartering to get them?</p> <p>a. People like to spend their money.  b. Money is a productive resource.  c. Banks give people money.  <b>d. Money is easier to use.</b></p>	<p>When bartering, it is not always possible to find two people with goods they want to exchange. Using money as a medium of exchange makes transactions easier and more efficient for people. A &amp; B. [11/4/2]</p>
<p>21. The value of a dollar depends on how much</p> <p>a. you spend.  <b>b. you can buy with it.</b>  c. gold the government owns.  d. price changes on the stock market.</p>	<p>The value of a dollar depends on how much you can buy with it, or on its purchasing power. The amount of gold owned by the government has no impact on the value of the dollar. A &amp; B. [11/4/3]</p>
<p>22. The payment for work people do is called</p> <p>a. <b>wages.</b>  b. profit.  c. saving.  d. interest.</p>	<p>People receive wages for goods and services they produce. They are earning an income by providing labor resources for the economy. The other options are not payments for work. Profit is the return for business owners willing to take risks. Saving is income not spent on current consumption. [13/4/2]</p>
<p>23. Most skilled workers are paid more than unskilled workers because skilled workers</p> <p>a. are in greater supply.  b. have more bills to pay.  c. have spent fewer years in school.  <b>d. produce more than unskilled workers.</b></p>	<p>Skilled workers have invested more in human capital (e.g., education) than unskilled workers. The greater human capital enables the skilled worker to produce more than the unskilled worker. Employers pay skilled workers more because of their higher productivity. [13/8/4]</p>

ITEM	RATIONALE
<p>24. Ms. Reed teaches fifth grade. She decides to stop teaching and start her own business selling sports equipment. Ms. Reed has decided to become</p> <p>a. <b>an entrepreneur.</b>  b. an administrator.  c. an accountant.  d. an employee.</p>	<p>Entrepreneurs are individuals who are willing to take risks in order to develop new products and start new businesses. [14/4/1]</p>
<p>25. Which one of the following businesses made a profit?</p> <p>a. Sales \$10; Costs \$15.  b. Sales \$24; Costs \$25.  c. Sales 10; Costs \$10.  d. <b>Sales \$20; Costs \$15.</b></p>	<p>When a firm's total revenues or sales of a product are greater than the total costs to produce it, the firm is making a profit. Profits encourage firms to produce more of that product. [14/8/3]</p>
<p>26. Muriel is a babysitter. Which is a way Muriel can increase her human capital?</p> <p>a. Babysit only one child at a time.  b. Charge a higher price for her baby sitting.  c. <b>Attend a class to improve her babysitting skills.</b>  d. Purchase toys to use with the children she babysits.</p>	<p>Human capital consists of the quality, or knowledge and skills, of workers. Attending a babysitting class can be one way Muriel can increase her babysitting skills and thus her quality of work. Another way to improve human capital is to gain work experience, but none of the other options improve Muriel's knowledge or skills as a babysitter. [15/4/1]</p>
<p>27. The main reason that businesses update their equipment is to</p> <p>a. keep their employees.  b. impress their competition.  c. raise their cost of production.  d. <b>increase worker productivity.</b></p>	<p>Worker productivity is output per worker, and it can be increased when businesses update equipment as technology improves. This increase in productivity can lower production costs and increase profit, giving firms the incentive to periodically update their equipment. The other options are incorrect. Keeping employees and impressing competition are not main reasons firms update equipment. Firms maximize profit, so they do not update equipment if this increases their cost of production. [15/4/2]</p>
<p>28. Taxes are used to pay for the</p> <p>a. costs of businesses.  b. interest paid by banks.  c. <b>services of government.</b>  d. wages of factory workers.</p>	<p>Some services such as national defense and protection of property rights are provided by the government. These services are not free — they must be paid for in order to be provided. Taxes and borrowing are used by government to pay for these services. [16/4/2]</p>
<p>29. What does inflation mean?</p> <p>a. Fewer people have jobs.  b. More people have jobs.  c. A fall in most prices.  d. <b>A rise in most prices.</b></p>	<p>An increase in the general level of prices of goods and services is known as inflation. It can result from increases in the money supply, increases in demand for goods and services, or from increases in the costs of producing goods and services. A &amp; B. [11/4/5]</p>

