1997
STUDENT SUPPLEMENT

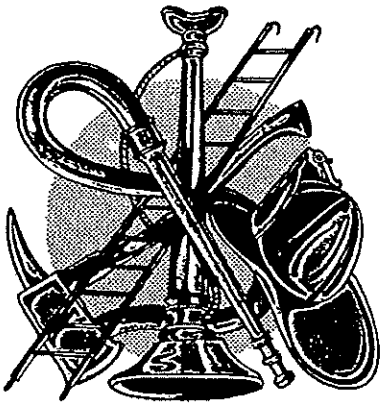
FIRE INSTRUCTOR 1B

INSTRUCTIONAL TECHNIQUES, PART 2

OFFICE OF THE
CALIFORNIA STATE FIRE MARSHAL

FIRE INSTRUCTOR 1B

Instructional Techniques, Part 2
Student Supplement



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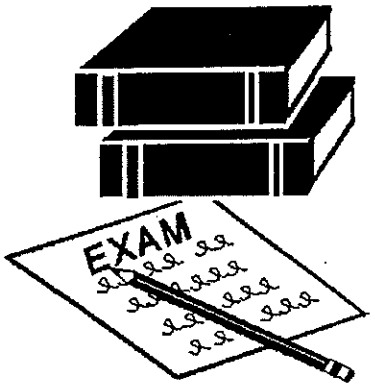
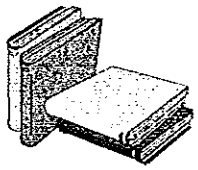




CALENDAR OF EVENTS

(Five Day Schedule)

SESSION ONE

Date: _____

Topics: Orientation and Administration
Reasons for Fire Instructor 1B
Course Outline Development
Technical Lesson Plan Components
Levels of Instruction
Student Behavioral Objectives
Technical Lesson Plan Development

Activity Sheets: 2-1, 3-1, 3-2, 5-1, 6-1, 7-1 and 7-2

Information Sheets: 2-1 through 2-5, 3-1, 4-1, 5-1, 6-1

SESSION TWO

Date: _____

Quizzes: Quizzes #1 and #2
Review

Topics: Introduction to Instructional Aids
Utilization of Instructional Aids
Managing the Classroom Environment
Student Application Techniques
Methods of Technical Lesson Plan Delivery

Activity Sheets: 10-1, 10-2, and 12-1

Information Sheets: 9-1, 10-1, 11-1, and 12-1 through 12-3

SESSION THREE

Date: _____
Quizzes: Quizzes #3 and #4
Review
Topics: Introduction to Evaluation and Testing
Utilization of Evaluation Tools
Introduction to Test Construction
Methods Used to Evaluate Teaching Demonstrations
Teaching Demonstrations and Evaluations
Activity Sheets: 16-1, 16-2, and 17-1
Information Sheets: 14-1, 14-2, 15-1, 15-2, and 17-1

SESSION FOUR

Date: _____
Quizzes: Quiz #5
Review
Teaching Demonstrations and Evaluations
Course Review

SESSION FIVE

Date: _____
Teaching Demonstrations and Evaluations, if necessary
Course Critique
Certification Examination

POINT SYSTEM

ACTIVITY		POINTS	POINTS EARNED
Course Outline	minimum 80% required	100	
Lesson Plan #1	minimum 80% required	100	
Lesson Plan #2	minimum 80% required	100	
Teaching Demonstration		100	
Evaluation Report		50	
Activity Sheet		50	
Information Sheet		50	
10 question True-False test		50	
10 question Multiple Choice test		50	
TOTAL		650	

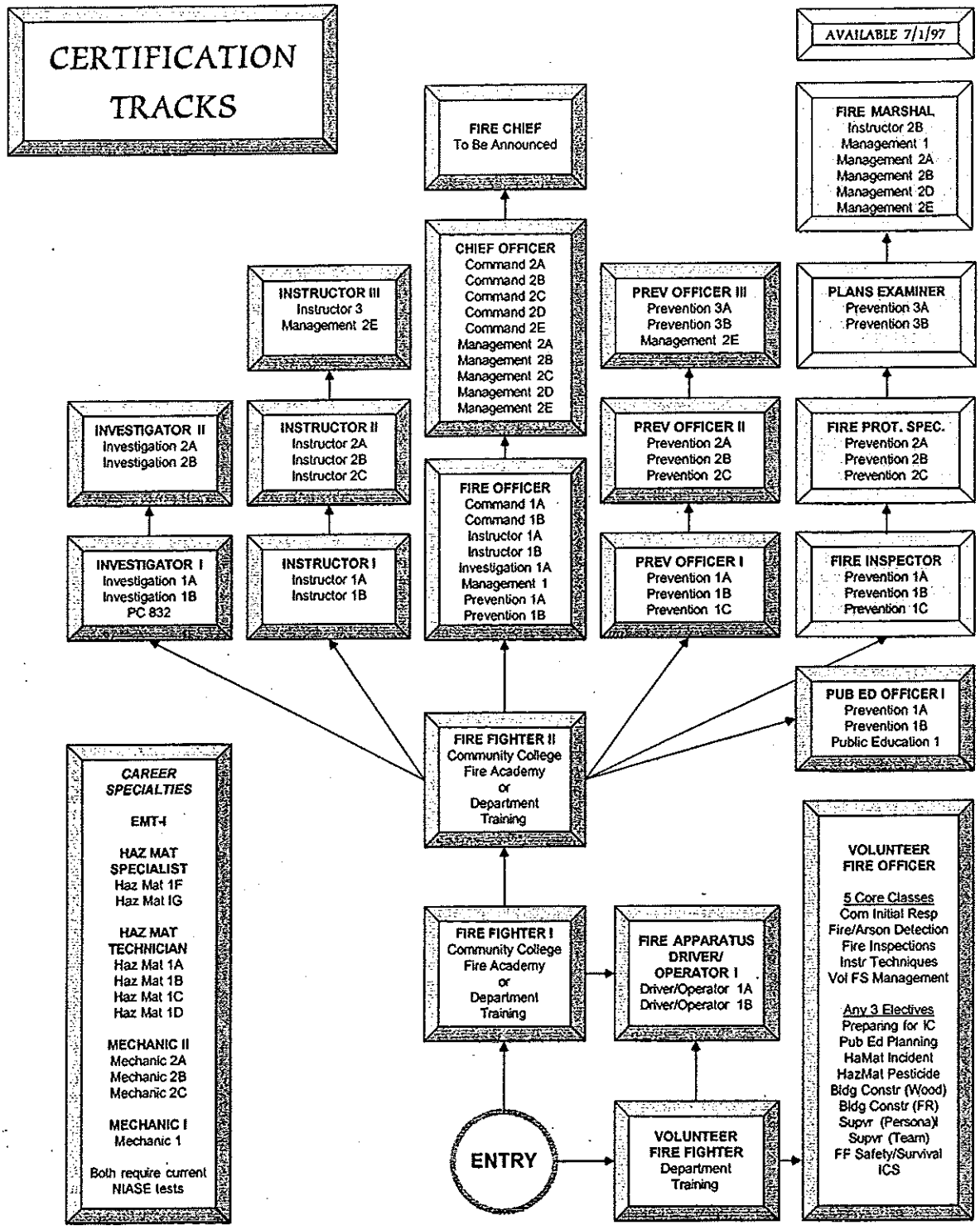
GRADE SYSTEM

POINTS EARNED	LETTER GRADE
650 - 585	A
584 - 520	B
Below 520	Not eligible for Instructor 1B certified exam

STUDENT PROGRESS CHART

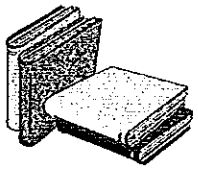
Page ____ of ____

COURSE TITLE:									COURSE LOCATION:											
BEGINNING DATE:																				
ENDING DATE:																				
STUDENT IDENTIFICATION																			EXAM	GRADE



The above information only identifies the educational requirements for each level of certification. In addition to the courses listed above, each level of certification requires a minimum experience in the subject area and/or certification prerequisites. For complete information, refer to the State Fire Training Policies and Procedures Manual. 04/97

THE VALUE OF INSTRUCTOR TRAINING



The past few years have seen many changes in fire service training. Training is now recognized as the key to an efficient fire department, and the training officer is now a key person within the department structure. Promotional opportunities are now open to training officers, and many training officers hold positions as chief officers.

Current Scope of Fire Service Training

For many years, fire service training was concerned mostly with a few basic manipulative skills and was conducted on a department-by-department basis. Now, however, comprehensive training is conducted through multi-department exercises, academies serving departments in some areas, and the fire science programs in many of our community colleges. The academies and community colleges use fire department officers as instructors. Also, many officers are teaching short courses in the fire service training curriculum. These activities demand personnel who have been trained to instruct. Much of the effort of the State Fire Training program is currently directed toward training fire service personnel in the techniques of teaching.

Benefits of an Organized Training Program

A well-organized training program increases the efficiency of the training officers and makes their task easier. It also provides benefits for the fire department, for the fire service as a whole, and for the community served by the fire department.

Benefits for the Training Officer

As improved techniques of teaching are developed, they must be made available to the training officer for development of instructional skills. This is done through teacher training courses. This type of training will assist the training officer in providing a better organized program for their department. Improved techniques mean greater efficiency and less time spent on instruction. Greater efficiency in instruction results in more efficient personnel.

Benefits for the Fire Department

A fire department benefits from having a pool of personnel well trained in the art and techniques of teaching. The most direct benefit is better trained personnel who are more efficient in their respective operations. This efficiency has a direct bearing upon public relations. Good community relations play a large part in securing the equipment and apparatus necessary for fire suppression work and result in better working conditions for members of the fire service.

Benefits for the Fire Service

The greater efficiency in fire department operations that derives from well-trained personnel benefits the entire fire service. One well-trained fire fighter compels other fire fighters to become better trained. Similarly, a well-trained department compels other departments to follow suit. As fire departments become better trained, they become more professional in their attitude and approach to public service. Training officers who know correct teaching techniques are more uniform in their abilities. This results in greater standardization in fire department efficiency.

Benefits for the Community

Instructors trained to teach and personnel wanting to learn are not enough. There must also be a well planned training program that brings together the learner and the instructor. An organized training program enables both learner and instructor to know where to start, their status, and how far they must progress to meet established objectives.

A planned program greatly helps to ensure that training needs will be met, that necessary skills and knowledge will be acquired, that the more important evolutions will be learned, and that abilities and knowledge will be maintained at the proper level. The end product of learner, trained instructor, and a planned training program can only be an efficient, capable fire department. In turn, this will have a beneficial effect for the entire community resulting in both reduced fire losses and lower fire insurance rates.

Lower insurance rates: Lower fire insurance rates in a community are not brought about by the effort of a single, well-trained department. They are based largely upon fire losses in the state as a whole. As fire service personnel become better trained and as the efficiency of the fire service increases, a direct result will be lower fire insurance rates for the state. Efficiencies through training can reduce fire insurance costs over a wide area.

Reduced fire losses: If fire losses are reduced, the general economy of the community is improved. More jobs are available, the tax base is more stable, and businesses prosper. Furthermore, community activities can be directed toward improvement instead of rebuilding. The fire department is the one service that protects the heart of any area -- its economy and tax base.

Advantages of Vocational Education Methods

Fire service work does not differ in principle from work performed in any other trade, and the methods used to train personnel in other trades can easily be applied to fire service training. The advantages of the vocational method of teaching lies in the on-the-job procedure for teaching a student. In this approach, the student learns by doing under the direction of a competent instructor. The student is given the tools or equipment and then allowed to apply immediately what they have learned. Instruction is limited to that which is necessary to the job.

Vocational training uses the four-step plan of teaching preparation/motivation, presentation, application, and evaluation and is primarily directed toward teaching manipulative skills and the related technical information required to perform the skills. Vocational training is recognized as the best way to teach skills, and it has proved its value in fire service training.

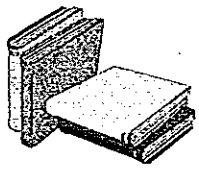
What makes a Good Instructor?

The qualities that a person must have before they can become a good fire service instructor include the ability to get along with people, a willingness to do the necessary, preparatory work involved in teaching, and the desire to teach. Another basic requirement is the expertise that comes only from experience in the fire service. Also, since fire service training makes great use of vocational education methods and techniques, a good instructor must have training in these methods and techniques.

Why Enroll in an Instructor Training Course?

The purpose of this course is to provide the potential instructor --- a person who already has an extensive fire service background --- with the ability to teach what they know to others. The philosophy of vocational education is that a person who would be an instructor must know the topic and learn how to teach. Fire Instructor 1A and 1B can provide the instructor candidate with the ability to train others to better serve their community.

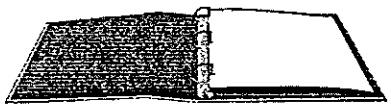
TAKING NOTES



Much of what you learn is lost unless you use it constantly. Keeping notes that are clear and well organized will ensure that the information will always be available when you need it. The practical suggestions outlined in this information sheet will help you get the most benefit from your notes.

What Type of Notebook is Best?

Several varieties of note-taking aids are on the market. The type that seems to fit most needs is the standard 8½" x 11" loose-leaf notebook with a good stiff cover to protect the contents. Such a notebook is large enough to prevent crowding of the material, but is not too large to carry around. It also has the advantage that most handout material can be placed directly in it without alteration. The loose-leaf feature makes organization and reorganization easier, and poorly organized or unnecessary notes easy to discard.



What Notes Should You Take?

You must decide for yourself how much information you want to keep in your records for future use. The instructor has a good working knowledge of his/her subject, and they will emphasize important points in various ways.

The following guidelines are helpful in deciding what notes to take.

1. Have specific reasons for taking notes. Do not take useless notes, avoid making your notebook a wastebasket for everything.

2. Watch for key words or terms around which the main ideas will revolve.

3. Check carefully everything that the instructor writes down. If the information is important enough for him/her to write down, it is important enough to include in your notes.

4. Be alert for signals of special emphasis by the instructor, such as "This is important . . . " or "to sum up . . . "

Use a Simple Outline Form

Note-taking is not difficult if the particular suggestions outlined below are followed. The simple outline form used here for the suggestions can also be used to organize your notes.

I. Be Ready

   A. Have a proper notebook (usually an 8½" x 11" loose-leaf)

   B. Have proper writing tools (colored pencils will aid in recording certain material)

II. Begin with a Heading (this will aid remembering)

   A. Course or subject heading

   B. Instructor name and title

   C. Date

   D. Session and page number

III. Be Alert

A. Catch the key ideas and high points

B. Write fast

IV. Be Brief

A. Use abbreviations

B. Use your own shortcuts, but be sure you can interpret them afterwards

C. Use your own words except for

1. Technical points

2. Definitions

3. Direct statements

D. Leave plenty of room (at least double space and wide margins) so you can

1. Amend or add to

2. Follow easily during later reference

E. Underline points that are especially important

1. Colored pencils or pens will be an aid

2. Do <u>not</u> underline too much

F. Identify with a question mark any item that you

1. Are not sure you heard correctly?

2. Want to ask questions about later

3. Want to verify later by research

V. Be Orderly

A. Numbering and lettering the items in an outline helps to define their relationship

1. Roman numerals I

2. Upper case letters ..... A

3. Arabic numerals 1

4. Lower case letters ..... a

5. Arabic numerals in parentheses ..... (1)

6. Lower case letters in parentheses ..... (a)

7. Brackets ..... [ ]

B. Indent or paragraph to show division

C. Start a new item or a new line

How to Get the Most Benefit from Notes

I. Precautions in Note Taking

A. When taking notes, do *not*

1. Try to write everything
2. Ask the person next to you for information while the instructor is talking
3. Make your notes so brief they lose their meaning
4. Overcrowd your pages
5. Forget to number your pages
6. Forget to underline important points
7. Hesitate to write important points on material handed to you
8. Hesitate to ask questions
9. Repeat notes you have already taken
10. Fail to take good notes when they are necessary

II. To Make Your Notes More Useful

A. Read them over at the first opportunity to

1. Aid recollection
2. Clarify ideas and concepts

B. Fill in abbreviated items before too much time elapses, forgetting begins immediately

C. Fill in technical terms and other items you may have omitted

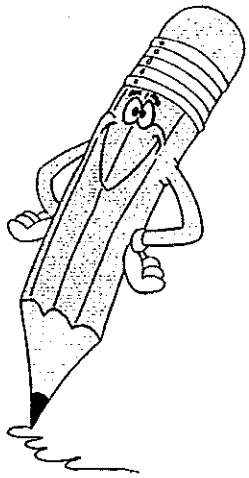
D. Rewrite notes if necessary

1. Make sentences complete

2. Recheck topic headings, paragraphing, and numbering

3. Recheck important information with others in class

III. Hints for Good Note Taking



A. Underline key words and phrases

B. Keep notes organized

C. Rework the notes before they get "cold"

D. Make use of sketches and drawings

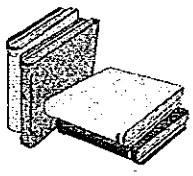
E. Keep a list of new items and terms

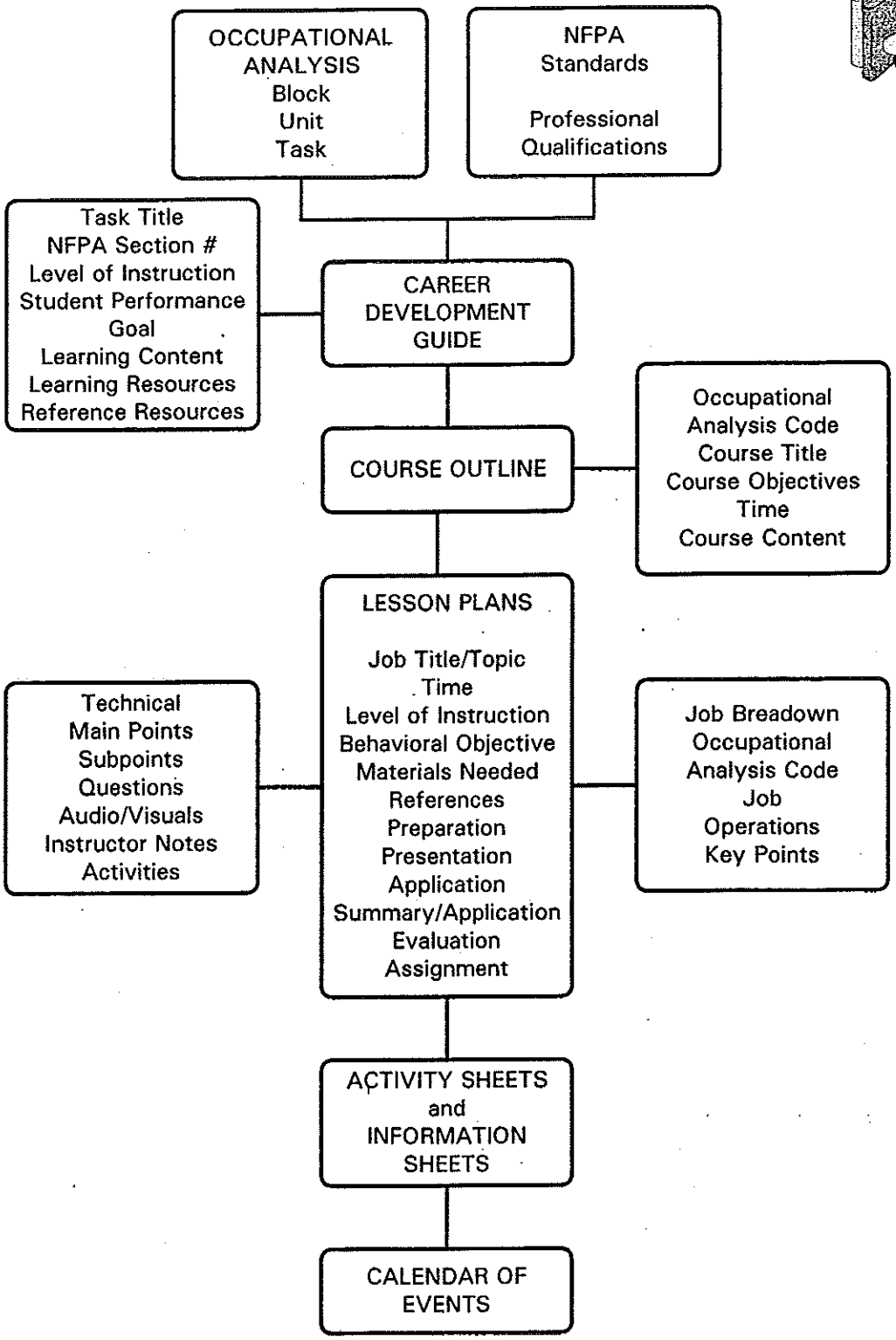
F. Make a list of important source material, books, references, and the like

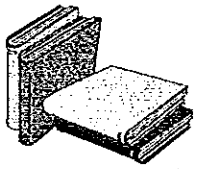
G. Make a list of important persons relating to the subject

H. Keep notes on each subject together

I. When the course is completed, file the notes for future reference




OCCUPATIONAL ANALYSIS
Block
Unit
Task
NFPA
Standards
Professional
Qualifications
Task Title
NFPA Section #
Level of Instruction
Student Performance
Goal
Learning Content
Learning Resources
Reference Resources
CAREER DEVELOPMENT GUIDE
COURSE OUTLINE
Occupational
Analysis Code
Course Title
Course Objectives
Time
Course Content
LESSON PLANS
Job Title/Topic
Time
Level of Instruction
Behavioral Objective
Materials Needed
References
Preparation
Presentation
Application
Summary/Application
Evaluation
Assignment
Technical
Main Points
Subpoints
Questions
Audio/Visuals
Instructor Notes
Activities
Job Breadown
Occupational
Analysis Code
Job
Operations
Key Points
ACTIVITY SHEETS and INFORMATION SHEETS
CALENDAR OF EVENTS



IMPACT OF SOME CONSTITUTIONAL TEXTS ON THE INSTRUCTOR

The Constitution of the United States has provided for the equal treatment of all persons. The traditional American recognition that true equality, particularly true racial equality, derives from the freedom, respect, and responsibility that can only be accorded to individuals.

With all the laws, amendments, and executive orders that have passed as regulations since 1964, it has been reiterated that it is against the law to discriminate in the employment process based on race, sex, national origin, religion, age, physical and mental disabilities, citizenship, and veteran status.

The following information presents some excerpts from the Amendments of the United States Constitution, which refer to individual rights.

Fifth Amendment

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty or property, without due process of law; nor shall private property be taken for public use without just compensation.

Thirteenth Amendment

Neither slavery nor involuntary servitude, except as a punishment for crime whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.

Congress shall have the power to enforce this article by appropriate legislation.

Fourteenth Amendment

Section One
All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty or property, without due process of laws; nor deny to any person within its jurisdiction the equal protection of the laws.

Section Five
The Congress shall have power to enforce, by appropriate legislation, the provisions of this article.

Fifteenth Amendment

The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of race, color, or previous condition of servitude.

The Congress shall have power to enforce this article by appropriate legislation.

Title VII of the Civil Rights Act of 1964, as amended in 1972, prohibits discrimination because of race, color, religion, sex, or national origin in **all** employment practices.

Political Viewpoint

In 1965, President Lyndon B. Johnson delivered a speech, in which he said in part:

"You do not take a person who, for years, has been hobbled by chains and liberate him, bring him up to the starting line of a race and then say, 'You are free to compete with all the others,' and still justly believe that you have been completely fair."

"Thus it is not enough just to open the gates of opportunity. All of our citizens must have the ability to walk through those gates.

"This is the next and more profound stage of the battle for civil rights. We seek not just freedom but opportunity --- not just legal equity but human ability --- not just equality as a right and a theory, but equality as a fact and a result."

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is one of the most significant employment laws in American history. However, because of the expansive definition of who is disabled, it may cover even more.

Fire service trainers should be aware of the specific applicants of the ADA to training and testing programs. Program design should include an ADA compliance review. The following information is provided as an overview only.

I. Employment Discrimination Outlawed

Title I of the ADA prohibits discrimination against a "qualified individual with a disability" regarding job application procedures, hiring training, compensation, fringe benefits, advancement, or any other term or condition of work. An employer cannot discriminate in any aspect of employment because of a job applicant's or employee's disability.

Beyond the overall prohibition against discrimination, the ADA lists the following acts as discriminatory and illegal:

1. *Limiting, segregating, or classifying a job applicant or employee based upon a disability that in any way adversely affects the employment opportunities or status of the individual.* This rule applies to all job-related activities. For example, limiting the type of work offered to disabled people based on an employer's assumptions concerning the abilities of a disabled person is a violation of law. Placing disabled workers in a special section of the workplace or on a separate assembly line will usually violate the law. The use of separate pay or promotion tracts for disabled and nondisabled workers violates the ADA. The law also forbids separate lunch, break, or rest rooms, unless necessary as a reasonable accommodation. Even social and recreational activities provided to employees must be made accessible to all, if possible.

2. *Entering into contracts or other arrangements with third parties that have the effect of subjecting an employer's workers to discrimination based upon disability.* Although this does not require a company to protect a subcontractor's or supplier's employees, it does mandate that employers insure that subcontractor or other outsiders used by the company do not

discriminate against the firm's own workers. For instance, a company that hires outside consultants to conduct a supervisory training program is legally responsible if the consultants discriminatorily segregate a disabled supervisor, or fail to provide a reasonable accommodation for a supervisor's known disability. Company liability can also result when outside employment recruiters, testing consultants, performance evaluation experts, or any other contractors violate the law when dealing with the company's own employees or job applicants.

3. *Utilization of any standards, criteria, or administrative methods that have the effect of discriminating based upon disability, or that perpetuates the discrimination of others.* This provision outlaws a type of discrimination that lawyers call "disparate impact" and it follows the disparate impact principles of Title VII of the Civil Rights Act of 1964. In nonlegal language, this phrase refers to discrimination resulting from a company policy or action that is not intended to be discriminatory, but (1) results in different treatment of a disabled person, as compared to a nondisabled person, and (2) is not based upon a business necessity. To avoid accidentally violating the ADA by using policies that disproportionally impact disabled workers adversely and are not essential to the business, employers must review and make necessary changes in job descriptions, preemployment procedures, personnel record keeping, job evaluations, and many other aspects of employment. Of particular importance are the ADA's rules concerning hiring and testing.

4. *Excluding or otherwise discriminating against a job applicant or employee because of that person's association with a disabled person or group.* Employers must not base employment

decisions upon the disability of an individual's spouse, family member, friend, or live-in mate. Nor can employment decisions be based upon a person's relationship with disability-related groups, charities, or social clubs. For example, it is illegal for an employer to refuse to hire or retain an individual because he or she lives with a person with AIDS or is active in AIDS-related organizations.

5. *Not making reasonable accommodations for the known disabilities of job applicants and employees.* Almost as significant as what the law requires is what it does not require. The ADA does not require affirmative action plans, preferential treatment of disabled job applicants and employees, or expensive accommodations or modifications of current workplaces. Nor does the law require new record keeping or governmental reporting requirements. Furthermore, the Act does not require the hiring or retention of unqualified individuals, and it does not provide an excuse for poorly performing or disruptive employees. Once necessary and reasonable accommodations are provided, the ADA provides that disabled workers are treated just like nondisabled workers.

II. Definition of Disabled

A disabled person is one who has a physical or mental impairment that limits a major life activity, a person who has a past record of such an impairment, or a person who is regarded by other people as having such an impairment. This definition matches the definition of a handicapped person under the Federal Rehabilitation Act of 1973. Many state handicapped employment laws also use this definition. The ADA refers to "disabled" people, while the Rehabilitation Act and most state laws use the term "handicapped." The two terms are synonymous.

When the term "disabled person" is used, most people immediately think of individuals who are blind, deaf, in a wheelchair, or have other serious and obvious medical conditions. These individuals have a condition that easily meets the definition of a physical or mental impairment that limits a major life activity. However, many more people are covered by the definition. Individuals with serious, but inobvious impairments such as cancer, diabetes, mental illness, AIDS or the HIV virus and bad backs are legally disabled. Other individuals with physical or mental conditions that may not be obvious, and may be thought by some to be less serious, may be legally disabled, including individuals with mental depression, colon resections, learning disabilities, and sensitivity to cigarette smoke.

The ADA specifically excludes several physical and mental conditions from coverage. The following conditions are not disabilities.

1. Homosexuality, bisexuality, transvestitism, transsexualism, pedophilia, exhibitionism, voyeurism, and gender identity disorders, if not caused by a physical impairment.

2. Sexual behavior disorders.

3. Compulsive gambling, kleptomania, pyromania, and psychoactive substance use disorders resulting from the illegal use of drugs.

GLOSSARY OF TERMS

ADVERSE IMPACT or ADVERSE EFFECT

A total employee selection process that results in a significantly higher percentage of minorities or women in the applicant population being rejected for employment, placement, or promotion.

AFFECTED CLASS

Members of an applicant group who, by virtue of past discrimination continue to suffer the present effects of that discrimination.

AFFIRMATIVE ACTION

A set of "specific and result" oriented procedures, applied with commitment and good faith, designed to enlarge the opportunity for selection of candidates for hiring and upgrading to include members of the minority community and women. Affirmative action is a kind of "road map" to reach the goal of equal employment opportunity.

AMERICANS WITH DISABILITIES ACT (ADA)

Prohibits discrimination against "qualified individual with a disability."

ARTIFICIAL BARRIERS

Requirements, procedures or standards for employment that are not related to successful performance on the job.

CRITERIA

Quantifiable measures of job performance or success, as indicated in a supervisor's ratings or training grades.

DISCRIMINATION

Instances where there is a higher rejection rate for minority applicants and women, than for nonminorities and men unless the selection procedures have demonstrable validity.

DISPARATE EFFECT

When members of a minority or sex group have been denied the same employment, promotion, transfer, or membership opportunities as have been made available to other employees or applicants.

JOB-RELATED QUALIFICATIONS

Requirements that are realistically related to the actual duties of the job and the actual knowledge and skills required to perform those duties.

MERIT SYSTEMS

Rational selection of the best available to do the job based on ability.

POTENTIAL FOR DEVELOPMENT

The capacity of an individual to absorb training for advancement to more responsible positions.

PREDICTORS

Selection measures such as tests, licenses, interviews, etc.

PROTECTED GROUPS

Groups of people protected by the laws against discrimination.

SELECTION MEASURE

Tests, educational and work history data, interviews, etc.

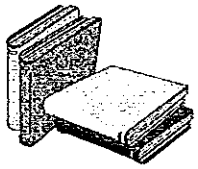
UNDER UTILIZATION

Having fewer minorities or women in a particular job classification than would be reasonably expected by their availability in the work force.

VALIDITY

The extent to which a selection method predicts job success.

TECHNICAL LESSON PLAN OVERVIEW



Personnel who give fire service instruction rarely think of themselves as teachers. However, anyone who has the responsibility to teach what they know to someone else is an instructor, whether they recognize it or not. Their job is to teach. Fire department officers have a considerable amount of instructional work to do. Before an officer can provide adequate instruction, they must learn a new trade --- ***instruction***.

Successful teaching is based upon time-tested principles. During World War I, Charles R. Allen developed a method of training new factory workers that involved four steps: motivation, presentation, application, and evaluation. This four-step method of instruction has been adopted by vocational teachers. Despite efforts to improve upon it, no other method has been as effective to date. It is a principle that has proved itself over more than a half century. A vocational teacher's primary concern is to turn out students who can perform on the job, and they may fail to do this if they overlook or misunderstand any of the important points or steps in the teaching-learning process.

Any problems an instructor may encounter in using the four-step method will be due not to failure of the method itself, but to the instructor's failure to use the four steps properly in various teaching situations. All of the steps are important, but for any given set of circumstances they may not have equal relative importance. For example:

Step 1 may be small,

like this . . . . . **Preparation**

Step 2 may be larger,
like this . . . . . **PRESENTATION**

Step 3 is the most important,
like this . . . . . **APPLICATION**

Step 4 may not need much attention
if Step 3 was successful and may again be small
like this . . . . . **Evaluation**

These four steps to successful teaching are discussed more fully in the following paragraphs.

Step 1 - Preparation (Motivation)

The first of the four steps to successful teaching is the PREPARATION step, in which the successful instructor always makes a concentrated effort to reach the mind of the learner. Learning cannot take place until the learner is motivated. The instructor must get the student's attention and give them the opportunity to focus it on the new material to be learned.

Step 1 is also used to build a teaching base. The student must **associate** every new idea or job to be learned with something they already know. Therefore, during this step the instructor should relate their lesson to the experiences and knowledge of the learners.

Although motivation is the **first step** of a lesson plan, writing the motivation is not necessarily the first thing to do in preparing the plan. Sometimes it is best to write the motivation last and incorporate into it information that will make the job or topic important to the learner.

Step 2 - Presentation

In the PRESENTATION step, instruction takes place or new ideas are presented to the learner. Often-times the inexperienced instructor focuses so strongly on this step that they have little time to devote to the next and most important step of allowing their students to apply or demonstrate the new knowledge they have presented to them.

Step 3 - Application

Once again, the APPLICATION step is the most important of the four steps of learning. The job of the vocational instructor is to teach people how to do a job. It is during this step, as the above heading implies, that the learner has the opportunity to apply not only what they have learned but what the instructor has taught. Particularly in vocational training, there is "little learning without some doing."

Step 4 - Evaluation

The purpose of the EVALUATION step is simply to see if the learner can do the job **unaided** or **without supervision**. During the application step, the student performed the job under supervision, but the student did not demonstrate their ability to do the job on his/her own or perhaps to apply the principles in a new situation.

TECHNICAL LESSONS

The task of presenting technical information in a way that enables students to learn it is always difficult. The instructor must be careful not to cloud the important ideas by presenting too much information, yet must be sure to present enough information for the student to understand the lesson. A well-prepared lesson plan will serve as a guide for presenting the information in a clear, economical, and understandable manner.

Why a Technical Lesson Plan is Necessary

The quantity of technical information that must be taught to fire service students is constantly on the increase. Technical topics are often quite complex, and if they are not presented according to a plan, they become confusing to the student.

Technical Lesson Analysis

Technical subjects are not analyzed for operations and key points as manipulative jobs are, but they are analyzed for MAIN FACTS, PRINCIPLES, THEORIES, and the like. They must be arranged in teaching sequence whenever possible so students can progress from point to point. Long, complex subject matter should be divided into more manageable parts so that each new idea adds to or builds upon the receding idea. Points of information should be presented in instructor order - that is from simple to complex or from known to unknown.

Basically, technical lesson analysis involves four steps:

1. Identifying the level of instruction
2. Preparing behavioral objectives

3. Specifically identifying what the student needs to know to reach the goal
4. Determining the best method of teaching and learning the necessary subject matter.

Level of Instruction and Behavioral Objectives

The level of instruction and the behavioral objectives determine what should be included in the lesson plan and to what depth the instructor must carry his/her instruction. If the performance desired is a Level One, then the subject matter must be limited to this level. If the desired level is Level Three, then the instructor must include much more detail in his presentation and must develop an in-depth application step.

Levels of instruction influence behavioral objectives. The instructor must make sure the techniques of presenting it are directed toward enabling the student to meet the objectives defined. Levels of instruction are meant to be minimum levels, and the instructor is not necessarily limited to a preestablished level. The instructor must consider, however, the demands of other subjects and should not over teach in one area at the expense of other necessary information.

Developing the Technical Lesson

The lesson plan format used for presenting technical information is somewhat different from the one used for manipulative lessons. However, both are based upon the four step plan when teaching a technical lesson. All too often, instructors make the mistake of covering only the motivation and presentation steps in a technical lesson, neglecting the all important application step and evaluation step. An instructor who does this has no way of knowing how much learning took place or how well the students are able to apply the concepts and principles presented to them. The application step in a technical lesson

plan plays an important role in providing constant feedback from the students so that the instructor can determine their rate of learning. Even though the styles are different, the four steps of instruction are readily recognizable in the technical lesson format.

TOPIC:

TIME FRAME:

LEVEL OF INSTRUCTION:

BEHAVIORAL OBJECTIVES:
Condition:
Behavior:
Standard:

MATERIALS NEEDED:

REFERENCES:

PREPARATION: *(Step 1* - Motivation)

PRESENTATION: *(Step 2)*

APPLICATION: *(Step 3)*

SUMMARY:

EVALUATION: *(Step 4)*

ASSIGNMENT:

Description of Technical Lesson Plan Components

- TOPIC. The topic of a technical lesson plan should have a title that is short yet specifically descriptive of the information to be covered. The title should not be so brief (concise) that it fails to describe the lesson content. It should somewhat limit the content of the lesson. Technical lesson plan topics should usually begin with such words as "Kind of..." "Types of..." or "Methods of..."

- TIME FRAME. The minimum, estimated duration required for "in class" presentation based on a seven-hour, one-day course.

- LEVEL OF INSTRUCTION. Identifies the instructional level which the material was designed to fulfill. Obviously, instructors have the latitude to increase the level based on time available, local conditions and the students' apperceptive base.

- BEHAVIORAL OBJECTIVE. The behavioral objective is a statement of the student's performance desired at the end of instruction. Instructors must make sure that enough information is given in the presentation to enable the student to perform according to the goal.

- MATERIALS NEEDED. This should be a complete list of everything instructors will need to present the lesson, including Information Sheets, (handout materials), visual aids, quizzes, and so on.

- REFERENCES. These are the specific references the curriculum development team utilized when developing the lesson plan. In addition, references may be listed as additional study aids for instructors to enhance the lesson -- books, manuals, bulletins, scripts, visual aid utilization plans and the like.

- PREPARATION. The motivational statements in this section connect the student with the lesson plan topic through examples or illustrations relating to their occupation, injury, and even mortality. Instructors may modify this section to better fit their students' environment.

- APPLICATION. Step 3 of the four step method, is the most important part of a lesson plan. Student learning and understanding are based upon student involvement in the lesson. Student involvement can be obtained by several means, including group discussions, problem solving, note taking, group projects, outside assignments, and oral and written quizzes. If an instructor lectures only and students listen only, very little learning occurs.

- SUMMARY. The longer and more complex the lesson, the greater the need to reemphasize the important points before attempting an evaluation. A summary can serve to clarify uncertainties, prevent misconceptions, and increase learning and retention.

- EVALUATION. Evaluation is Step 4 of the four step method, in which the instructor must evaluate the amount of leaning that took place and determine whether the behavioral objectives were achieved, how much information was transferred from instructor to student, and how well the student understands the principles that were covered. Evaluation may be accomplished through oral or written quizzes, reports, projects, and the like.

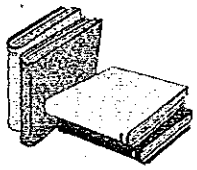
- ASSIGNMENT. The assignment lists additional work students must do to reach the established behavioral objective, such as individual projects, supplementary reading, or term papers.

Technical Lesson Teaching Methods

The method most commonly used to teach a technical subject is the lecture or "telling" method. The "pure" lecture is probably the least effective of all teaching methods. Other methods may require more preparatory work, but the extra effort is repaid with increased learning.

The "improved" lecture is a lecture divided into small segments, supplemented by appropriate visual aids and handouts and strengthened by methods that encourage constant feedback. Any visual aid that strengthens learning should be used. Good films may clarify principles that would be difficult, if not impossible, to explain with words alone. Group discussion can create a better learning situation, and it can be used to get feedback. Discussions can be guided so that students are led to an understanding of the principles involved.

Any lecture is vastly improved if it is divided into small segments and includes application or participation by students (feedback) during and at the end of each segment.



INSTRUCTOR QUALITIES AND RESPONSIBILITIES

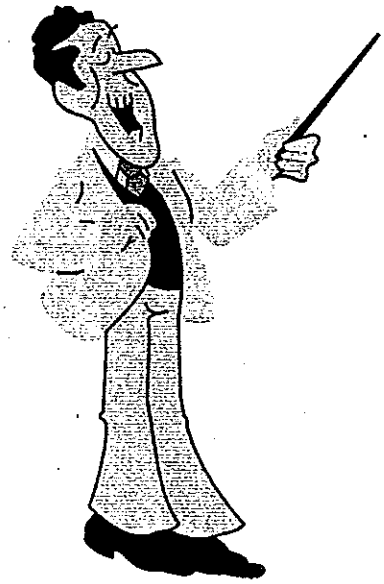
> ***"It doesn't matter what the matter is, but the manner in which the matter is presented."***
>
> **E. James Rohn**

This statement can be directly attributed to instructional format or "teaching methods."

Approach

The successful instructor must:

1. Know the jobs and subjects she/he is to teach
2. Have confidence in their ability to teach
3. Have an agreeable personality
4. Strive to develop proper attitudes



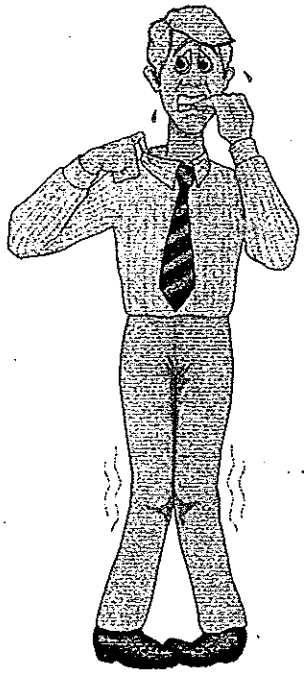
5. Be tactful in difficult instructional situations
6. Deal patiently with all questions asked by the students
7. Assume the responsibility to assist the student
8. Be patient with slow learners
9. Have a sense of humor
10. Develop abilities to hold the interest of the students
11. Be enthusiastic for the subject matter
12. Have respect for the students' opinion
13. Be honest when answering questions

14. Take pride in personal appearance
15. Be impartial in dealing with students
16. Practice good management during instructional periods
17. Be willing to seek and accept new ideas, methods, and approaches
18. Use proper grammar; choose and pronounce words according to accepted usage
19. Be able to vary student approach dependent on the teaching situation
20. Be familiar with the latest instructional methods and techniques.

