

# **GUIDELINES FOR DEVELOPING ASSESSMENTS**

**Compiled for Subject-Matter-Expert Instructors  
Bureau of Land Management National Training Center  
2009**



# Guidelines for Developing Effective Assessments

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# Guidelines for Developing Effective Assessments

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**What is Assessment:** Assessment is the process of documenting, usually in measurable terms, knowledge, skills, attitudes and beliefs. Assessment can focus on the individual learner, the learning community (class, workshop, or other organized group of learners), the institution, or the educational system as a whole. For purposes of this guide, we'll be focusing on individual learner assessment. To the learner, assessment often translates to some type of test or procedure/performance they must complete.

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**Why Assess:** Written, oral and demonstration tests, as well as more informal kinds of assessment like discussions and exercises provide valuable feedback to several stakeholders in the training process. Assessment provides Instructors, Program Coordinators and Administrators, Instructional Systems Specialists (ISS) and the NTC with:

- A way to measure a change in learner knowledge or skill
- Feedback on whether or not the learning content was covered correctly and comprehensively
- Feedback on the training need
- Feedback on the design and delivery of the training itself to determine its overall effectiveness
- Feedback to the organization

Finally, assessments provide learners with a way to measure their own progress and success.

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**When to Assess:** Contrary to popular belief, assessment can and should happen routinely throughout a training course as opposed to just at the end. Far too often new instructors get wrapped-up into thinking that assessment only happens at the end of a course. This could not be farther from the truth! Assessment can and should occur before, during and after training.

Before: Assessing the learner prior to delivering instruction through the use of a pretest, will establish a training baseline. This baseline will allow you to compare knowledge or performance before the learner receives any training - against learner knowledge or performance after they

receive the training. This type of assessment can validate the training needs assessment as well as gauge learner development.

During:

Incorporating other forms of assessment such as exercises and discussion groups into the instructional process allows the instructor and the learner to track progress toward expected improved knowledge and skills. Case studies, discussions, role-play; observation, self assessment (checklists, journals, interviews etc.), quizzes and skill practice in the classroom provide instant feedback to instructors and learners on whether or not the learners are reaching the intended learning objectives.

After Training Event:

Assessing the learners after delivering instruction through the use of a written or oral test, or performance-based assessment will allow the learners to demonstrate mastery of the intended learning objectives. The post assessment results can also be compared against the pretest assessment baseline results as one method to determine the effectiveness of the training. Instructors can also use post-test assessment results to determine their own facilitation effectiveness as well as the effectiveness of the curriculum.

Trainee on the Job:

Assessments can also be given some time after the training has ended to give learners the opportunity to apply what they have learned. The goal of training is for the learned knowledge and skills to be transferred to the on the job performance. This is where the training provides real value and return on investment to the organization.

Assessments can be delivered in an online, synchronous (real-time) environment using virtual applications like WebEx. They can also be developed and delivered in an asynchronous (not occurring at the same time) environment using learning management systems like DOI Learn.

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**Instructor Role:**

If you are the assigned instructor for a specific content area you will need to develop and provide the content for the exercises in your lesson. An ISS at the NTC may work with you to help develop them. NTC coordinators will provide any materials and equipment you may need for the exercise.

Additionally, as an NTC instructor you may be asked to submit test questions to assess the job competency being taught. These test questions should link to the objectives that were developed for the lesson. In some cases an ISS at the NTC will develop the test items with you, to ensure they are measuring the intended objectives. However, you will still need to provide the correct responses and the

rationale for those answers so the test item can be completely developed.

If you are involved with developing online, asynchronous training exercises when the instruction and training are not occurring at the same time, you will need to provide the ISS with exercise content as well as the answers and answer-justification for learner feedback. Generally speaking, once a learner has completed an exercise he or she will be prompted to select some type of mechanism to receive the feedback you provided. This feedback will allow the learner to compare his or her answers with the feedback provided.