ITEM	RATIONALE
<p>30. Which of the following would be counted as unemployed?</p> <ul style="list-style-type: none"><li>a. A retired teacher.</li><li>b. An adult in prison.</li><li>c. <b>An adult looking for a first job.</b></li><li>d. A factory worker at an auto plant.</li></ul>	<p>To be classified as unemployed by the U.S. Labor Department, a person must not have a job <i>and</i> must be looking for a job. If a person is retired, then he or she may not have a job, but is also not looking for one, so he or she is not considered part of the labor force. People in prison are also not considered part of the labor force. [19/4/1]</p>

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## Appendix 1. Staff and Committee for the *Basic Economics Test* (Third Edition)

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### **Project Director:**

William B. Walstad, *University of Nebraska-Lincoln*

### **Test Developers:**

William B. Walstad, *University of Nebraska-Lincoln*

Ken Rebeck, *St. Cloud State University (Minnesota)*

### **Council Officer:**

Elizabeth Webbink, *Council for Economic Education (New York)*

### **National Advisory Committee:**

William Bosshardt, *Center for Economic Education, Florida Atlantic University (Boca Raton)*

Bonnie Meszaros, *Center for Economic Education & Entrepreneurship, University of Delaware (Newark)*

Mark Quintana, *Broward County School District (Fort Lauderdale, FL)*

Rebecca Reed, *William Wallin School, Colonial School District (New Castle, DE)*

Mary Suiter, *Federal Reserve Bank of St. Louis (Director of the Center for Entrepreneurship & Economic Education, University of Missouri at St. Louis at the time of the project)*

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## Appendix 2. Schools Participating in Norming the *BET*

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### ALABAMA

Wellborn Elementary  
Anniston 36201-5801

### ALASKA

Sterling Elementary  
Sterling 99672-0089

### ARIZONA

Arizona Virtual Academy  
Tucson 85714

### ARKANSAS

Baker Elementary  
Little Rock 72223  
Grace Hill Elementary  
Rogers 72756-2121  
Lincoln Middle School  
Forrest City 72335-3156  
Mountain View Elementary  
Mountain View 72560-9632  
Old High Middle School  
Bentonville 72712-5238

### CALIFORNIA

Lincoln Elementary  
Santa Ana 92704-1631  
McPherson Magnet School  
Orange 92869-4825

### COLORADO

Steele Elementary  
Colorado Springs 80907-7596

### CONNECTICUT

North End Middle School  
Waterbury 06704-1270

### DELAWARE

Bayard Intermediate School  
Wilmington 19805-3975  
Fifer Middle School  
Camden 19963-2920  
Long Neck Elementary  
Millsboro 19966-1199

Milford Middle School  
Milford 19963-2920  
Rehoboth Elementary  
Rehoboth Beach 19971-1899  
Ross Elementary  
Milford 19963-2699  
Shields Elementary  
Lewes 19958-1597  
Silver Lake Elementary  
Middletown 19709-1496  
Skyline Middle School  
Wilmington 19808-2800

### FLORIDA

Belle Vue Middle School  
Tallahassee 32304-3904  
Chain of Lakes Elementary  
Winter Haven 33884  
Charles Drew Elementary  
Pompano Beach 33060-1108  
Chiles Elementary  
Tampa 33647  
Coconut Creek Elementary  
Coconut Creek 33066-1736  
Coral Park Elementary  
Coral Springs 33067-2896  
Crystal River Middle School  
Crystal River 34428-4315  
Deerfield Park Elementary  
Deerfield Beach 33441-4699  
Dolphin Bay Elementary  
Fort Lauderdale 33027  
Driftwood Elementary  
Hollywood 33024-2802  
Everglades Elementary  
Weston 33331-3610  
Folsom Elementary  
Thonotosassa 33592  
Frank C. Martin Elementary  
Miami 33176-6425  
Gulf Coast Academy of  
Science and Technology  
Spring Hill 34608

Jewett Middle Academy  
Winter Haven 33881-1758  
Lely Elementary  
Naples 34113  
Lyons Creek Middle School  
Coconut Creek 33073-1989  
Maclay School  
Tallahassee 32312-1110  
McKeel Academy of  
Technology  
Lakeland 33815-1243  
Meadowbrook Elementary  
Fort Lauderdale 33317-6816  
Miami Country Day School  
Miami Shores 33161  
Miami Springs Elementary  
Miami Springs 33166-4453  
Naples Park Elementary  
Naples 34108-1825  
New Beginnings — Naples  
Naples 34104-4457  
Norland Middle School  
Miami 33169-3441  
Osceola Elementary  
Saint Augustine 32084  
Pelican Marsh Elementary  
Naples 34109  
Pembroke Lakes Elementary  
Pembroke Pines 33026-2131  
Pinecrest Preparatory  
Academy  
Miami 33175  
Sheridan Hills Elementary  
Hollywood 33021-3411  
Silver Lakes Elementary  
Miramar 33029-5609  
Silver Palms Elementary  
Pembroke Pines 33028-1674  
Southern Oaks Middle School  
Port Saint Lucie 34983  
Stephen Foster Elementary  
Fort Lauderdale 33312-4315  
Trafalgar Middle School  
Cape Coral 33991-3082