Avoiding Undesirable Mannerisms

A successful teacher avoids the following mannerisms because they distract students and interfere with the learning process:

1. Chewing a pencil, toothpick, match, or gum
2. Frowning or glowering
3. Tapping their foot
4. Pacing the floor
5. Snapping their fingers
6. Using profane language
7. Playing with chalk
8. Repeating the same words
9. Cleaning or biting fingernails
10. Pulling or adjusting clothes
11. Jingling coins or keys
12. Watching the clock
13. Fingering jewelry



14. Looking at the ceiling, the floor, or the walls rather than at the students

15. Using the word "I" constantly

Characteristics of Superior, Good, and Poor Instructors

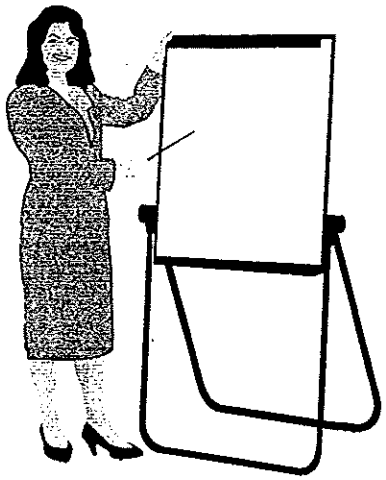
The characteristics that determine the quality of an instructor -- whether she/he is superior, poor, or somewhere in between --- have been fairly well identified.

The SUPERIOR instructor is one who:

1. Is liked and respected by the students

2. Acts upon suggestions and criticisms

3. Is well poised and assured



4. Is always dignified and courteous, never sarcastic or rude

5. Succeeds in producing a social situation conductive to learning

6. Knows the subject, related fields, and translates this knowledge into terms intelligible to the students

7. Readily supplements their knowledge

8. Can and does use a variety of procedures

9. Modifies plans when the need arises

10. Encourages the students to participate in planning and evaluation, resulting in a cooperative enterprise

11. Knows the students as individuals from study and from observation, and adapts teaching to meet their needs

12. Organizes the class sessions to minimize time and effort

13. Keeps accurate and useful records

14. Ignores trivial matters
15. Deals firmly with problems
16. Looks beyond symptoms for the cause of disciplinary problems
17. Keeps all the students interested in worthwhile activities

The POOR instructor is one who:

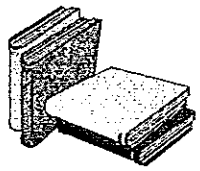
1. Is not liked or respected by the students
2. Alibis and finds excuses when criticized

3. Is ill at ease in front of a group
4. Is stiff, remote, overly familiar, rude, sarcastic, or unfriendly, perhaps through ignorance of common social amenities
5. Is unfair or plays favorites
6. Does not know subject matter
7. Talks in terms unintelligible to the students
8. Cannot distinguish between <u>unimportant</u> details and significant areas of interest
9. Uses few teaching procedures
10. Fails to modify plans when needed
11. Knows little about the students and fails to adapt teaching to meet their needs
12. Merely dictates procedures with little direction
13. Keeps inaccurate records
14. Wastes their own and students' time and effort
15. Fusses over trivial matters and does not recognize important ones
16. Uses threats and issues ultimatums which she/he cannot back up

17. Treats symptoms in disciplinary problems and ignores causes
18. Fails to keep the interest and attention of the class

STUDENT SUPPLEMENT

A CHECKLIST FOR INSTRUCTORS ✔



Instructors striving for superior status should regularly review the following checklist.

I. Personal Characteristics

A. General appearance

1. Is my personal appearance as pleasing as I can make it, and is it appropriate for the classroom?
2. Is my posture correct?
3. Is my uniform or other clothing neat, fresh, and clean?
4. Am I always well groomed?

B. Health

1. Do I have due regard for my health at all times?
2. Do I get enough sleep? Adequate nutrition? Wholesome relaxation?

C. Voice

1. Is my voice effectively pitched and well modulated?
2. Is the quality pleasing?
3. Do I articulate distinctly?

D. Personal qualities

1. Am I courteous in my relations with learners, with other instructors, and with those in authority?
2. Do I avoid coarseness in my manner and conversation?
3. Do I set a good example for my students?
4. Do I find pleasure in my teaching?

5. Am I optimistic and energetic?
6. Am I punctual and reliable in my records and reports?
7. Do I have initiative?
8. Do I have self-reliance?
9. Am I tactful?
10. Do I exercise good judgment?
11. Am I resourceful?
12. Am I able to appreciate the student's side and give sympathetic help if she/he experiences difficulties?
13. Am I cheerful, pleasant, and approachable?

E. English

1. Is my pronunciation correct?
2. Is my enunciation clear and distinct?
3. If I have an accent that makes it difficult for others to understand me, am I trying to correct it?
4. Is my choice, use, and arrangement of words the best?
5. Is my grammar correct?
6. Is my vocabulary adequate and appropriate?
7. Does my written English conform to the standards of correct usage?

II. Professional Equipment

A. Is my vocational preparation entirely adequate?

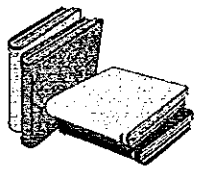
B. Have I received specific training in teaching methods?

C. Have I mastered the subject matter I am teaching?

D. Do I have a loyal and cooperative professional attitude?

E. Do I have the capacity for professional growth?

COURSE OUTLINE DEVELOPMENT



A credentialed fire service instructor who is teaching personnel in a fire department or at a college is part of Trade and Technical Education. By definition, Trade and Technical Education is instruction designed to develop basic manipulative skills, safety, judgment, technical knowledge, and related occupational information for the purpose of fitting persons for initial employment in industrial occupations and upgrading or retraining workers already employed.

A course outline is a list of manipulative and technical jobs selected from the Occupational Analysis to meet predetermined teaching objectives.

Course outlines in trade and technical education are **performance oriented** rather than subject matter oriented. Every job in a course outline should be taught in such a way that the student will be able to distinguish between doing the job correctly and doing it wrong. If students are to improve with practice, they must be able to recognize acceptable performance.

The following are the **major steps** in developing a course outline:

❶ Determine the needs of the students

❷ Develop course objectives

❸ Identify the jobs to be taught based upon the Occupational Analysis

❹ Organize the jobs in **teaching sequence**

❺ Establish tentative teaching time

Determine the Need for Training

Determining the needs of the students to be trained is an essential part of course development. Within school systems, fire science advisory boards may establish the need for a course, or the decision may be left to the individual instructor. The departmental training officer usually has the prime responsibility here, but all department officers have the responsibility to identify training needs as they develop.

Training needs may be obvious. For example, the purchase of a new piece of apparatus or equipment usually calls for training. Many times, however, the need for training will not be so apparent, and it may develop over a long period of time. Information of value in determining training needs, including those needs that are not obvious, can be obtained the through use of training records and surveys, by analyzing diagnostic quizzes, the effects of changes in personnel, equipment, or procedures, and by analyzing any increase in accidents or costs in departmental operations.

Training Records: A review and evaluation of departmental training records may identify areas that have been overlooked in training or that have not been covered in the recent past.

Surveys: A survey-type questionnaire may be used to obtain ideas or suggestions as to what training may be needed. Personal interviews or conferences with key personnel may be extremely helpful, especially in the development of departmental in-service programs. A training survey could also be made in the form of personal observations of performance

during drills or actual fireground or emergency operations. Surveys could include personnel tours through local industries to identify any new or exotic products or processes or new construction features that might require the alteration of existing suppression practices or the development of new ones. Surveys may also disclose problems created within the response area by freeways, subways, or airports.

Diagnostic Quizzes: Diagnostic quizzes, both written and manipulative performance, are often used to measure retention of training and to evaluate the readiness of department personnel to proceed to more advanced training.

Personnel Changes: New personnel always require prompt instruction. Promotions or transfers may also create a need for a specific type of training.

Changes in Equipment or Apparatus: If a department acquires new equipment or apparatus or intends to do so, the personnel who will use the equipment or apparatus must be taught the correct procedures for doing so. Any such change may indicate a need for some or all of the personnel in the department to be trained or retrained.

Changes in Procedures: Whenever procedures are changed, people must change. When the personnel of the department can transfer their knowledge of old procedures to the new procedures, there will be little or no need for additional training. Usually, however, personnel will have a need for some such training.

Increase in Accidents and/or Hazards: An increase in accidents in departmental operations indicates that the personnel have a training need. Technological changes are numerous and rapid in the modern world, and new occupational hazards are constantly arising. Personnel must be properly trained to meet these changes.

Increase in Costs: The cost of fire protection is steadily rising along with other costs. Increasing costs certainly make it imperative to get the most value from personnel and to use equipment to the fullest. An abnormal increase in the cost of departmental operations can alone indicate a need for training.

Tentatively Identify the Course Title

In developing any course outline, the instructor usually has only a general idea at first of what the students need, and therefore the instructor's tentative title should be precise enough to enable them to think in terms of specific areas of the occupation rather than the total field, such areas may be "Pump Operation," "Ground Ladders," and "Hose Evolutions."

Determine the Needs of the Students

Determining the needs of the students is the **most important step** in developing a course outline. In this phase, the instructor identifies what training the students will need to enter the occupation or to continue to function within the occupation. The needs of the students are the basis for all vocational education. If they are not specifically identified, the course will at least be ineffective and perhaps a failure.

The following are some ways to identify training needs:

❶ Determine the requirements of the student's position or rank or the requirements of tasks they must perform.

❷ Identify the type of student who will be involved (for example - recruits, paid personnel or call personnel)

❸ Determine the knowledge and skill level of the student by means of standardized tests or teacher-made diagnostic tests, both manipulative-performance and written type

❹ Make observations to determine potential students' needs at fire stations, on the drill ground, or on the fireground. Watch personnel perform their duties under varying conditions, this may identify definite needs for training.

Develop Course Objectives

Course objectives will determine the specific **scope** of the course. When students' needs are identified or indicated, course material must be developed to meet those needs. Course objectives are developed with only one thought in mind... the needs of the students.

Course objectives are written by **instructors** for **instructors**. They state what skills and knowledge the instructor plans to develop in the students and what learning experiences the student will be involved in as they progress through the course.

Course objectives establish the **plan of action** for a course. They serve as a guide for the instructor, they determine the specific jobs that must be taught, and they establish the basis from which **student behavioral objectives** can be written. The number and scope of the course objectives are determined by course complexity.

Course objectives must describe what the students will do during the course. Although objectives are not necessarily written in measurable terms, they identify those behavior changes in the students that can be measured at the **end of the course.**

Examples of Course Objectives:

"To provide fire service personnel with a variety of methods and techniques for training their subordinates in accordance with the latest concepts in vocational education."

"To prepare fire service personnel to select, develop, organize and utilize instructional materials appropriate for teaching manipulative lessons."

"To provide fire service personnel with an opportunity to apply major principles of learning through practice teaching demonstrations."

"To prepare fire service personnel with the material and information which leads to Officer Certification within the State of California."

Identify the Jobs to be Taught Based Upon the Occupational Analysis

A course outline includes a list of those jobs that the instructor will teach to help students develop the skills necessary to meet their needs. These jobs are correlated to the tasks in the Occupational Analysis.

Some of the tasks listed in the Occupational Analysis may be performed by learning only one job, while other tasks cannot be performed until as many as twenty (20) jobs are learned. The number of jobs that must be included in the course outline will depend on the department, its fire problems, and the student needs of the department. This also depends to a great extent on the depth to which the instructor plans to develop student ability to perform tasks.

When writing topic titles for the jobs in a course outline, the instructor should use words that give a clear indication of the nature of each job. For example, use the words: "How To" in the titles of all jobs that

require manipulative skills. Using the words "How To" for such jobs will make it easier to determine course time, the necessary learning environment, and special equipment requirements.

Similarly, the topic for each technical subject in the course outline should be introduced by such words as "Methods Of," "Reasons For," "Conditions Of." Using such words will also assist instructors in determining total course time, classroom requirements, and instructional material requirements. The topics of some technical subjects may not lend themselves to the exact words suggested here. However, each topic must be written in a manner that specially limits the scope of a lesson.

The following are some examples of topics for manipulative-type jobs:

"How To Raise A 24' Extension Ladder (One Person)"
"How To Couple Hose (Foot Method)"
"How To Deploy A Portable Monitor Unit"
"How To Make A Chute Using A Salvage Cover
"How To Change A Resuscitator Cylinder"

These are some examples of topics for technical subjects:

"Reasons For Testing Ladders"
"Methods Used In Determining Engine Malfunctions"
"Conducting Exterior Surveys"
"Conditions Requiring The Use Of A Resuscitator"
"Company Run Reports"
"Considerations for Structure Fire Size-Up"

How To Code a Course Outline

The topics in a course outline should be coded to indicate the **Block** (roman numeral), **Unit** (upper case letter), **Task** (Arabic numeral), and

Job (lower case letter) in the **Occupational Analysis**. This will help to provide an organized system of handling instructional materials.

Organize the Jobs in Training Sequence

The needs of the students are of paramount importance in determining the teaching sequence for a course outline. Those jobs which a student must know first, should be taught first. The teaching sequence can be established either by the instruction-order or by the production-order method, the first being the one generally preferred.

Instruction-Order Method: In the instruction-order method, the progress of learning should be from **simple to complex** information and jobs, and it should be based upon the interest of the students, the skills needed, task frequency, and job usage. Proceeding from simple to complex in a teaching sequence means, for example, that the student is taught how to identify it before they are taught the theory of its operation.

Interest of the students must be considered because their interest is closely related to their needs. Also, giving early attention to fulfilling their interest will assist you in developing motivation.

Skills needed means that any course of instruction should prepare the students to perform those jobs that they will **need first** within their position in the occupation.

Task **frequency** means that the jobs a student uses **most frequently** must be the ones taught first. The instructor must also consider those jobs that are seldom performed but require a high level of proficiency.

Job usage means that somewhere within the course of instruction the students must have an opportunity **to practice** the jobs taught in the course.

Production-Order Method: In the production-order method, the teaching sequence is based upon the order in which jobs must be done under actual conditions and not necessarily in order of complexity, interest, need, frequency, or use. Basically, the production-order method requires that before students can perform certain jobs they must know other jobs first.

Evaluate the Tentative Course Title

The instructor has now determined the needs of the student, written the objectives, and identified the jobs to be taught. This information may indicate a need to select a new title for the course. The new title should be more specific and descriptive than the tentative title first selected. It should serve to limit the scope of the course.

Establish a Tentative Teaching Time

Up to this point, no consideration has been given to the time required to teach a course. This is because it is almost impossible to establish the teaching time for the course **until** lesson plans and other instructional materials have been developed. However, the time factor must be taken into consideration early in the process of course development. The amount of time available for a course of instruction will influence the course objectives, the teaching methods that will be used, and the lesson plans and instructional materials that will be required to conduct the course. The instructor should remember too that any course outline is subject to change after actual instruction begins. The many factors that influence teaching time and methods are discussed in detail in subsequent topics of Fire Instructor 1A and 1B.

STUDENT SUPPLEMENT

COURSE TITLE: Initial Fire Operations for Residential Fires

COURSE OBJECTIVES: To...

a) provide fire service personnel with knowledge of different types of residential structures.

b) prepare fire service personnel with knowledge of the various considerations for residential structure fires.

c) provide fire service personnel an opportunity to apply their knowledge through practical demonstration.

COURSE CONTENT: 16:00 HOURS

1.	Introduction		1:30
2.	Identify Residential Construction Features	V-A-19	1:00
3.	Determine Water Supply	IV-C-10	0:30
4.	Determine Apparatus Placement	V-B-15	0:30
5.	Determine Need for Rescue	V-B-4	1:30
6.	Identify Exposures	V-B-9	1:30
7.	Principles of Confinement	V-B-11	1:30
8.	Procedures for Extinguishment	V-B-12	1:30
9.	Develop Plan for Overhaul	V-B-13	0:30
10.	Develop Plan for Salvage	V-B-14	0:30
11.	Principles of Ventilation	V-B-10	0:30
	Course Review		2:00
	Practical Exam		3:00

INSTRUCTOR GUIDE

TOPIC: FREEWAY/EXPRESSWAY INCIDENT GUIDELINES

TIME FRAME: 1:30

LEVEL OF INSTRUCTION: Level II

BEHAVIORAL OBJECTIVES:

Condition: A written quiz

Behavior: The student will identify the problems and solutions of gaining access to the incident scene, evacuation of motorists, supplying large volumes of water, and ensuring the safety of emergency personnel when managing freeway/expressway incidents by completing a written quiz.

Standard: With a minimum of 80% accuracy according to Fire Department Standard Operating Procedures, 1996 Edition, Pages 112-125 and Information Sheet 6-1

MATERIALS NEEDED:

- Writing board with markers/erasers
- Overhead projector and screen
- Overhead transparencies for this lesson plan
- Written quiz
- Information Sheet 6-1

REFERENCES:

- Fire Department Standard Operating Procedures, 1996 Edition
- Information Sheet 6-1, "Freeway/Expressway Incident Guidelines"

PREPARATION: Emergency incidents on limited access freeways and expressways present unique and varied challenges for fire department personnel. The problems of gaining access to the incident scene, evacuating stranded motorists, supplying large volumes of water, and ensuring the safety of the emergency personnel are just a few of the potential problems the fire department may encounter. The following is presented as a guideline for fire officers responding to freeway/expressway incidents.

INSTRUCTOR GUIDE

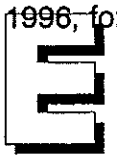
LESSON 6 - FREEWAY/EXPRESSWAY INCIDENT GUIDELINES

PRESENTATION	APPLICATION
I. ACCESS	OHT 6-1
A. Delayed response	
1. Additional fire, rescue, and EMS personnel and equipment	
a) Large incidents	
2. Foam equipment	What would foam equipment be used for?
a) Large spills	
b) Petroleum fires	
3. Haz mat unit	
4. Diking materials	
a) Contain hazardous materials run-off	
5. Air units	
a) If SCBAs are used	
6. Water tankers	What would water tankers be used for?
a) Inaccessible water supplies	
b) Delay in connecting supply lines	
7. Law enforcement	
a) Control of the incident scene	

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
B. Incident Commander (IC)	OHT 6-2
1. Staging emergency apparatus	What are some location considerations when staging apparatus?
a) Surface street locations	
b) Near personnel access doors in sound walls	
c) Next to chain-link fences that can be cut	
d) Near of/off ramps	
2. Directing apparatus to the best means of access	OHT 6-3
a) Nearest on-ramp	
1) Travel on the shoulder of center divide	
b) Off-ramp	
1) Block freeway/expressway at incident site	
2) Gain access above incident site	
3) Travel in the wrong direction	
NOTE: This procedure must be coordinated with the on-scene law enforcement agency.	

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
II. EVACUATION 	What is the best means of evacuating motorists?
A. Keep motorists in their vehicles 	OHT 6-4
1. Use the shoulder or center divide to direct them around incident	
2. U-turns on to adjacent lanes when possible	
3. Block traffic at on-ramps below the incident site 	
a) Direct motorist to travel in the wrong direction and exit at on-ramp	
B. Have motorists abandon their vehicles 	What is another option for evacuating motorists? OHT 6-5
1. For rapid evacuation	
2. Fire personnel assist motorists to safety	
3. Use ladders to exit depressed roadways 	
NOTE: Refer to Section 1109.2 of Fire Department Standard Operating Procedures, 1996, for use of aircraft. 	
III. WATER SUPPLY	OHT 6-6
A. Use water tenders as temporary supply sources	

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
B. Cut chain-link fence	
1. Supply lines can access freeway/expressway from surface street hydrants	
C. Use ladders to access depressed roadways	
D. Use apparatus to relay pump a long supply line from hydrants	
E. Use sand or other diking material for run-off	
IV. SAFETY	
A. Sufficient law enforcement	OHT 6-7 What is the need for law enforcement?
1. Traffic control	
B. Stop all traffic on roadway	
C. Clearly mark incident	
1. Use flares and/or cones	
D. Park emergency apparatus between on-coming traffic and incident	
E. Assign a Safety Officer	
1. To watch on-coming traffic	What is the Safety Officer's role?
2. To warn personnel of potential problems	

INSTRUCTOR GUIDE

SUMMARY:

Freeway/expressway emergency incidents will continue to present a greater challenge to fire service personnel as the multiplicity of hazardous substances, along with the volume of traffic on these roadways continue to increase. To successfully meet this challenge, fire personnel must not only keep abreast of the ever increasing number of materials carried on our roadways, but must also have a thorough knowledge of the freeway and expressway systems within their jurisdiction.

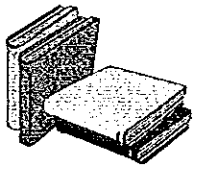
EVALUATION:

The student will complete a written quiz with a minimum 80% accuracy at a time to be determined by the instructor.

ASSIGNMENT:

Review your notes and read page 112-125 in the Fire Department Standard Operating Procedures, manual, 1996 Edition and Information Sheet 6-1 in order to prepare yourself for your upcoming quiz and test. Study for our next session.

LEVELS OF INSTRUCTION



Educational theorists have identified three major domains in which learning occurs - the cognitive, the psychomotor, and the affective. In the world of Human Resource Development, similar terms are used to describe these learning domains: knowledge, skills, and attitudes. The cognitive domain is concerned with knowledge such as facts and figures. The psychomotor domain is concerned with the development of manipulative skills, while the affective domain is concerned with the development of attitude and feelings. Each of the domains is further broken down into distinct levels of behavior: six for the cognitive domain, five for the psychomotor, and five for the affective. These levels of behavior range from simple to complex.

The three domains, while classified separately, are not mutually exclusive. A single objective may require a student to demonstrate learning that has occurred in more than one domain. For example, if the students were required to raise ladders for rescue, they would need to demonstrate "psychomotor" skills in carrying and raising ladders, "cognitive" skills in selecting the correct size and placement of the ladder, and "affective" values in a demonstrated adherence to proper safety procedures. Yet one single psychomotor objective could cover the process: "The students will raise ladders for rescue." This means that one objective, while on the surface indicating manipulative behavior, may also include behavior in the cognitive and affective domains. After all, in order to perform a skill, we need to know a number of things (such as the correct procedure), and we need to appreciate some things (such as safety) in addition to the physical act of doing the job.

Several years ago fire service educators chose to utilize the Taxonomy of Educational Objectives, developed by Benjamin S. Bloom, et al.

(1958), focusing on the cognitive domain to establish levels of student behavior, known as "levels of instruction." While this system has served as a model for fire service instruction, it has not been without confusion. The taxonomy (a method or sequential classification on progressively higher levels) is organized within two major groups: (1) simple recall of information, and (2) intellectual activities. Bloom labels the lowest level "knowledge." The higher mental abilities are classified into five increasingly more intellectual levels: comprehension, application, analysis, synthesis, and evaluation.

This is due primarily to: (1) the fact that when these taxonomies were created they were developed for use in secondary schools and colleges. The issue of skills training, or learning in the domain, was not addressed due to the fact that teaching/learning in this domain does not typically occur in the secondary school and college environment, and (2) the levels of instruction were identified and defined in terms of the cognitive learning domain. Problems arise, therefore, when the words "knowledge," "comprehension," and "application" are stretched into the psychomotor and affective learning domains. In the delivery of vocational education, and particularly in fire service training, we find that the approach to these taxonomies and their level of detail may be inappropriate and in some cases unnecessary. For our purposes, a three-level classification system (applicable to each domain) is adequate and appropriate to the majority of learned activities within vocational education. The three levels within this classification system include:

- ✎ **Level I** - **Basic Knowledge**
- ✎ **Level II** - **Competent**
- ✎ **Level III** - **Highly Proficient**

These levels are determined by carefully studying the tasks of the occupation being taught. An occupational analysis will help determine

the degree of manipulative skill needed, the technical knowledge required, the frequency with which specific tasks are performed, the hazards inherent in the tasks, and the extent to which specialization is required.

These three levels are roughly comparable to the levels of behavior that have been identified within the three domains. The following matrix contains the three levels toward which we gear instruction and the levels from the different domains that approximate them.

LEVEL OF INSTRUCTION	COGNITIVE DOMAIN	AFFECTIVE DOMAIN	PSYCHOMOTOR DOMAIN
BASIC KNOWLEDGE	* Knowledge * Comprehension	* Receiving	
COMPETENT	* Application * Analysis	* Responding * Valuing	* Perception * Imitation
HIGHLY PROFICIENT	* Synthesis * Evaluation	* Organizing * Characterizing the Value Complex	* Manipulation * Performance * Perfection

Level I - Basic Knowledge

In the three-level classification of learning, the first level is characterized by the student acquiring new information (cognitive domain) and developing appropriate attitudes (affective domain) as a result of the learning process. In this level, the instructor plays a major role in the teaching-learning process. The instructor serves primarily as a provider of new information to the student by lecturing, assigning course work, and by guiding class discussions. The instructor demonstrates, or has someone demonstrate, the desired skill to the student. The performance

of manipulative skills is typically not taught or evaluated at this level of instruction.

As the student acquires information, the instructor confirms retention by having the student answer questions, take written tests, participate in group exercises and discussions. Students can name parts, tools, and equipment, remember facts, and follow step-by-step procedures.

Evaluation of student progress is relatively easy at this stage because the student is expected to do little more than memorize data. Objective tests, therefore, require the student to either recognize the correct answer or to supply (recall) the answer to a statement or question.

Level II - Competent

The second level of learning, called "competent," concerns the depth to which a student successfully recalls something which has been learned previously. It is here that technical information is connected to performance in the field. At this level the student begins to understand the relevance of particular segments of information to given situations. The instructor thus requires the student to take from the information previously learned and apply facts to prescribed problems. The student is required to make choices and to disregard irrelevant data. At this level of instruction, manipulative skills are developed to a level of "competency." Students can perform all parts of the job or skill and need only a spot check of completed work. They also meet minimum acceptable demand for speed and accuracy.

As the student begins to now apply previously learned skills and concepts, the instructor also begins to switch emphasis. Although the "how to" mode is still reinforced, the instructor moves into more of a "why" mode, explaining why certain actions are taken. Questioning focuses on confirming that the students understand concepts and their

application to actual day-to-day work. Here the student is required to justify the approach taken to solve a problem, and the process becomes as important as the solution. Students can now explain why and when the job must be done and why each step is needed. They can also explain the relationship of facts and describe general principles about the subject.

In the second level, testing becomes more complex because objective evaluation of understanding is more difficult. Written tests require the student to select and apply specific facts from a wide body of information and apply them to a sampling of similarly structured problems and situations. Some subjectivity is not only appropriate, but often necessary to probe the student's mind to confirm understanding. In subject areas that require a shift in attitude from "noncommittal" to an unwavering adherence to organizational and safety rules, testing continues to grow more complex. Tests are now designed to confirm that the student has developed a commitment, and will not deviate from the rules, even under pressure. Manipulative tests in this level focus on competence. Given appropriate tools and equipment, the student is expected to use them safely and effectively in order to achieve an overall objective. Evaluation of skill performance focuses on the student's approach to the situation, ability to meld several skills into productive work, and expediency (with time as a parameter) for completing the assigned task.

Level III - Highly Proficient

The top level of the three-level classification system is termed "highly proficient." This level denotes the process by which a student, faced with a new problem or situation, has the ability to recognize common factors and bring new sources and types of information to bear on the situation. At this level, knowledge and skills learned are at a sufficient breadth and depth for the student to transfer earlier learning to a new set of

circumstances, including reflecting on the consequences expected if an action is taken. Manipulative skills are developed whereby performance is efficiently and smoothly executed.

At this point, the student is expected to bear more of the burden for skill and knowledge development, with the instructor serving less a provider and more as a monitor and facilitator. The instructor directs the student toward independent study to search for data that will deepen conceptual understanding. The instructor challenges the student with increasingly complex and unique problems that require a multi-faceted approach to the solution. More time is spent by the instructor in observing student performance in simulations, in probing the student's reasons for taking a particular action, and testing adaptability to quickly changing situations. The student is required to pull information from different subject areas, develop a solution based on accepted principles, and apply it in an appropriate manner to the problem.

Students are able to complete manipulative performance skills quickly and accurately as well as tell or show others how to do the job. In addition to evaluating conditions and making proper decisions, they can predict and resolve problems about the job. They can also analyze facts and principles to enable them to draw conclusions about the subject.

Evaluation at the third level is no longer restricted to the classroom or the training ground. Because the student is expected to function independently with little or no supervision, performance must be observed in all types of situations, both simulated and real. This will confirm that the student is able to react, under pressure, to any situation and perform consistently with high proficiency. The evaluation system must include written tests and exercises, performance tests (including individual, company and multi-company evolutions) and recorded observations that look into the day-to-day performance of duties.

STUDENT SUPPLEMENT

When describing activity within a level of instruction and consequently writing student behavioral objectives, consider using descriptive verbs associated with any of the three levels of instruction. For example, an objective written for a Level I job, basic knowledge, may include a choice of "action verbs" from the list of verbs from each domain for that level.

Action verbs that may be used to describe expected student behavior include:

LEVEL I - BASIC KNOWLEDGE		
COGNITIVE DOMAIN	**PSYCHOMOTOR**	**AFFECTIVE DOMAIN**
define	NONE	observe
memorize		be conscious
repeat		realize
list		be sensitive
name		attend to
relate		listen
restate		discriminate
discuss		remember
describe		prefer
recognize		
explain		
express		
identify		
locate		
report		
review		
tell		

LEVEL II - COMPETENT		
COGNITIVE DOMAIN	**PSYCHOMOTOR**	**AFFECTIVE DOMAIN**
translate	find	willing
interpret	locate	comply
apply	observe	obey
employ	recognize	explore
use	sort	engage
demonstrate	build	display
dramatize	demonstrate	practice
practice	express	respond
illustrate	measure	perform
operate	operate	desire
schedule	perform	grow
sketch	use	feel
distinguish	construct	participate
differentiate	draw	responsible
examine	run	enable
analyze		initiate
appraise		examiner
calculate		influence
experiment		accept
test		devote
compare		be loyal to
contrast		assume
criticize		cooperate
diagram		contribute
inspect		volunteer
debate		exhibit
inventory		consider
question		extend
relate		enrich
solve		

STUDENT SUPPLEMENT

LEVEL III - HIGHLY PROFICIENT		
COGNITIVE DOMAIN	**PSYCHOMOTOR**	**AFFECTIVE DOMAIN**
compose	build	crystallize
plan	demonstrate	judge
propose	express	relate
design	measure	weigh
formulate	operate	be realistic
arrange	perform	regulate
collect	play	revise
assemble	write	view
construct	construct	approach
create	run	plan
set up	use	arrive
organize	adapt	rely
manage	administer	find
prepare	create	be consistent
judge	manipulate	conscientious
appraise	plan	
evaluate	produce	
rate	promote	
compute	regulate	
value	teach	
revise	draw	
score		
choose		
assess		
estimate		
measure		

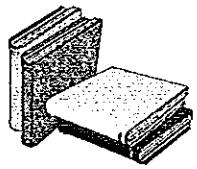
You may have been noticed that some of the same words appeared on all three lists, and, in some case, they appeared on the same list at different levels. That is because these words either indicate some type of behavior common to two or more of the domains or a skill that can be achieved at different levels. Always keep in mind what final behavior you wish the students to demonstrate. Think carefully about whether they will be required to use their intellect alone, their feelings, or whether they will have to perform some physical manipulation.

There are some words, however, that should not be used. They include:

know	**enjoy**	**want**
understand	**comprehend**	**master**
appreciate	**believe**	**perceive**
grasp	**learn**	**become**

Using any of these words leads to vague and ambiguous student behavioral objectives. Performance must be described as an observable action. It is difficult to observe or measure "understanding." How, for example, does an instructor know when a student "knows" something? The words on the other three lists provide examples of immediately observable behavior. Also, they are more easily measured through the use of objective evaluation instruments.

STUDENT BEHAVIORAL OBJECTIVES



Writing learning objectives is a developmental activity that requires changes, refinements, and additions as the writer develops subsequent planning steps. Sometimes it is not until learning activities are being selected or evaluation methods stated that the "real" objectives for teaching a topic become clear. Therefore, expect to start with loosely worded objectives, move ahead in the planning sequence, and then return to spell out the learning objectives in specific detail as each one becomes evident.

Objectives for learning can be grouped into three areas (or domains) and are widely referred to in literature that discusses objectives.

- COGNITIVE
- PSYCHOMOTOR
- AFFECTIVE

Cognitive Domain

The domain to which we give most attention in educational programs is the cognitive domain. This domain includes objectives concerning information or knowledge and thinking along with other intellectual aspects of learning. Bloom and his associates developed a taxonomy for the cognitive domain that is widely used.

The taxonomy (a method or sequential classification on progressively higher levels) is organized within two major groups: (1) simple recall of information, and (2) intellectual activities. Bloom labels the lowest level "knowledge." The higher mental abilities are classified into five

increasingly more intellectual levels: comprehension, application, analysis, synthesis, and evaluation.

Too often major attention is given in a course to the lowest cognitive level which is memorizing or recalling information. One of the challenges in instructional planning is to devise learning objectives and then related activities that can direct students to accomplishments on the higher intellectual levels.

Psychomotor Domain

The second category in which learning objectives may be grouped is the psychomotor domain. This domain handles the skills requiring use and coordination of skeletal muscles, as in the physical activities of performing, manipulating, and constructing. Although no taxonomy is universally accepted for this domain, the most comprehensive classification is by Harrow. Six major classes of physical behavior are recognized.

Affective Domain

The third category of learning objectives is the affective domain. This domain involves objectives concerning attitudes, appreciations, values, and emotions. We talk about this area as being of great importance in education, but it is the one area in which we have been able to do the least, particularly in writing useful learning objectives. Krathwohl and his associates have organized the affective domain into five levels.

The levels of the affective domain, like those of the cognitive domain, form a continuum behavior, from simple awareness and acceptance to internalization as attitudes that become part of an individual's practicing value system. The problem of translating these feelings is not

identifiable and observable behavior makes the writing of attitudinal objectives very difficult.

Interrelation of Domains

Even though we are examining the three domains separately, you should recognize that they are closely related in two ways. First, a single major objective can involve learning in two or even all three domains. Second, attitudinal development may even precede successful learning in the other domains. It is often necessary to motivate learners to want to learn subject matter before instruction can be successful.

Once motivation is established, a well-organized program in which the learner participates successfully usually produces positive attitudes in the learner toward the subject and the instructor.

Instructional Objectives as Learning Outcomes

One common error often found when starting instructional objectives is the type of statement that uses terms of what we, as instructors, are going to do. A more fruitful way to state instructional objectives is in terms of the types of outcomes (end products) we expect from our teachings.

When instructional objectives are stated in this manner, they direct attention to the student and to the types of behavior they are expected to exhibit as a result of the learning experience. Thus, our focus shifts from the instructor to the student and from the learning process to the learning outcomes. This shift in focus clarifies the intent of our instruction and sets the stage for an evaluation of that instruction.

RELATION OF LEARNING OUTCOMES TO LEARNING EXPERIENCES

STUDENT	TEACHING-LEARNING PROCESS	LEARNING OUTCOMES (End Products)
	Learning experience based on interaction of subject matter, teaching methods, and instruction materials	Knowledge Understanding Thinking skills Performance skills Communication skills Computation skills Work study skills Social skills Attitudes Interests Appreciation Adjustments

Stating instructional objectives as learning outcomes contributes to the instructional process in the following ways:

- It provides direction for the instructor and it clearly conveys their instructional intent to others.

- It provides a guide for selecting the subject matter, the teaching methods, and the materials to be used during instruction.

- It provides a guide for constructing tests and other instruments for evaluating student achievement.

If the expected learning outcomes are conveyed to the student, these outcomes also serve as a guide for the student's learning activities, both in and out of the classroom. The first step is to state the instructional

objectives as clearly as possible. Use the following suggestions as a guide to facilitate this procedure.

- State each objective in terms of student performance (rather than instructor performance).

- State each objective as a learning product (rather than in terms of the learning process).

- State each objective so that it indicates student outcomes (rather than the subject matter to be covered during instruction).

- State each objective so that it includes only one "general" outcome (rather than a combination of several outcomes).

- State each objective at a level of generality that clearly indicates the expected learning outcome and that is readily definable by a specific type of student behavior.

A student behavioral objective (performance that is measurable) should be a statement of behavior that instruction is to produce stated in terms of observable or measurable student performance. Unfortunately, there are many words or terms often used that are open to misinterpretation. These are words that should be avoided if the behavioral objective is to possess quality.

Consider the following examples of words that are open to misinterpretation:

- To know
- To understand
- To really understand
- To appreciate
- To fully appreciate
- To grasp significance of
- To enjoy
- To believe
- To have faith in
- To realize

The behavioral objective that communicates best will be one that describes the behavior of the learner well enough to preclude misinterpretation.

The action verb is the key element in stating the specific learning outcomes that define each instructional objective. The selection and clarification of action verbs are vital steps in the preparation of a useful set of objectives. In general, we should select those verbs that (1) most clearly convey our instructional intent and (2) most precisely specify the student behavior we are willing to accept as evidence that the general instructional objective has been achieved. Unfortunately, action verbs vary widely in their ability to meet both criteria.

Given a choice between verbs that clearly convey instructional intent and those that merely serve as behavioral indicators, it would seem best to select the former when stating specific learning outcomes.

Describing the Selected Action Verbs

Greater uniformity in the meaning of specific learning outcomes can also be achieved by describing in specific terms the types of responses

that are characteristic of each selected action verb. Clearly stated descriptions of the types to responses encompassed by each action verb contribute to standard usage and prevent much heated debate concerning the domain of behavior a particular verb represents.

Brief descriptions of some commonly used action verbs are presented in Table 1. Note that some action verbs can be represented by a wide variety of responses (identify, construct, etc.) whereas others are very limited in the types of response that can be shown (name). Adding sample test tasks, as illustrated in Table 1, also helps clarify the behavioral response associated with each action verb.

TABLE 1: SELECTED ACTION VERBS

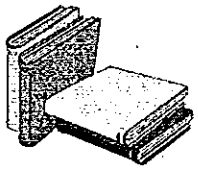
ACTION VERB	TYPE OF RESPONSE	SAMPLE TEST TASK
Identify	Point to, touch, mark, encircle match, pick-up	"Put an X under the pick-head axe"
Name	Supply verbal label (oral or in writing)	"What is this type of axe called?"
Distinguish between	Identify as separate or different by marking, separating in classes or selecting out a common kind	"Which of the following statements are facts and which are opinions?"
Define	Supply a description (oral or written) that gives the precise meaning or essential qualities	"Define each of the following terms"
Describe	Supply an account (oral or written) that gives the essential categories, properties, and relationships	"Describe the procedure for setting up the ladder truck for water tower operation"
Classify	Place into groups having common characteristics; assign to a particular category	"Write the names of the type of ladders found on a ladder truck"

TABLE 1: SELECTED ACTION VERBS

ACTION VERB	TYPE OF RESPONSE	SAMPLE TEST TASK
Order	List in order, place in sequence, arrange, rearrange	"Arrange the following items in instruction order"
Construct	Draw, make, design, assemble, prepare, build	"Draw a schematic of a centrifugal pump"
Demonstrate	Perform a set of procedures with, or without, a verbal explanation	"Set up the truck for water tower operations"

Summary

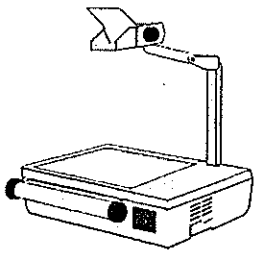
In summary, action verbs play a key role in stating the specific learning outcomes that define each general instructional objective. Ideally, we would like our selected verbs to both (1) clearly convey instructional intent and (2) precisely specify the expected student performance in behavioral terms. Given a choice between the two criteria, we should favor verbs that most clearly convey instructional intent. When further clarification of the students' behavioral responses is desired, we can do so by (1) describing each selected action verb in more specific behavioral terms, or (2) illustrating the intended learning outcomes with sample test items. These procedures for clarifying the expected student responses provide useful guides for communicating the intended learning outcomes to others and for constructing relevant measuring instruments.



UTILIZATION OF INSTRUCTIONAL AIDS

INVOLVING YOUR STUDENTS IN THE LEARNING ENVIRONMENT

Overhead Transparencies



Overhead projection is the most versatile and popular presentation medium used by businesses today. Because of its effectiveness and wide acceptance, its popularity is continuing to grow. The projectors are brighter quieter, and more portable, and high-quality transparencies can now be printed in full color directly from your computer. The most popular transparency printers are thermal transfer and ink jet. The quality of these transparencies adds a level of professionalism previously associated with slide presentations.

Advantages

- Presenter has complete control over the presentation
- Presenter faces the audience in a fully lighted room
- Visuals can easily be rearranged or omitted to fit the needs of the presenter or audience
- Material can be highlighted or revealed point by point
- Material can be created or added during a presentation using transparency markers
- Transparencies are easy and inexpensive to produce
- An overhead projector is comfortable and simple to use

Disadvantages

- Presenter must have high energy
- Presenter must rely on equipment
- Older projectors tend to be dim and noisy
- Presenter is forced to remain near the projector in order to change transparencies
- Audiences that don't understand the benefits of overhead projection may perceive it as outdated and lacking pizazz

Helpful Hints

- Test to see if the visual are in focus and if the projector is the right distance from the screen before your presentation.
- Place the screen at an angle to the audience.
- Do not turn the overhead projector on until you have placed a transparency on the projector.
- Make sure the transparencies are positioned squarely on the stage of the projector.
- To create a smooth transition and keep the audience from staring at a glaring white screen, turn the projector off before placing your next transparency.
- Or to avoid turning the projector on and off between transparencies, tape a cardboard flap to the head lens and fold it over the mirror to block the light on your screen.
- Be sure you have a spare lamp.