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**What to Assess:**

Learning objectives and assessments are derived from the core competencies for each job position. They become the focus and foundation of training and assessment in all NTC training courses. For standardization purposes, a competency is a collection of knowledge, skills (tasks), and/or abilities required for successful completion of a specific job in a specific position.

Example:

Job:	Cadastral Surveyor
Competency:	Restoration of Lost Corner Calculations
Task:	Compute a Single Proportion

Course and lesson objectives will dictate what and how you should assess. A good course design includes measurable objectives, content, and assessments aligned to achieve the desired improved job performance. For example, if there is an objective in the course design that states the learners should be able to calculate rental rates (application-level activity, see Bloom below) then the learners should be provided the opportunity to practice that skill during the lesson in the form of an exercise. The learners should also be assessed individually on that skill at the end of the training course to ensure they have indeed mastered the intended learning objective.

Additionally, when developing learning assessments, think about the level of learning you want the learners to achieve. Benjamin Bloom an educational psychologist, along with several colleagues [Max D Engelhart, Edward J Furst, and Donald R Krathwohl] developed a classification system for intellectual behavior important in learning. Bloom identified six levels within the cognitive domain (mental skills), from simple recall or recognition of facts to increasingly more complex and abstract mental levels.

Bloom provided verb examples for each level of learning in the cognitive domain to assist educational professionals in developing training objectives. Examples of action verbs that represent intellectual activity for each level are listed below:

1. **Knowledge:** identify, define, list, name, locate, select.
2. **Comprehension:** describe, explain, identify, recognize, interpret, translate, predict, give examples, summarize.
3. **Application:** apply, demonstrate, dramatize, employ, illustrate, operate, practice, schedule, sketch, solve, use, write, calculate.
4. **Analysis:** analyze, appraise, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question.
5. **Synthesis:** arrange, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare, propose, set-up.
6. **Evaluation:** appraise, argue, assess, attach, choose compare, defend estimate, judge, rate, justify, value, evaluate, provide recommendations.

Job-related exercises or activities in which the trainee can demonstrate mastery of required job competencies are the preferred way to assess skills that need to be demonstrated. Some courses or training events may require a written test for certification or college credit.

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### **How to Assess:**

One of the most important parts of a successful learning experience is the opportunity for learners to demonstrate their ability to apply the knowledge and skills they are learning. Through this opportunity, course participants can determine their progress and receive correction or feedback – if needed. At the same time, instructors and course designers can measure their instructional effectiveness and, in turn, use this information to revise any instructional practices.

We're going to focus on five of the types of assessments or tests, used to determine learner mastery of intended learning objectives.

#### Assessment Types:

1. Performance based assessments
2. Exercise based assessments
3. Knowledge based assessments
4. Discussion based assessments
5. Combination based assessments

These are the assessment types used most often in NTC training courses.

Performance based: Provide an opportunity for the learners to physically demonstrate what they have learned, in situations that closely resemble their work environment. Some performances require paper and pencil responses; others use a computer, a classroom or field simulation to demonstrate a competency in a real-life environment. For example, a learner could be asked to deliver a speech, operate an all terrain vehicle (ATV), or write an Employee Performance Appraisal Plan (EPAP) at the end of a unit of instruction, which would then be compared to a given standard.

Exercise based: Provide the learners an opportunity to apply what they have learned during the lesson. For example, if you expect the learners to *be able to recognize poor Visual Resource Management (VRM) practices; and to explain why they think they are poor practices*, then provide the learners with an opportunity to practice during the lesson by giving them various pictures and letting them decide if the VRM meets standard criteria or if it is a poor example. Be sure to conduct a review to determine if the learners are on the right track and if needed make adjustments to the lesson as it is being taught.