## Appendix 2. Schools Participating in Norming the *BET* (Continued)

### GEORGIA

Osborne Middle School  
Hoschton 30548  
Rising Starr Middle School  
Fayetteville 30215  
The Westminster Schools  
Atlanta 30327-2428

### ILLINOIS

Ariel Elementary Community  
Academy  
Chicago 60653-4403  
Bannes Elementary School  
Tinley Park 60477-2672  
Bethesda Lutheran School  
Chicago 60645-4607  
Briargate Elementary  
Cary 60013-2598  
Chicago Mennonite Learning  
Center  
Chicago 60632-4847  
Da Vinci Academy  
Elgin 60123-8519  
Frances Xavier Warde Schools  
Chicago 60661-3512  
Hammond Elementary  
Chicago 60623-3503  
Heritage Middle School  
Lansing 60438-3897  
K D Waldo Middle School  
Aurora 60505-4397  
Kendall Elementary  
Naperville 60564  
Malta Elementary  
Malta 60150  
Patrick Henry Elementary  
Chicago 60618-1121  
Paul T Wright Elementary  
Malta 60150  
Schreiber Home Discipleship  
Elk Grove Village 60007  
Sherman Elementary  
Sherman 62684-0188

Spring Brook Elementary  
Naperville 60565-4369  
St Angela Elementary  
Chicago 60651-1108  
St Cletus Elementary  
La Grange 60525-6612  
St Hyacinth Elementary  
Chicago 60618  
Steinmetz Academic Centre  
Chicago 60634-4041  
Uplift Community School  
Chicago 60640  
Whitney Elementary  
Chicago 60623-4450

### INDIANA

Brownsburg Junior High  
School  
Brownsburg 46112-8041  
Calvary Lutheran  
Indianapolis 46227-4879  
Central Middle School  
Kokomo 46901-4841  
Crooked Creek Elementary  
Indianapolis 46228-1799  
Galveston Elementary  
Galveston 46932-9998  
Royerton Elementary  
Muncie 47303-9801  
Shelbyville Middle School  
Shelbyville 46176-2542  
South Newton Elementary  
Kentland 47951-8540  
St Luke Elementary  
Indianapolis 46260-3621

### KANSAS

Andale Elementary-Middle  
School  
Andale 67001

### KENTUCKY

Saffell Street Elementary  
Lawrenceburg 40342-1250

### MICHIGAN

City Schools  
Grand Blanc 48439-1402

### MINNESOTA

Red Rock Elementary  
Woodbury 55125-4415

### MISSOURI

Eugene Field Elementary  
Maryville 64468-1703  
Hale Elementary  
Hale 64643-0248  
Owensville Middle School  
Owensville 65066-0536  
Parkview Elementary  
Cameron 64429-2135  
South Nodaway Elementary  
Guilford 64457-0075  
Sterling Elementary  
Warrensburg 64093-0638

### NEBRASKA

Conestoga Elementary  
Omaha 68110-2365  
R. M. Marrs Elementary  
Omaha 68107-3699

### NEW JERSEY

Hatch Middle School  
Camden 08103-3618

### NORTH CAROLINA

Madison Middle School  
Marshall 28753-9455  
Moore Christian Academy  
Winterville 28590  
Stead Academy  
Greenville 27858

### OHIO

Arrowhead Elementary  
Lewis Center 43035-9043  
Brookville Intermediate School  
Brookville 45309-1443

## Appendix 2. Schools Participating in Norming the *BET* (Continued)

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Clear Fork Middle School  
Bellville 44813-1229  
Evergreen Elementary  
Metamora 43540-9741  
Gahanna Middle School South  
Gahanna 43230-5300  
Granville Intermediate School  
Granville 43023-9775  
Summerside Elementary  
Cincinnati 45245-1021  
Union Elementary  
West Chester 45069-3136