- Don't look at or point to the screen, look at the transparency or maintain eye contact with your audience.

- Use a pencil, pointer, or color plastic highlighting system when pointing to a transparency on the stage of the projector - don't use your finger.

- To reveal one line at a time, put a sheet of paper under your transparency and slide it toward you as you discuss each item.

- If you want the attention focused on you and a point you're emphasizing, turn the overhead projector off and move toward the group.

- Mount transparencies in a frame for easier handling and to prevent light glare around the edges.

- Write your notes on mounting frames.

- Number your transparencies on the frames to keep them in order.

Keystoning

Keystoning refers to a particular type of projection distortion which occurs when an image is projected up on to the screen incorrectly.

The image on the screen will be wider at the top than it is at the bottom, assuming the shape of the keystone at the top of an arch. The same type of distortion will occur horizontally, if the light beam strikes the screen at an angle from the right or left.

While most projection arrangements cause some keystoning on the screen, the problem is accentuated with overhead projectors because they must be used closer to the screen.

Vertical keystoning can be reduced or eliminated by tilting the top of the screen forward or raising the projector. Many portable screens have "keystone eliminators," an arm which flips forward at the top of the support rod to move the top of the screen toward the projector. Horizontal keystoning can easily be controlled by keeping the projection beam at a right angle to the screen--just another one of those little details which may not seem terribly important, but which separate great instruction from good instruction.

35mm Slides for Any Size Audience

35mm slides provide a crisp, colorful, easy to-read format for presenting information. 35mm slides are the most universally accepted way to show graphics. Slides can be used with large or small audiences and, because the projectors are small and portable, they can be taken almost anywhere. Remote operation allows you to move around the room and still control the duration and sequence of each slide.

Slide preparation can be accomplished in three different ways--professional slide production services, in-house photography, or using your personal computer and a film recorder.

One of the main advantages of slide projection is that slides can be easily duplicated and sent to multiple locations with assurance that everyone receives an identical message. If it is also important that the verbal element be consistent, include a prerecorded tape that has been synchronized with your slides.

Because slide presentations require a darkened room and little or no audience participation, presenters who wish to sell, instruct, or teach should limit slide use. Consider incorporating other presentation formats that encourage audience participation instead. Watching slides in a darkened room for an extended period of time causes drowsiness! Even well-narrated slide presentations should be limited to ten or fifteen-minute segments. You can use slides and encourage audience involvement if you use a rear projection system in a lighted room.

With the advent of computer-generated presentations, the need for 35mm slide presentations has declined. The image quality of 35mm slides, though, remains the standard by which new technology is measured.

▲ Benefits

- ▲ Images are the highest quality
- ▲ Presentations can be easily duplicated
- ▲ Projectors re reliable, portable, and easy to use
- ▲ Remote control enables the presenter to move around the room

▼ Limitations

- ▼ Darkened room is required (or use rear projection)
- ▼ Audience participation is discouraged
- ▼ Presenter is more impersonal
- ▼ Note taking is difficult
- ▼ Previewing and editing is difficult

Helpful Hints

- Arrange and place your slides in the slide tray, and check to see that they are in the proper order and right side up--before arriving at the presentation.

- Once the slides are positioned in the slide tray, use a marker to draw a line around the top of the entire ring of slides. If your tray spills, you'll quickly distinguish top from bottom on each slide.

- Be sure the lights are properly adjusted.

- Try to keep enough light so that you can maintain some eye contact with the audience.

- Use a laser pointer to focus the audience on a specific point.

- Keep the safety bar locked on the tray to prevent the slides from spilling.

- Number the slides in case they do spill.

- Make sure the slides are in focus before you start.

- If you want to discuss a topic without any visuals, use a black slide.

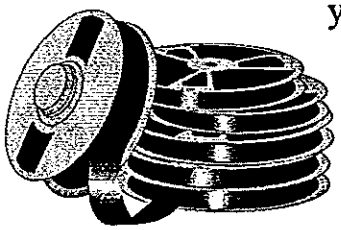
- Face the audience at all times.

- If possible, vary the presentation with another activity so that you can turn the lights back on.

- Use blanks to maintain audience attention.

16MM Projectors

Training films, generally 16 millimeter, still pay a big part of many fire service training programs. Your students will profit more from the films you show if, before using any film in class, you preview each one and make some notes:



1. Does this motion picture support the objectives established for this lesson?

2. Are there any points in this film which need emphasis or clarification?

3. Is any of the information shown unsafe, incorrect, or obsolete?

4. At what point will the film best fit into the lesson as you plan to teach it?

Before showing the film, discuss with your class the purpose in showing the film and direct their attention to any particular parts or points you want them to notice.

Note any unsafe, incorrect, or obsolete information, assuming the improper information or practice is limited to only a minor part of the total. If there is any significant amount of faulty material, the film should not be used.

Critique the main points of the film after the showing. If it is worthwhile, consider rerunning the film, after class or during a lunch break, for those who wish to see it again. Most good training films contain more information than students can absorb in one viewing.

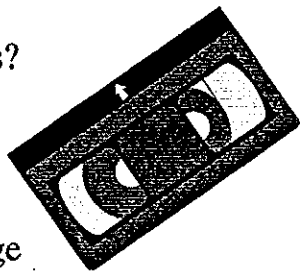
To Show it All, or Not

Because films have a well-defined beginning and ending, we become accustomed to showing the entire reel. If only five or ten minutes of a thirty-minutes film directly meet your lesson objectives, do not hesitate to show only that part of the film which is really worthwhile.

Effective Use of Films and Videos

Judge the program's usefulness by answering the following questions:

- Preview every program you are considering. Don't rely on written descriptions or on someone's recommendation.
- Does it meet your needs' analysis requirements?
- Does it support your course objectives?
- Is the style and content appropriate for the age group, cultures, experiences, and educational level of your students?



- Are the situations and characters shown realistic or ridiculous?
- Does the dialogue sound natural or contrived? Does it include unfamiliar jargon, outdated phrases, inappropriate slang, any of which might disturb the viewers?
- Are the problems portrayed similar to those typically encountered by your learners, or are they unrealistic? Are they relevant and believable?

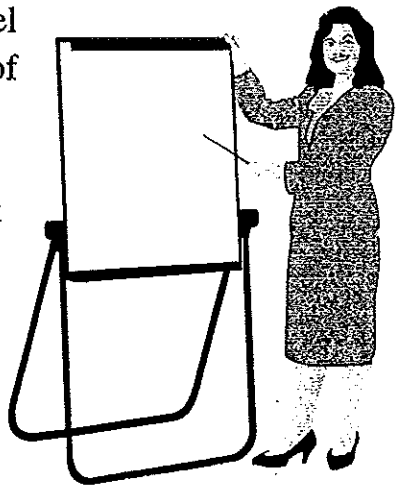
- Does the program portray a similar environment to that of your learners or one they can't relate to or understand?
- If the program includes behaviors, does it include examples of both desired behaviors and inappropriate ones?
- Are there enough examples of the correct behaviors or are they overwhelmed by the incorrect ones?
- Is the information clear, up to date, and accurate? Is it organized well?
- Is the program a comfortable length, or is it too long and does it suffer from "information overload?"
- Is program terminology consistent with that used during the rest of the training session?
- Does the program periodically summarize information and emphasize the essentials?
- Does the program promote post viewing discussion?
- Does the program include written materials or handouts?
- Is the program in good physical and technical shape?
- What can it accomplish in training that can't be done more simply or inexpensively with another film, video, or training method?
- Is there any information or research validating it' effectiveness with a similar audience?

Finally, it's a good idea to watch the program again a day or two later. This ensures you will pick up all the key points.

Easel Pads

When used as a writing surface, large pads of paper provide you with an easy way to create spontaneous visual examples to elaborate, clarify a point, or record input from your audience.

Whether handwritten or professional imaged, the easel pad remains one of the most popular means of presenting meeting room information.



It is one of the ***most*** versatile of audio/visual tools that can still be utilized by instructor today.

An easel is comfortable, reliable, nonthreatening (to you and your audience), and usually readily available.

Because prewritten easel pads are sometimes difficult to read, and usually time consuming to create, they should not be used as your primary visual medium.

Spontaneously written easel pads are ideal for recording audience input, reinforcing important points, or gathering information obtained during brainstorming sessions.

In this age of desktop computer graphics where professional imaged visual media is mandatory, the handwritten easel pad has given way to the professionally imaged easel pad. The same evolution is occurring today that took place when grease pencils and acetates were replaced by professionally imaged overhead transparencies.

- Easel pads can be used in a fully lighted room, allowing the presenter to be the focus of the presentation

- Handwritten easel pads are ideal for brainstorming sessions and encourage participation when used to record audience input

- The easel is reliable, predictable, comfortable, and readily available

- Imaged easel pads add professionalism and credibility to presentations

- Easel pads can be used in a variety of environments that aren't suitable to projection equipment--outdoors, small rooms, on-site locations

Chalkboards and Dry Erase Boards

Chalkboards in black, brown, or green still fill the front walls of many classrooms. We like having a big writing surface available to highlight a key word or to make a quick sketch to clarify a point.

Did you notice what is in front of your classroom?

- As with all training aids, consider the viewpoint of your students. You must often limit use of either of the boards, black or white, to the upper half or two-thirds of the surface to ensure that people in the back rows can see.

- Print, write, or draw legibly and make your words or drawings big. As they say in the contest rules, "Neatness counts." Take a few extra seconds and give your work the best appearance you can.

- Boards should usually be used for showing fairly brief material. If you must use one of the writing boards for anything lengthy or complicated, put it on the board before class, to save class time.
- Most instructor training courses teach, "Talk to the class, not the board."
- Keep the board clean.
- Completely erase unrelated materials and when your point, word, list, or idea has been satisfactorily covered, clear the board.
- Erasing with long regular strokes will usually leave a cleaner, more uniform writing surface than you will get by scrubbing with the eraser in short, choppy motions.
- The chalkboard can still play an important role in the learning environment.

Mock-Ups and Models, the Three-Dimensional Training Aids

Projections have only two dimensions: height and width. Another group of training aids has three dimensions. These devices include a variety of actual equipment, objects, models, mockups, and cutaways.

The three-dimensional aids most frequently used are pieces of actual equipment, the tools of the trade. In most cases, the item or object under discussion will be the best training aid we can use. There are cases, though, when a model or a mockup may be preferable.

Models can be scaled-down or scaled-up versions of real objects. If the real object is too small to be seen easily by the class, or too large to be comprehended readily, a model may be very helpful.

We usually think of models a being small, scaled-down versions of the real thing. One example might be a model of a typical flammable liquid storage bulk plant, or perhaps a model of one of the new liquified natural gas supertankers. On these models, the instructor can point out features and details which might be lost in the immensity of the real thing.

Models are used when real objects are dangerous, or are difficult or expensive to handle. Models, realistic in size, shape, weight, and finish, solve the problem and increase the learning of the student.

Models may be helpful in demonstrating mechanical actions where the actual movement is too fast or too slow to be readily visible - and are referred to as "working models."

Mock-ups are often used to replicate equipment which would be too expensive or too susceptible to damage if used in training. A mockup of a sprinkler riser is often used in academies.

Cutaways are often used to show the position and movement of normally invisible internal parts. Cutaway fire pumps and fire hydrants are found in almost every fire training academy. Color coding is helpful in pointing out specific parts and actions to students.

Handouts and Other Instructional Tools

Handouts should go to the students ***after*** the presentation, unless required during the instructional period. Be aware of the benefits versus the distractions

FIRST HEADING

There are four headings that can be used within a student manual. The first heading should be a "major" heading and is typed in upper and bold.

SECOND HEADING

The second heading is typed in upper case, but not bold. As you can see there is no double spacing between the text and the next heading.

Third Heading

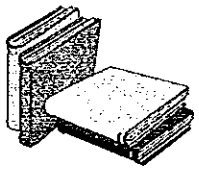
The third heading is even less important and is typed in upper and lower case.

Fourth Heading

If a fourth heading is needed, it is typed in upper and lower case with italics.

If you need to list things within the text or under a heading, you can use numbers, letters, bullets "●" or hyphens "-". Then you can continue with more text.

INFORMATION SHEETS

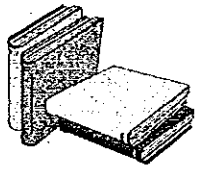


Information sheets contain supplementary material related to the subject being taught. The information sheet should encourage the student to learn and provide the necessary information for an expanded understanding of the subject. Often an information sheet can be used to provide specifics on a subject that can be easily referenced later. Examples of this include strike team operations, hazardous materials action steps, and so on. The information sheet may be comprised from several different texts, one particular section or chapter in a text, or information from a trade journal. Quick reference charts and checklists are other common examples.

Information sheets are a great tool to further explain complex subject matter or provide background on subjects such as legal issues, paramedic protocols, apparatus specifications, or NFPA 1500 issues. Information sheets can also be used to stimulate questions or promote group discussion.

The instructor plays an important part in developing an information sheet that delivers the information needed for the student to understand the subject. Think back to classes that you have taken - one thing you wanted to leave with was the information you came to the class for and also a way to easily reference or review it later. Taking the time to develop an information sheet for your students that supports both the subject and the student will help ensure a professional and effective presentations.

FREEWAY/EXPRESSWAY INCIDENT GUIDELINES



Emergency incidents on limited access freeways and expressways present unique and varied challenges for fire department personnel. The problems of gaining access to the incident scene, evacuating stranded motorists, supplying large volumes of water, and ensuring the safety of the emergency personnel are just a few of the potential problems the fire department may encounter. The following procedures are presented as a guideline for fire officers responding to freeway/expressway incidents. Each officer, however must apply his/her own knowledge and experience in choosing the appropriate procedures for each particular incident. In addition, all fire personnel must have a thorough knowledge of major roadway systems in their response areas, including access points, water supplies, and special hazards, and develop emergency preplans for them.

Access

Accidents, spills, or fires on a freeway/expressway often result in a gridlock situation, hindering or completing blocking access for emergency vehicles. In addition, each section of freeway/expressway, such as depressed or elevated roadways, those bordered by sound walls, and those built in conjunction with light rail systems, present unique access problems.

The first responding officer must weigh the circumstances of the response and consider the following:

A. Because freeway/expressway incidents often result in delayed response, the Incident Commander must call for sufficient and appropriate equipment in a timely manner. This may include, but is not limited to, requesting the following:

   1. Additional fire, rescue, and EMS personnel and equipment for large incidents.

2. Foam equipment and supplies for large spills or petroleum fires.

3. A haz mat unit for hazardous materials incidents.

4. Diking materials to contain hazardous material run-off.

5. Air units if SCBAs will be used.

6. Tankers if surface street water supplies cannot be used or if there will be a delay in getting supply lines into operation.

7. Sufficient law enforcement personnel to control the incident scene.

B. Responding a large number of emergency vehicles directly to a freeway/expressway incident can often compound emergency scene problems. The Incident Commander must consider staging emergency apparatus at surface street locations, such as near personnel access doors in sound walls, next to chain-link fences that can be cut, or near on/off ramps. Additionally, the Command Post may need to be located at a site remote from the incident scene.

C. The Incident Commander of a freeway/expressway incident must quickly size-up the situation and direct needed apparatus to the best means of access. This may include:

1. Directing incoming apparatus to use the nearest on-ramp and travel on the shoulder or center divide.

2. Blocking freeway/expressway at the incident site and directing incoming apparatus to gain access at an off-ramp above the incident site and travel in the wrong direction along the blocked roadway. ***This procedure must be coordinated with the on-scene law enforcement agency to ensure safety for motorists and emergency personnel.***

3. Staging emergency apparatus along side the freeway/expressway incident site and cutting chain-link fences or utilizing personnel access doors and/or ladders to gain access through or over sound walls and embankments.

4. Stopping freeway/expressway traffic traveling in both directions and using adjoining lanes to stage apparatus and access the incident site.

Evacuation

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

Water Supply

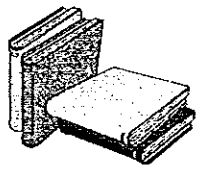
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

Safety

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

Freeway/expressway emergency incidents will continue to present a greater challenge to fire service personnel as the multiplicity of hazardous substances, along with the volume of traffic on these roadways continue to increase. To successfully meet this challenge, fire personnel must not only keep abreast of the ever increasing number of materials carried on our roadways, but must also have a thorough knowledge of the freeway and expressway systems within their jurisdiction.

Activity Sheets



Activity sheets, in general, support the lesson objectives and allow students to apply rules, analyze situations, and provide opportunities to demonstrate their knowledge of a particular subject. Activity sheets, like information sheets, help to motivate the student and can be used to relate back to the information sheet, text, and lecture.

Activity sheets help assure that performance objectives are met through quizzes, tests, group and/or individual projects, and further study or research. Another key role an activity sheet plays is providing clear direction in what to prepare for and how.

Activity sheets support the entire learning process and stimulate learning. They open up areas for discussion and motivate the student. The use of activity sheets is a powerful teaching and learning tool for not only the instructor, but the student as well.

FREEWAY/EXPRESSWAY INCIDENT

MATERIALS NEEDED:

Emergency Operations, 5th Edition

Information Sheet 10-1, "Freeway/Expressway Incident Guidelines"

INTRODUCTION:

Emergency incidents on limited access freeways and expressways present unique and varied challenges for fire department personnel. Because freeway and expressway incidents often result in delayed response, the Incident Commander must call for sufficient and appropriate equipment in a timely manner and then direct needed apparatus to the best access. In addition, safety of the scene and personnel is also important. Learning all of the elements of handling a freeway/expressway incident will help assure success.

DIRECTIONS:

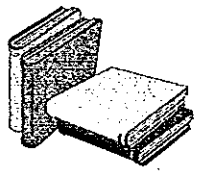
1. Read Information Sheet 10-1, "Freeway/Expressway Incident Guidelines" and review the sample.

2. Read Emergency Operations, 5th Edition, pages 120-140.

3. Be prepared for a written quiz on freeway/expressway incidents on _____
(enter session or date)

SAMPLE

MANAGING THE CLASSROOM ENVIRONMENT



Many instructors are forced to conduct classes in rooms or areas that may not have the most desirable conditions. The responsibility of the instructor is to minimize or control those undesirable conditions.

Setting

Prior to the actual class instruction, the instructor must prepare the learning environment appropriately. The following are items that should be addressed well in advance.

- Proper classroom chosen
- Good seating arrangement
- Room temperature appropriate
- Room lighting appropriate
- Refreshment arrangements made
- Distractions removed or covered
- Familiar with all classroom controls
- Test all equipment in advance
- Audio/visual equipment
- Spare lamp bulbs
- Handouts prepared with an adequate number
- Location of restrooms, phones, and break areas
- Safety considerations

Suitable Seating

This is one of the most important aspects for student learning. This is often overlooked when preparing for a class. Many instructors make the

mistake of focusing mostly on "content" vs. the learning "process" and the learning environment.

Temperature, Lighting, and Ventilation

Make sure that you can provide adequate heating, cooling and ventilation. Next to seating, environmental comfort can often have an impact on the students. You can have great seating, but if the student is too cold or too hot this can be a severe learning distractor. In addition, knowing the location and operation of the controls will help assure your success.

Inadequate lighting will cause eye strain and fatigue. This is particularly true in a class that runs longer in duration.

Break Areas

Make sure you have adequate restrooms and areas for refreshments if applicable. Also, making sure that you have items such as cups, napkins, sugar, cream, and utensils will help to further create a professional atmosphere.

Outdoor Versus Indoor Settings

There are several subject areas in the fire service that lend themselves to a combination of indoor and outdoor class instruction such as pump operations, aerial operations, and driver training just to mention a few. When teaching outside however, it is important for the instructor to realize that several distractions may exist and impact student learning. Distractions such as size of group, noise, weather and note taking need to be evaluated prior to delivery of instruction. Solutions may include small student to instructor ratios, delivering as much information as

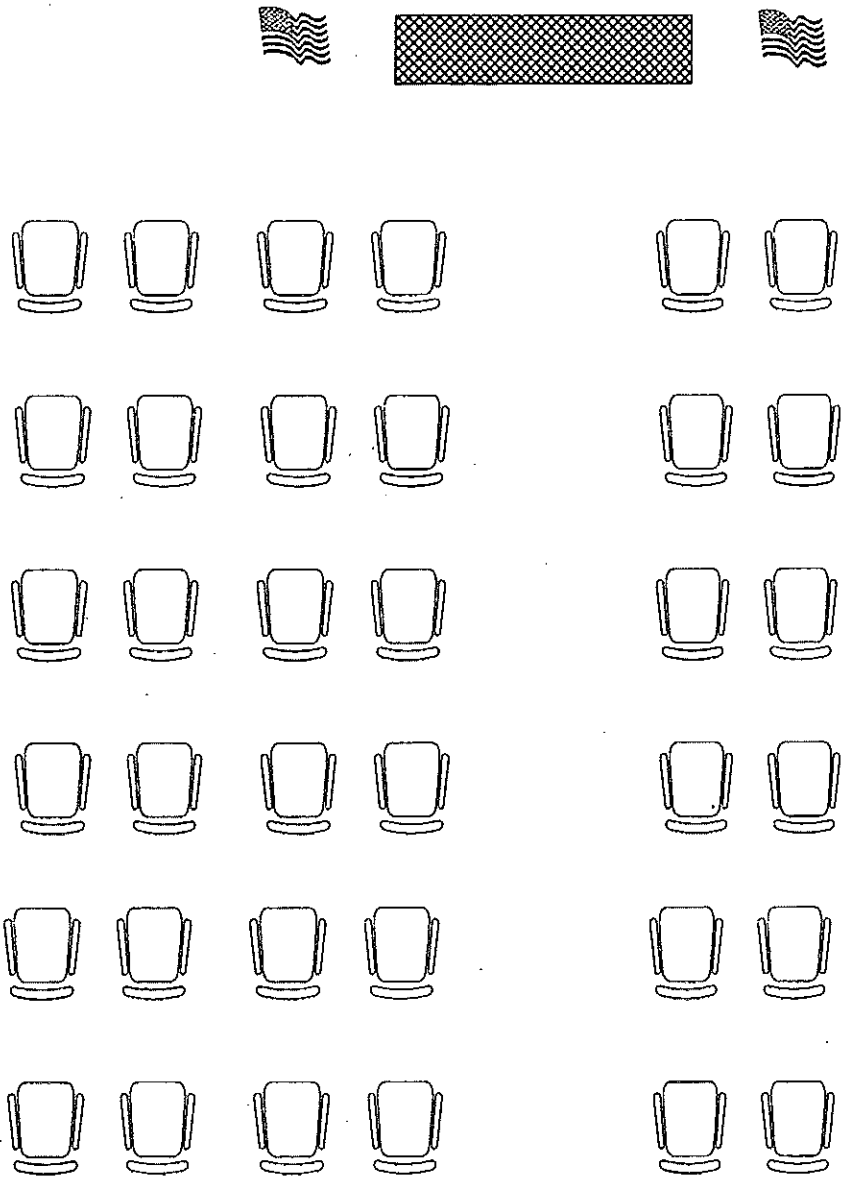
possible indoors. Providing clipboards or 3"x5" cards for note taking and positioning equipment and personnel away from noisy areas.

Distractions

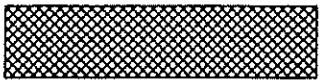
Today it is not uncommon to train personnel and fire companies while still in service. This creates additional noise from pagers, communication phone lines, and radios. Some solutions may include, having someone not in the class monitoring for dispatch, one or two individuals monitoring for more than one company and monitoring an alternate channel with less radio traffic.

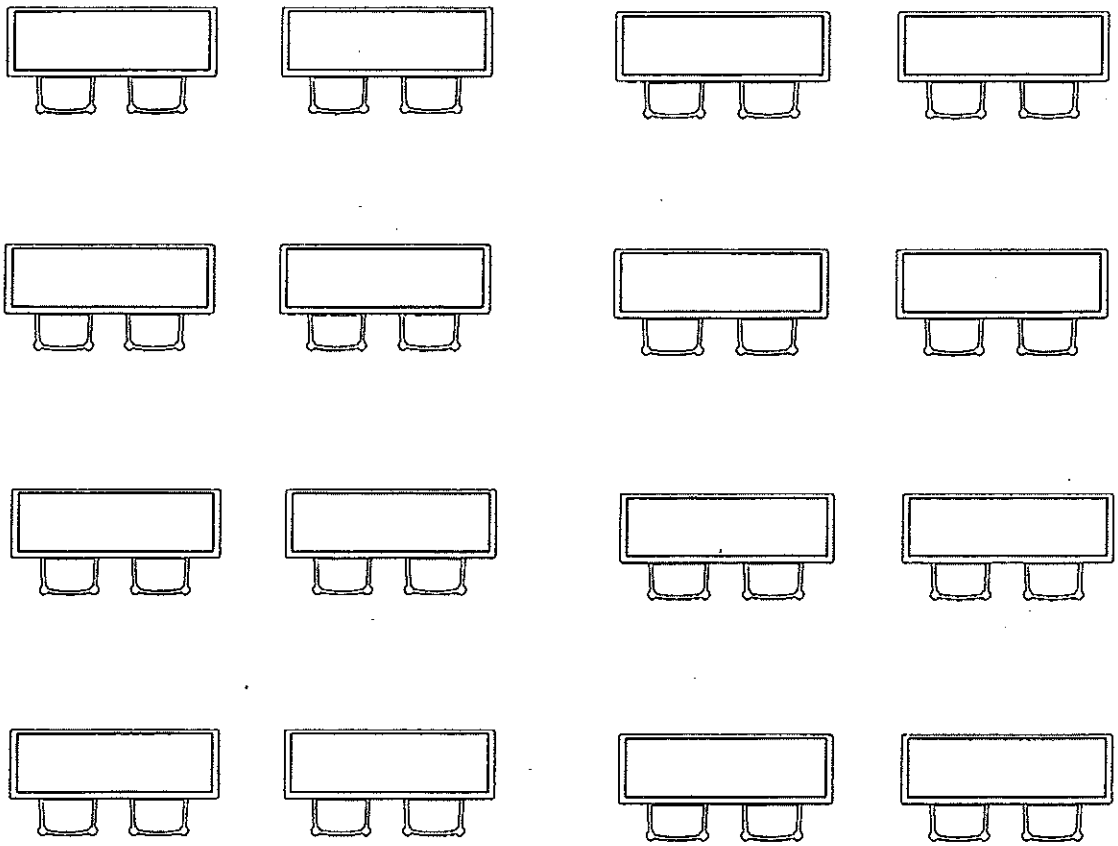
Other distractions include the phone ringing, announcements over the vocal system, and personnel coming in and out. Just be aware that the distractions may impact learning.

AUDITORIUM OR THEATER

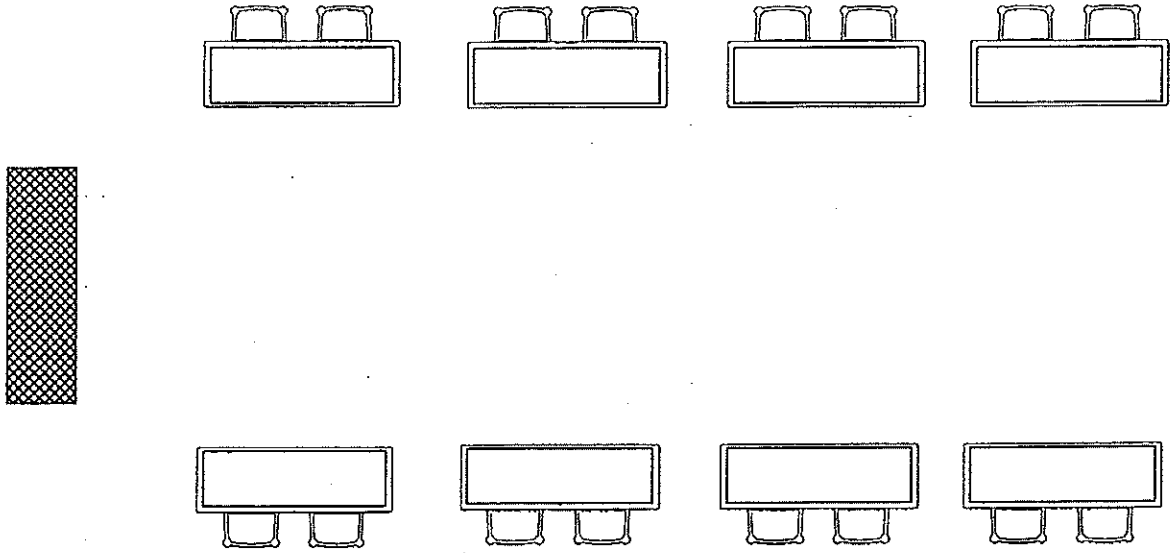


CLASSROOM OR SCHOOLROOM

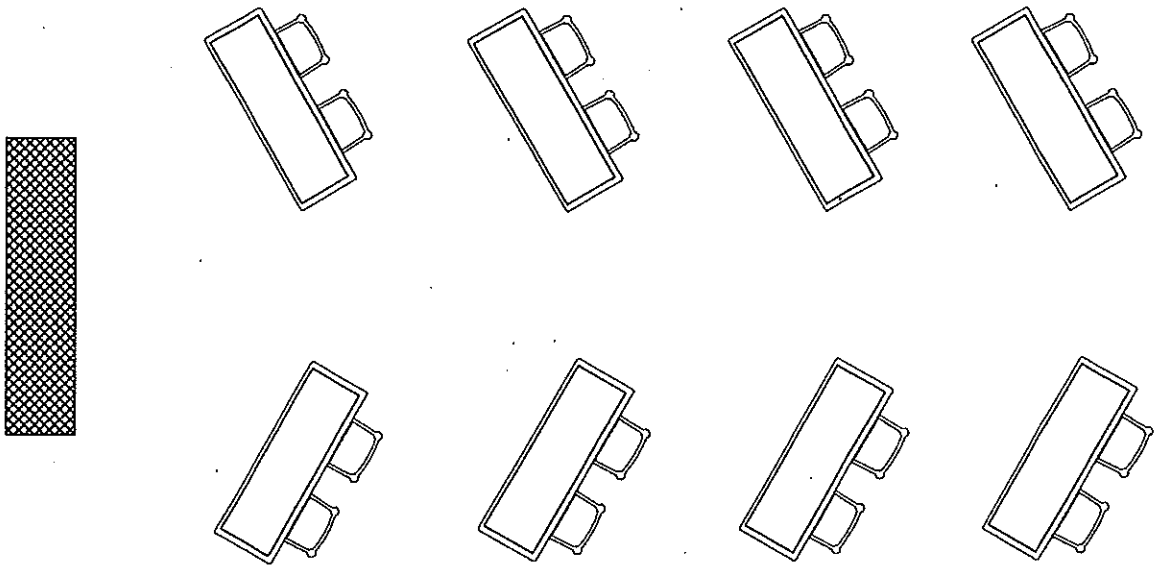




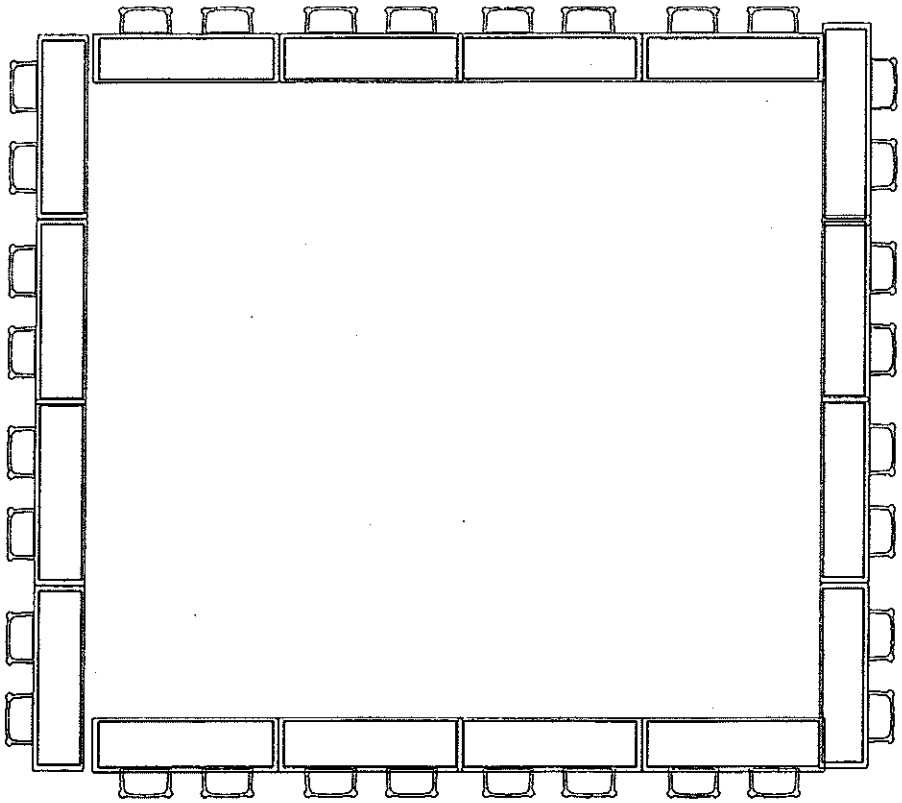
PERPENDICULAR



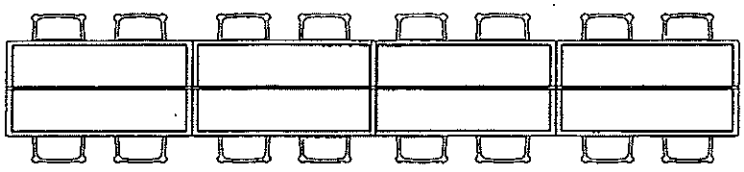
CHEVRON OR "V" SHAPE



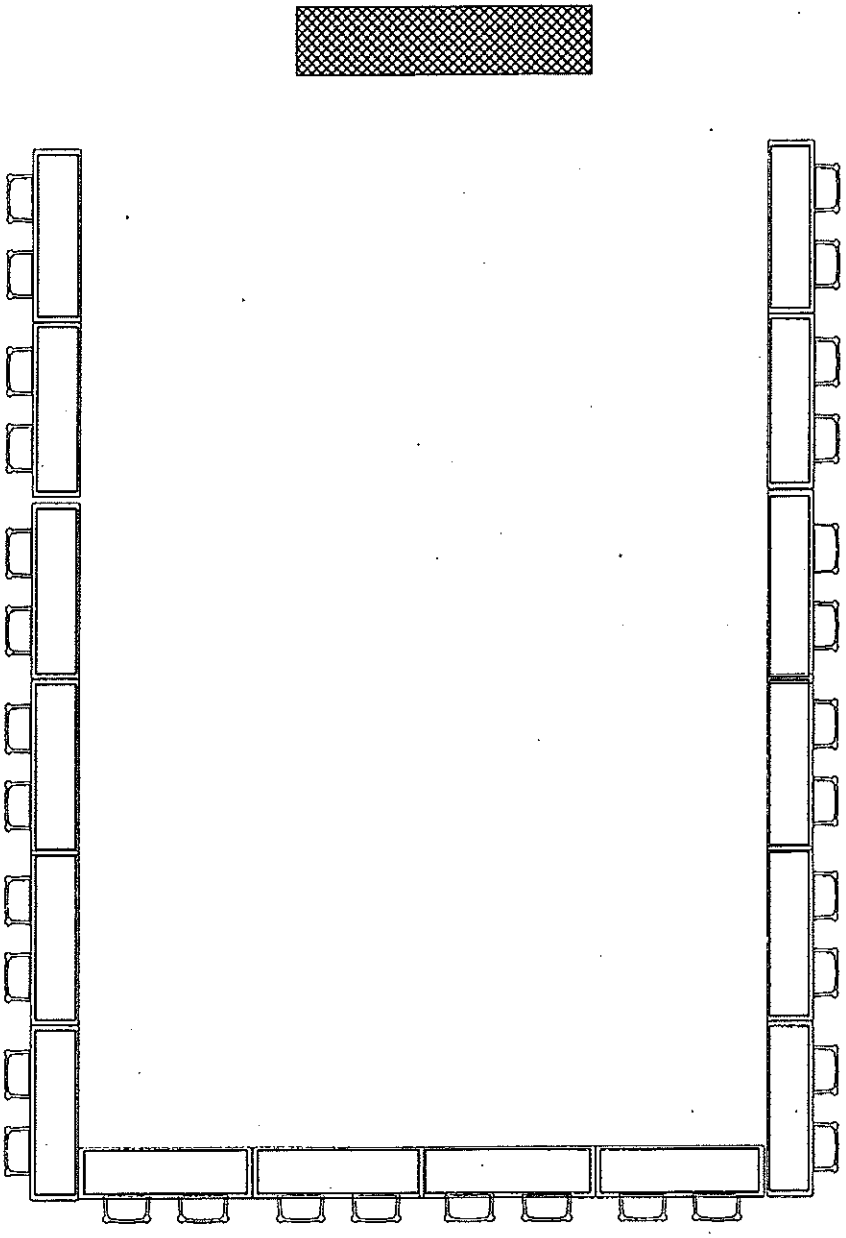
Hollow Square



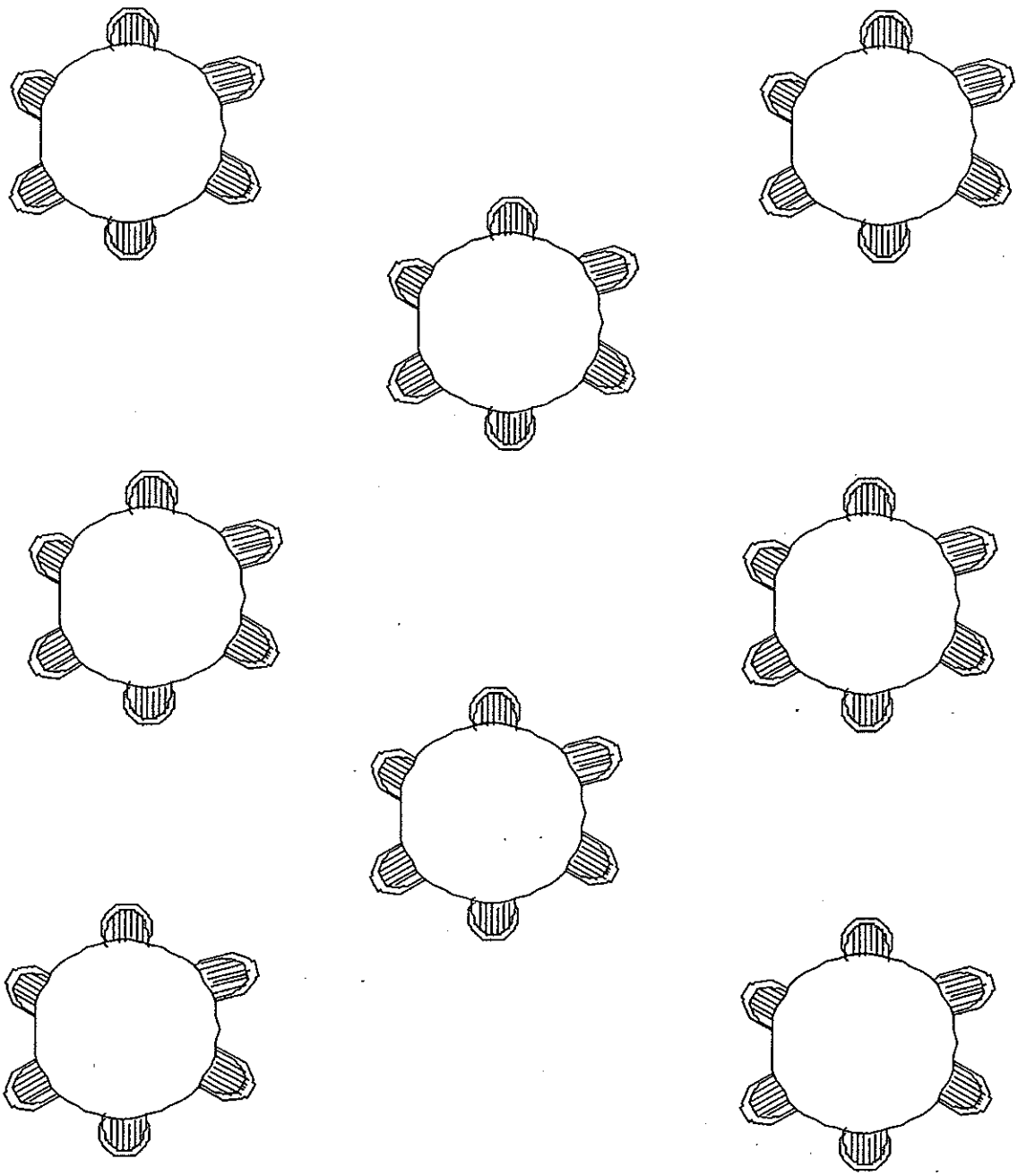
Board of Directors



"U" SHAPE



BANQUET



PREPARATION CHECKLIST

- ☐ **Room**
  - ☐ Tables?
  - ☐ Chairs?
  - ☐ Sign on door?
  - ☐ Temperature?
  - ☐ Refreshments?
  - ☐ Electrical Outlets
  - ☐ Lighting
  - ☐ _____

- ☐ **Overhead Projector**
  - ☐ Positioned correctly?
  - ☐ Extension cord?
  - ☐ Extra bulb?
  - ☐ Focus adjusted?
  - ☐ Stand or table
  - ☐ Projector screen
    - ☐ Room light OK?
    - ☐ Position?
  - ☐ _____
  - ☐ _____

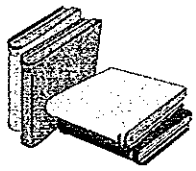
- ☐ **Audio or Visual Equipment**
  - ☐ Video player
  - ☐ Correct size tape?
  - ☐ Monitor?
    - ☐ Screen size proportional for room size?
  - ☐ Extension cords?
  - ☐ Video recorder?
  - ☐ Video camera?
  - ☐ Appropriate connecting cables?
  - ☐ Audio player/recorder
    - ☐ Speakers
    - ☐ Microphone
  - ☐ _____
  - ☐ _____

- ☐ **Easel Pad**
  - ☐ Extra paper?
  - ☐ Magic markers
    - ☐ washable
    - ☐ permanent
  - ☐ Masking tape?
  - ☐ Easel(s)
  - ☐ _____
  - ☐ _____

- ☐ **Participants Materials**
  - ☐ Handouts?
  - ☐ Name tags?
  - ☐ Coffee
  - ☐ Other beverages
  - ☐ Scratch paper?
  - ☐ Pencils?
  - ☐ _____
  - ☐ _____

- ☐ **Facilitator's Materials**
  - ☐ Leader's guide?
  - ☐ Evaluations?
  - ☐ Video tape(s)?
  - ☐ Overhead transparencies
  - ☐ Laser pointer
  - ☐ Transparency marking pen or pencil?
  - ☐ Transparency "write-on" film?
  - ☐ _____

PSYCHOLOGY OF LEARNING



What do you think is the single most overlooked aspect of instruction? This element is so important that it must be considered at every stage of the instructional process. Good instructors will begin considering this element, the teaching-learning environment, when planning their course of instruction. Developing an effective course of instruction requires a knowledge of the concepts of learning discussed in this information sheet.