Knowledge based: Provide an opportunity for the learners to mentally demonstrate mastery of what they have learned through some type of oral or written assessment such as oral questioning, discussion; writing assignments, or class or learner activities. For example, a learner could be asked to define APD (Application for Permit to Drill); explain the purpose of an impact analysis; or give examples of land use violations as part of an end-of-lesson or end-of-course test.

Discussion based: Provide learners an opportunity to demonstrate mastery of intended learning objectives through verbal feedback during the lesson. For example, if the instructor asks during the lesson, “Why are (special use, rights-of-way (ROW), recreation etcetera) permits required?” If the learners respond correctly, that tells the instructor *and* the learners they are on track to reach the intended objective, which in this case is “*Explain why (special use, ROW, recreation etcetera) permits are required.*” If the response is incorrect, that can be an indicator to review the concepts being taught.

Combination based: Provide an opportunity for the learners to demonstrate mastery of course and lesson objectives through both knowledge based and physical/demonstration assessments. Examples would be written case study exercises, simulations, demonstrations, actual performance in the work environment based on knowledge learned as well as the demonstration of a task or skill, and observation of skill performance compared to given standards.

## **General Assessment Guidelines:**

- Tell learners at the beginning of the course how they are going to be assessed.
  - Tell the learners at the beginning of each lesson what they will be assessed on.
  - Write assessment directions and questions in simple, clear language.
  - Do not make assessments difficult through the use of tricks or ambiguity.
  - Consider options to improve the validity (measures the intended training objectives) and reliability (yields consistent results when used with comparable learners) of the assessment. For example:
    1. Pilot test the assessment.
    2. Analyze the pre and post assessment results to determine the effectiveness of course content.
    3. Review all test items to determine if they are valid and reliable.
  - After the learners have completed an assessment, provide the correct answers with an explanation as to why the answer is correct. Also review the incorrect answers and provide an explanation as to why they're incorrect. If applicable, include where the information can be found. Common ways to provide answers include answer sheets, analysis reports, and team reports with instructor feedback, and class discussion.
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## **Additional Information & Examples**

### **Performance Based Assessment Guidelines:**

Require learners to demonstrate proficiency in conducting a task (e.g. conducting a survey, performing a calculation, making an arrest, etcetera). Performance based assessments should simulate the work environment as close as possible to increase the likelihood of transference to the job when learners return home. When developing these types of assessments, keep the following tips in mind:

- When you are “chunking” a large lesson into manageable parts or chunks, you may want to incorporate an exercise at the end of each “chunk” that will help the learner internalize the knowledge or skill. The exercise will also allow the instructor and the learner to assess their progress.
- Pull it all together at the end of the complete lesson with a final assessment that culminates in the participants demonstrating the entire skill.
- Decide whether to assess learners individually or in groups by simulating the job setting as much as possible.
  - If the task is performed as a team on the job, the assessment should be done as a group. Ideally, the performance of each learner should also be observed and assessed individually.
  - If a task is performed individually, be sure that each learner has a chance to complete the assessment individually and check to be sure each learner can do it on their own.

- Define and explain the parameters of the expected performance as clearly as possible to the learners.
    - Define the steps of the task/exercise and indicate whether it's to be accomplished individually or in a large or small group.
    - Suggest a time limit for the performance (if you have multiple steps give a time limit for each step).
    - Have the learners report some aspect of their outcomes (such as the decision, an evaluation of the process, difficulties, etc.) to the larger group.
    - Identify who the audience is for the report out (you, a manager, the public, etc.).
    - Define what learners can assume about the knowledge and background of the audience.
    - Explain how you want the performance formatted (bullets, tables, narrative, etc.).
    - Make the criteria clear ahead of time by designing a scoring instrument (called a *rubric*) which describes the characteristics of what you expect. A rubric can be used by the instructor when evaluating the performance of learners.
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### **Knowledge-Based Assessment Guidelines:**

Knowledge-based assessments can take several forms. Most typical is a written test that requires the learner to demonstrate mastery of intended learning objectives on paper. In general, there are two main categories of written assessment questions – Written-Response (objective) and Written-Essay (subjective). However, knowledge-based assessments can also be oral, and can take the form of a physical identification of component parts etc.