### OKLAHOMA

Bryant Elementary  
Tulsa 74115-4339  
MacArthur Elementary  
Tulsa 74129-2228

### PENNSYLVANIA

Clairton Elementary  
Clairton 15025-1559  
Perry Elementary  
Ellwood City 16117  
St Gabriel Elementary  
Norwood 19074

### SOUTH CAROLINA

Bell's Crossing Elementary  
Simpsonville 29661  
Berea Elementary  
Greenville 29617  
Brushy Creek Elementary  
Taylors 29687-4090  
Sedgefield Intermediate  
School  
Goose Creek 29445-6516  
St Michael Catholic School  
Garden City 29576-8739

### TEXAS

Midway Intermediate  
Waco 76712-6821  
Montgomery Intermediate  
School  
Montgomery 77356-4384  
Peebles Elementary  
Killeen 76543-3139  
Rogers Middle School  
Pearland 77588-0007  
Sageland Elementary  
El Paso 79915-2299

### VIRGINIA

Cool Spring Elementary  
Leesburg 20175-8932  
Meadowland Elementary  
Sterling 20164-1118  
Nottoway Intermediate School  
Crewe 23930

### WASHINGTON

Harmony Elementary  
Bellingham 98226-9516  
Talbot Hill Elementary  
Renton 98055-4222

### WEST VIRGINIA

Hayes Middle School  
Saint Albans 25177-3331  
Tennerton Elementary  
Buckhannon 26201-8844

### WISCONSIN

Business Economics Academy  
of Milwaukee  
Milwaukee 53208  
Green Lake Elementary  
Green Lake 54941-0369  
Horizon School  
Pewaukee 53072-3630  
McKinley Middle School  
Kenosha 53144-4105  
North Crawford Elementary  
Soldiers Grove 54655-8551  
Sevastopol Elementary  
Sturgeon Bay 54235-8599  
St John The Baptist School  
Green Bay 54313-6821  
Tipler Middle School  
Oshkosh 54902-5626

## Appendix 3. Voluntary National Content Standards in Economics

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**1.** Productive resources are limited. Therefore, people can not have all the goods and services they want; as a result, they must choose some things and give up others.

**2.** Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Most choices involve doing a little more or a little less of something: few choices are “all or nothing” decisions.

**3.** Different methods can be used to allocate goods and services. People acting individually or collectively must choose which methods to use to allocate different kinds of goods and services.

**4.** People usually respond predictably to positive and negative incentives.

**5.** Voluntary exchange occurs only when all participating parties expect to gain. This is true for trade among individuals or organizations within a nation, and among individuals or organizations in different nations.

**6.** When individuals, regions, and nations specialize in what they can produce at the lowest cost and then trade with others, both production and consumption increase.

**7.** A market exists when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services.

**8.** Prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives.

**9.** Competition among sellers usually lowers costs and prices, and encourages producers to produce what consumers are willing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them.

**10.** Institutions evolve and are created to help individuals and groups accomplish their goals. Banks, labor unions, markets, corporations, legal systems, and not-for-profit organizations are examples of important institutions. A different kind of institution, clearly defined and enforced property rights, is essential to a market economy.

**11.** Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services. The amount of money in the economy affects the overall price level inflation is an increase in the overall price level that reduces the value of money.

**12.** Interest rates, adjusted for inflation, rise and fall to balance the amount saved with the amount borrowed, which affects the allocation of scarce resources between present and future uses.

**13.** Income for most people is determined by the market value of the productive resources they sell. What workers earn depends, primarily, on the market value of what they produce.

**14.** Entrepreneurs take on the calculated risk of starting new businesses, either by embarking on new ventures similar to existing ones or by introducing new innovations. Entrepreneurial innovation is an important source of economic growth.

**15.** Investment in factories, machinery, new technology, and in the health, education, and training of people stimulates economic growth and can raise future standards of living.

**16.** There is an economic role for government in a market economy whenever the benefits of a government policy outweigh its costs. Governments often provide for national defense, address environmental concerns, define and protect property rights, and attempt to make markets more competitive. Most government policies also have direct or indirect effects on people’s income.

**17.** Costs of government policies sometimes exceed benefits. This may occur because of incentives facing voters, government officials, and government employees, because of actions by special interest groups that can impose costs on the general public, or because social goals other than economic efficiency are being pursued.

**18.** Fluctuations in a nation’s overall levels of income, employment, and prices are determined by the interaction of spending and production decisions made by all households, firms, government agencies, and others in the economy. Recessions occur when overall levels of income and employment decline.