Instructors must be continually aware of those things that impact their ability to impart knowledge to class participants. The teaching-learning environment may be controlled if the instructor, student, and instructional materials are maintained in a positive mode. Also being constantly aware of resistance to learning, and the factors that contribute to this resistance, will help instructors to reach their desired teaching objectives.

Environmental Aspects of Learning

Environment plays such an important role in teaching and learning that it should be considered at every stage of the instructional process. Instructors must devote a great deal of time and effort to the development of a healthy teaching-learning environment as they teach. In fact, instructors should begin doing this as they plan their course of instruction. Many factors contribute to the teaching-learning environment, but the three strongest influences are the instructor, the student, and the instructional materials. These factors are vital to the learning process, and must be given constant consideration.

The Instructor's Influence

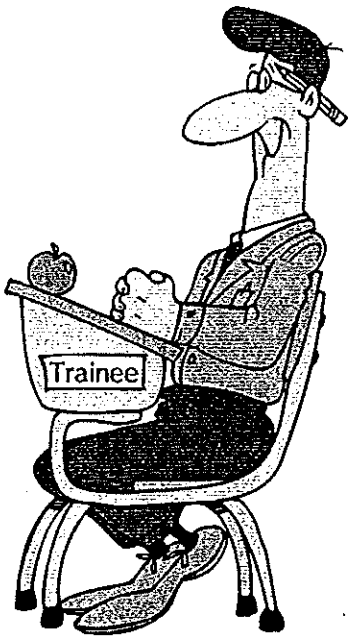
Fire service instructors play an important role in creating and sustaining an environment for learning. Their experiences and abilities to teach will influence the learning environment, either positively or negatively. If the instructors' experiences and teaching abilities are sound, they will have definite and strong teaching objectives. This will create in their students a sense of direction and a desire to improve their abilities. The instructors' positive influence will encourage each student to identify not only with the fire service as a whole, but with every part of it. For example, the student could comprehend the fact that fire department tools and equipment are only as good as the student's ability to use them. The instructor will recognize that technical information is only as good as the student's ability to apply it. She or he will come to differentiate that their department and the fire service as a whole, are not simply groups of persons working on an individual basis, but a vast group working together as a team.

Instructors' personal philosophies will also have an influence on environmental learning conditions. If they strongly believe that training is important and necessary, their classes and training exercises will prove this. Also, their actions away from the classroom and training grounds will reflect their concern about the need for training.

If there are deficiencies in the instructors' experiences, teaching abilities, and philosophies, their general environmental influence upon learning will be characterized by lack of direction, busywork, and - by the end - a failure of their students to learn.

The Student's Influence

The student in a class has a definite effect upon the environmental aspects of learning. Each student is an individual and is different from every other person, bringing with them to any learning situation their experiences and personal philosophies. If the student's experiences in training and education have developed them in a negative attitude, she or he will transfer this attitude to any new learning situation. Such a student may display negative attitudes by lack of interest, low productivity, inability to be a team member, and lack of appreciation of learning. These conditions will create an environment that is not conducive to learning.



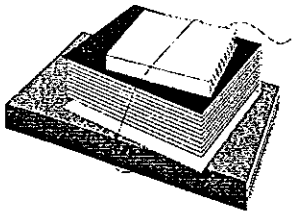
If an instructor is to improve the environmental aspects of learning, the instructor must fully understand and appreciate that each student possesses individual differences. The instructor must strive to change undesirable mental attitudes that a student may have developed, for example, because of unfortunate experiences or exposure to incorrect ideas. Also, the instructor must make a consistent effort to develop healthy attitudes in all their students. No learning environment can be considered effective if student attitudes are not supportive of it.

The Influence of Instructional Materials

It has been shown that the instructor and the student can change and affect the environmental aspects of learning - so can the instructional material. A painter cannot paint well with old, worn out brushes, nor can a mechanic work with broken and odd-sized tools. Likewise, an instructor cannot teach effectively without good instructional materials

prepared for the instructor's subject matter. Students must have instructional materials to read, to follow, to listen to, and to keep as references.

The teaching and learning situations that provide many types of good instructional materials also help the student develop healthy attitudes toward learning. When students have good instructional materials to work with, they are more receptive to teaching, their ability to learn is improved, and they are better able to master difficult subject matter. They also take more pleasure in learning. Because good instructional materials contribute to healthy student attitudes, they improve the learning environment.



Instructors who develop, select, or use good instructional materials improve their teaching ability. They will be more at ease before the class, will have more time for individual instruction, and will need less time to teach a specific subject. Furthermore, they will find that their students develop more quickly and more completely.

Whenever a student can see progress within themselves, their attitudes toward learning and toward the instructor become more positive. Good instructional materials play a very important part in developing positive attitudes, and they have a strong influence upon the learning environment.

Resistance to Learning

An effective plan for teaching must take into account the factors that contribute to student resistance to learning. These factors are discussed in the following paragraphs.

Individual Differences

One of the most important requirements for effective teaching is a constant awareness of individual differences. Because of these differences, some students offer more resistance to learning than others. Physical differences such as sight, hearing, and muscle coordination for example, can effect the degree of resistance to learning. So can mental differences, as in IQ, learning ability, analytic ability, and memory. Resistance to learning is also affected by emotional differences, such as maturity, stability, and susceptibility to fear and anger. Because they may be evidenced only at certain times and in different ways, these differences are often hard to recognize.

Conflict

Instructors must also realize that student resistance may be caused by conflict. Conflict in this sense means inner conflict --- a condition created by incompatible forms of motivation. For example, a person may be highly motivated to learn, but the student may also be highly motivated to spend the learning time doing something else. Conflict arises whenever a person must choose between alternatives. Before the instructor can help overcome such resistance, the instructor must work with the student to master the causes of conflict.

Resistance to Change

Learning usually involves the acceptance of new ideas and concepts, and people usually resist change. A common form of resistance to learning in students is a reluctance to accept new situations. This inability tends to obscure the importance and need of a new idea or of a change.

Teaching Adults

The fire service instructor usually works with adults. Teaching adults is a good deal different from teaching young people. To teach effectively, the instructor must understand the resistance to learning that is common in adult students. For example:

1. Adults lose interest quickly unless they can see how learning will benefit them at once.

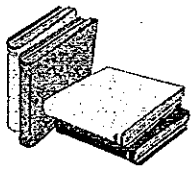
2. Adults need to be motivated. They must be shown how learning will help them on their job, and they must know how they are progressing. If they are not strongly motivated, they may question the usefulness of the entire learning activity.

3. Adults want lifelike situations in their training. The skills being taught must be those that they will use under actual conditions. Most adults do not want to accept theory until they can see where and how it can be used.

4. Adults want class activities they can participate in; they like to be part of demonstrations and discussions. If the learning situation allows them to solve problems and discuss subject matter, learning will be greatly increased. Many adults have been away from school for a long time and may require retraining in how to take part in class activities.

5. Adults usually differ widely in experience, interests, and abilities, and consequently their resistance to learning also differs. The instructor must adjust course content and teaching techniques to accommodate.

TEACHING METHODS



Preparation to Teach

1. Do I have a thorough knowledge of the topics I am teaching?
2. Do I prepare lesson plans thoroughly?
3. Do I select and organize subject matter effectively?

Management of Classes

1. Do I make sure there is adequate ventilation, light, and heat in the classroom?
2. Do my classroom and drill area give evidence of good housekeeping?
3. Do I routinize the collection and distribution of training equipment and supplies in a manner most economical of class time?
4. Am I economical in the use of supplies?
5. Is good order or discipline a characteristic of my classes?

Teaching Techniques

1. Do I distinguish the various types of lessons and use each appropriately?
2. Does my plan for each session provide for a variety of activity?
3. Are my questions stimulating and thought-provoking?
4. Am I skillful in making assignments?
5. Am I skillful in encouraging student participation?
6. Am I skillful in encouraging student initiative?
7. Do I prepare and use illustrative materials from other fields?
8. Do I understand student problems, and am I successful in helping students overcome them?

9. Do I care for individual needs?
10. Do I emphasize the importance of application?

Some Hints on Teaching

A teacher may do an excellent job of planning and organizing his/her instruction and yet be ineffective during class sessions. The hints on teaching which follow are by no means a complete list, but they are representative of the things instructors should think about and do to make their sessions more effective.

Visual Communication. Teaching effectiveness is directly correlated with the relationship and interaction between instructors and students. Since vision is one of the most important sources of information to the student, the instructor must have an open line of visual communication with their students at all times. As much as possible, instructors must keep themselves within the direct line of sight of the students. The student who is denied full use of the instructors eyes must concentrate on hearing all information, a method of learning that is acknowledged to be inefficient.

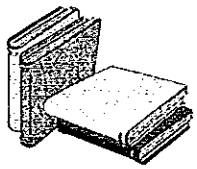
Instructors who lecture with their back to the class or gives a demonstration with their head bent over the apparatus has lost contact with their students. Unfortunately, they will <u>not</u> be able to see the signals that could warn them that they have lost contact - the slight frown that crosses the face of a student who realizes they have missed a point, the slow shaking of a student's head, an unconscious signal of disbelief, or the yawn of boredom at a lesson moving too slowly.

Regaining Attention. Unavoidable disruptions can occur in any class. Someone may drop a book or a tool, and even a sneeze can bring instruction to a halt if it is explosive enough or is repeated. It is futile for instructors to attempt to teach if they <u>do not</u> have the attention of

their students. Therefore, if the distraction is more than momentary, they may find it necessary to use some unusual attention-getting device. A sweeping arm gesture to emphasize a point can be effective if the eyes of the class have not yet left them, or you might raise your voice somewhat. Another device the instructor may use is to rephrase their last statement in the form of a question and call on a member of the class to respond; this temporary change of speaker usually gains attention.

Fatigue. Instructors should watch the class carefully for the first signs of inattention due to fatigue. When the signs are there, immediately do something - ask a question, tell a story, point out something in the back of the room, or move across the room, for example. If nothing else seems to work, announce a time break in the session.

TECHNIQUES OF QUESTIONING



One of the most important skills required of an instructor is that of questioning. Asking questions that promote class discussion is a very useful method of obtaining feedback and communicating ideas to the students. The most effective questions are those that cannot be answered by yes or no. The "who, what, when, why, where, and how" kinds of questions that require a qualified answer are preferred.

The following information may assist you as an instructor in constructing and using questions in your classroom.

What To Ask

1. Ask for a definition:
   - "Who can define coordination?"
   - "Define instruction."

2. Ask for an experience:
   - "What experience have you had along this line?"
   - "Can you give me an example of how you have handled this kind of complaint?"

3. Ask for an opinion:
   - "What do you think of that statement, Jim?"
   - "What is the right way to handle such a situation?"

4. Ask for information:
   - "How many rookies were hired last year?"
   - "On the average, how many accidents occur each year at the training tower?"

5. Ask for an estimate:
   - "How much does it cost to train a fire fighter?"
   - "What percentage of failures do we have on our promotional exams?"

6. Ask a leading question:
   - "Wouldn't it be better to get the best decision we can, rather than to keep discussing the issue?"
   - "Do you think that student behavioral objectives help the student learn more?"

7. Ask for knowledge:
   - "What is the procedure for conducting promotional examinations?"
   - "How many years of experience must a fire fighter have before he can be promoted to captain?"

8. Ask a provocative question:
   - "Can you get results driving your personnel hard?"
   - "You are accused of 'passing the buck.' What would you do?"

9. Ask a controversial question:
   - "Do you think that leadership is a quality that a person is born with and it cannot be acquired?"
   - "What do you think of the use of frequent praise as an incentive for securing cooperation and loyalty from your personnel?"

10. Ask for a definite commitment:
    - "What is it, yes or no?"
    - "How many favor the decision?"

Suggestions For Constructing And Using Questions

1. Make sure that all questions require thinking and reasoning. this rules out most questions that can be answered "YES" or "NO."

2. Make questions brief and easy to understand.

3. Relate the questions directly to the topic under consideration, and have each question cover a single point.

4. Choose questions that will stimulate the thinking of the entire group.

5. When using direct questions, state the question, pause about ten (10) seconds and then call upon an individual to respond.

6. Keep the vocabulary within the understanding of the group.

7. Avoid questions that encourage guesswork.

8. Vary the form of your discussion-generating questions. They need <u>not</u> always be put as direct questions followed by a question mark. Here are some examples:
    - "Explain how you start a new person on the job."
    - "Justify your discharge of Bill Jones yesterday."
    - "Define morale."
    - "Describe how you would teach fire prevention to a recruit."
    - "Classify the following list of accidents."
    - "Summarize the discussion of this morning's topic."

9. Make constant use of Kipling's honest serving men:

   - "What are some of the qualities a good 'on-the-job' instructor must possess?"
   - "Where does responsibility for quality rest?"
   - "How can quality be maintained by each person?"
   - "Why are some employees frequently tardy?"
   - "When should a supervisor plan the work of their department?"

10. Arrange a series of questions in such a way that the answers lead to a logical conclusion.

11. When asking direct questions, avoid presenting them in any set order.

12. Never forget that questions are a direct means of getting feedback.

Group Interaction

One of the most important methods of improving communication in teaching is use of feedback. The term "feedback" comes from the engineering field, where it means the ability of complex machines to check on their own performance and to correct it if necessary. "Feedback" as used in education means reaction from students. Group interaction depends on feedback.

Among the many techniques for obtaining feedback from students, the most commonly used are the buzz session, brainstorming, summarizing, and, of course, questioning. The choice of technique to use depends on the subject matter, the teaching situation, and the instructor's ingenuity. The important thing is that feedback must be constant for leaning to occur.

The Buzz Session

The buzz session is a device for involving every member of a class directly in the discussion process. The students are divided into small groups, not larger than seven students or smaller than three, for a limited time for a discussion in which each member contributes their ideas. Each group should select a chairperson and a recorder.

The buzz session can be used to answer questions to solve problems developed by the instructor to strengthen learning, to identify areas in which the class would like more information or which need further study, and to promote group thinking. It provides a fresh and continuous flow of feedback from students, gives everyone in the class a chance to participate, and provides an opportunity for students to exchange ideas and information. the following steps are the keys to successful buzz sessions:

1. Divide the class into small groups, and instruct each group to select a leader and a recorder.

2. Give all the groups questions to answer or problems to solve. Use the same questions or problems for all the groups.

3. Set a specific time for the groups to work.

4. Request the group leaders to make an oral report at the end of the buzz session.

5. Ask the recorders to make a written report.

6. Supply the correct answers or solutions if the groups fail to do so.

Brainstorming

Brainstorming is a conference technique characterized by rapid and spontaneous contribution of ideas by group members. As a teaching device, it provides a vehicle for feedback and encourages creative thinking. Brainstorming can be used to provide answers to questions, solve problems, develop procedures, identify characteristics in a subject, and generate individual thinking. Among its advantages as a technique for group interaction is that it provides an opportunity for in-depth thinking and gives everyone in the class an opportunity to participate.

The procedures for using brainstorming in teaching are as follows:

1. Develop one or more questions or problems that are specifically related to the subject matter.

2. State the question or problem to be dealt with in the brainstorming session, and establish a time limit for the session. Instruct the students to write down every idea that comes to mind as fast as they can, regardless of how practical they think the idea is.

3. Collect and compile the student's answers.

4. If the students fail to discover all of the correct answers, add to the list as necessary.

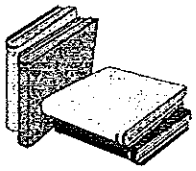
5. Reproduce or project the list of answers so that the results of the brainstorming session will be available to all students.

6. Discuss the list as necessary to clarify ideas, correct wrong ideas, and strengthen learning.

Summarizing

Having the student give a summary of what was taught enables the student to feedback to the instructor his/her understanding of the subject matter. Summarizing is most successful when the subject matter is presented in small segments, with the student being requested to summarize at the end of each segment.

INTRODUCTION TO TESTING AND MEASUREMENT



As an instructor, you should possess the understanding that testing and evaluation processes properly developed, constructed and presented will provide both student and instructor assistance in improving the quality of learning. Used as an instructional aid, tests can prove or disprove the axiom "If the student hasn't learned, the instructor hasn't taught."

Definitions

Test	A critical examination, observation or evaluation.
	An ordeal or oath required as proof of conformity with a set of beliefs.
	A procedure, reaction or reagent used to identify or characterize a substance or constituents.
	A series of questions or exercises or other means of measuring the skill, knowledge, intelligence, capabilities, or aptitudes of an individual or group.
Examination	The act or process of examining.
	An exercise designed to examine progress or test qualifications or knowledge.
	A formal interrogation.

Evaluation	Any method used to gather feedback from participants to determine the efficiency of both teaching and learning.
	To examine and judge.

Developing a Testing Instrument

A good test should be valid, comprehensive, discriminating, easy-to-give, easy-to-take, easy-to-score, reliable.

Valid	The test or item must measure what it is supposed to measure.
Comprehensive	The test should be constructed so that it can measure the individual's ability in all phases of the course.
Discriminating	The test must separate the good students from the poor students. The test must include items that can be answered only by students who apply themselves.
Easy to Give	The testing instrument should be constructed so that the instructor can concentrate on the participants during the testing period.
Easy to Take	The test must include instructions that are clear and complete so that class members will know exactly what they are supposed to do.

Easy to Score	The test must be well constructed and specific, with no ambiguities in the items or the directions.
Reliable	The test should accurately and consistently evaluate performance. NOTE: A reliable test is free from ambiguous items or directions, vague scoring criteria, environmental distractions, and opportunities for cheating or guessing.

Classes and Types of Tests

Formal	Usually developed by professional test makers to include instruments to measure intelligence, aptitudes, interest, and other characteristics.
Informal	Usually constructed by instructors to measure the results of their teaching. These normally include the following types of tests: Oral Tests Usually a one-on-one situation used to measure a participant's understanding of the course content. Manipulative/Performance Tests Usually used to measure a participant's proficiency in performing a job or evolution, usually involving the use of the hands.

Written Tests
Usually designed to measure retention and understanding of technical information.

Subjective — An essay test usually requires the participants to write out long answers and is easy to construct but difficult to score because of the many irrelevant and hard-to-control factors (legibility and writing ability).

Objective — Scoring is not influenced by outside factors. The test falls into two major categories:

Recognition Tests
True-False, Multiple Choice, and Matching tests are examples of recognition objective tests.

Recall Tests
When the student must supply the answer; no alternatives are provided to the test taker. Examples of recall objective tests are Short Answer, Single Completion, and Multiple Completion (fill in) tests.

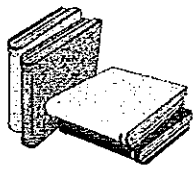
Purpose of Testing

Classification — If the purpose of a test is to classify students, to establish letter grades, or to identify those students who will pass or fail, the test is a classification test. Midterm and final examinations are examples for classification tests.

Diagnosis

The diagnostic test or quiz is usually shorter than the classification tests and is designed to measure retention and understanding of smaller units of information. It is a valuable teaching aid, permitting the teacher to determine at frequent intervals the rate of student comprehension and readiness to profit by more advanced information. A quiz used to review a lesson or series of lessons, followed by discussion of questions and answers, is one of the best teaching-learning aids.

USING AND CONSTRUCTING TEST QUESTIONS



When was the last time you took a written examination? Did the questions test your knowledge level? Were they written in such a way so as to be readily understood? Were any of them confusing? Ambiguous? Redundant? Were there some questions that were totally written out of context?

If tests and questions are properly planned, prepared and presented, they will accomplish what the intent of tests is all about. They will measure what needs to be measured, and they will do it accurately.

Multiple Choice Test

The multiple choice form of test, when well constructed, is generally recognized as one of the most versatile of the recognition type tests. It can measure a variety of the student's abilities and is adaptable to most types of subject matter.

Question or Incomplete Statement

Multiple choice items consist of either a question or incomplete statement commonly referred to as the "stem" of the item. Following the "stem" is a list of several possible answers referred to as "alternatives." The student is asked to read the stem and select the correct answer from the list of alternatives. The correct alternative in each item is simply referred to as the "answer," while the remaining alternatives are called "distractors." The purpose of distractors is obvious, to distract those students who are doubtful about the correct answer.

Uses of Multiple Choice Tests

The multiple choice test, as mentioned previously, is well adapted to a variety of measurements. It is obvious that to list all of its specific uses would not lend well to this brief information. However, a list of the more typical areas of measurement would include:

1. Measuring knowledge of terminology
2. Measuring knowledge of specific facts
3. Measuring knowledge of methods and procedures
4. Measuring the ability to apply facts and principles

Advantages and Limitations

Generally, multiple choice tests are constructed to be flexible and have none of the drawbacks of the true-false tests. However, like other "paper and pencil" tests, the multiple choice test measures whether the students can recognize or comprehend a particular item, but will not measure their ability to perform with this knowledge in an actual situation.

Types of Items

Positive: One incomplete statement or a question stated in one sentence.

Negative: Use two sentences.

Example: "All but one of the following are correct. Find the one that is ***not*** correct - or does ***not*** belong, etc."

Item Construction

The introductory statement (stem) may be made in the form of a direct question or an incomplete statement.

True-False Tests

Probably the best known of the various types of objective test items is the true-false, or alternate response, item. Although they are relatively easy to construct, true-false items are also the most abused and their quality is often doubtful.

True-False Items are Statements

The true-false item usually consists of a single statement which the student is required to recognize as either true or false. However, difficulty is usually encountered in constructing items that are completely true or completely false.

Advantages of True-False Tests

1. True-false tests have a special advantage in that they are well suited to sample a wide range of subject matter.

2. They are brief enough to permit a large number of items to be answered in short period of time.

3. They are easily scored/graded.

4. If constructed with care they can serve to promote interest and introduce points for discussion.

Disadvantages of True-False Tests

1. Ease of construction is a limitation which is frequently cited as an advantage. This more than likely has resulted from the simple process of taking statements from textbooks, altering half of them to false statements, and presenting the final product to the students as a true-false test. In other words, it is easy to construct poor true-false items. On the other hand, it is difficult to construct good measurable true-false items.

2. Encourages guessing. There is a fifty/fifty chance of students being able to answer items correctly whether or not they know anything about the subject matter.

3. Fact or opinion? It is difficult to avoid ambiguities and to construct items that are either completely true or completely false without making the correct answer obvious. This tends to limit true-false tests to factual details only.

4. What the students really know. Students sometimes express the feeling that a true-false test has not given them the opportunity to express what they really know or can do.

Item Construction

The best guidance that can be given in constructing true-false items is a list of general things to avoid. Avoid the use of specific determiners:

- "Usually," "generally," or "sometimes" are most likely to appear in true statements.
- "Never," "all," "always," or "none" are more apt to be found in false statements.
- Specific determiners provide unwarranted clues to correct answers.

Matching Tests

Matching tests, in a sense, are a variation of multiple choice tests. They are relatively easy to construct, can be very objective and are easy to score.

Matching tests are especially applicable for measuring the "who," "what," "where," and "when" of the subject matter. They consist of two parallel columns of words or phrases. The student is required to match each item in one column with the responses in the other column to which it is most closely related.

Uses, Advantages, and Limitations of Matching Tests

A partial list of things that can be related in a matching test includes:

Short questions	➟	with their answers
Parts	➟	with their functions
Terms	➟	with their definitions
Objects	➟	with their names
Machines or tools	➟	with their uses
Problems	➟	with their solutions
Causes	➟	with their effects

When the matching test is properly constructed, the guessing factor is practically eliminated. It is also easy to score, relatively easy to construct and has the ability of covering a large amount of factual material in a compact space. Owing to the fact that the phrases used in matching tests must be short, the test provides a poor measure of complete understanding and is considered inferior to the multiple choice test in measuring higher levels of instruction.

Suggestions for Constructing Matching Tests

1. Include at least five (5) but not more than twelve (12) items in Column I. If longer, split into two tests.

2. Include three (3) extra responses in Column II.

3. Use only materials that deal in one subject in any one test.

4. Make certain the entire test appears on one page.

5. Keep in mind that pictorial matching tests are very useful.

Short Answer Tests

Short answer tests require the student to supply a word, number, or phrase which he has recalled or developed in order to answer a direct question. They are useful in measuring those higher levels of instruction that require critical thinking or judgment.

Advantages

Short answer tests are commonly used in measuring "who," "what," "where," and "how" type of information. Additionally, they are very useful in measuring students' ability to solve mathematical and similar problems.

The short answer test is one of the easiest to construct. However, a more important advantage arises from the fact that the student may supply the answer by guessing. Partial knowledge, which might enable him to choose the correct answer from a list of choices is usually insufficient to answer a short answer item.

Limitations

One limitation of the short answer test is its inability to measure complex achievement. Another lies in scoring difficulty. A variety of answers may appear and must be considered for total or partial credit. Also, a problem may arise as to the student's spelling ability. Misspelled words may make it difficult to determine if they represent the correct answer.

Item Construction

1. Use short, direct questions.

2. Design items to call for specific facts, not an involved statement.

3. The correct answer should be only one word, one number, or one very short phrase.

4. Do not copy statements directly from textbooks (likely to contain clues that will give the item away).

5. Whenever possible, require the student to solve problems, recall previous learning, apply principles, or comprehend methods or procedures.

Completion Tests

There are two kinds of completion tests, single completion and multiple completion. These tests represent other variations of recall tests that can be used effectively to measure a wide range of subject matter.

Single Completion Tests

A single completion test requires the student to recall and fill in a blank with one key word that has been omitted from the statement. When the key word is inserted in its proper space, the statement will then be a complete thought and be meaningful.

Multiple Completion Tests

As the name implies, the multiple completion test differs from the single completion in the number of missing words that have been omitted from the statement or statements. This type of test consists of writing short essay and deleting several key words that the student must recall and insert.

It is evident that completion tests are difficult to score, especially by those who are not familiar with the various acceptable answers. These tests may also be time consuming from the student's standpoint. The student may know the material he is being tested on, but may have difficulty in recalling the exact word needed to fill in a certain blank.

Item Construction

1. Write a complete statement.

2. Omit only key words.

3. Single completion ➡ omit one word only

4. Multiple completion ➡ several words (but do not over mutilate)

5. Never begin a statement with a blank.

6. Do not copy statements directly from the textbook.

7. Words such as "a" and "an" might provide a clue to the correct answer when they come just before the omitted word.

MULTIPLE CHOICE EXAMINATION

TEST FORMAT SAMPLE

NAME _____ DATE _____

"DRIVER TRAINING"

Directions: This is a multiple choice test. For each of the following questions or statements, draw a circle around the letter preceding the one best answer.

Example: Safe driving skill is

a. hereditary
(b) a matter of training
c. a responsibility of administrators
d. an attitude

---

1. Which one of the following is true of brake distance?

a. It is roughly proportional to the square of the driving speed
b. It does not change regardless of speed
c. It decreases with speed
d. It increases at a slower rate than the speed of the vehicle

2. Which quality is most important in driving a fire vehicle?

   a. Fast reaction time
   b. Skill
   c. Courage
   d. Judgment

3. The average reaction time in seconds on the highway is

   a. 0.1
   b. 0.14
   c. 0.44
   d. 0.75

TRUE-FALSE EXAMINATION

TEST FORMAT SAMPLE

NAME _____ DATE _____

"CHEMISTRY AND PHYSICS OF FIRE"

Directions: This is a true-false test. If you believe the statement is more true than false, draw a circle around the "T;" if more false than true, draw a circle around the "F."

Example: (T) F 1. Fire is a chemical reaction.

T F 1. The molecular weight of a compound refers to the weight of all the atoms in a molecule of that specific compound.

T F 2. The terms "flash point" and "fire point" are synonymous.

T F 3. Ignition temperatures of substances are regarded as approximations.

T F 4. To determine the vapor pressure of a liquid, the molecular weight of the liquid must be known.

T F 5. When a liquid has reached its flashpoint, it will propagate combustion in a self-sustained manner.

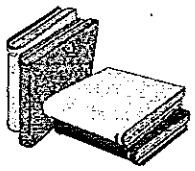
T F 6. When a combustible solid catches fire, it has reached its ignition temperature.

T F 7. When the vapor pressure of a liquid equals the atmospheric pressure, the liquid has reached its boiling point.

T F 8. Atmospheric pressure at sea level is 14.7 psi.

T F 9. Certain solids will change to a vapor at ordinary room temperature.

T F 10. Mineral oils will oxidize at ordinary room temperature.



SAMPLE TEACHING DEMONSTRATION EVALUATION

TEACHING DEMONSTRATION EVALUATION			
STUDENT INSTRUCTOR:	*John Slauson*	TOTAL SCORE:	*17*
TOPIC:	*Hose Threads and Fittings*	DATE:	*10/20/9x*
LEVEL OF INSTRUCTION:	*II*	TEACHING TIME:	*15:30*
STUDENT EVALUATOR:	*Tim Brown*	PRIMARY ☒ SECONDARY ☐ THIRD ☐	

BEHAVIORAL OBJECTIVE(S) GIVEN: YES (1-5) [3] NO (0) [ ]
Comments

Did not identify the "conditions." Missed "according to" standard.

PREPARATION: MARGINAL (1-2) [ ] ACCEPTABLE (3-5) [4] ABOVE AVERAGE (6-8) [ ] SUPERIOR (9-10) [ ]
Comments:

Topic title did not match the material given. One life safety advantage related to case history. Told "war stories" only to impress student to want to do a better job.

PRESENTATION: MARGINAL (1-2) [ ] ACCEPTABLE (3-5) [3] ABOVE AVERAGE (6-8) [ ] SUPERIOR (9-10) [ ]
Comments:

Defined terms and procedures too rapidly. Explained the advantages of in-line pumping; but no disadvantages. Little eye contact with the students. Used the chalkboard to illustrate, but writing was too light for most students to see. Did not use the props he brought.

APPLICATION: MARGINAL (1-2) [ ] ACCEPTABLE (3-5) [4] ABOVE AVERAGE (6-8) [ ] SUPERIOR (9-10) [ ]
Comments:

Asked overhead questions; when students didn't respond, John moved on with his presentation. Illustrated points on the chalkboard which kept his back to the class. John knew the subject material, but did not involve the class.

EVALUATION: MARGINAL (1-2) [ ] ACCEPTABLE (3-5) [3] ABOVE AVERAGE (6-8) [ ] SUPERIOR (9-10) [ ]
Comments:

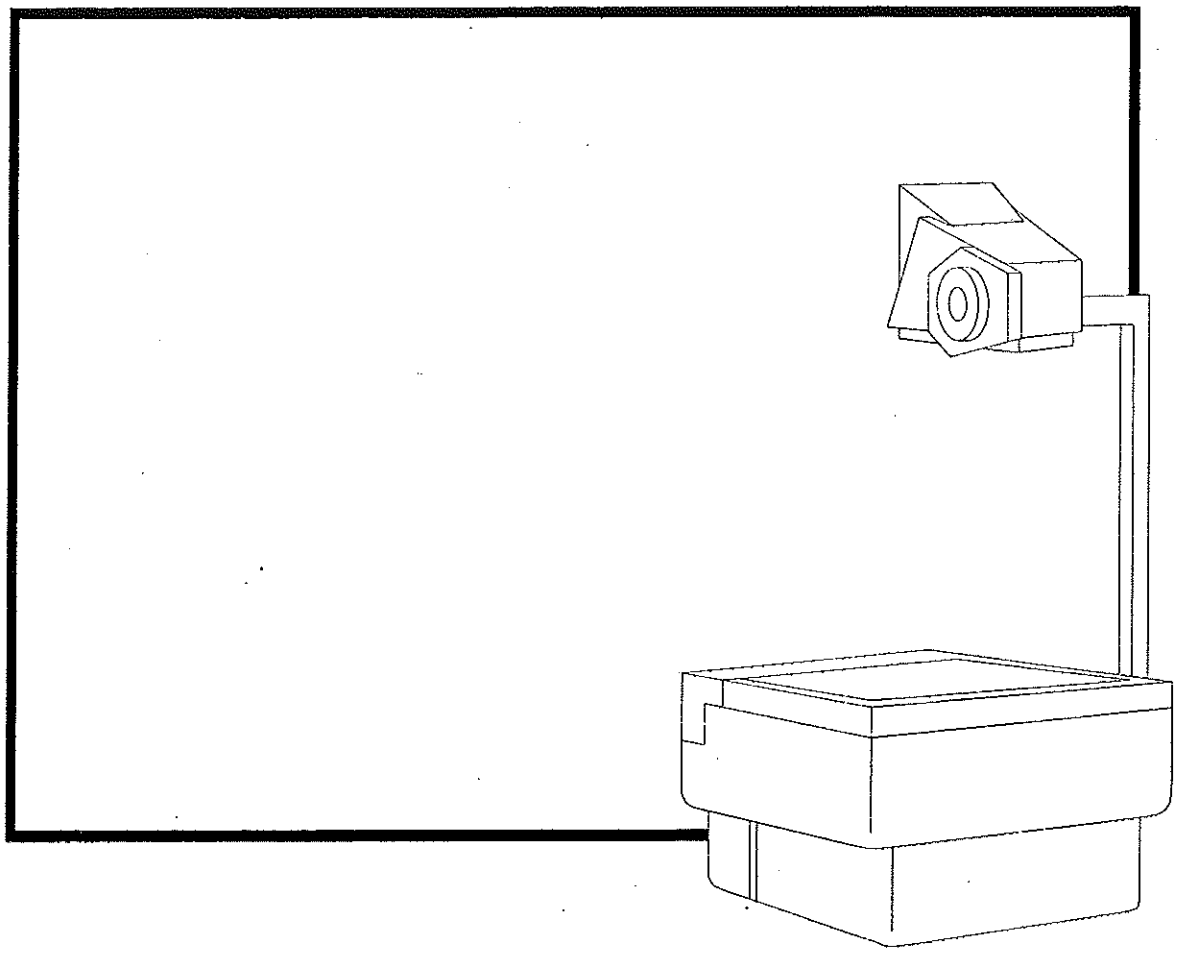
Asked overhead questions; did not redefined technical terms.

ASSIGNMENT: YES (1-5) [ ] NO (0) [0]
Comments:

Ran over on time and did not give an assignment.

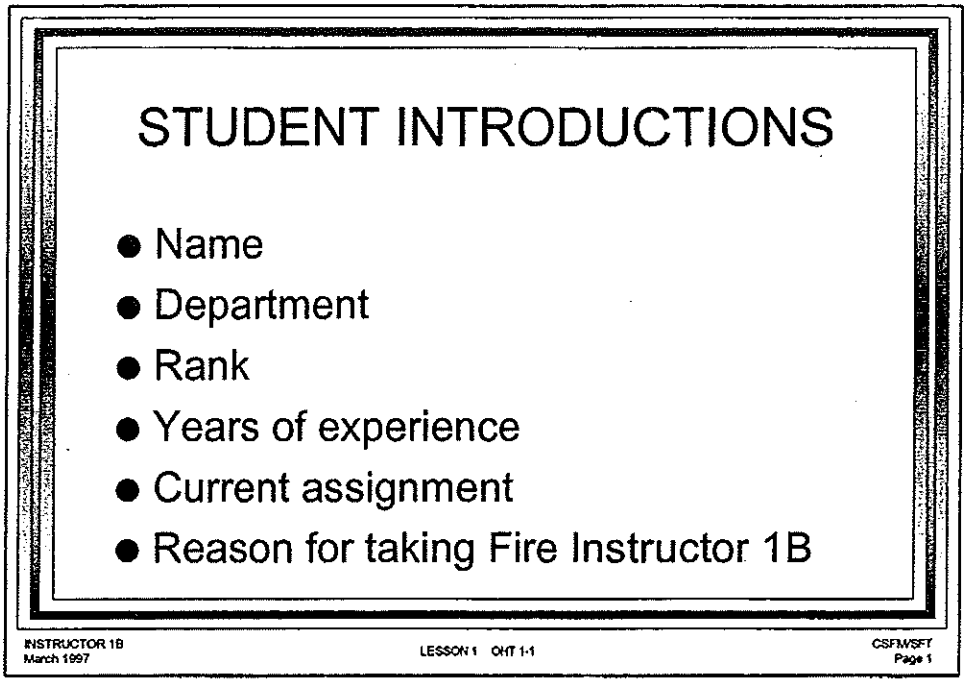
GROUP EVALUATION:
Comments:

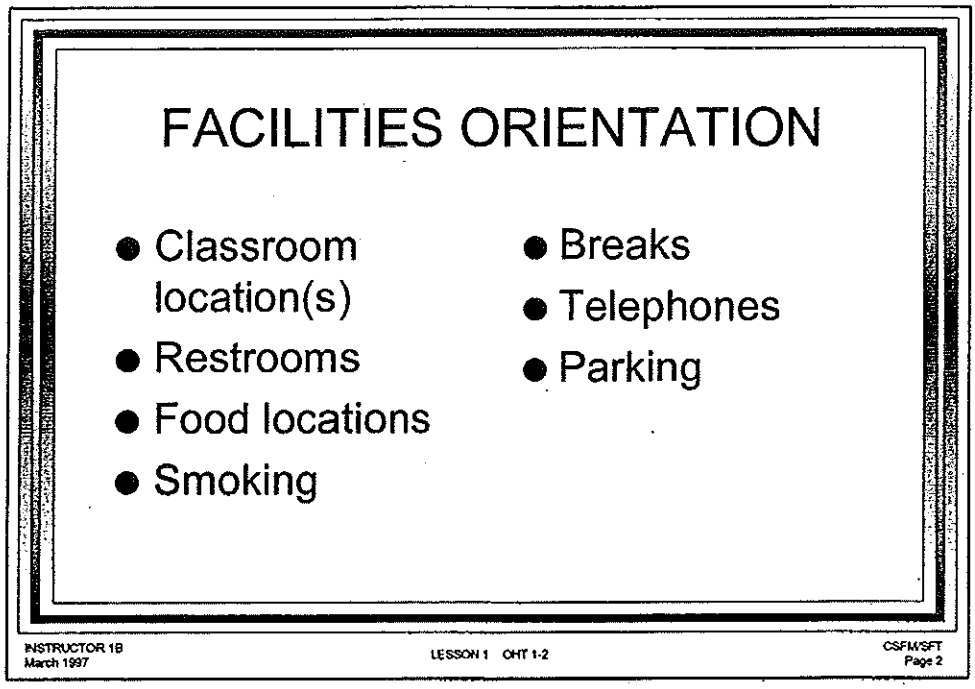
John was very nervous and routinely looked at his lesson plan. Many times had lost his place and stumbled over what material to present next. For those students who could see, John has good drawing skills but overused them and this kept his back to the class. He should have used the white board and dark-colored pens so all could see. John is knowledgeable with the subject and he tended to answer his own overhead questions. Use of direct or relay questions would have helped with the application step.