First let's examine written-response test items that require the learner to recall, interpret, translate, or extrapolate information from memory or have experience applying a skill before they answer a question. With that in mind, written-response test items include multiple-choice, true/false, matching, and fill-in-the-blank items.

Below are different types of written response assessments, organized with 1) a description, and 2) guidelines on writing test questions, and 3) a chart listing the advantages and disadvantages of each item type, as well as; 4) examples of each to use as a frame of reference when asked to construct test items. Remember, the type of assessment item you use should match the learning objectives for the course and or lesson.

### **Multiple Choice Items (Objective-Type)**

A multiple-choice question contains two major parts: the stem (main part of a question) which presents the problem to be solved, and the alternatives (possible answers). Among the alternatives are the correct answer and the distracters (wrong answers). Multiple-choice test items can also come in many forms in terms of how the stem is constructed and how the

alternatives are presented. For example, the stem can be a direct question, an incomplete or complete statement, or a scenario. The alternatives can be sentences, phrases, diagrams, schematics, pictures, numbers, formulas, single words, or letters. If desired, an entire story or scenario can even be written with several multiple-choice test items presented that pertain to that scenario.

Test Question Development Guidelines:

- Avoid using choices that are obviously incorrect (this practice allows learners to have a greater chance of selecting the correct alternative, even though they may not know or comprehend the information).
- The stem, not the responses, should introduce the problem for the learner to solve.
- The stem should be free of irrelevant information and material.
- All of the incorrect responses should be plausible (“attractive”) and homogenous (from the same material covered in the course).
- All the options should be grammatically consistent with the stem.
- Avoid using grammatical clues such as a, an, plural word forms and gender forms, which may enable learners to answer correctly without having learned the content.
- Verbal clues/associations between the stem and the correct answer should be eliminated.
- Overlapping options should be eliminated.
- Avoid using “all of the above” and “none of the above” as alternatives unless they are being used as distracters.
- Alternatives (choices) should be approximately the same length.
- Generally speaking, a multiple-choice test item has four alternatives (possible answers) for the learner to choose from. However, only one alternative is correct. Keep in mind that an incorrect alternative may contain a portion of the answer that is partially correct; this practice allows the test developer the flexibility to develop plausible (attractive) distracters (incorrect alternatives).
- Avoid using specific determiners such as:
  - NOT, none, NEVER, always, ONLY (generally false), or
  - frequently, SOMETIMES, and may (usually true).
- If used, the negative should be emphasized by CAPITALIZING or underlining the negative word.
- When diagrams and tables are used, it’s suggested to place them above the test item.

Here are some advantages and disadvantages of using multiple-choice test items:

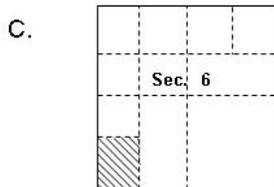
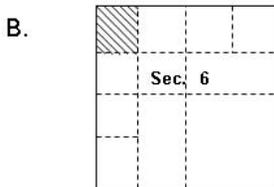
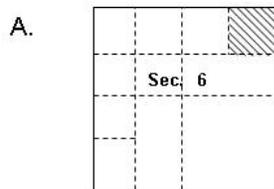
<b>Advantages</b>	<b>Disadvantages</b>
• Can be computer scored and analyzed	• Cannot measure motor skills
• Reliable and Objective	• Very difficult to write – especially the incorrect answers (called distracters)
• Can measure all levels of learning	• Guessing still possible
• Can include alternatives the learners would not normally think of	
• Permits multiple correct answers	
• Can cover large amounts of content	

Examples:

*Easy/Incomplete Statement* (Basic Knowledge: Defining, Identifying, Listing):

1. In the field of public health law, state government's police power is an attribute of a sovereign government; whereas, the federal government is a government of:
  - a. absolute police power.
  - b. delegated police power.
  - c. limited delegated powers.
  - d. constitutional police power.