**19.** Unemployment imposes costs on individuals and the overall economy. Inflation, both expected and unexpected, also imposes costs on individuals and the overall economy. Unemployment increases during recessions and decreases during recoveries.

**20.** Federal government budgetary policy and the Federal Reserve System’s monetary policy influence the overall levels of employment, output, and prices.

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Source: CEE (2010).

# Appendix 4. Answer Form and Scoring Keys, *Basic Economics Test* (Third Edition)

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## Answer Form

<p><b>1</b>    A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>2</b>    A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>3</b>    A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>4</b>    A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>5</b>    A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>6</b>    A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>7</b>    A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>8</b>    A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>9</b>    A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>10</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p>	<p><b>11</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>12</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>13</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>14</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>15</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>16</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>17</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>18</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>19</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>20</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p>	<p><b>21</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>22</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>23</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>24</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>25</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>26</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>27</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>28</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>29</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p><b>30</b>   A   B   C   D  <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p>
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\_\_\_\_\_  
RAW SCORE

\_\_\_\_\_  
PERCENTILE  
SCORE

NAME \_\_\_\_\_ DATE \_\_\_\_\_  
month      day      year

AGE \_\_\_\_\_ DATE OF BIRTH \_\_\_\_\_ SEX    M    F  
month      day      year      (circle one)

SCHOOL OR TEST CENTER \_\_\_\_\_

ADDRESS \_\_\_\_\_  
number and street      city      state      zip

INSTRUCTOR \_\_\_\_\_ GRADE OR YEAR \_\_\_\_\_ SEMESTER \_\_\_\_\_

# Appendix 4. Answer Form and Scoring Keys, *Basic Economics Test (Third Edition)* (Continued)

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## Scoring Key, BET-A

1	A B C D ○ ○ ○ ●	11	A B C D ● ○ ○ ○	21	A B C D ○ ● ○ ○
2	A B C D ● ○ ○ ○	12	A B C D ○ ○ ○ ●	22	A B C D ○ ○ ○ ●
3	A B C D ○ ○ ○ ●	13	A B C D ● ○ ○ ○	23	A B C D ○ ● ○ ○
4	A B C D ○ ○ ○ ●	14	A B C D ● ○ ○ ○	24	A B C D ○ ● ○ ○
5	A B C D ○ ○ ● ○	15	A B C D ○ ● ○ ○	25	A B C D ○ ○ ● ○
6	A B C D ○ ○ ● ○	16	A B C D ○ ○ ● ○	26	A B C D ○ ● ○ ○
7	A B C D ○ ● ○ ○	17	A B C D ● ○ ○ ○	27	A B C D ○ ○ ● ○
8	A B C D ○ ○ ● ○	18	A B C D ○ ○ ○ ●	28	A B C D ○ ● ○ ○
9	A B C D ● ○ ○ ○	19	A B C D ● ○ ○ ○	29	A B C D ○ ○ ○ ●
10	A B C D ○ ○ ● ○	20	A B C D ○ ○ ○ ●	30	A B C D ○ ● ○ ○

## Appendix 4. Answer Form and Scoring Keys, *Basic Economics Test (Third Edition)* (Continued)

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### Scoring Key, BET-B

<p>1    A   B   C   D  <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/></p>	<p>11   A   B   C   D  <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/></p>	<p>21   A   B   C   D  <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/></p>
<p>2    A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/></p>	<p>12   A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/></p>	<p>22   A   B   C   D  <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/></p>
<p>3    A   B   C   D  <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/></p>	<p>13   A   B   C   D  <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/></p>	<p>23   A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/></p>
<p>4    A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/></p>	<p>14   A   B   C   D  <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/></p>	<p>24   A   B   C   D  <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/></p>
<p>5    A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/></p>	<p>15   A   B   C   D  <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/></p>	<p>25   A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/></p>
<p>6    A   B   C   D  <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/></p>	<p>16   A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/></p>	<p>26   A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/></p>
<p>7    A   B   C   D  <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/></p>	<p>17   A   B   C   D  <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/></p>	<p>27   A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/></p>
<p>8    A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/></p>	<p>18   A   B   C   D  <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/></p>	<p>28   A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/></p>
<p>9    A   B   C   D  <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/></p>	<p>19   A   B   C   D  <input checked="" type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/></p>	<p>29   A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/></p>
<p>10   A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/></p>	<p>20   A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/></p>	<p>30   A   B   C   D  <input type="radio"/>   <input type="radio"/>   <input checked="" type="radio"/>   <input type="radio"/></p>

## NOTES

## NOTES

## NOTES