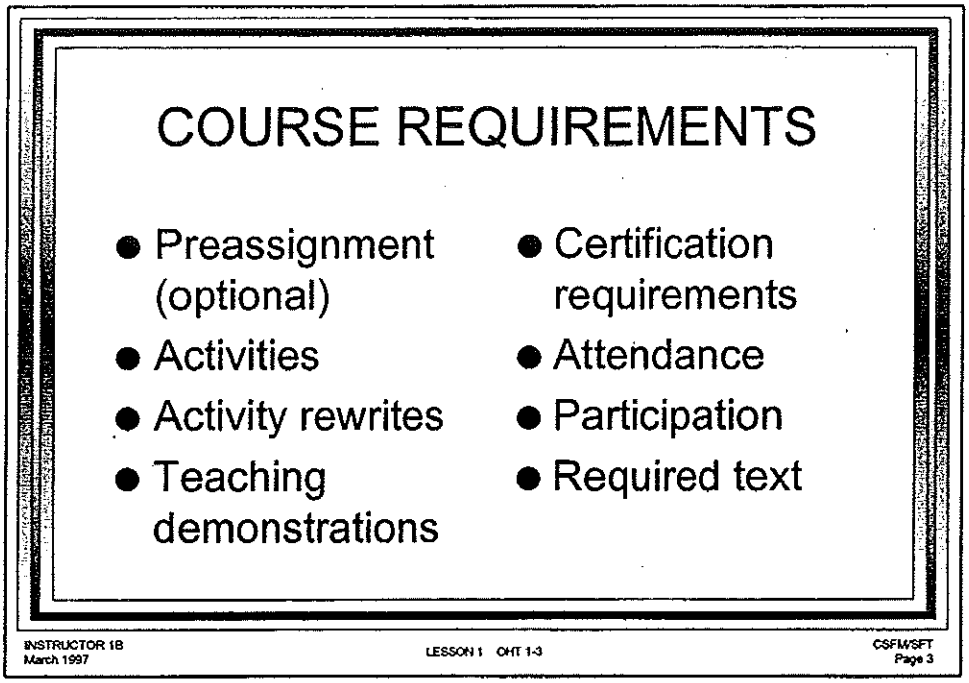


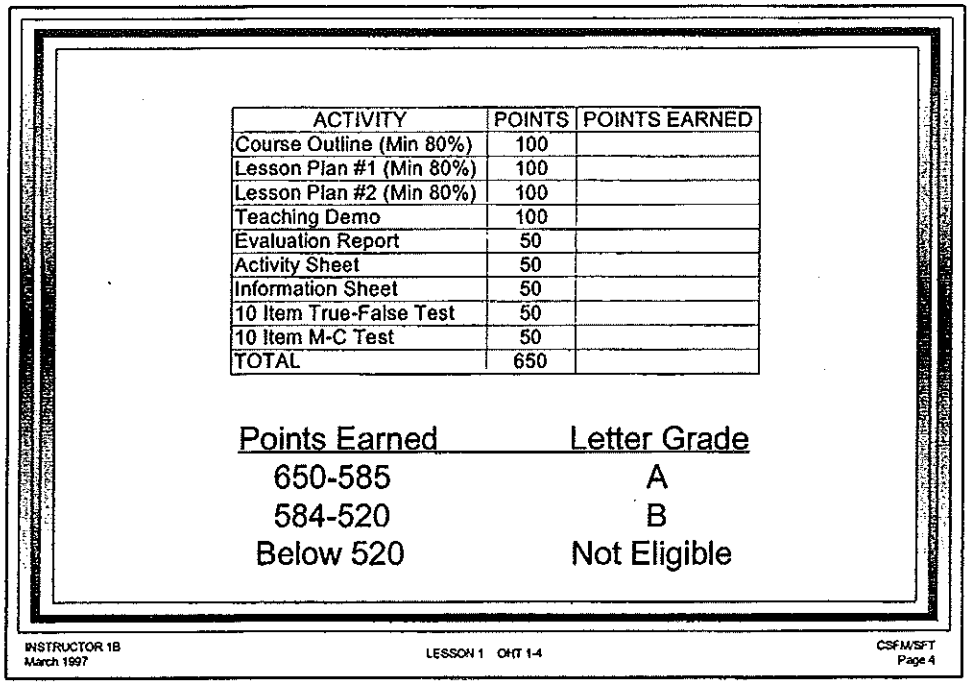
APPENDIX A

Overhead Transparency Student Notes


STUDENT INTRODUCTIONS
● Name
● Department
● Rank
● Years of experience
● Current assignment
● Reason for taking Fire Instructor 1B
INSTRUCTOR 1B
March 1997
LESSON 1 OHT 1-1
CSFM/SFT
Page 1

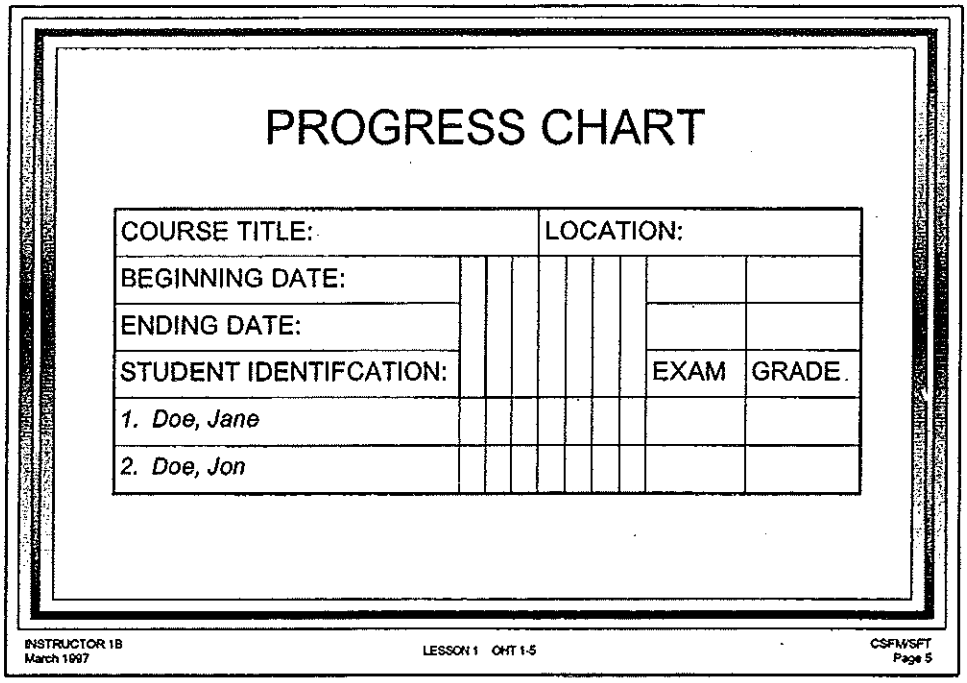

FACILITIES ORIENTATION
Classroom location(s)
Restrooms
Food locations
Smoking
Breaks
Telephones
Parking
INSTRUCTOR 1B
March 1997
LESSON 1 OHT 1-2
CSFM/SFT
Page 2


COURSE REQUIREMENTS
● Preassignment (optional)
● Activities
● Activity rewrites
● Teaching demonstrations
● Certification requirements
● Attendance
● Participation
● Required text
INSTRUCTOR 1B
March 1997
LESSON 1 OHT 1-3
CSFM/SFT
Page 3



ACTIVITY	POINTS	POINTS EARNED
Course Outline (Min 80%)	100	
Lesson Plan #1 (Min 80%)	100	
Lesson Plan #2 (Min 80%)	100	
Teaching Demo	100	
Evaluation Report	50	
Activity Sheet	50	
Information Sheet	50	
10 Item True-False Test	50	
10 Item M-C Test	50	
TOTAL	650	

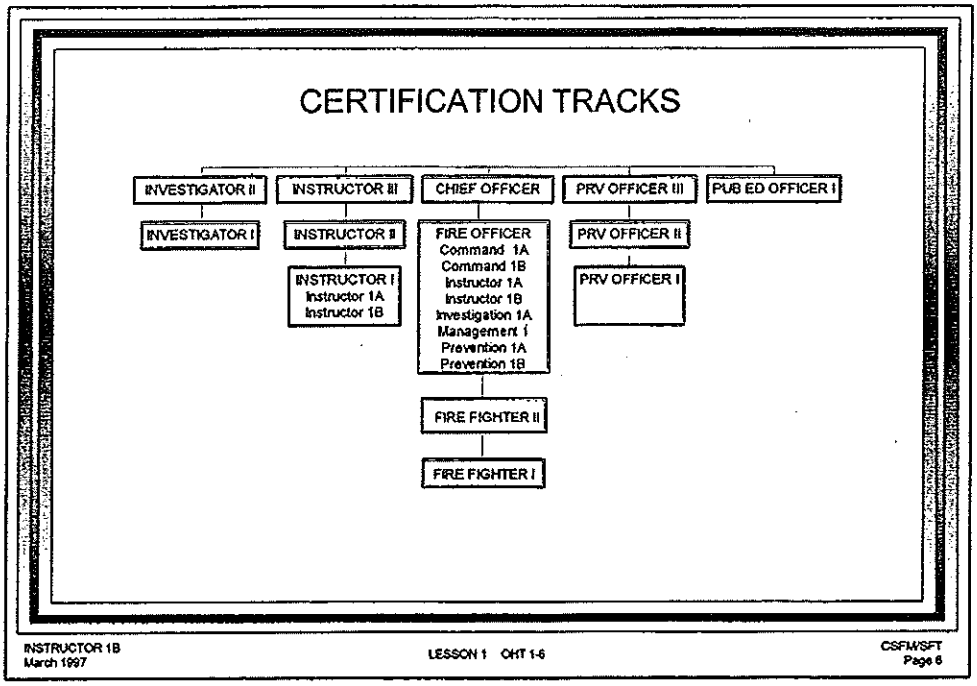
Points Earned	Letter Grade
650-585	A
584-520	B
Below 520	Not Eligible

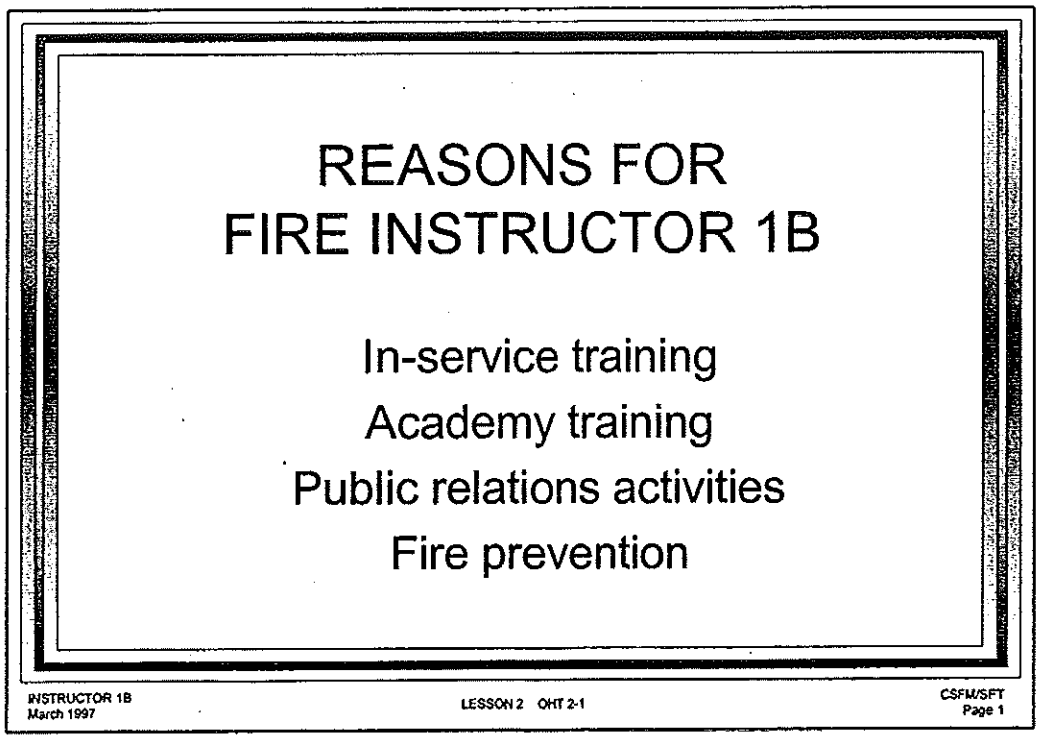


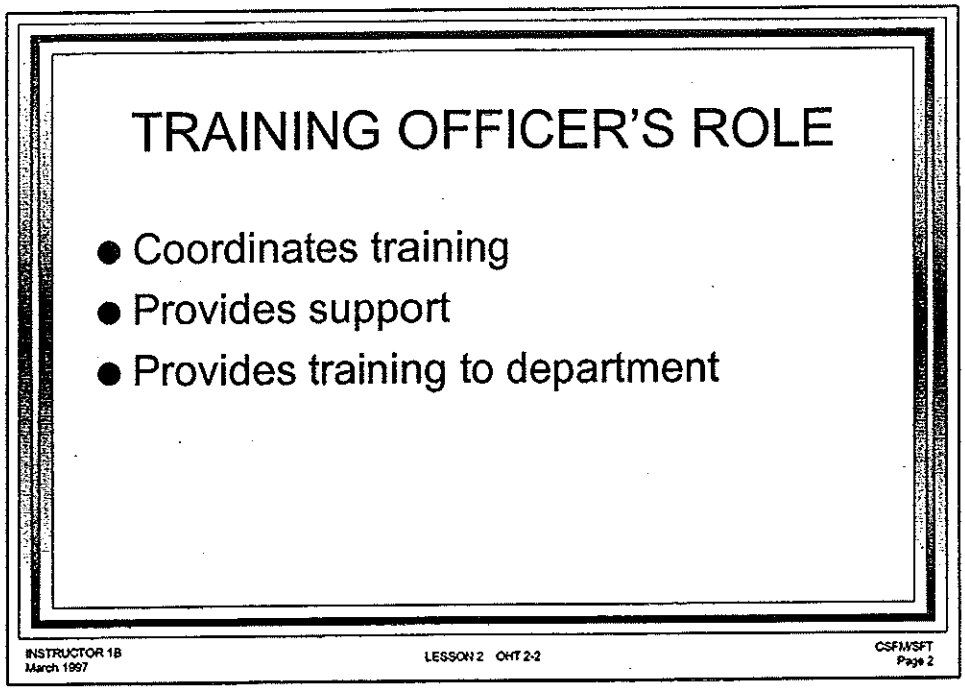
PROGRESS CHART

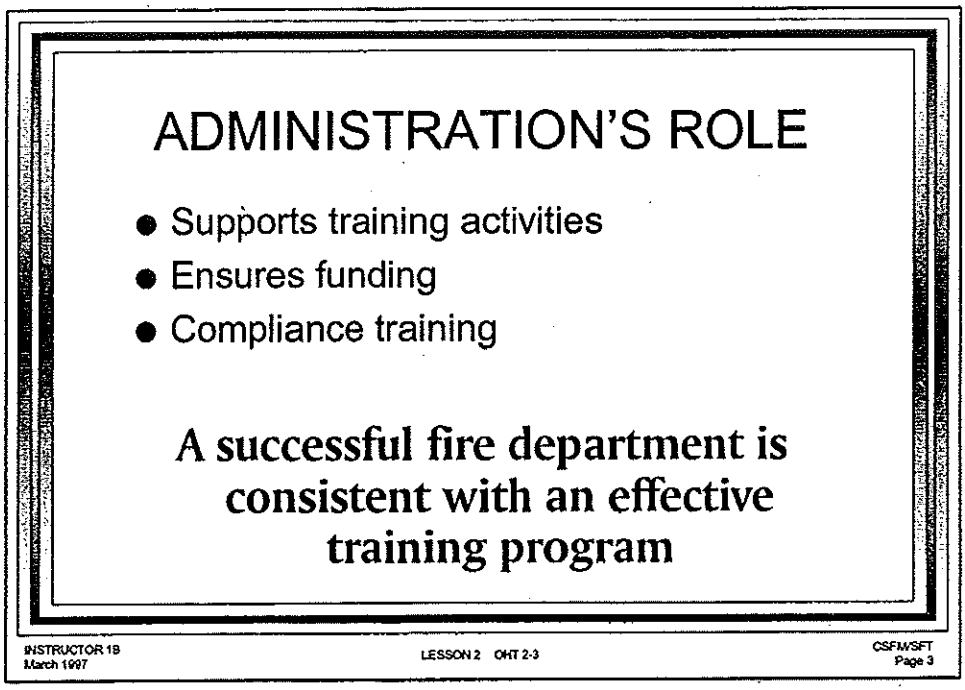
COURSE TITLE:							LOCATION:	
BEGINNING DATE:								
ENDING DATE:								
STUDENT IDENTIFCATION:							EXAM	GRADE
1. Doe, Jane								
2. Doe, Jon								

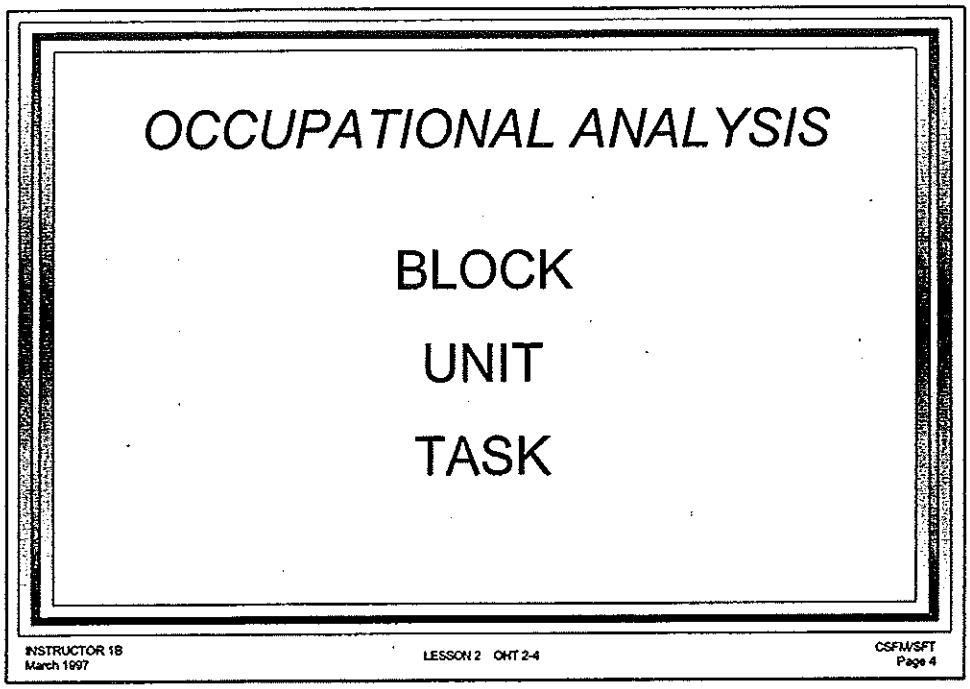
INSTRUCTOR 1B
March 1997
LESSON 1 OHT 1-5
CSFM/SFT
Page 5

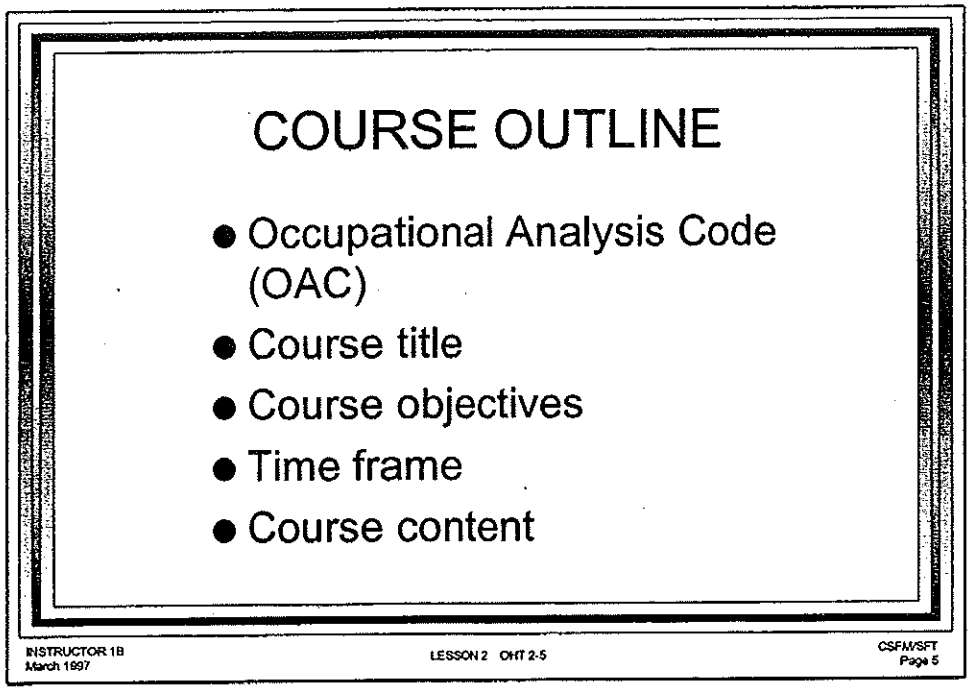

CERTIFICATION TRACKS
INVESTIGATOR II
INSTRUCTOR III
CHIEF OFFICER
PRV OFFICER III
PUB ED OFFICER I
INVESTIGATOR I
INSTRUCTOR II
FIRE OFFICER
Command 1A
Command 1B
Instructor 1A
Instructor 1B
Investigation 1A
Management I
Prevention 1A
Prevention 1B
PRV OFFICER II
INSTRUCTOR I
Instructor 1A
Instructor 1B
PRV OFFICER I
FIRE FIGHTER II
FIRE FIGHTER I
INSTRUCTOR 1B
March 1997
LESSON 1 OHT 1-6
CSFM/SFT
Page 6

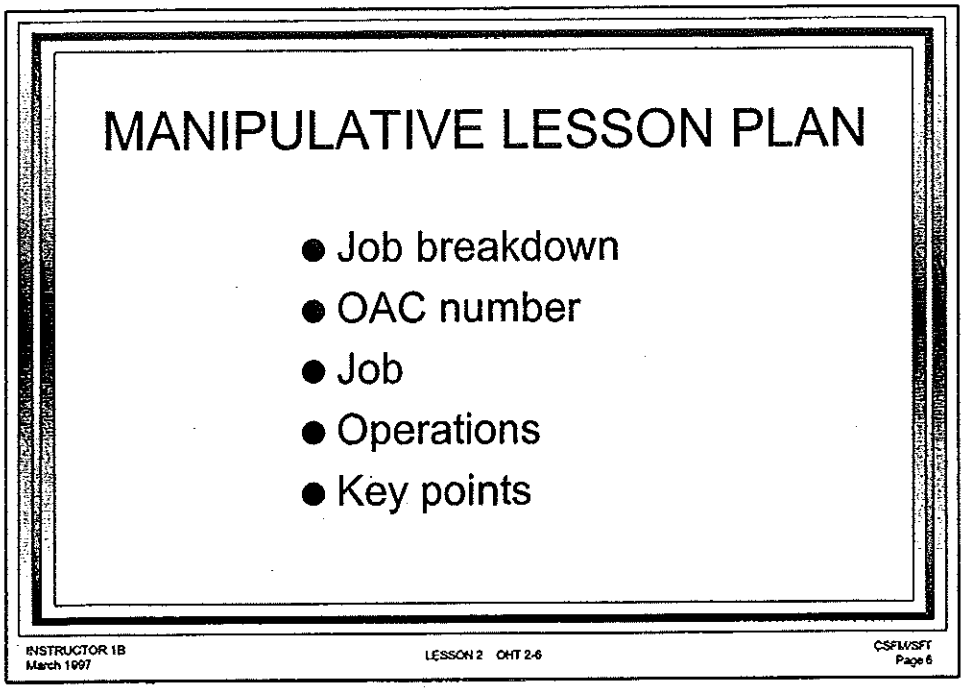

REASONS FOR
FIRE INSTRUCTOR 1B
In-service training
Academy training
Public relations activities
Fire prevention
INSTRUCTOR 1B
March 1997
LESSON 2 OHT 2-1
CSFM/SFT
Page 1

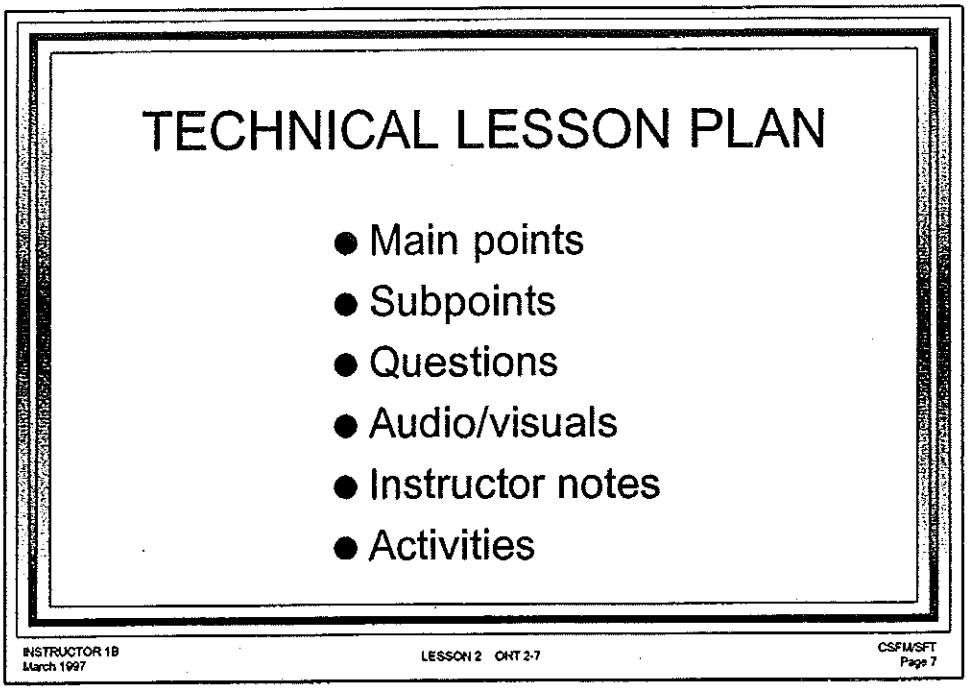

TRAINING OFFICER'S ROLE
● Coordinates training
● Provides support
● Provides training to department
INSTRUCTOR 1B
March 1997
LESSON 2 OHT 2-2
CSFM/SFT
Page 2

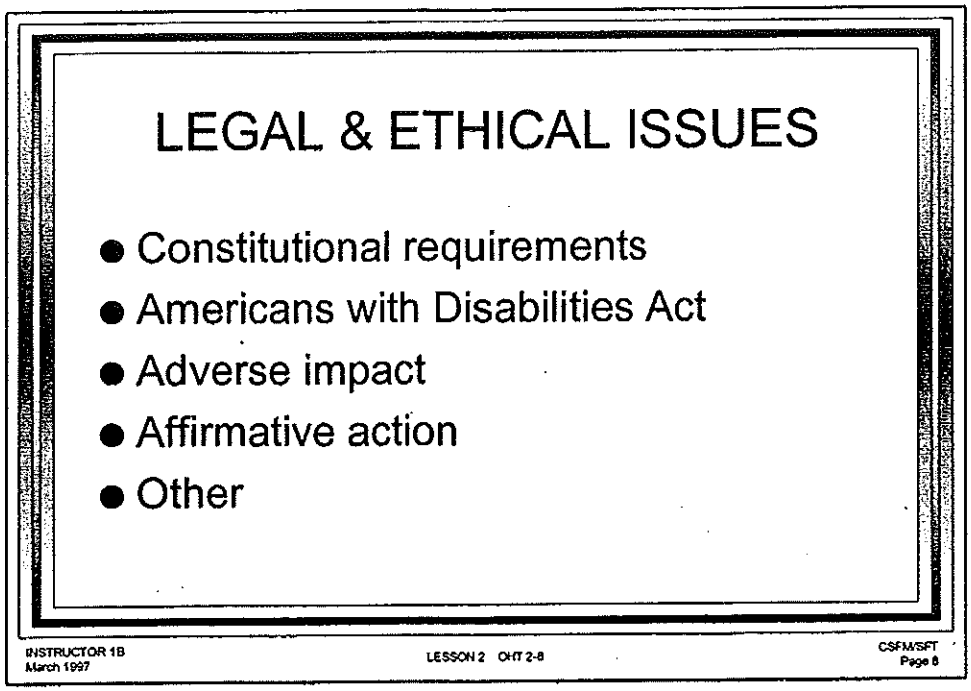

ADMINISTRATION'S ROLE
● Supports training activities
● Ensures funding
● Compliance training
A successful fire department is consistent with an effective training program
INSTRUCTOR 1B
March 1997
LESSON 2 OHT 2-3
CSFM/SFT
Page 3

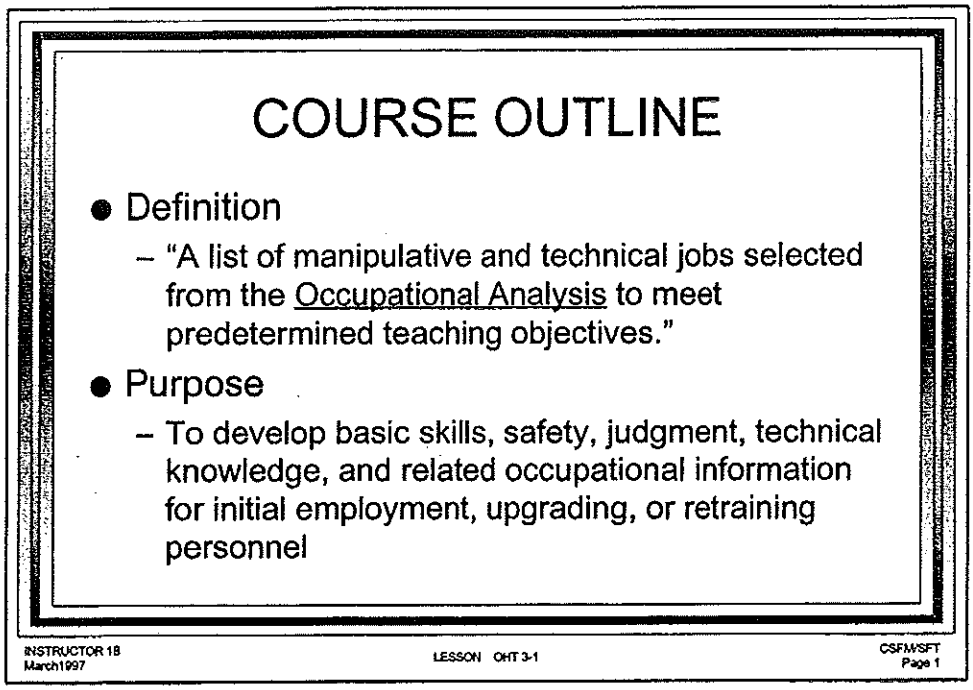

OCCUPATIONAL ANALYSIS
BLOCK
UNIT
TASK
INSTRUCTOR 1B
March 1997
LESSON 2 OHT 2-4
CSFM/SFT
Page 4

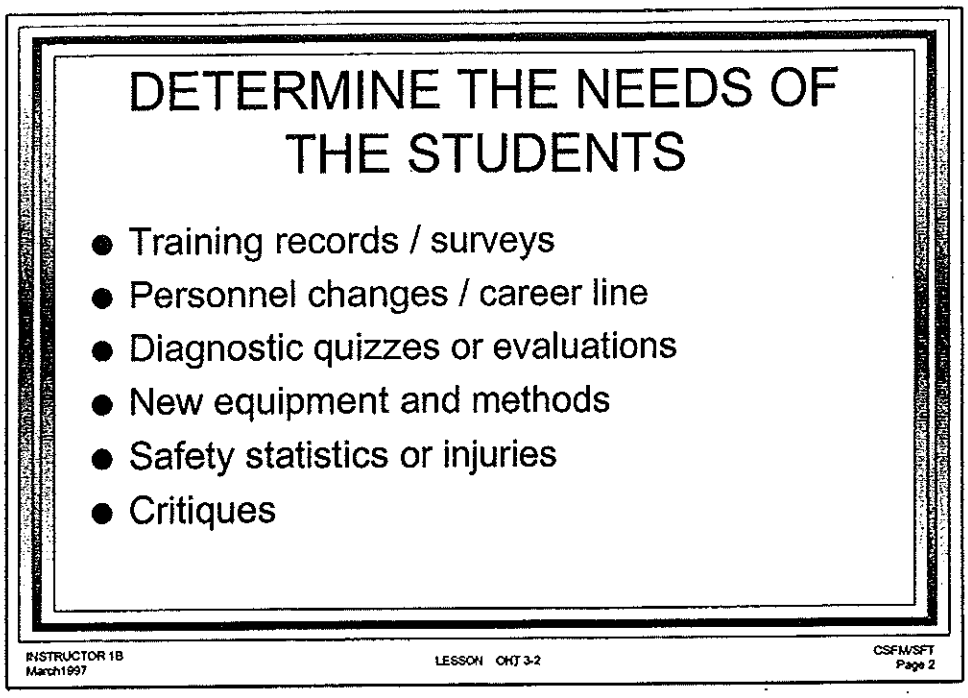

COURSE OUTLINE
● Occupational Analysis Code (OAC)
● Course title
● Course objectives
● Time frame
● Course content
INSTRUCTOR 1B
March 1997
LESSON 2 OHT 2-5
CSFM/SFT
Page 5

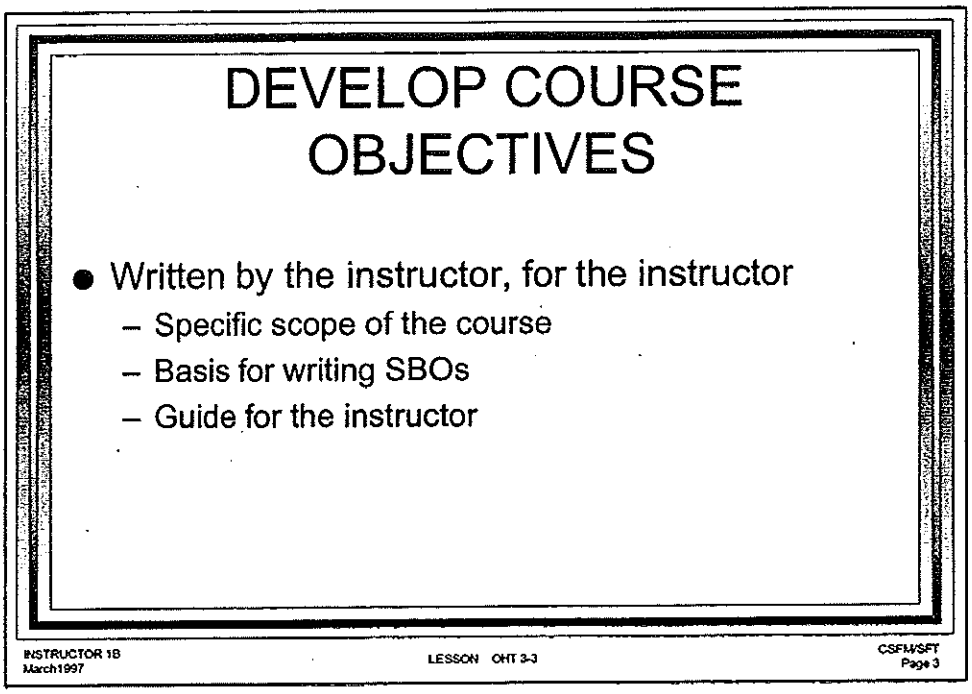

MANIPULATIVE LESSON PLAN
● Job breakdown
● OAC number
● Job
● Operations
● Key points
INSTRUCTOR 1B
March 1997
LESSON 2 OHT 2-6
CSFM/SFT
Page 6

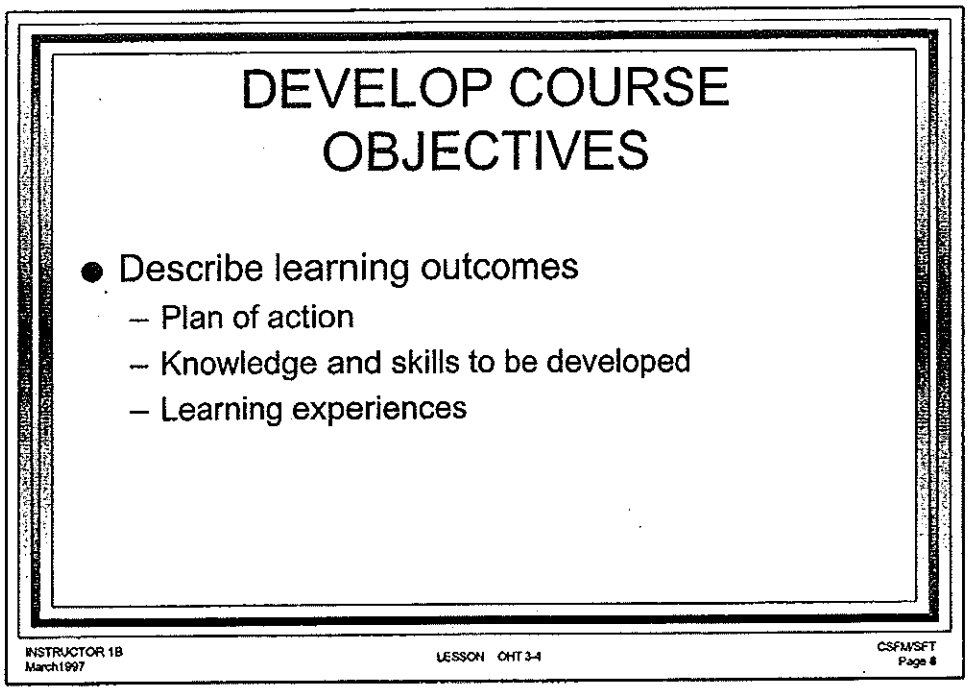

TECHNICAL LESSON PLAN
● Main points
● Subpoints
● Questions
● Audio/visuals
● Instructor notes
● Activities
INSTRUCTOR 1B
March 1997
LESSON 2 ONT 2-7
CSFM/SFT
Page 7

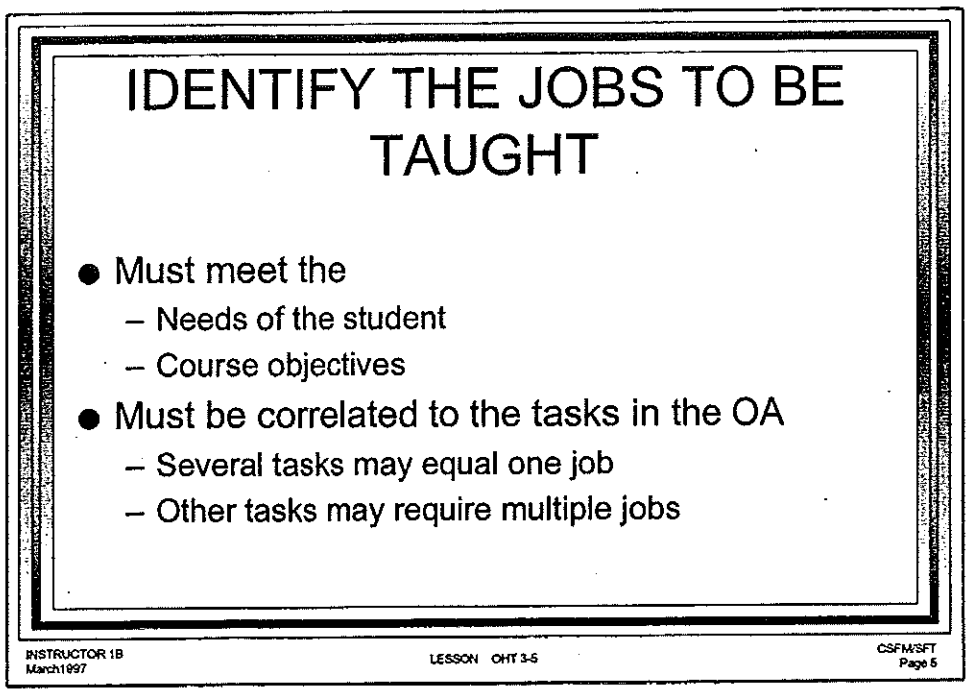

LEGAL & ETHICAL ISSUES
● Constitutional requirements
● Americans with Disabilities Act
● Adverse impact
● Affirmative action
● Other
INSTRUCTOR 1B
March 1997
LESSON 2 OHT 2-8
CSFM/SFT
Page 8

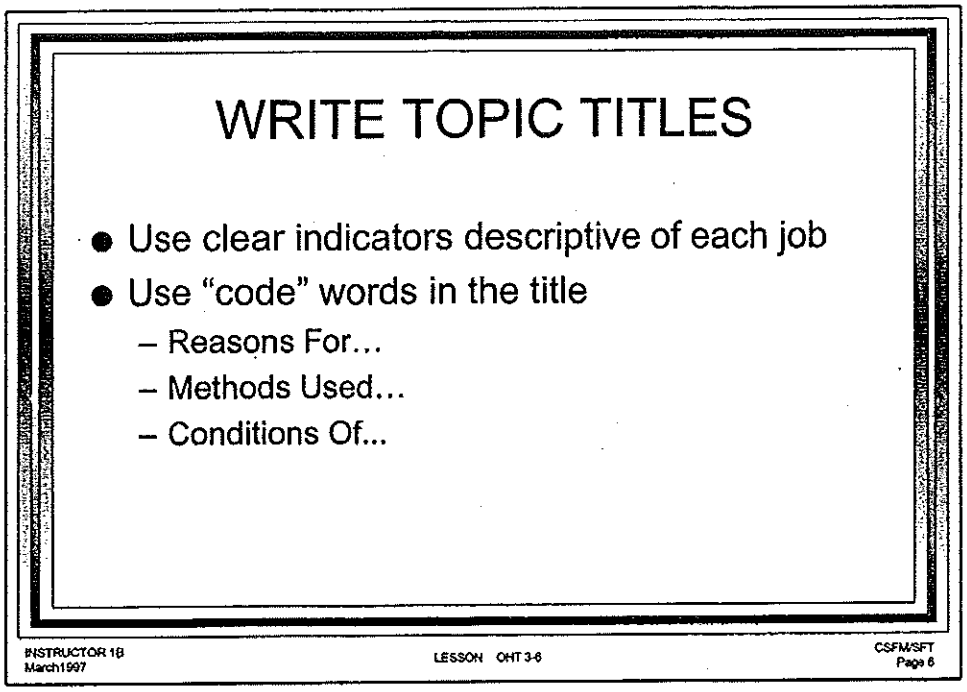

COURSE OUTLINE
● Definition
– "A list of manipulative and technical jobs selected from the Occupational Analysis to meet predetermined teaching objectives."
● Purpose
– To develop basic skills, safety, judgment, technical knowledge, and related occupational information for initial employment, upgrading, or retraining personnel
INSTRUCTOR 1B March1997
LESSON OHT 3-1
CSFM/SFT Page 1