*Using Graphics as Alternatives/Incomplete Statement* (Good Example):



- D. A normal Section 6 does not contain lots.

2. According to the current BLM Manual, in a normal Section 6; Lot 1 would be located in; (circle your response above).

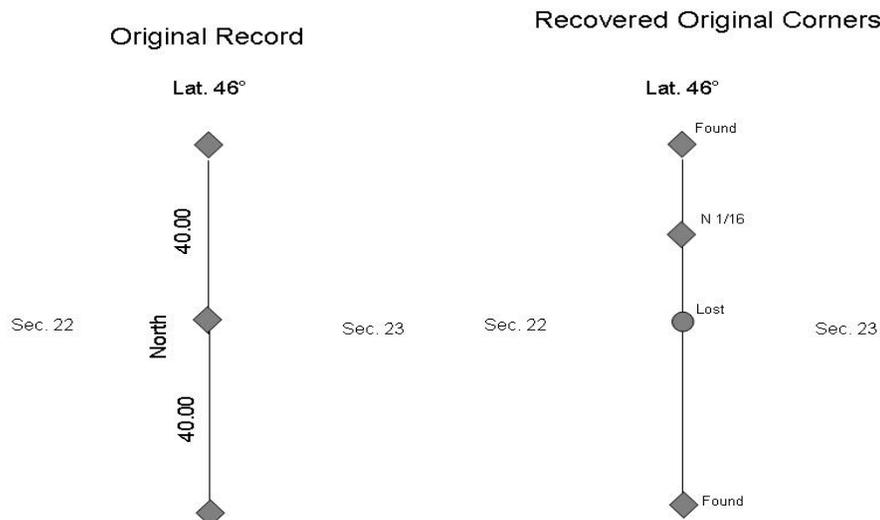
*Use of "All of the above"/Incomplete Statement* (Poor Example):

3. It's essential for firefighters to understand all of the following with regard to ladders except:
  - a. Safety techniques
  - b. Climbing techniques
  - c. The various types of ladders
  - d. All of the above

*Moderate/Direct Question* (Comprehension: Translating, Extrapolating, Interpreting):

4. Which situation best describes an incompatible land use?
- One property is adversely impacted by the environmental pollutants generated on an adjacent parcel.
  - The value of one property is greatly increased because of the presence of a more valuable land-use for nearby property or properties.
  - The land-use allowed on one property adversely affects the health of the residents on an adjacent property.
  - The land-use allowed on one parcel or property adversely impacts or restricts the use of adjacent or nearby property or properties.

*Difficult/Scenario* (Application: Apply the appropriate skill or abstraction without having to be prompted):



**Figure 19**

5. You are running the mile between Sections 22 and 23 and have decided to accept an existent local N 1/16 shown in Figure 19. The previous surveyor did not set the 1/4 corner, which was lost when he ran the mile. Where should you put the proportioned 1/4 corner between Sections 22 and 23?
- Midpoint between the section corners
  - Midpoint in latitude between the section corners, corrected to bearing of the S 3/4 mile
  - Proportionate over the S 3/4 mile
  - Proportionate over the S 3/4 mile, corrected to the bearing of the whole mile

*Negative Stem/Direct Question (Poor Example):*

6. Which process is not a major function of performance evaluations?
- a. Communicating management goals to employees
  - b. Motivating employees to improve performance
  - c. Distributing organizational rewards
  - d. Determining a job classification

**True/False Items (Objective-Type)**

A true-false test item is written in the form of a declarative sentence. The learner must determine whether the sentence is a true or a false statement. It is important to be aware that only two choices are available to the learner; therefore, the nature of the question gives them a 50 percent chance of being correct. Additionally, a single true/false question is not as telling as a collection of true/false questions measuring a single course objective. Meaning, for learners who answer more T/F questions correctly on a single objective; true/false items are a much stronger indication of mastery.