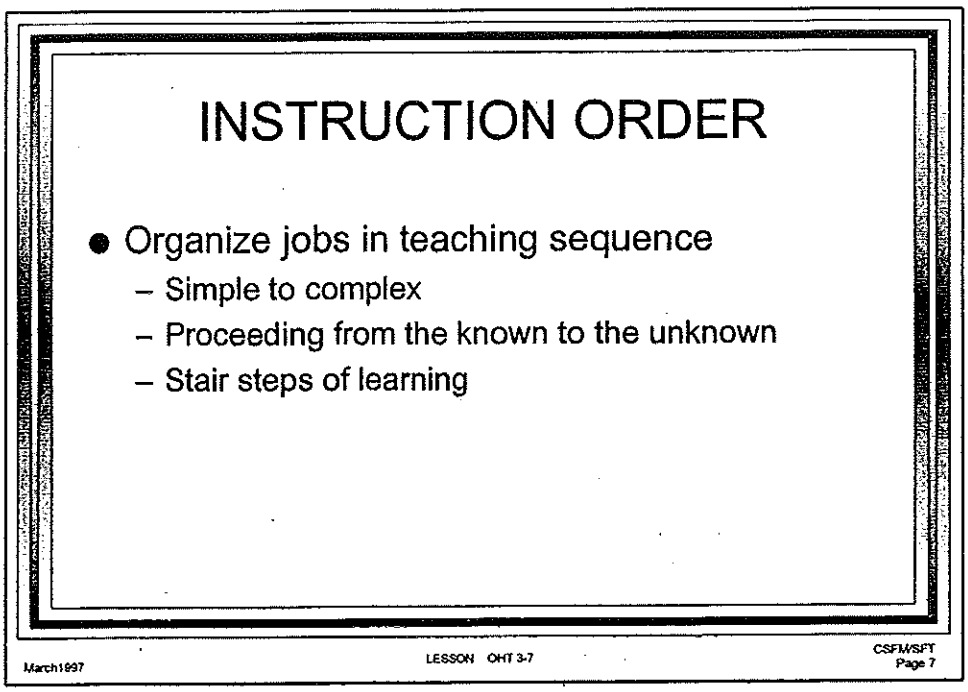

DETERMINE THE NEEDS OF THE STUDENTS
Training records / surveys
Personnel changes / career line
Diagnostic quizzes or evaluations
New equipment and methods
Safety statistics or injuries
Critiques
INSTRUCTOR 1B
March1997
LESSON OHT 3-2
CSFM/SFT
Page 2

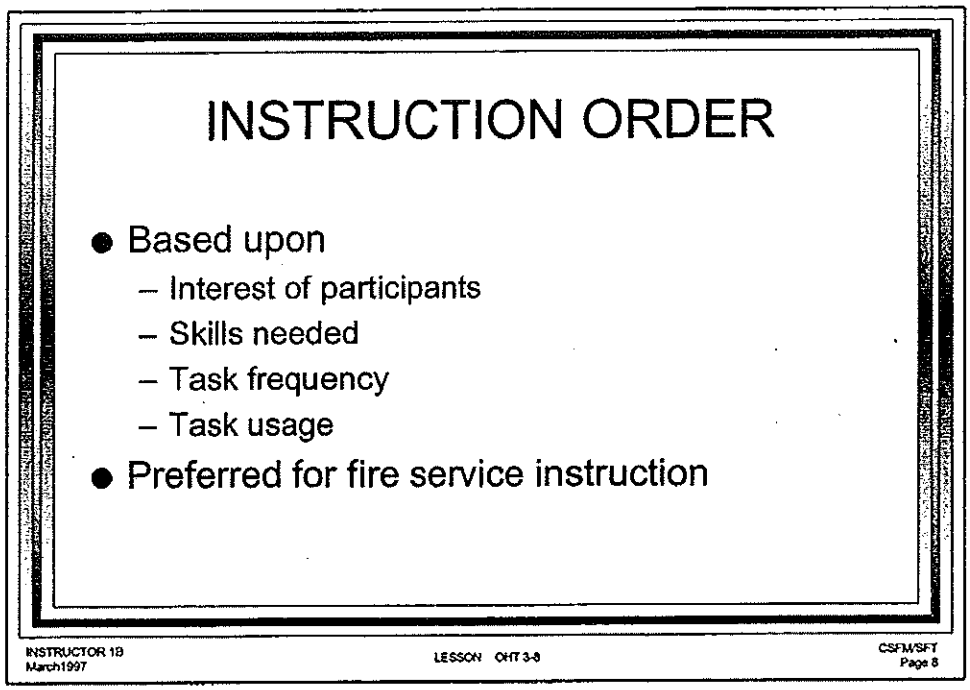

DEVELOP COURSE OBJECTIVES
● Written by the instructor, for the instructor
– Specific scope of the course
– Basis for writing SBOs
– Guide for the instructor
INSTRUCTOR 1B March1997
LESSON OHT 3-3
CSFM/SFT Page 3

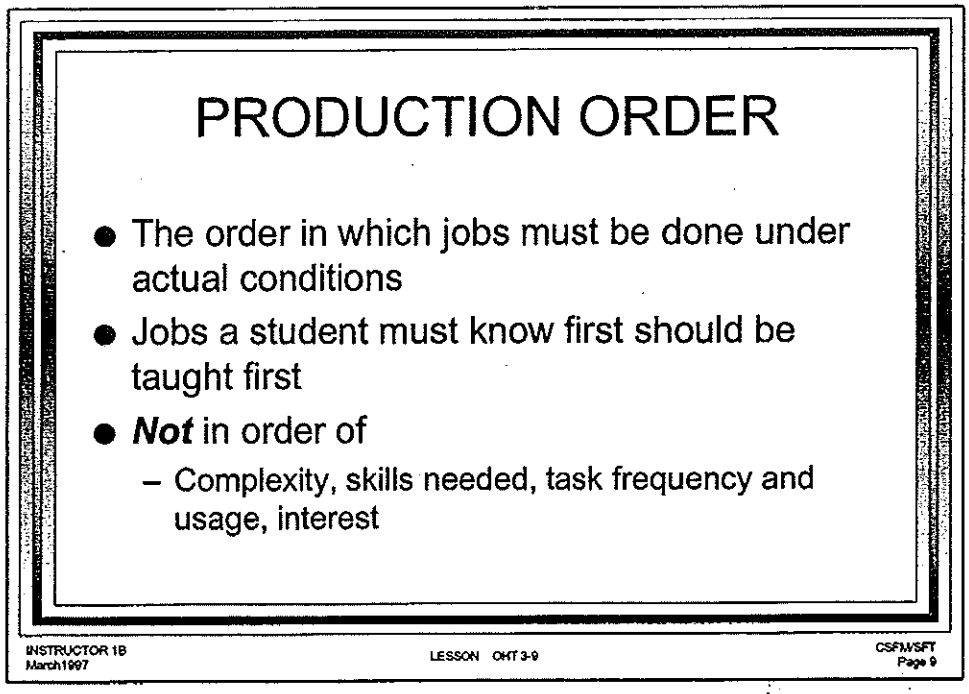

DEVELOP COURSE OBJECTIVES
● Describe learning outcomes
– Plan of action
– Knowledge and skills to be developed
– Learning experiences
INSTRUCTOR 1B
March1997
LESSON OHT 3-4
CSFM/SFT
Page 8

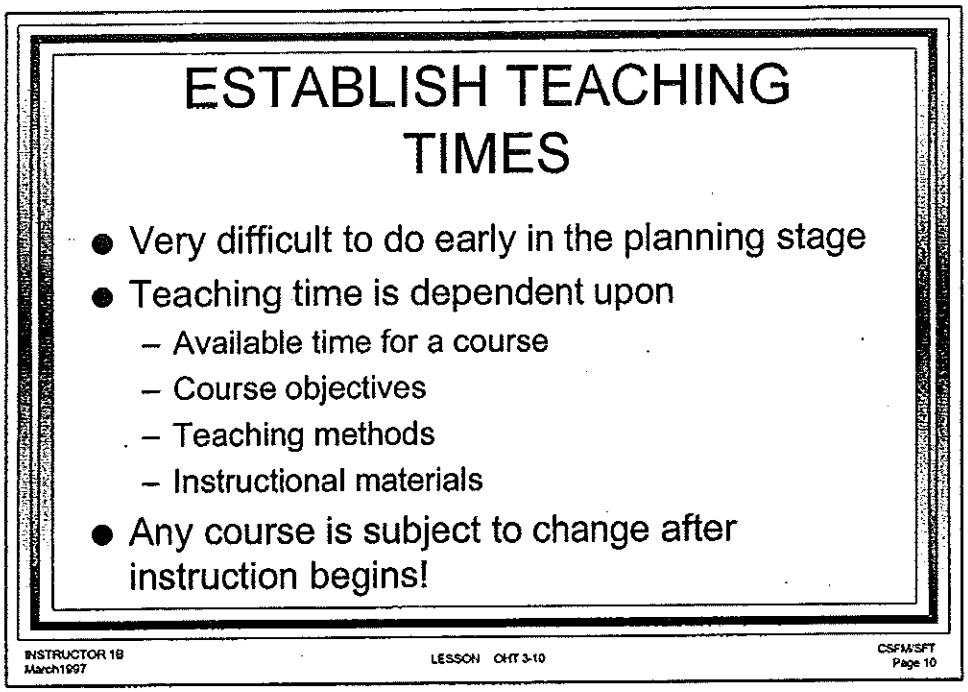

IDENTIFY THE JOBS TO BE TAUGHT
● Must meet the
– Needs of the student
– Course objectives
● Must be correlated to the tasks in the OA
– Several tasks may equal one job
– Other tasks may require multiple jobs
INSTRUCTOR 1B
March1997
LESSON OHT 3-5
CSFM/SFT
Page 5

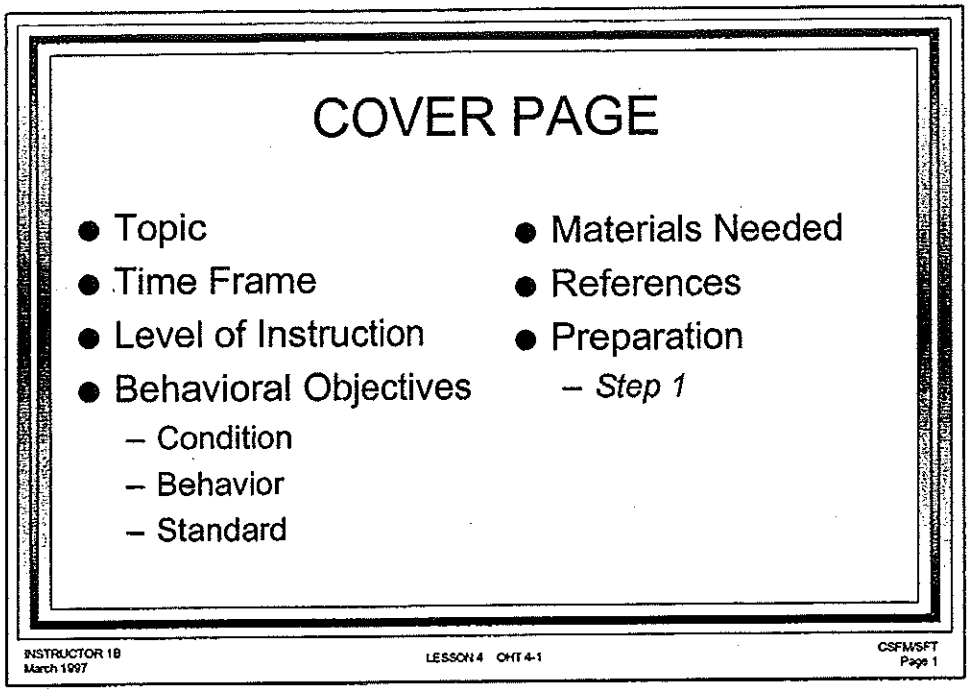

WRITE TOPIC TITLES
Use clear indicators descriptive of each job
Use "code" words in the title
– Reasons For...
– Methods Used...
– Conditions Of...
INSTRUCTOR 1B
March1997
LESSON OHT 3-6
CSFM/SFT
Page 6

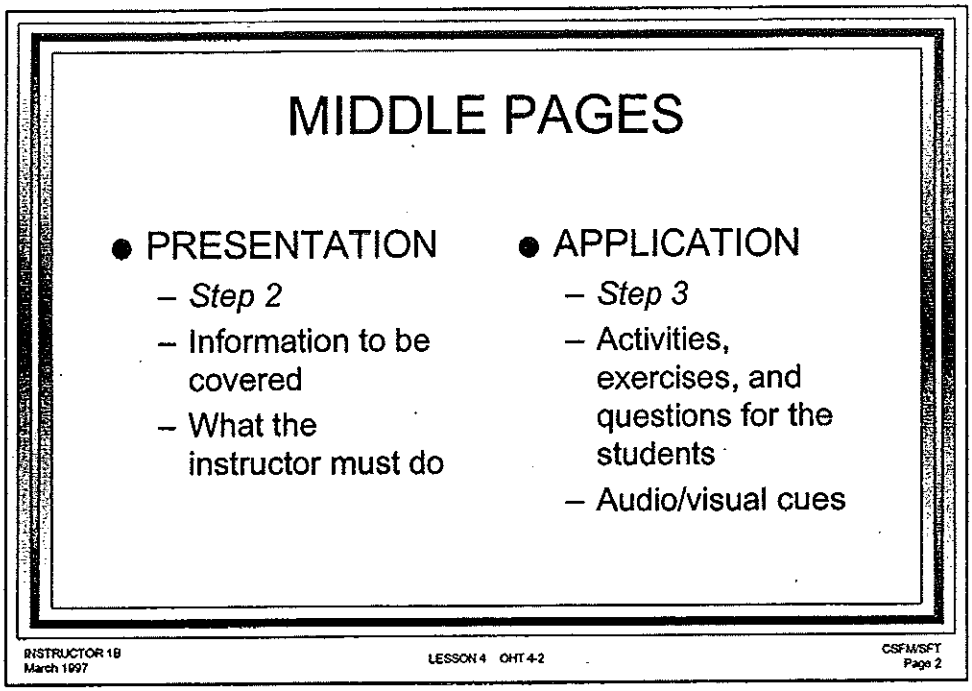

INSTRUCTION ORDER
● Organize jobs in teaching sequence
– Simple to complex
– Proceeding from the known to the unknown
– Stair steps of learning
March1997
LESSON OHT 3-7
CSFM/SFT
Page 7

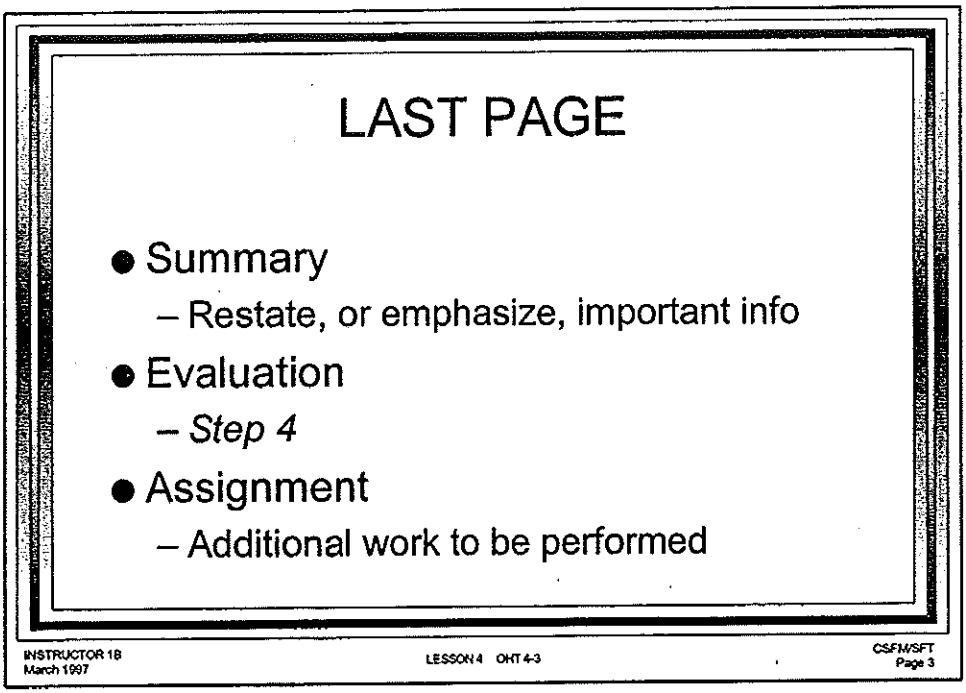

INSTRUCTION ORDER
● Based upon
– Interest of participants
– Skills needed
– Task frequency
– Task usage
● Preferred for fire service instruction
INSTRUCTOR 1B
March1997
LESSON OHT 3-8
CSFM/SFT
Page 8

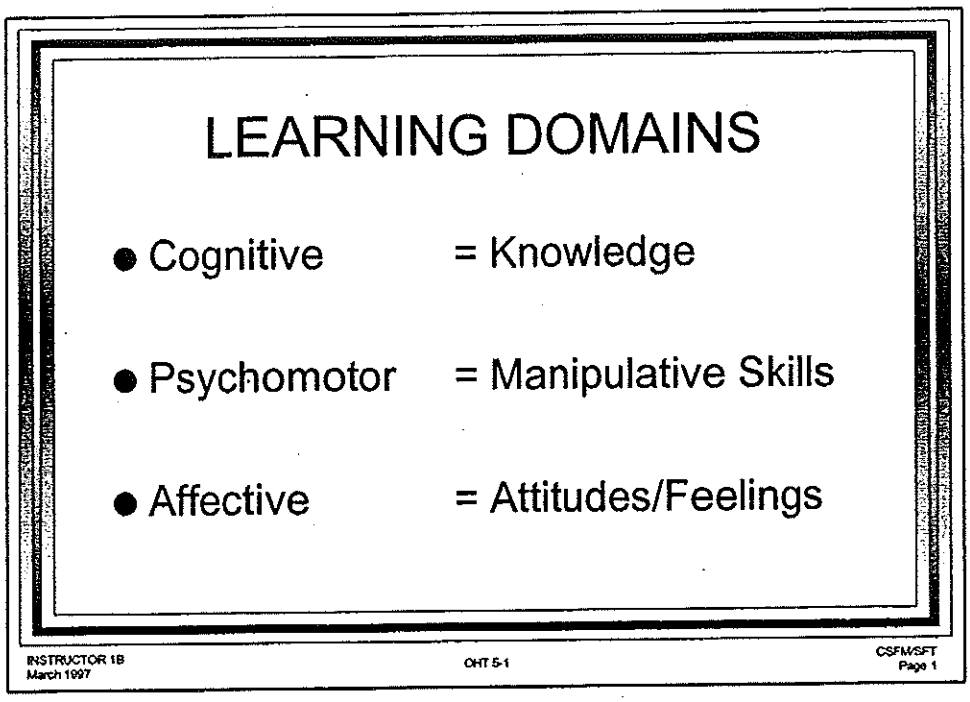

PRODUCTION ORDER
● The order in which jobs must be done under actual conditions
● Jobs a student must know first should be taught first
● ***Not*** in order of
– Complexity, skills needed, task frequency and usage, interest
INSTRUCTOR 1B
March1997
LESSON OHT 3-9
CSFM/SFT
Page 9

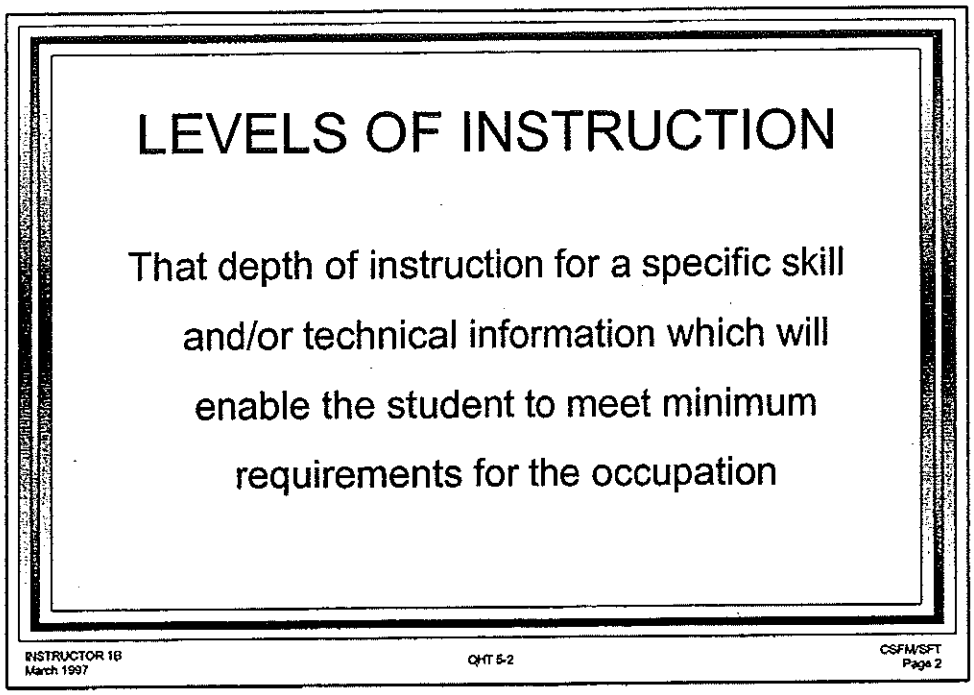

ESTABLISH TEACHING TIMES
● Very difficult to do early in the planning stage
● Teaching time is dependent upon
– Available time for a course
– Course objectives
– Teaching methods
– Instructional materials
● Any course is subject to change after instruction begins!
INSTRUCTOR 1B March1997
LESSON OHT 3-10
CSFM/SFT Page 10

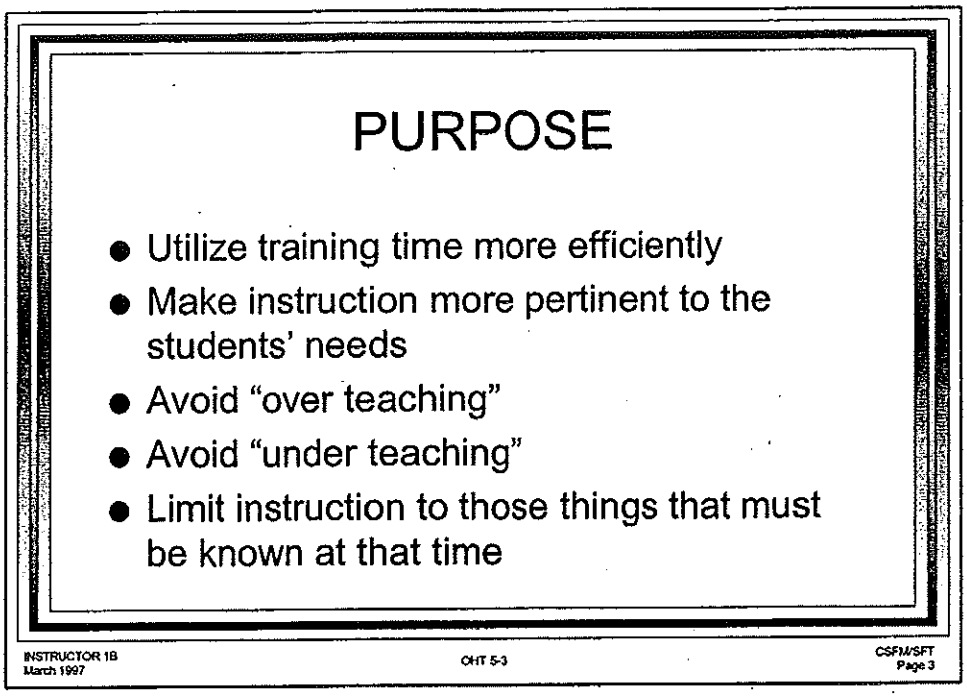

COVER PAGE
● Topic
● Time Frame
● Level of Instruction
● Behavioral Objectives
– Condition
– Behavior
– Standard
● Materials Needed
● References
● Preparation
– Step 1
INSTRUCTOR 1B
March 1997
LESSON 4 OHT 4-1
CSFM/SFT
Page 1

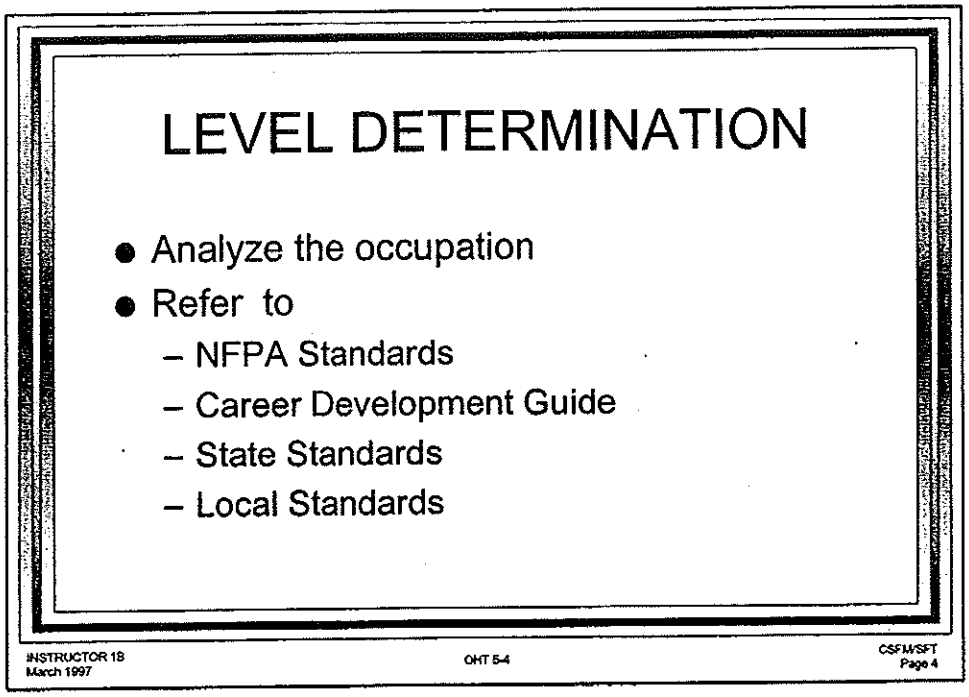

MIDDLE PAGES
● PRESENTATION
– Step 2
– Information to be covered
– What the instructor must do
● APPLICATION
– Step 3
– Activities, exercises, and questions for the students
– Audio/visual cues
INSTRUCTOR 1B
March 1997
LESSON 4 OHT 4-2
CSFM/SFT
Page 2

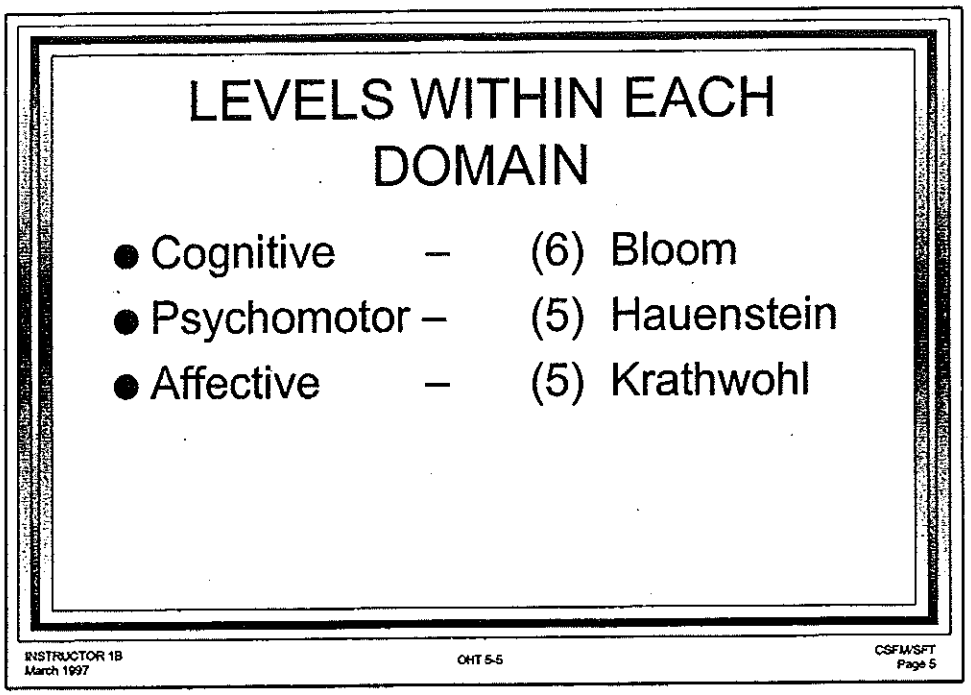

LAST PAGE
● Summary
– Restate, or emphasize, important info
● Evaluation
– Step 4
● Assignment
– Additional work to be performed
INSTRUCTOR 1B
March 1997
LESSON 4 OHT 4-3
CSFM/SFT
Page 3

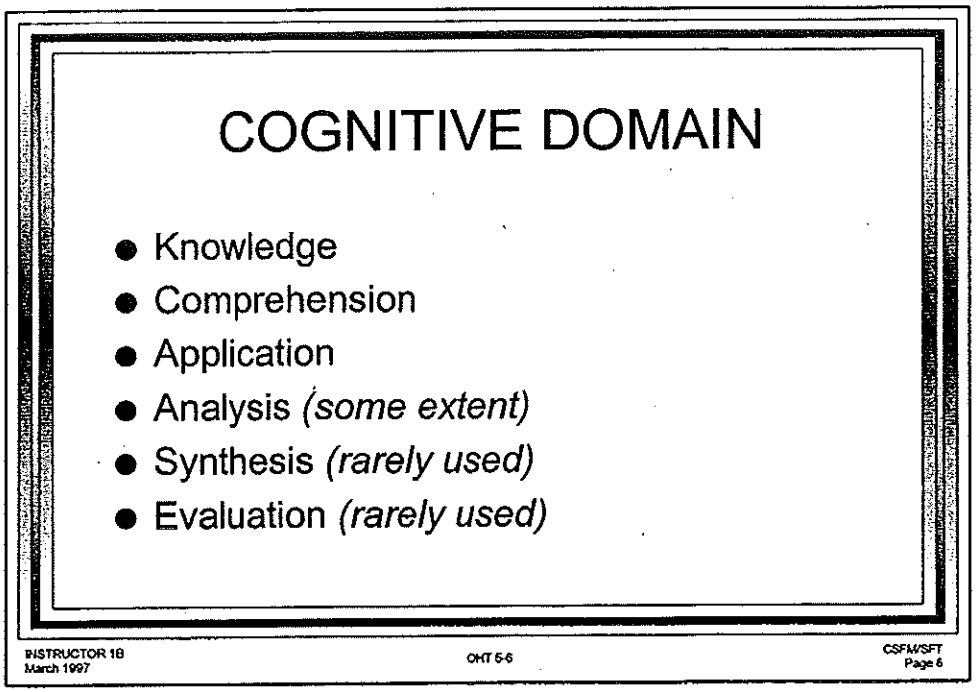

LEARNING DOMAINS
● Cognitive = Knowledge
● Psychomotor = Manipulative Skills
● Affective = Attitudes/Feelings
INSTRUCTOR 1B
March 1997
OHT 5-1
CSFM/SFT
Page 1

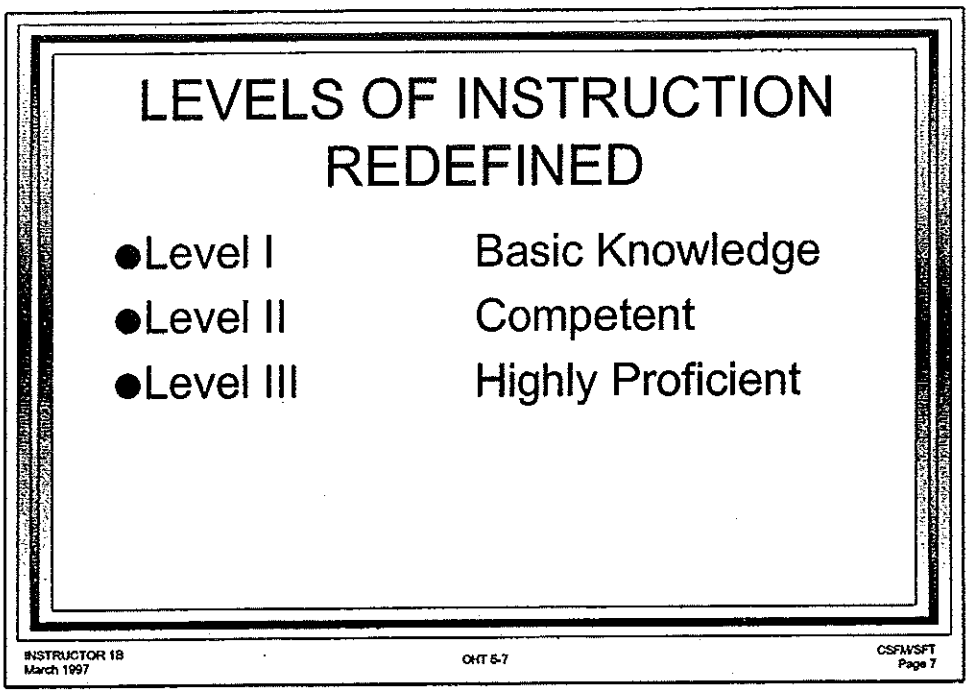

LEVELS OF INSTRUCTION
That depth of instruction for a specific skill and/or technical information which will enable the student to meet minimum requirements for the occupation
INSTRUCTOR 1B
March 1997
QHT 5-2
CSFM/SFT
Page 2

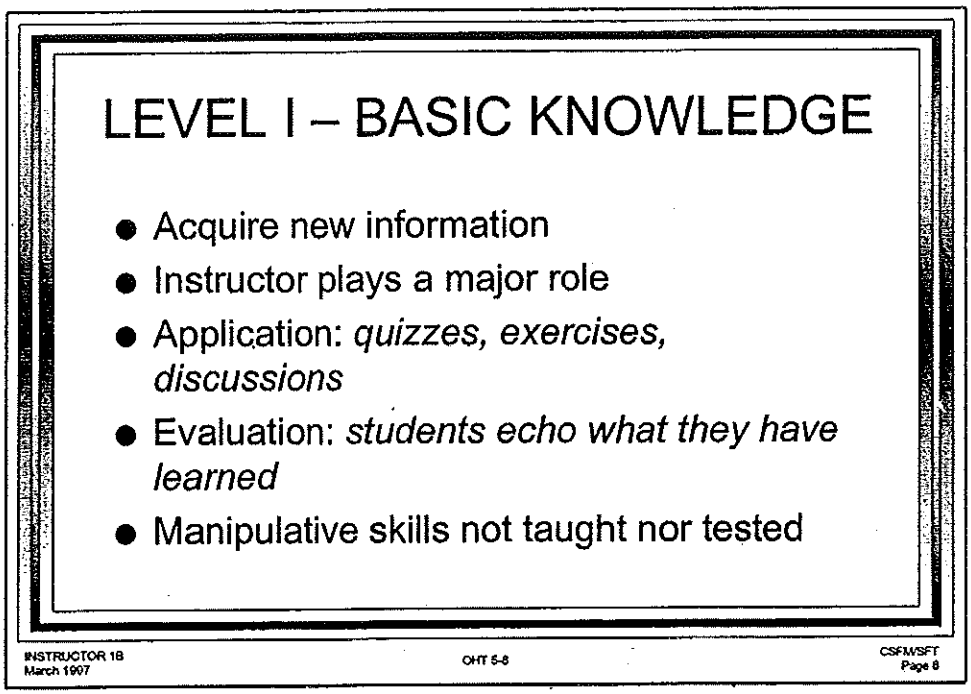

PURPOSE
Utilize training time more efficiently
Make instruction more pertinent to the students' needs
Avoid "over teaching"
Avoid "under teaching"
Limit instruction to those things that must be known at that time
INSTRUCTOR 1B
March 1997
OHT 5-3
CSFM/SFT
Page 3

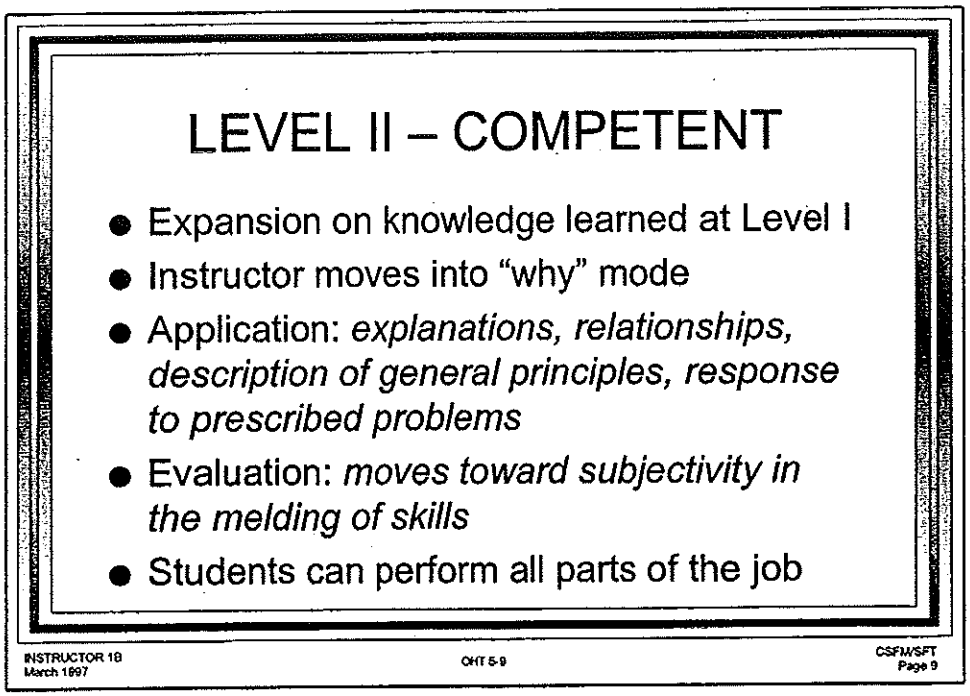

LEVEL DETERMINATION
● Analyze the occupation
● Refer to
– NFPA Standards
– Career Development Guide
– State Standards
– Local Standards
INSTRUCTOR 1B
March 1997
OHT 5-4
CSFM/SFT
Page 4

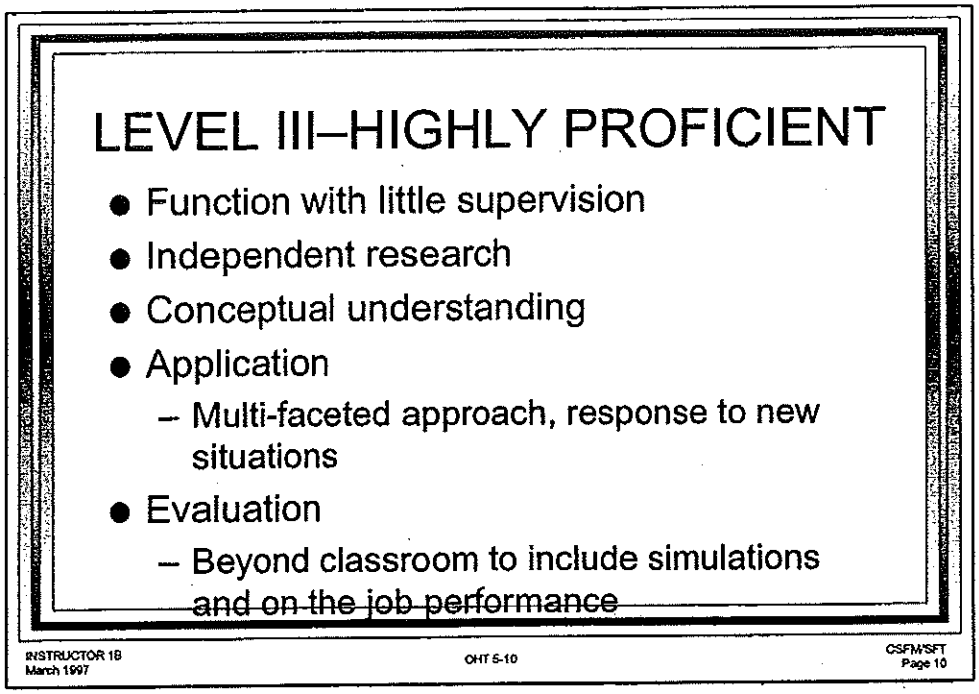

LEVELS WITHIN EACH DOMAIN
● Cognitive – (6) Bloom
● Psychomotor – (5) Hauenstein
● Affective – (5) Krathwohl
INSTRUCTOR 1B
March 1997
OHT 5-5
CSFM/SFT
Page 5

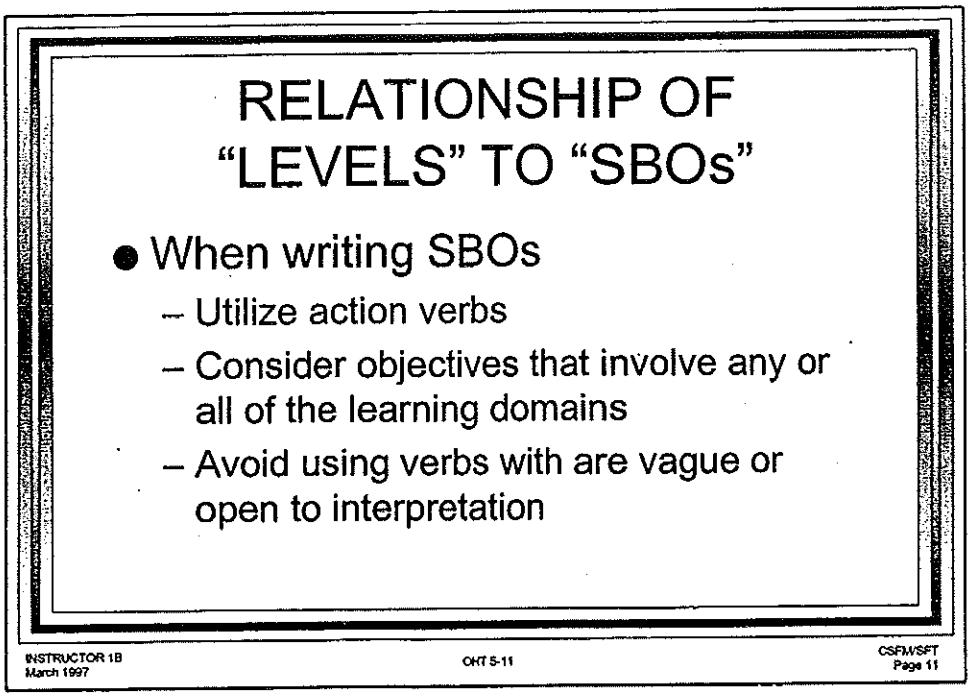

COGNITIVE DOMAIN
Knowledge
Comprehension
Application
Analysis (some extent)
Synthesis (rarely used)
Evaluation (rarely used)
INSTRUCTOR 1B
March 1997
OHT 5-6
CSFM/SFT
Page 6

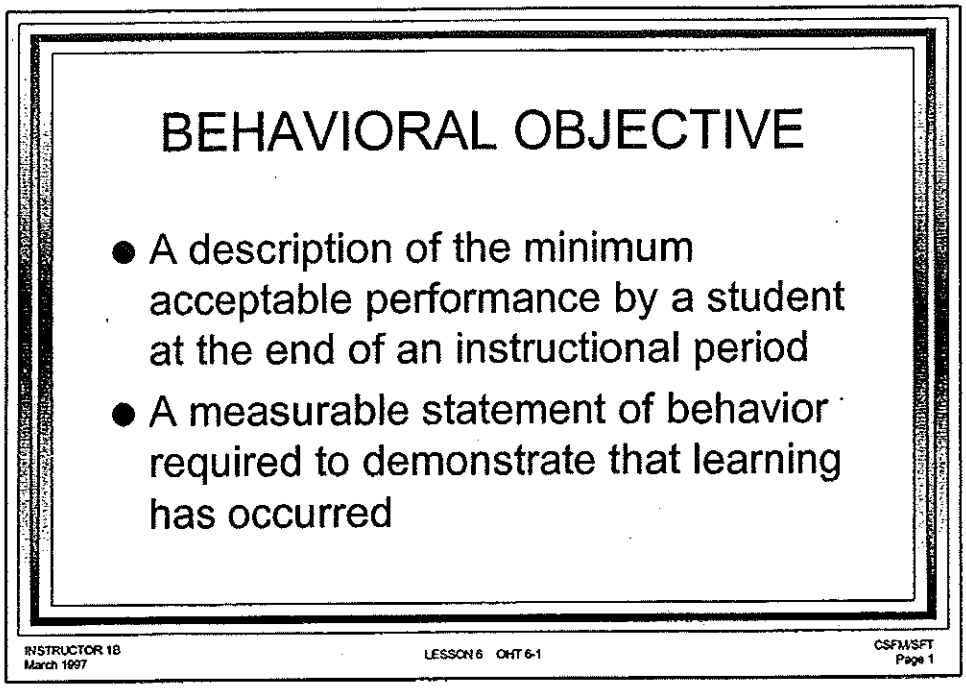

LEVELS OF INSTRUCTION REDEFINED
●Level I Basic Knowledge
●Level II Competent
●Level III Highly Proficient
INSTRUCTOR 1B
March 1997
OHT 5-7
CSFM/SFT
Page 7

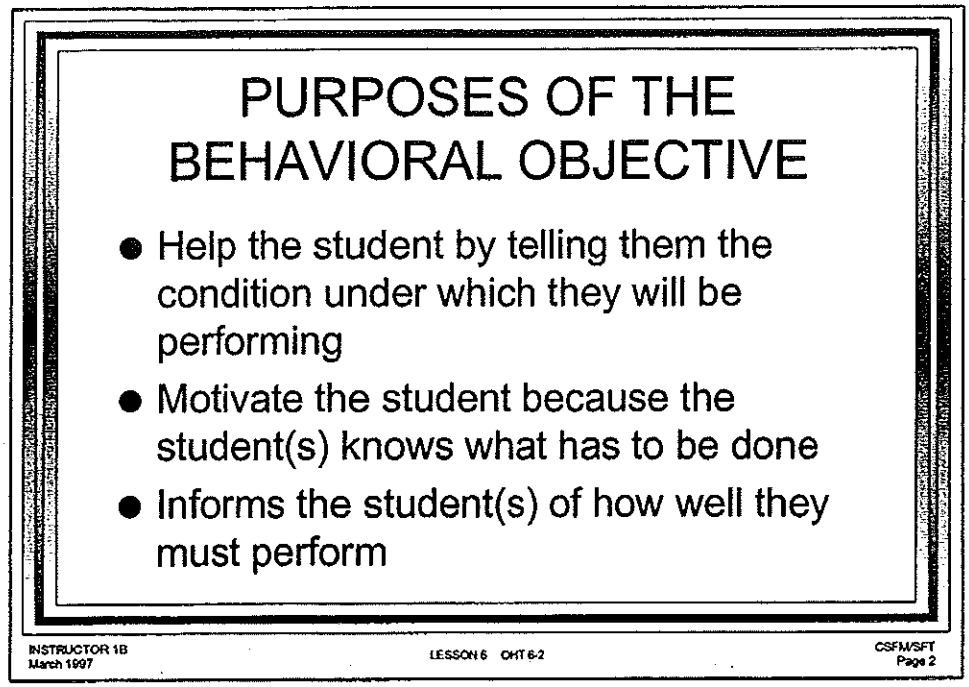

LEVEL I – BASIC KNOWLEDGE
Acquire new information
Instructor plays a major role
Application: quizzes, exercises, discussions
Evaluation: students echo what they have learned
Manipulative skills not taught nor tested
INSTRUCTOR 1B
March 1997
OHT 5-8
CSFM/SFT
Page 8

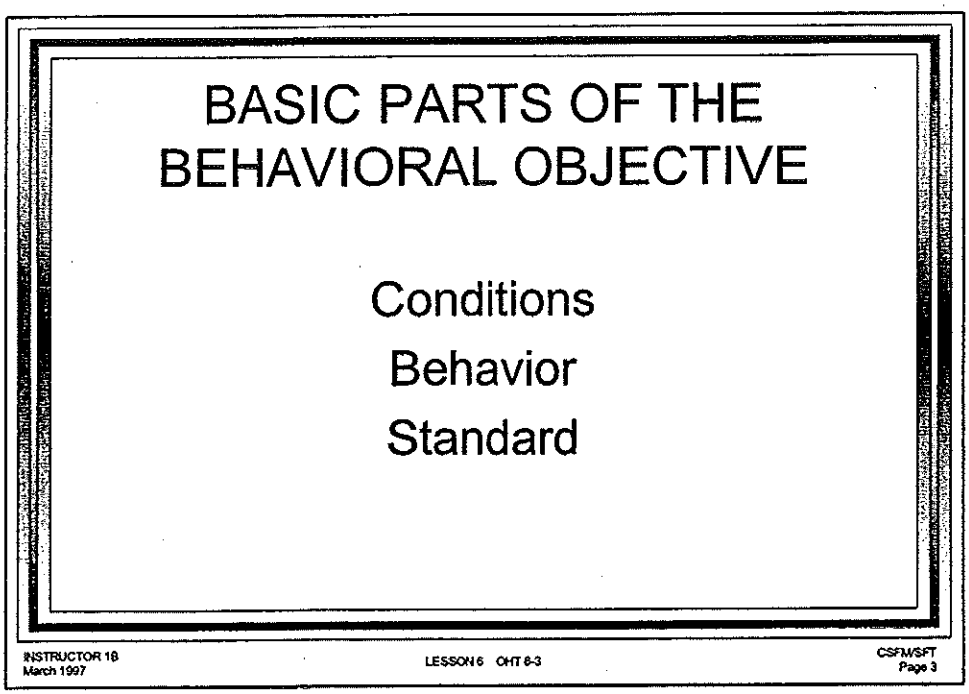

LEVEL II – COMPETENT
● Expansion on knowledge learned at Level I
● Instructor moves into "why" mode
● Application: *explanations, relationships, description of general principles, response to prescribed problems*
● Evaluation: *moves toward subjectivity in the melding of skills*
● Students can perform all parts of the job
INSTRUCTOR 1B
March 1997
OHT 5-9
CSFM/SFT
Page 9

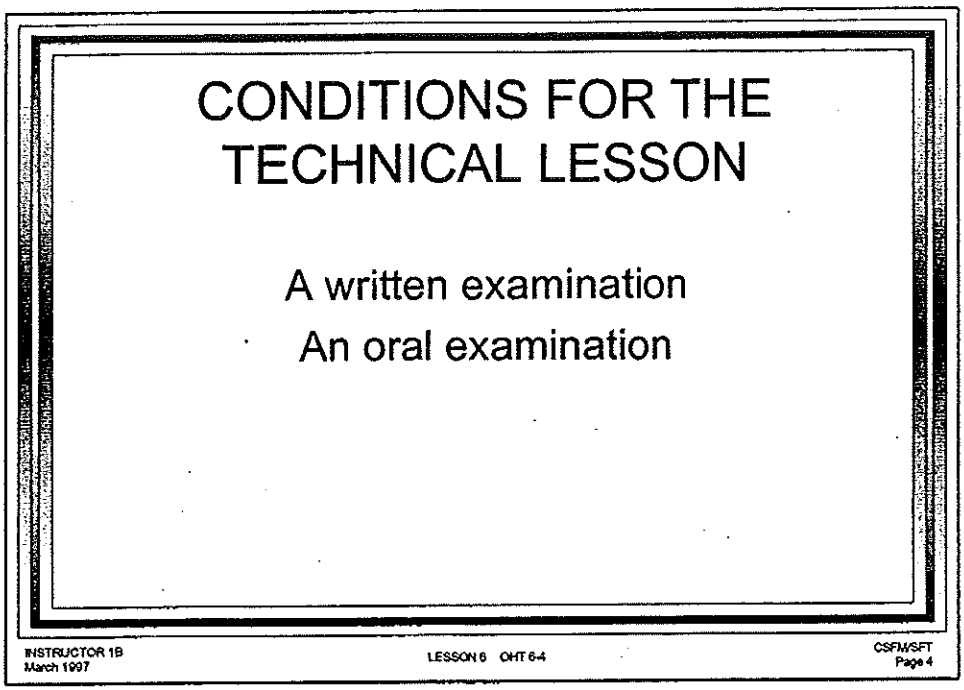

LEVEL III–HIGHLY PROFICIENT
Function with little supervision
Independent research
Conceptual understanding
Application
– Multi-faceted approach, response to new situations
Evaluation
– Beyond classroom to include simulations and on the job performance
INSTRUCTOR 1B
March 1997
OHT 5-10
CSFM/SFT
Page 10

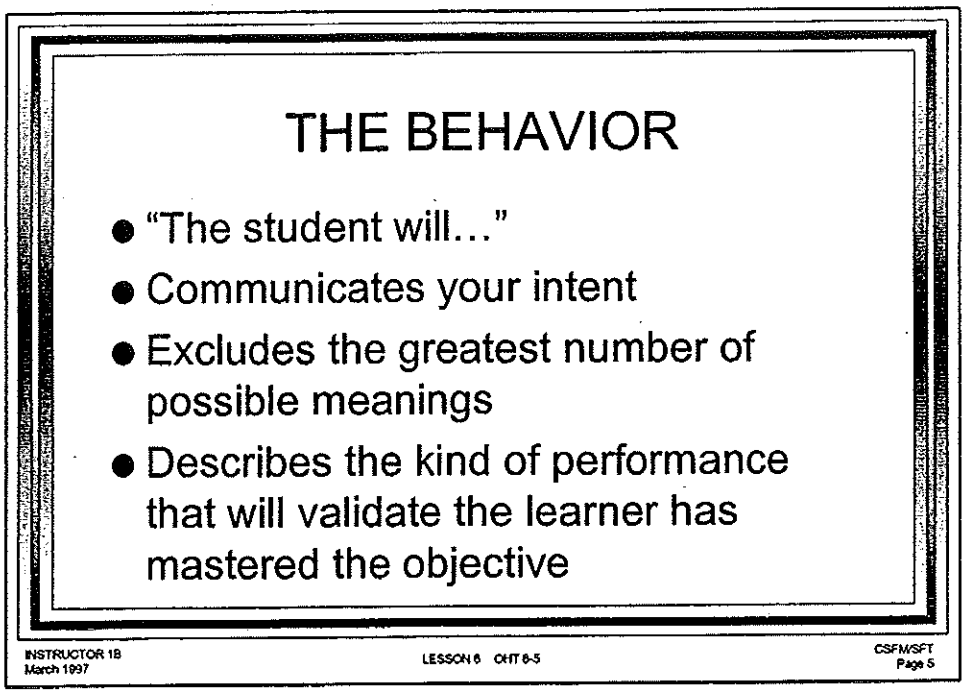

RELATIONSHIP OF
"LEVELS" TO "SBOs"
When writing SBOs
– Utilize action verbs
– Consider objectives that involve any or all of the learning domains
– Avoid using verbs with are vague or open to interpretation
INSTRUCTOR 1B
March 1997
OHT 5-11
CSFM/SFT
Page 11

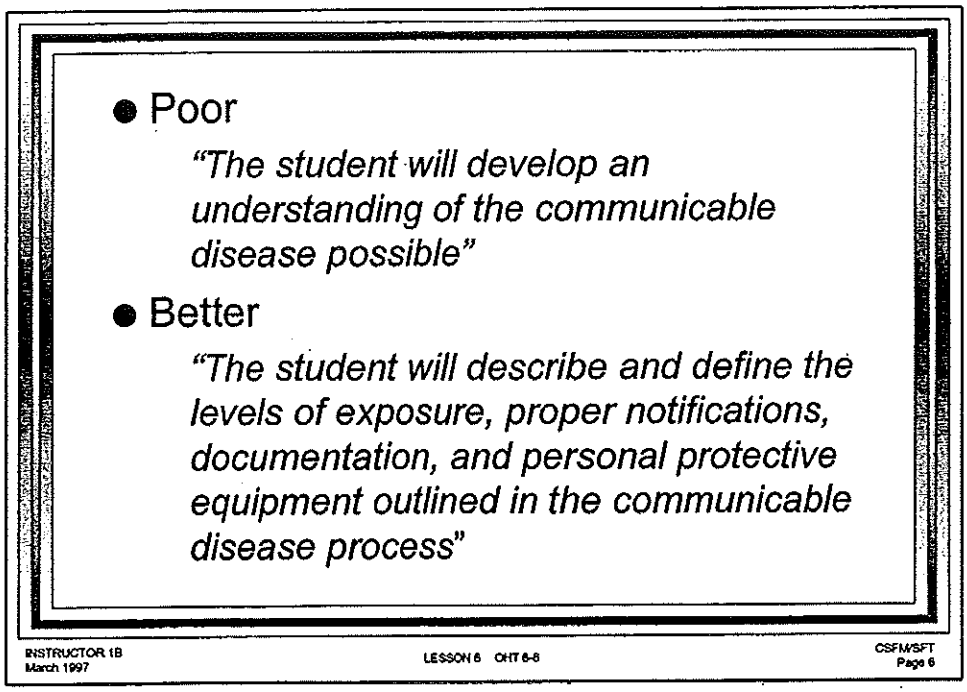

BEHAVIORAL OBJECTIVE
● A description of the minimum acceptable performance by a student at the end of an instructional period
● A measurable statement of behavior required to demonstrate that learning has occurred
INSTRUCTOR 1B
March 1997
LESSON 6 OHT 6-1
CSFM/SFT
Page 1

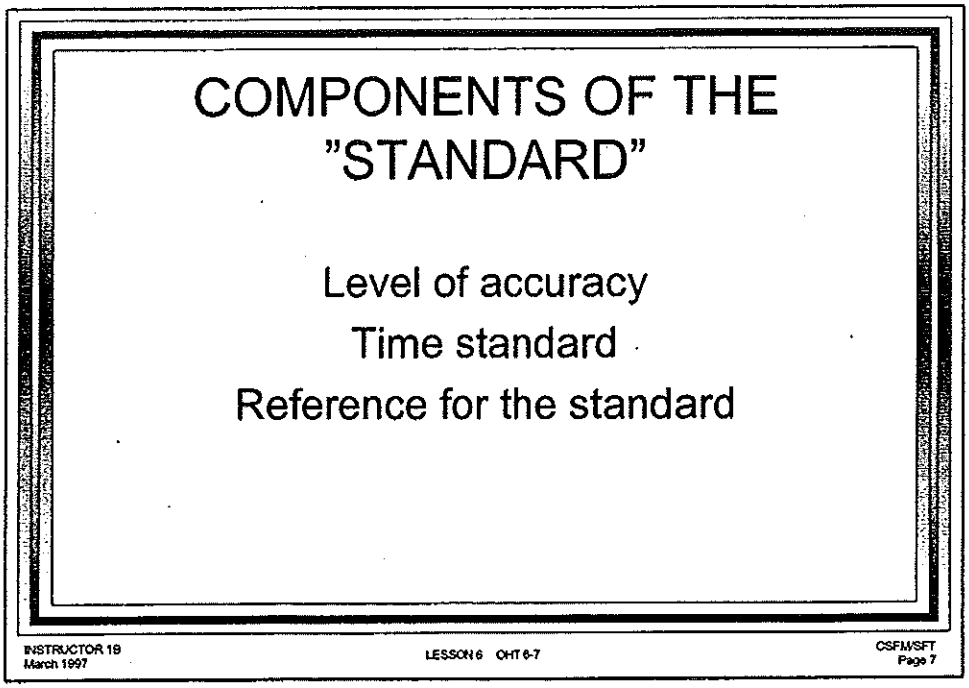

PURPOSES OF THE BEHAVIORAL OBJECTIVE
● Help the student by telling them the condition under which they will be performing
● Motivate the student because the student(s) knows what has to be done
● Informs the student(s) of how well they must perform
INSTRUCTOR 1B
March 1997
LESSON 6 OHT 6-2
CSFM/SFT
Page 2

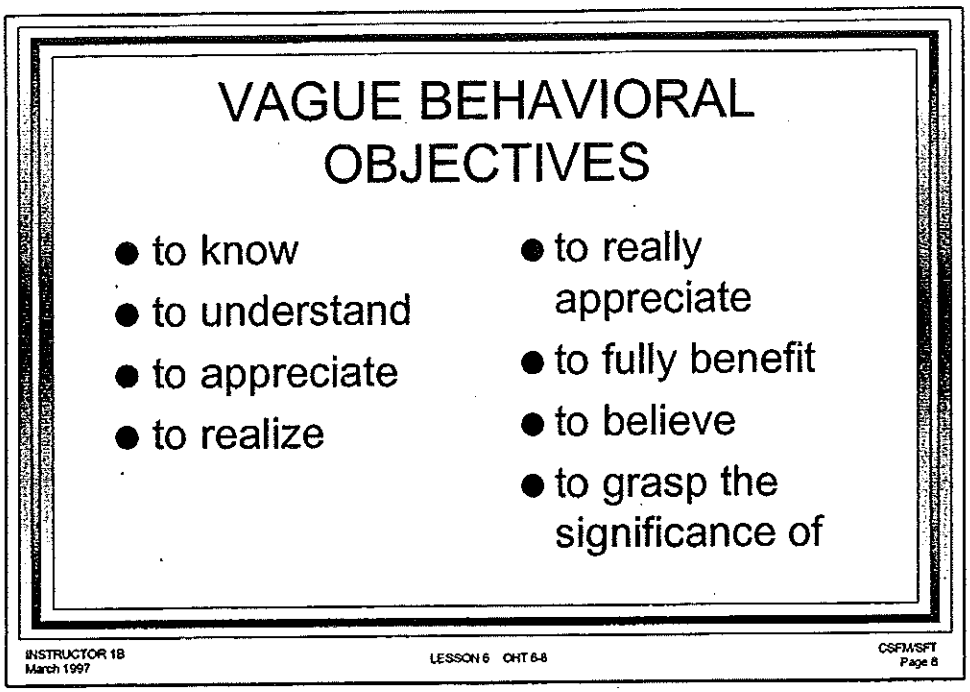

BASIC PARTS OF THE
BEHAVIORAL OBJECTIVE
Conditions
Behavior
Standard
INSTRUCTOR 1B
March 1997
LESSON 6 OHT 6-3
CSFM/SFT
Page 3

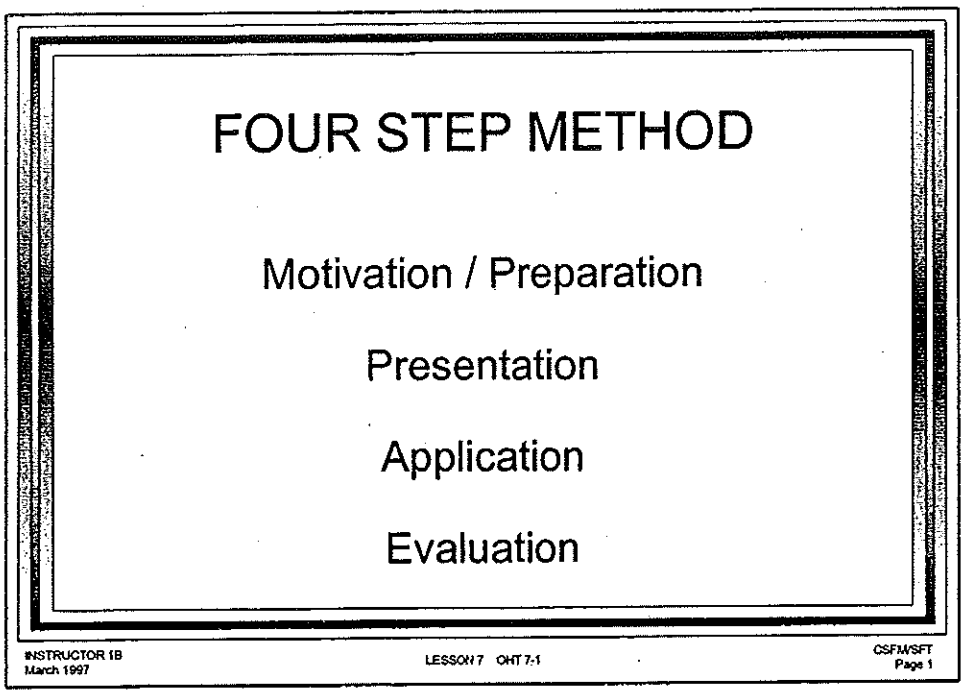

CONDITIONS FOR THE TECHNICAL LESSON
A written examination
An oral examination
INSTRUCTOR 1B
March 1997
LESSON 6 OHT 6-4
CSFM/SFT
Page 4

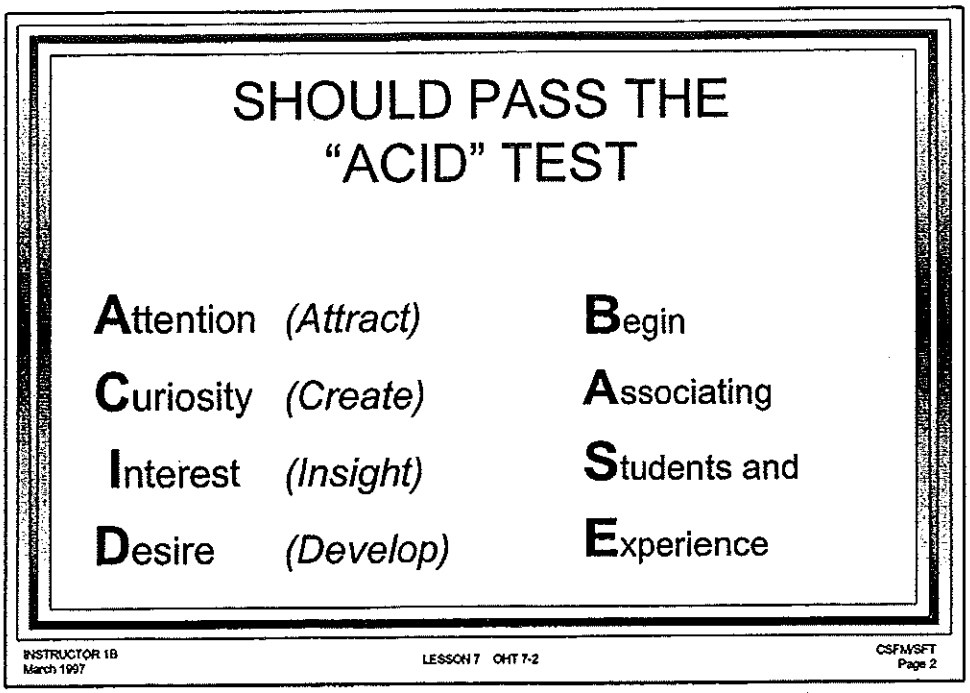

THE BEHAVIOR
● "The student will..."
● Communicates your intent
● Excludes the greatest number of possible meanings
● Describes the kind of performance that will validate the learner has mastered the objective
INSTRUCTOR 1B
March 1997
LESSON 6 OHT 6-5
CSFM/SFT
Page 5

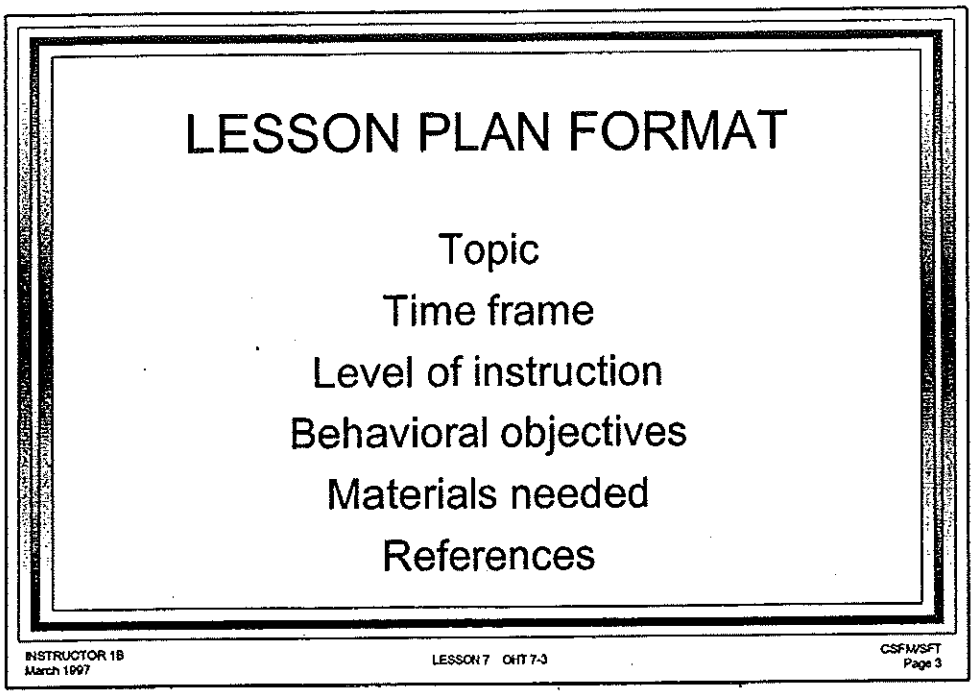

● Poor
"The student will develop an understanding of the communicable disease possible"
● Better
"The student will describe and define the levels of exposure, proper notifications, documentation, and personal protective equipment outlined in the communicable disease process"
INSTRUCTOR 1B
March 1997
LESSON 6 OHT 6-6
CSFM/SFT
Page 6

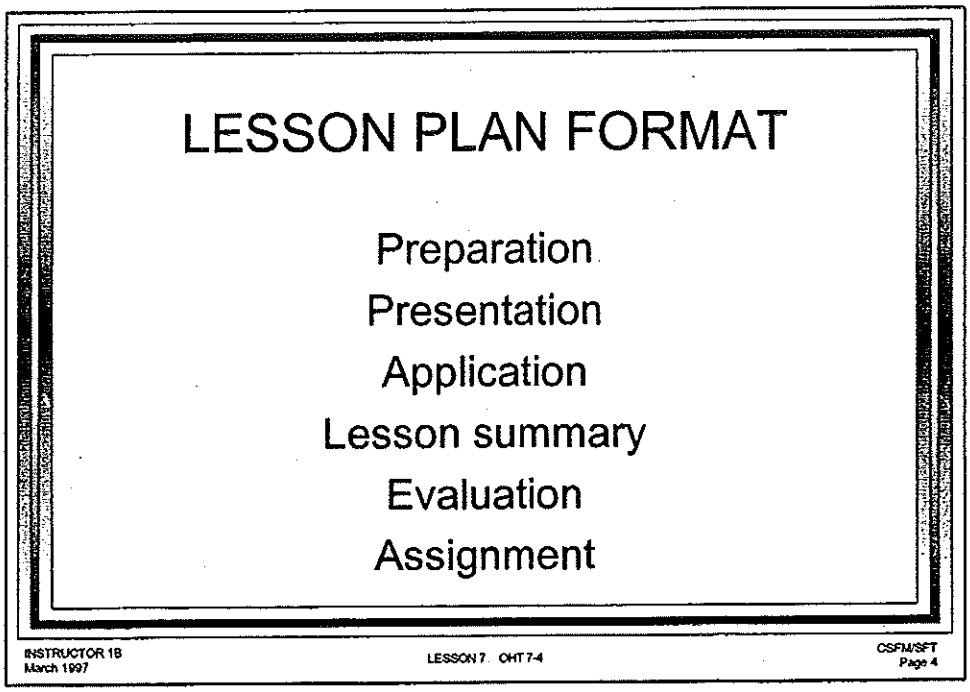

COMPONENTS OF THE
"STANDARD"
Level of accuracy
Time standard
Reference for the standard
INSTRUCTOR 1B
March 1997
LESSON 6 OHT 6-7
CSFM/SFT
Page 7

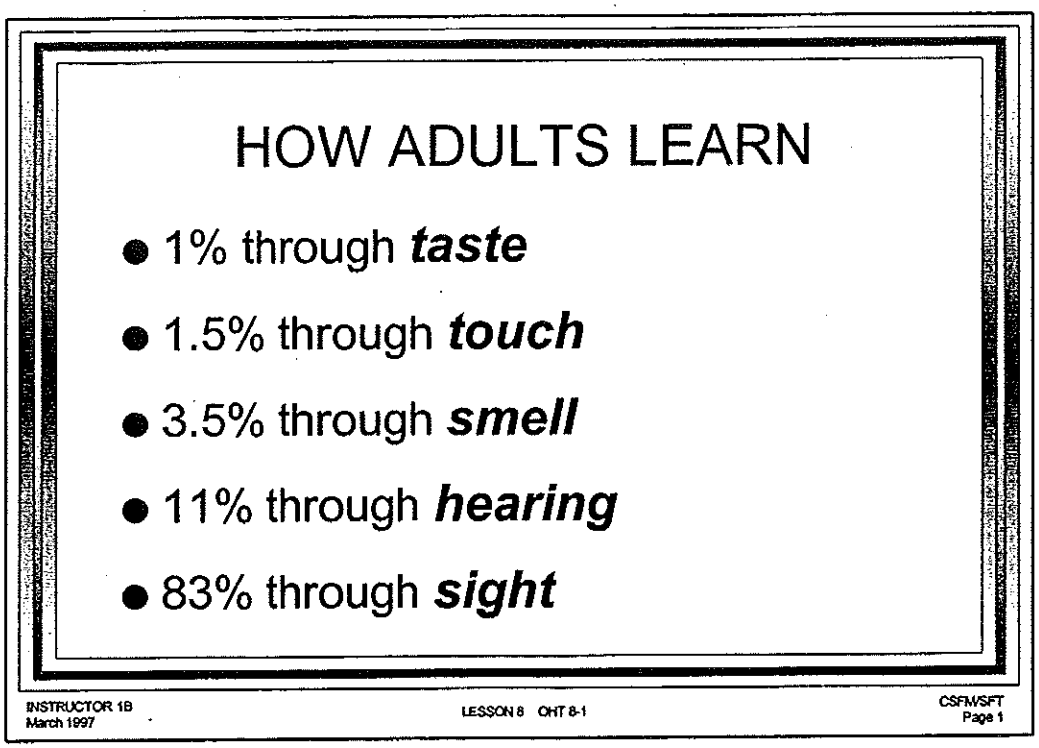

VAGUE BEHAVIORAL OBJECTIVES
to know
to understand
to appreciate
to realize
to really appreciate
to fully benefit
to believe
to grasp the significance of
INSTRUCTOR 1B
March 1997
LESSON 6 OHT 6-8
CSFM/SFT
Page 8

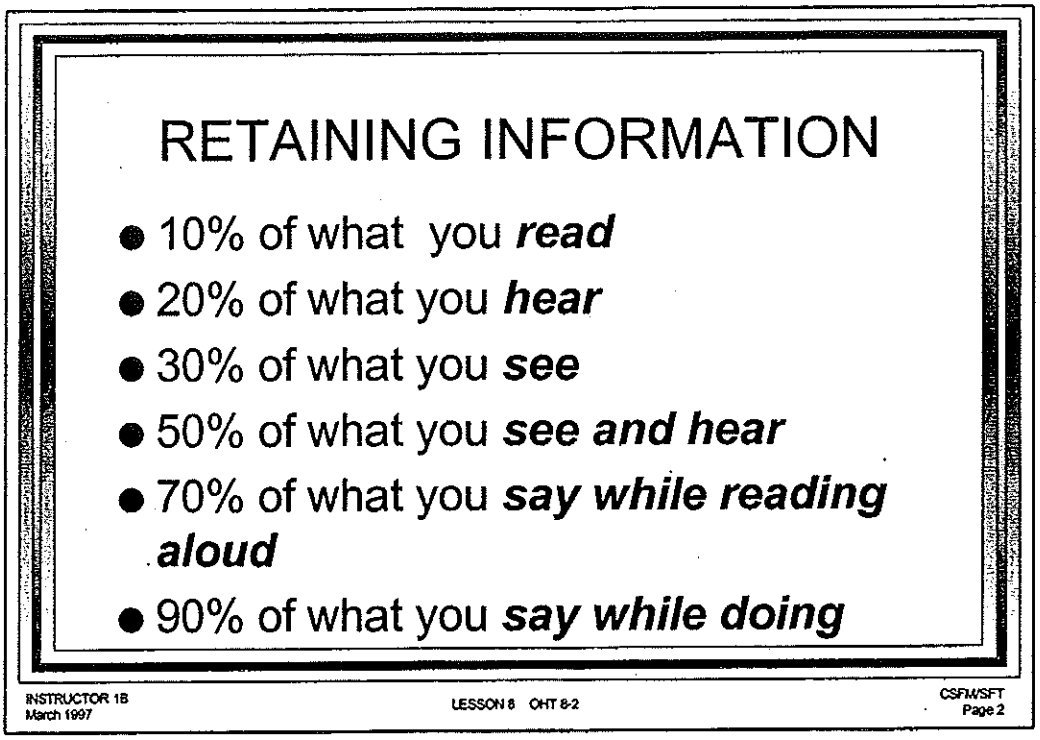

FOUR STEP METHOD
Motivation / Preparation
Presentation
Application
Evaluation
INSTRUCTOR 1B
March 1997
LESSON 7 OHT 7-1
CSFM/SFT
Page 1

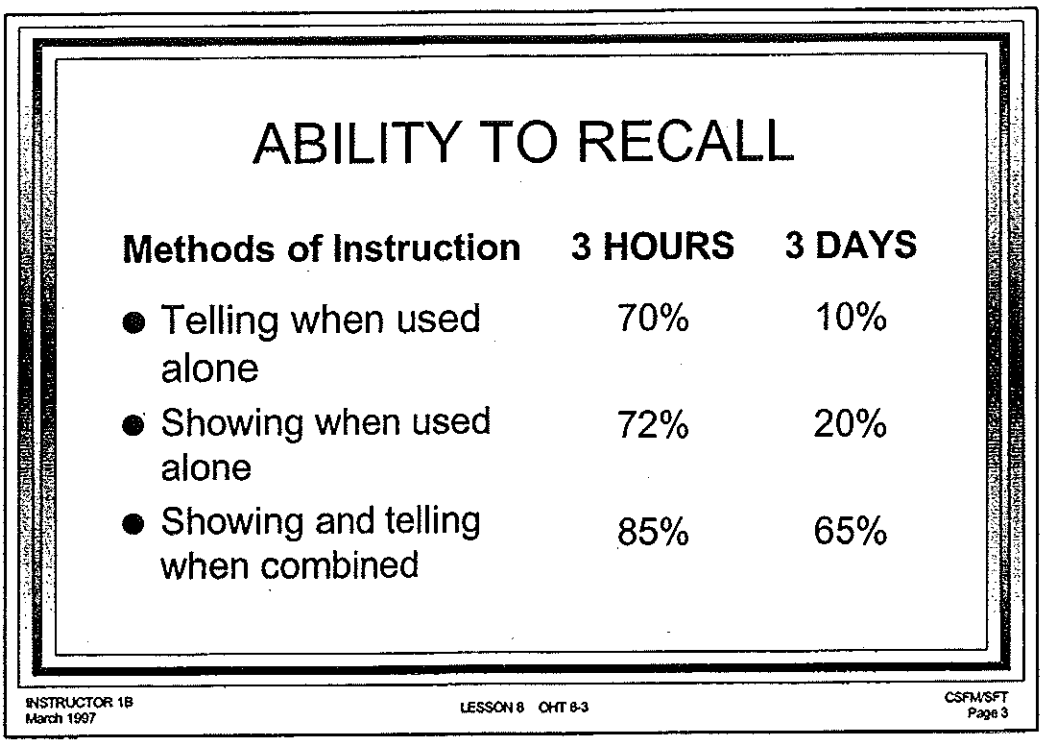

SHOULD PASS THE
"ACID" TEST
Attention (Attract)
Curiosity (Create)
Interest (Insight)
Desire (Develop)
Begin
Associating
Students and
Experience
INSTRUCTOR 1B
March 1997
LESSON 7 OHT 7-2
CSFM/SFT
Page 2

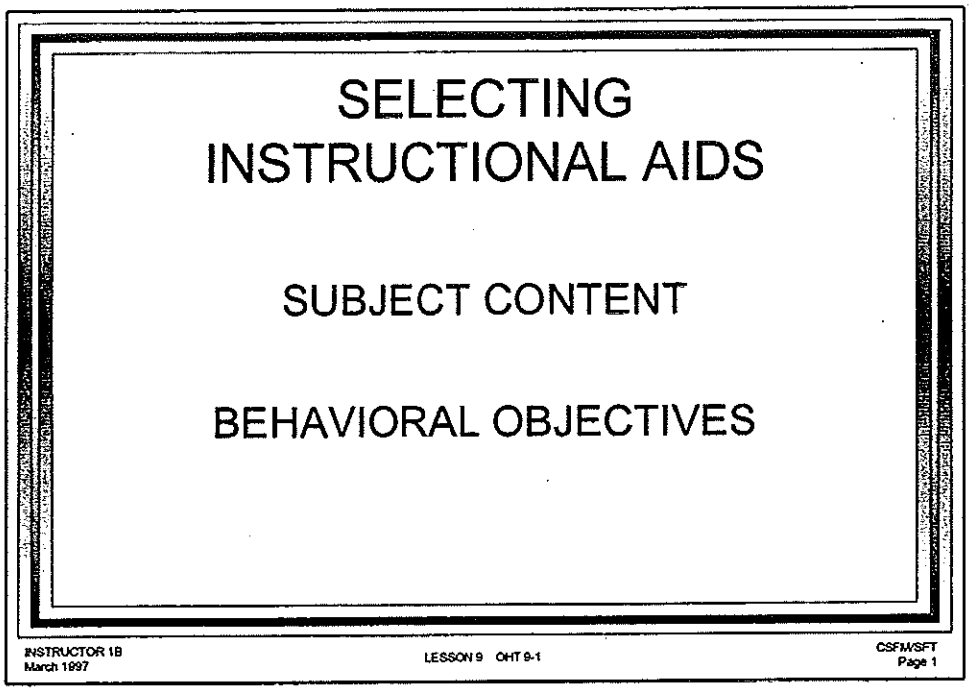

LESSON PLAN FORMAT
Topic
Time frame
Level of instruction
Behavioral objectives
Materials needed
References
INSTRUCTOR 1B
March 1997
LESSON 7 OHT 7-3
CSFM/SFT
Page 3