Test Question Development Guidelines:

- The language of the items should be simple and clear.
- The statement must be specific enough to allow a judgment to be made.
- The statement must be true or false and not open to judgment.
- Use only a single idea in each statement.
- Avoid using specific determiners such as NOT, none, NEVER, always, ONLY (generally false); or frequently, SOMETIMES, and may (usually true). If used, the negative should be emphasized by capitalizing or underlining the negative word.
- When diagrams and tables are used, it's suggested to place them above the test item.

Here are some advantages and disadvantages of using true/false test items:

<b>Advantages</b>	<b>Disadvantages</b>
• Objective	• Learner has 50/50 chance of answering correctly
• Reliable	• Difficult to write
• Can be computer-scored	• Often ambiguous
• Short	• Often carry more than one idea
	• Difficult to establish item reliability
	• May not discriminate between students who know the material and those who do not

**Examples:**

*One idea/Good Example:*

1. T or F The topographic map legend identifies symbols used in a map.

*Negative Wording/Poor Example:*

2. *T or F* The direction arrow on a topographic map does not usually point north.

*Absolute & Contains Two Concepts/Poor Example:*

3. T or F The map legend always contains the direction indicator and mileage scale.

**Matching (Objective-Type)**

The matching item is a modification of the multiple choice question. When giving a list of items to be paired or matched, use an unequal numbers of items. Using equal numbers increases the chances of a learner being able to guess correctly on items. In a matching-test item, a list of root items (words, phrases, or pictures) on one side of the page that the learner matches to responses (words, phrases, or pictures) on the other side of the page.

Test Question Development Guidelines:

- Clearly explain the basis on which the matching is to be made, in the directions.
- Include directions that make clear whether each response can be used only once or more than once. It is usually better to have more responses than root items. However, be sure to state that each response may be used more than once and/or some responses may not be used at all.
- The list of root items and responses should be short (10 or less).
- The list of root items and responses should be relatively homogeneous (the same).
- Ensure each root in the list is numbered and each response is identified with a letter.

Here are some advantages and disadvantages of using matching test items:

<b>Advantages</b>	<b>Disadvantages</b>
<ul style="list-style-type: none"><li>• Reduces guessing</li></ul>	<ul style="list-style-type: none"><li>• Items interdependent</li></ul>
<ul style="list-style-type: none"><li>• Good for increasing sampling in a field where name-familiarity is important</li></ul>	<ul style="list-style-type: none"><li>• Difficult to computer score</li></ul>
<ul style="list-style-type: none"><li>• Easy to construct</li></ul>	

## Examples

*One-for-one Match/Poor:*

1. Please match the state with its capitol city by placing the correct letter on the line next to the state.

_____ California	a. Nashville
_____ Alabama	b. Helena
_____ Tennessee	c. Sacramento
_____ Montana	d. Madison
_____ Wisconsin	e. Montgomery

*Multiple Possibilities/Good:*

2. Please match the state with its capitol city by placing the correct letter on the line next to the state. Not all responses will be used.

_____ California	a. Nashville
_____ Alabama	b. Helena
_____ Tennessee	c. Sacramento
_____ Montana	d. Madison
_____ Wisconsin	e. Montgomery
	f. Knoxville
	g. Green Bay

Below are links to some examples of online, asynchronous exercises:

<http://www.ntc.blm.gov/krc/uploads/220/CalculatingFairMarketValue.html>

[http://www.ntc.blm.gov/krc/uploads/310/NEPA\\_Analyzing\\_Impacts.html](http://www.ntc.blm.gov/krc/uploads/310/NEPA_Analyzing_Impacts.html)

### **Fill-in-the-Blank (Objective-Type)**

Fill-in-the-Blank, also known as completion items, asks for a few words or a short sentence.

Test Question Development Guidelines:

- State the item so that only a single word or brief answer is possible.
- Start with a direct question and switch to an incomplete statement only when there is greater conciseness by doing so.
  - What is another name for cone-bearing trees? (coniferous trees )
  - Cone-bearing trees are also called: ( coniferous trees )
- Leave only one blank that is related to the main point of the statement. Avoid completion questions with so many blanks that it is not clear what is to be completed.
- Word the items to avoid irrelevant clues or specific determiners.

- Ensure that there is only one acceptable word/phrase for the participant to provide and that the word (or words) is significant.
- Avoid using specific determiners such as NOT, none, NEVER, always, ONLY (generally false); or frequently, SOMETIMES, and may (usually true). If used, the negative should be emphasized by capitalizing or underlining the negative word.

Here are some advantages and disadvantages of using fill-in-the-blank test items:

<b>Advantages</b>	<b>Disadvantages</b>
<ul style="list-style-type: none"> <li>• Can be objective.</li> </ul>	<ul style="list-style-type: none"> <li>• Cannot be computer-scored</li> </ul>
<ul style="list-style-type: none"> <li>• Reliable</li> </ul>	<ul style="list-style-type: none"> <li>• Often ambiguous (has more than one correct answer)</li> </ul>
<ul style="list-style-type: none"> <li>• Easy to construct</li> </ul>	

### **Examples:**

*Ambiguous/Poor:* 1. The city north of Jackson, Mississippi is \_\_\_\_\_.

*One Idea/Good:* 2. An epidemiological study which follows a group of people over time is (No Grammatical Giveaway) known as a/an \_\_\_\_\_.

### **Written Essay**

Essay assessments allow the instructor to assess learners' abilities to organize, integrate, interpret material, and express themselves in their own words. Research indicates that learners study more efficiently for essay-type assessments than for closed questions type assessments. They tend to focus on broad issues, general concepts, and interrelationships rather than on specific details. Essay assessment results also provide indicators of the learners' progress, the quality of their thinking, the depth of their understanding, and the difficulties they may be having. However, reliability may be difficult to achieve (reliability is a term that refers to a test that yields consistent results over time to a homogeneous group).

### Test Question Development Guidelines:

- Essay questions are best used for higher level knowledge (e.g., analysis, synthesis). Ask the learner to "compare," "contrast," "justify", "analyze", or "determine". Don't use "what," "when," or "who" (These latter types are better measured with objective-type items).
- Essay questions can include problem-based examinations -- open-ended challenges based on real-life situations that require learners to apply their knowledge and skills to new settings.
- Ensure the essay question is specific enough to invite the level of detail you expect in the answer. A question such as "Discuss the causes of the American Civil War," might get a wide range of answers, and therefore be impossible to grade reliably. A more controlled question would be, "Explain how the differing economic systems of the North and South contributed to the conflicts that led to the Civil War."

- To improve reliability, reduce the subjectivity or inconsistencies in measuring success by defining your criteria clearly ahead of time. Use a rubric that describes the characteristics of what you expect.
- Write items that define the parameters of expected answers as clearly as possible.
  1. Suggest a time limit for each question. Provide ample time for answering.
  2. Identify the audience for the answer (will it be you, a manager, or the public?) and provide the learners with any other background information on their readers that might be helpful.
  3. If you want the answers in a certain format (bullets, tables, narrative, etc.) make that clear in your directions.
  4. Specify the criteria for success (either in stated objectives or a scoring rubric).

### **Examples:**

#### **Oral Demonstration of Knowledge**

There are times when it may be more appropriate to conduct a knowledge-based assessment in an oral format or a knowledge demonstration, rather than a written format. This method could be used when students need to identify the components of a piece of equipment, system, or process. Assessment could be done through photographs, matching parts, or some other form of physical identification that demonstrates the student's knowledge of the topic at hand. This process of oral assessment can in some ways be a more accurate assessment than written exams, as it is done in the presence of the assessor and is not impacted by the biases or reading disabilities that can happen in written assessment design. It also provides immediate feedback to both the student and the instructor regarding the student's knowledge of the topic.

## Glossary of Terms as Used in this Guide

**Assessment** - the process of documenting, usually in measurable terms, knowledge, skills, attitudes and beliefs. Assessment can focus on the individual learner, the learning community (class, workshop, or other organized group of learners), the institution, or the educational system as a whole. [\[LOOK UP SOURCE\]](#)

**Asynchronous** – The learner and the instructor/instruction are independent of time and space (location, time zone). Communication does not occur in real time; the learning group is separated geographically and interactive telecommunication tools are used such as email and discussion boards, blogs etcetera to connect the learners, resources, and instructors. It can also be written/mail communication. [Resource #5]

**Cognitive** – The educational domain or mental faculty or process by which knowledge is acquired. [Webster?]

**Competency** – For standardization purposes, a competency is a collection of knowledge, skills (tasks), and/or abilities required for successful completion of a specific job in a specific position.

**Competency-based Instruction** – Providing and evaluating instruction against a specific standard as indicated by the learning objective for the topic or task. [Resource #5]

**Evaluation** – the systematic determination of merit, worth, and significance of something or someone using criteria against a set of standards. [\[LOOK UP SOURCE\]](#)

**Knowledge-Based Assessment** – the process of measuring knowledge (e.g., recalling, interpreting, translating, or extrapolating information from memory or applying a skill before answering the question). [\[LOOK UP SOURCE\]](#)

**Learner** – Also referred to as student; can be of any age, have attained any education level and have a variety of education needs. [Resource #5, pg 162]

**Needs Assessment** – the process for determining and addressing *needs*, or "gaps" between current conditions and desired conditions, often used for improvement projects in education/training, organizations, or communities.

**Participant** - Also referred to as student; can be of any age, have attained any education level and have a variety of education needs. [Resource #5, pg 162]

**Performance-Based Assessment** – the process of measuring a physical skill (e.g., taking a water sample, inspecting an oil well, writing a NEPA document, conducting a field survey).

**Reliability** – term used when referring to the stability of an assessment. When an assessment yields consistent results when used with comparable learners, over time it is considered to be reliable.

**Rubric** - a scoring tool for subjective assessments. It is a set of criteria and standards linked to learning objectives that is used to assess a learner's performance on papers, projects, essays, and other assignments. Rubrics allow for standardized evaluation according to specified criteria, making grading simpler and more transparent. **[SOURCE??]**

**Student** - Also referred to as a learner; can be of any age, have attained any education level and have a variety of education needs. [Resource #5, pg 162]

**Synchronous** – Occurring at the same time.

**Test** - A process of determining in measurable terms, knowledge, skills, attitudes and beliefs. Tests are usually focused on the individual learner. Test and Assessment are often considered to be referring to the same thing.

**Trainee** – Also referred to as student; can be of any age, have attained any education level and have a variety of education needs. [Resource #5, pg 162]

**Validity** – term used for an assessment that is measuring the intended training objectives. Direct relationship between test questions and learning objectives. [Resource #5]

## **If You Want to Know More Reading Suggestions**

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4. Osterlind, Steven J., *Constructing Test Items: Multiple-Choice, Constructed-Response, Performance, and Other Formats*, 2<sup>nd</sup> Edition, Kluwer Academic Publishers, Norwell, MA, 1998.
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6. Simonson, Michael and Sharon Smaldino, Michael Albright and Susan Zvacek, *Teaching and Learning at a Distance Foundations of Distance Education*, Fourth Edition, Pearson Education, Inc., Boston, MA, 2009.
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8. Wright, Robert J., *Educational Assessment: Test and Measurement in the Age of Accountability*, Sage Publications, Thousand-Oaks, CA, 2008.