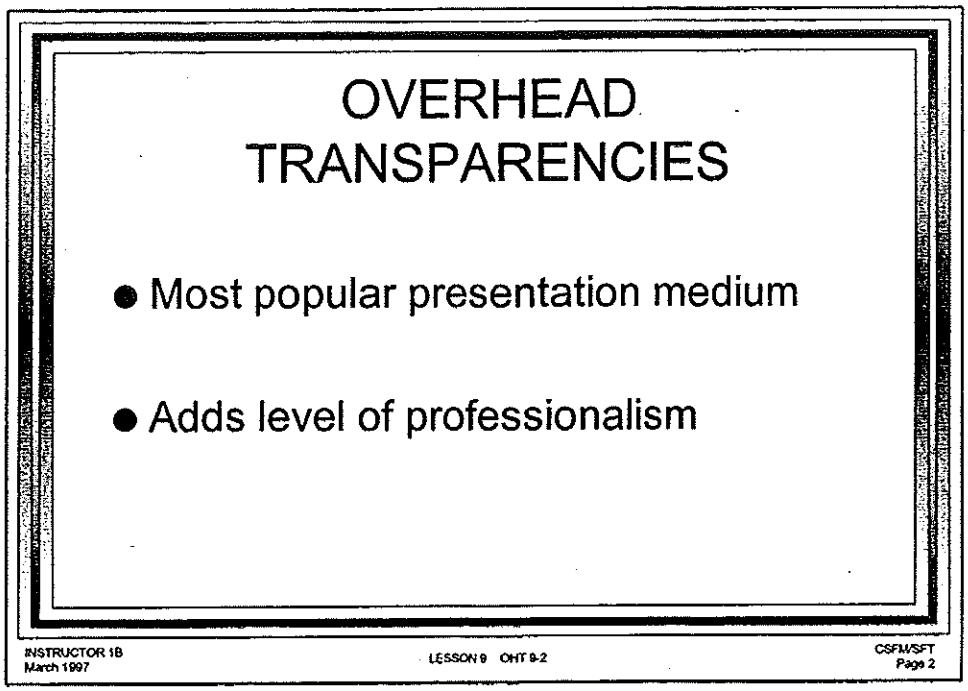

LESSON PLAN FORMAT
Preparation
Presentation
Application
Lesson summary
Evaluation
Assignment
INSTRUCTOR 1B
March 1997
LESSON 7. OHT 7-4
CSFM/SFT
Page 4

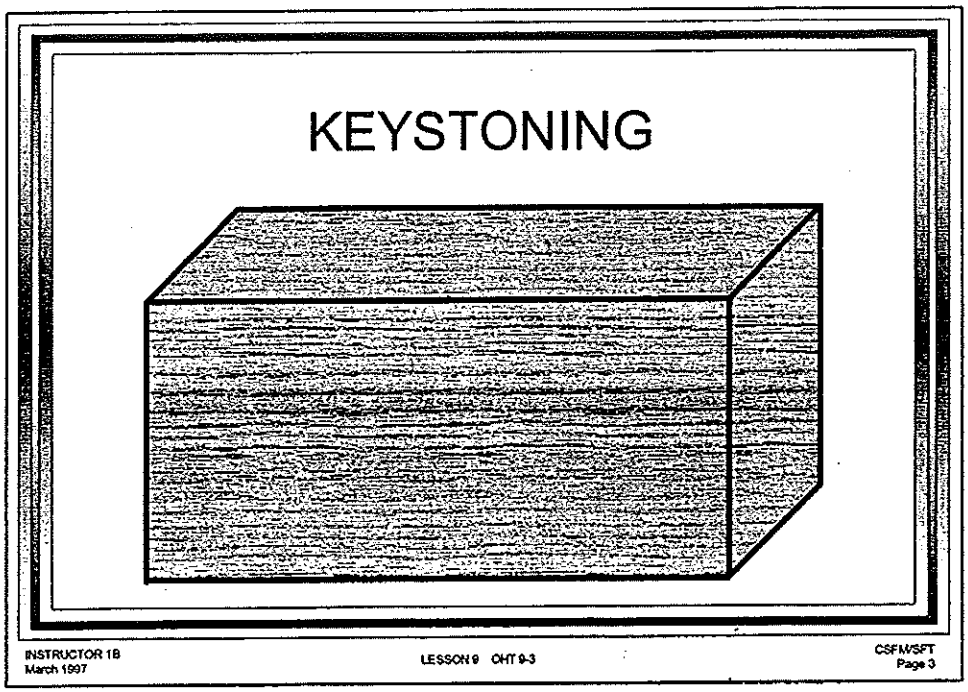

HOW ADULTS LEARN
● 1% through *taste*
● 1.5% through *touch*
● 3.5% through *smell*
● 11% through *hearing*
● 83% through *sight*
INSTRUCTOR 1B
March 1997
LESSON 8 OHT 8-1
CSFM/SFT
Page 1

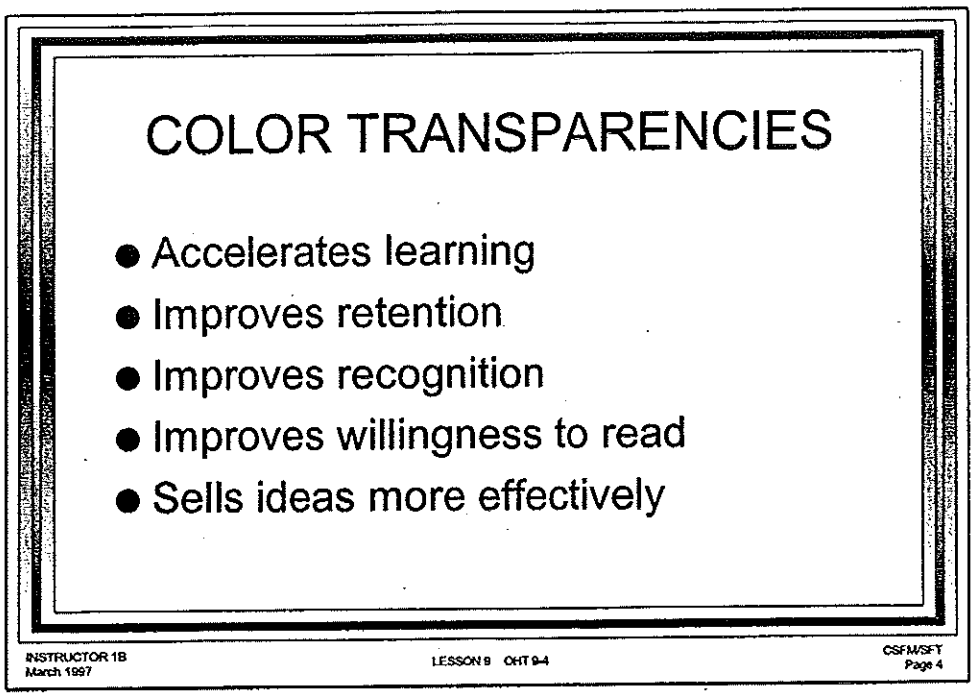

RETAINING INFORMATION
● 10% of what you read
● 20% of what you hear
● 30% of what you see
● 50% of what you see and hear
● 70% of what you say while reading aloud
● 90% of what you say while doing
INSTRUCTOR 1B
March 1997
LESSON 8 OHT 8-2
CSFM/SFT
Page 2

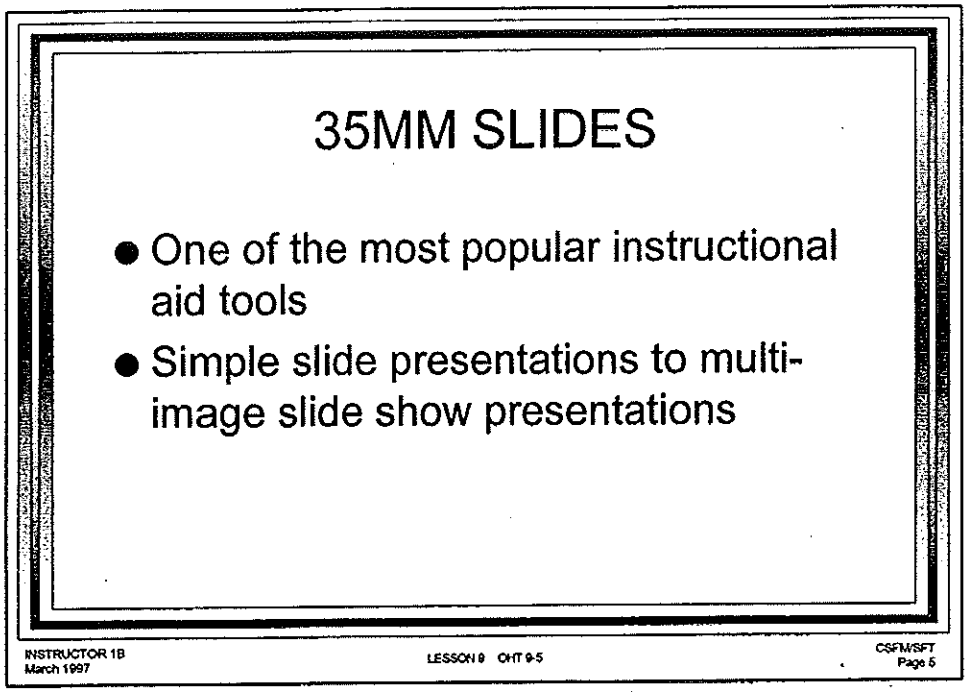

ABILITY TO RECALL
Methods of Instruction
3 HOURS
3 DAYS
Telling when used alone
70%
10%
Showing when used alone
72%
20%
Showing and telling when combined
85%
65%
INSTRUCTOR 1B
March 1997
LESSON 8 OHT 8-3
CSFM/SFT
Page 3

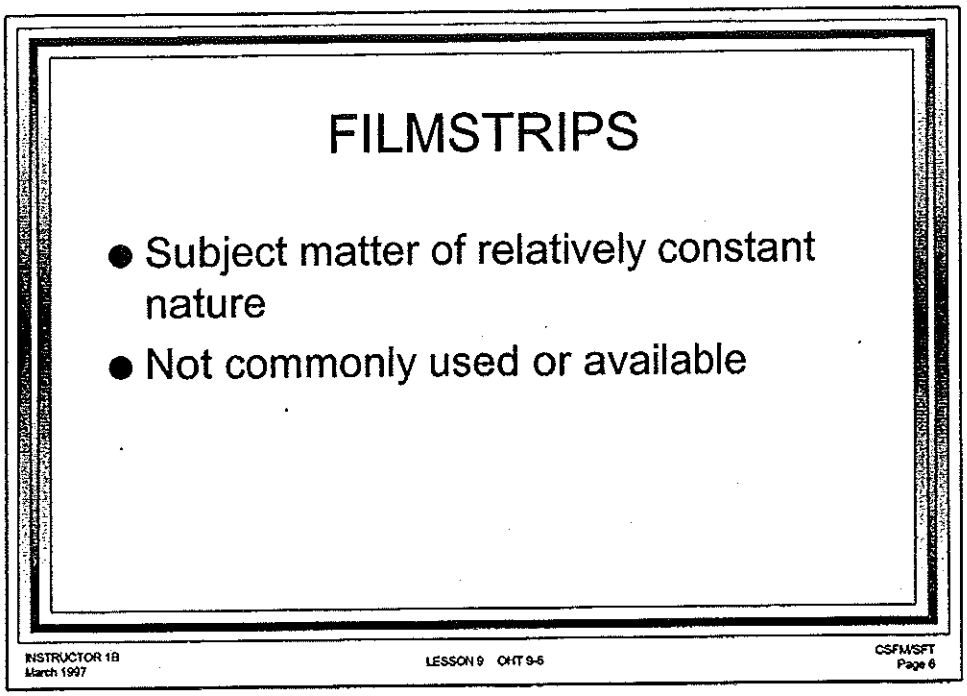

SELECTING
INSTRUCTIONAL AIDS
SUBJECT CONTENT
BEHAVIORAL OBJECTIVES
INSTRUCTOR 1B
March 1997
LESSON 9 OHT 9-1
CSFM/SFT
Page 1

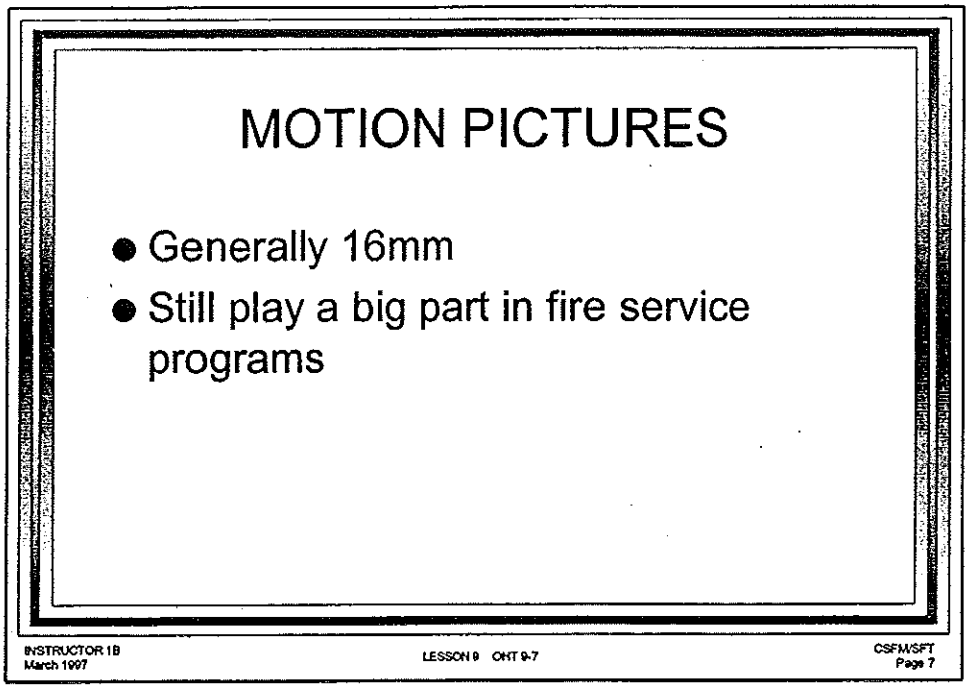

OVERHEAD TRANSPARENCIES
● Most popular presentation medium
● Adds level of professionalism
INSTRUCTOR 1B
March 1997
LESSON 9 OHT 9-2
CSFM/SFT
Page 2

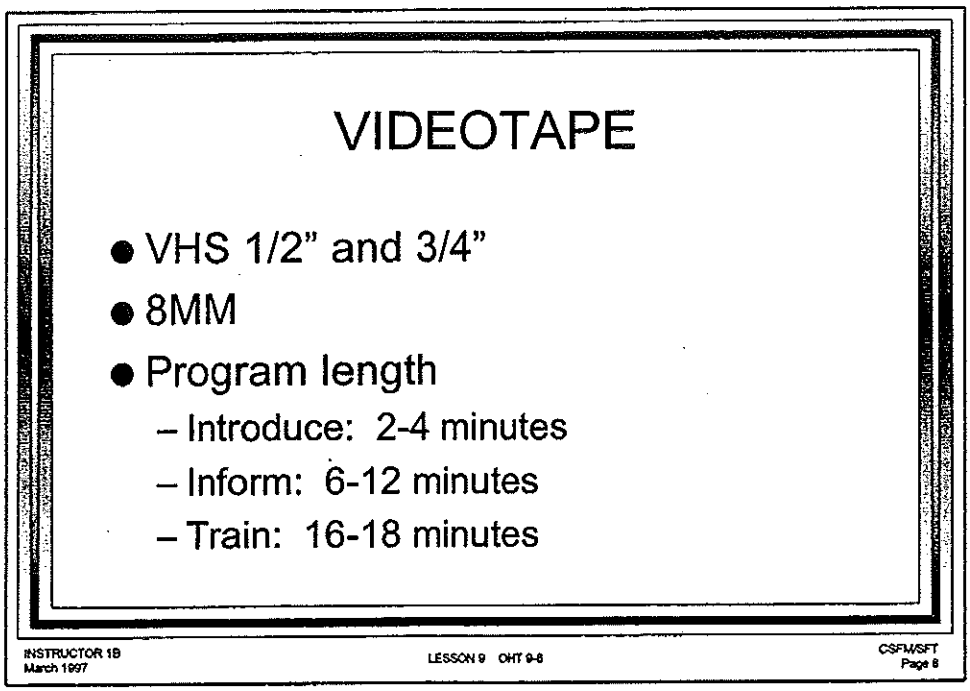

KEYSTONING
INSTRUCTOR 1B
March 1997
LESSON 9 OHT 9-3
CSFM/SFT
Page 3

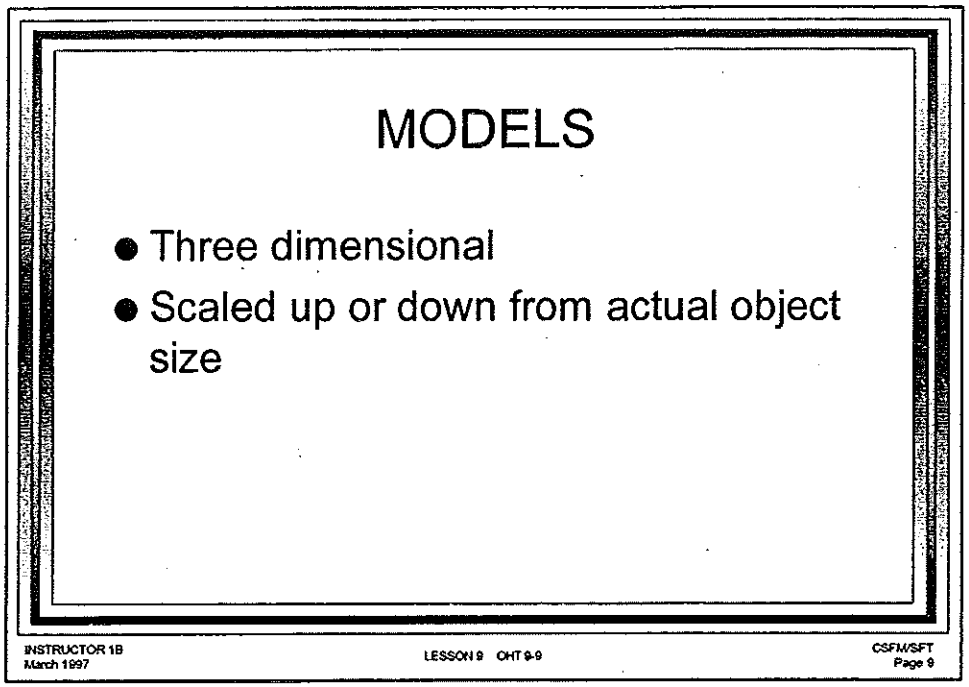

COLOR TRANSPARENCIES
● Accelerates learning
● Improves retention
● Improves recognition
● Improves willingness to read
● Sells ideas more effectively
INSTRUCTOR 1B
March 1997
LESSON 9 OHT 9-4
CSFM/SFT
Page 4

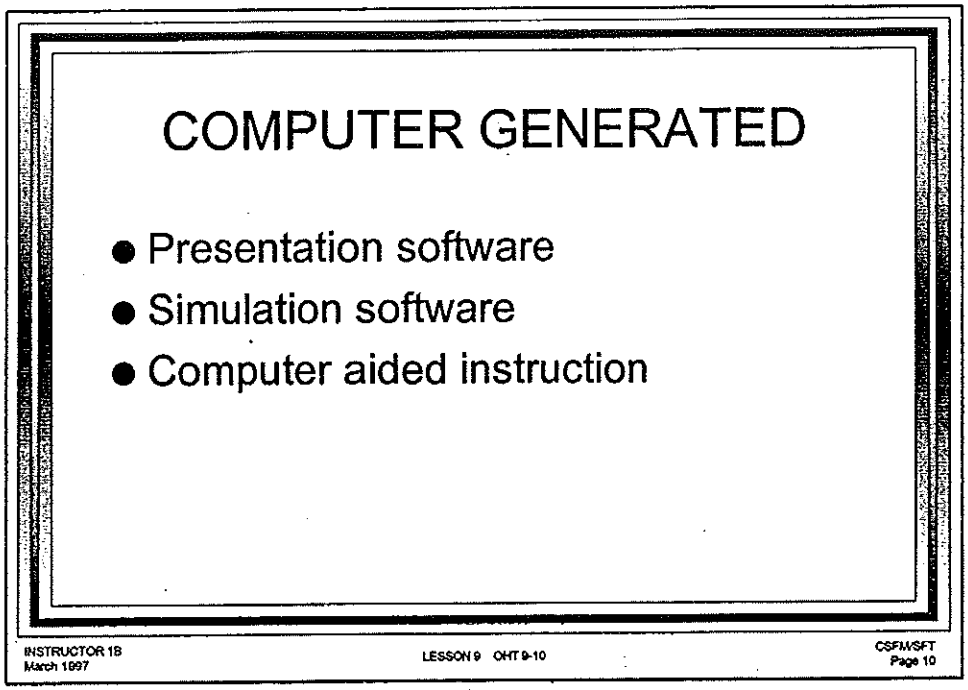

35MM SLIDES
● One of the most popular instructional aid tools
● Simple slide presentations to multi-image slide show presentations
INSTRUCTOR 1B
March 1997
LESSON 9 OHT 9-5
CSFM/SFT
Page 5

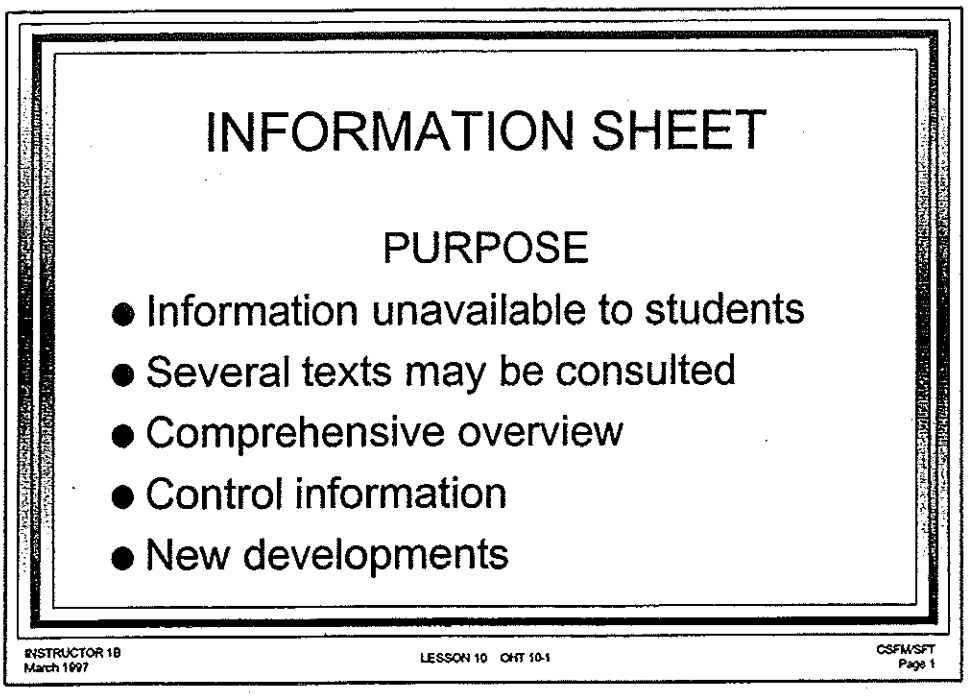

FILMSTRIPS
● Subject matter of relatively constant nature
● Not commonly used or available
INSTRUCTOR 1B
March 1997
LESSON 9 OHT 9-5
CSFM/SFT
Page 6

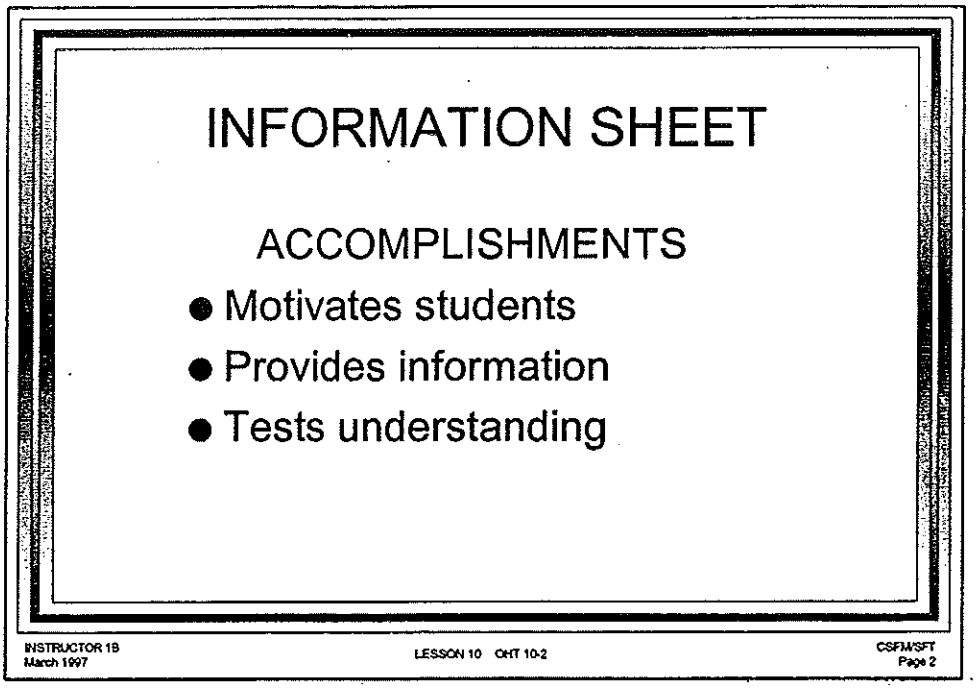

MOTION PICTURES
● Generally 16mm
● Still play a big part in fire service programs
INSTRUCTOR 1B
March 1997
LESSON 9 OHT 9-7
CSFM/SFT
Page 7

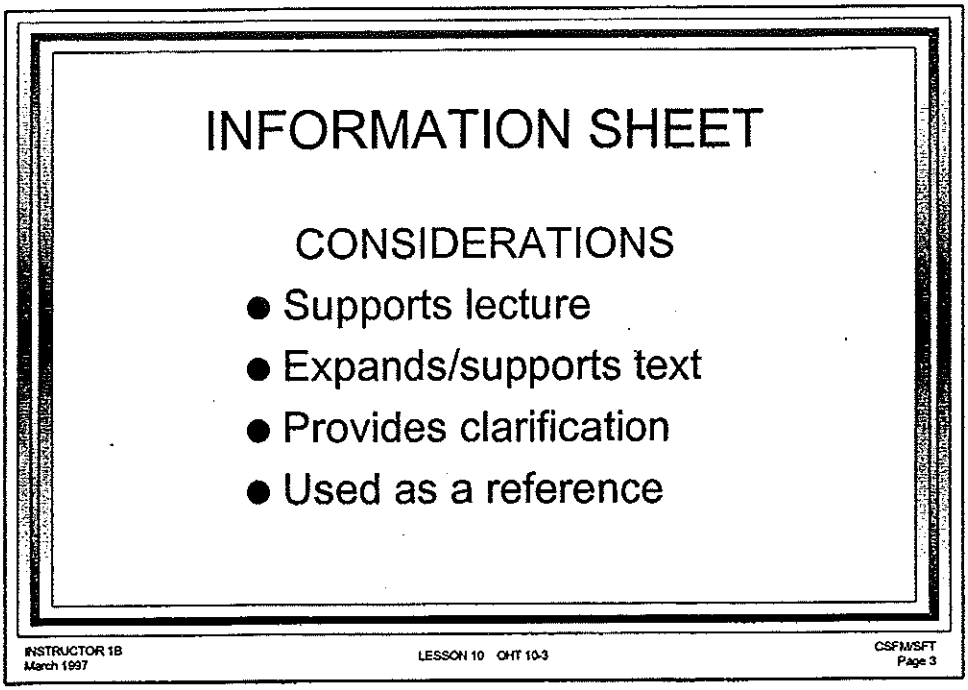

VIDEOTAPE
● VHS 1/2" and 3/4"
● 8MM
● Program length
– Introduce: 2-4 minutes
– Inform: 6-12 minutes
– Train: 16-18 minutes
INSTRUCTOR 1B
March 1997
LESSON 9 OHT 9-8
CSFM/SFT
Page 8

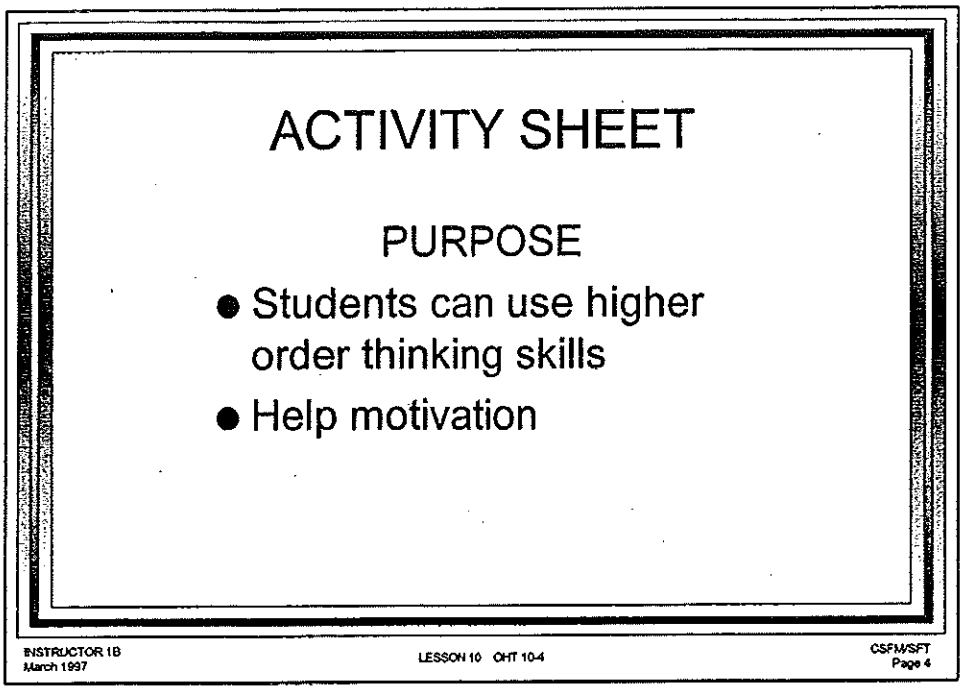

MODELS
● Three dimensional
● Scaled up or down from actual object size
INSTRUCTOR 1B
March 1997
LESSON 9 OHT 9-9
CSFM/SFT
Page 9

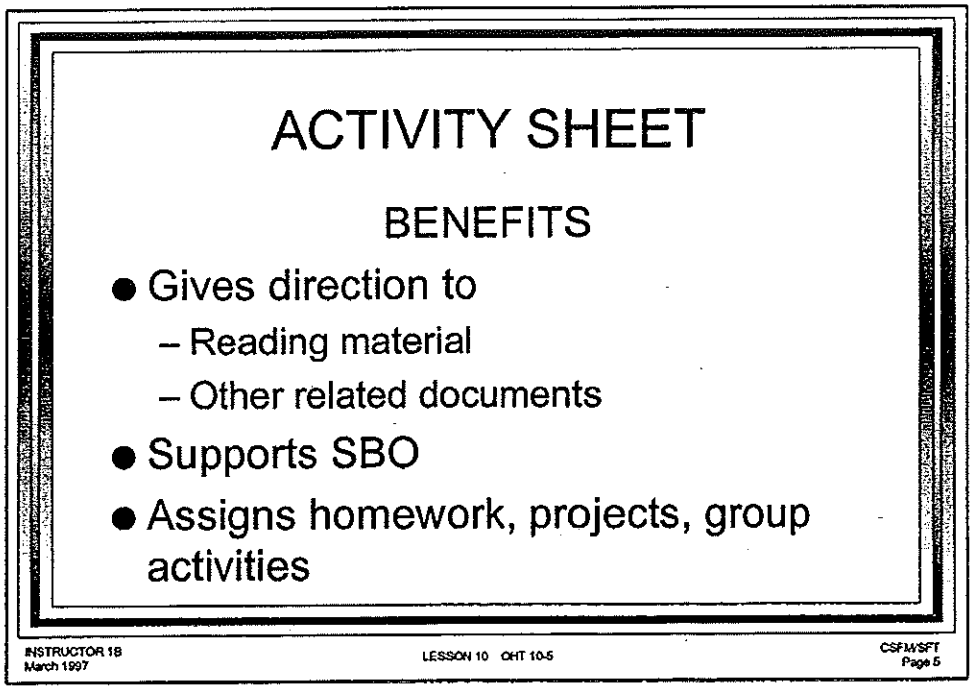

COMPUTER GENERATED
● Presentation software
● Simulation software
● Computer aided instruction
INSTRUCTOR 1B
March 1997
LESSON 9 OHT 9-10
CSFM/SFT
Page 10

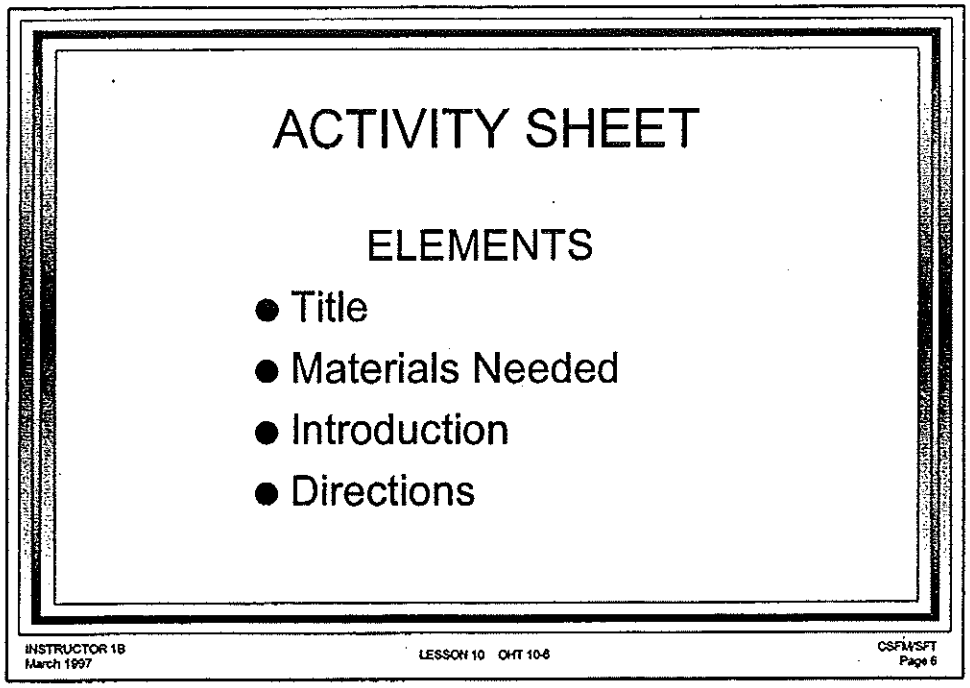

INFORMATION SHEET
PURPOSE
● Information unavailable to students
● Several texts may be consulted
● Comprehensive overview
● Control information
● New developments
INSTRUCTOR 1B
March 1997
LESSON 10 OHT 10-1
CSFM/SFT
Page 1

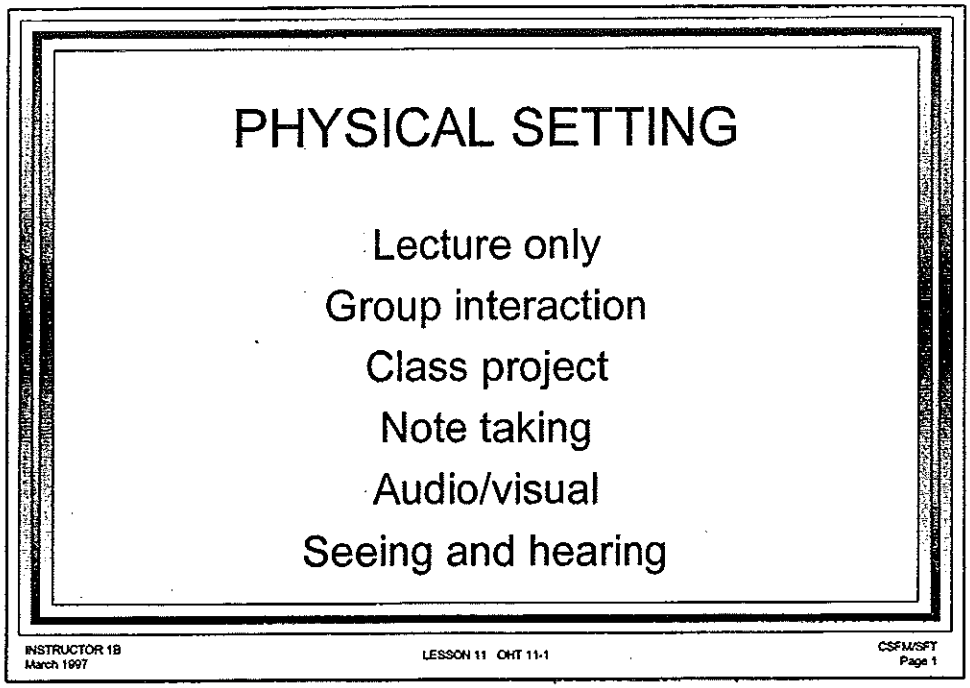

INFORMATION SHEET
ACCOMPLISHMENTS
● Motivates students
● Provides information
● Tests understanding
INSTRUCTOR 1B
March 1997
LESSON 10 OHT 10-2
CSFM/SFT
Page 2

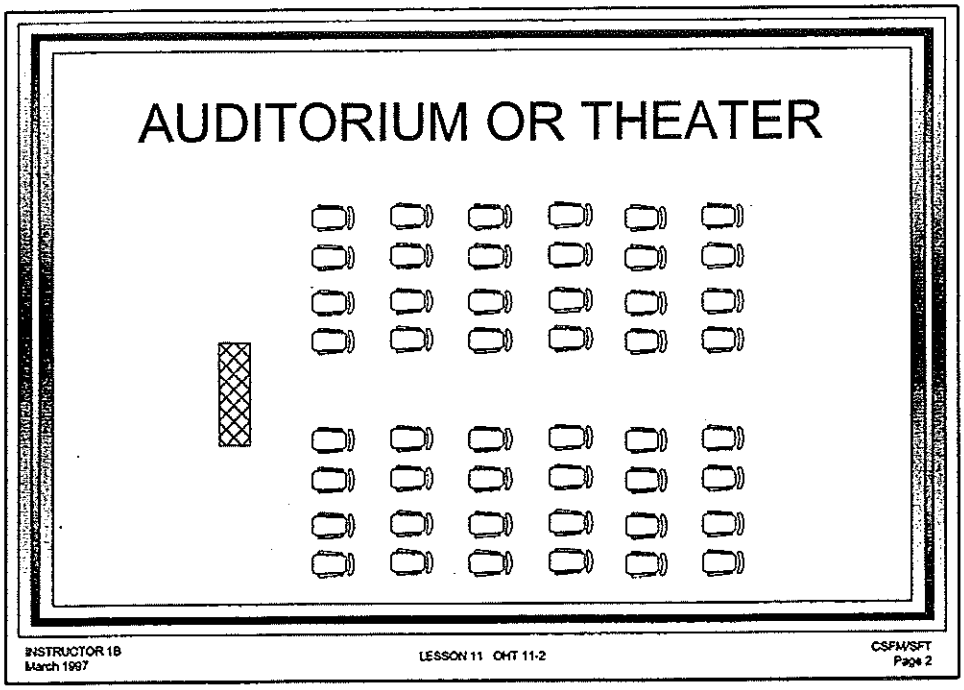

INFORMATION SHEET
CONSIDERATIONS
● Supports lecture
● Expands/supports text
● Provides clarification
● Used as a reference
INSTRUCTOR 1B
March 1997
LESSON 10 OHT 10-3
CSFM/SFT
Page 3

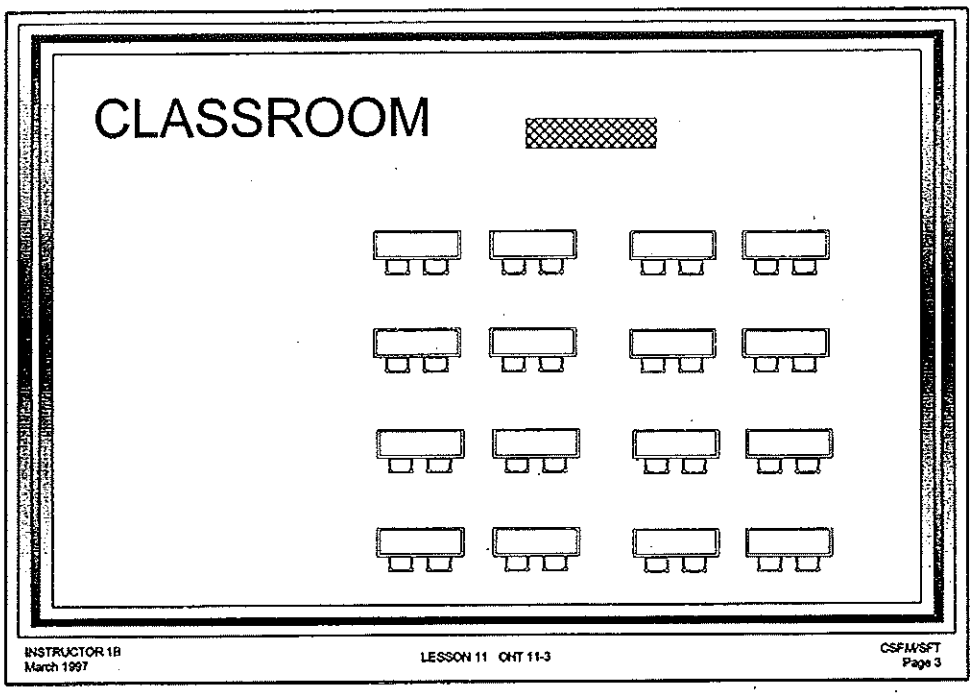

ACTIVITY SHEET
PURPOSE
● Students can use higher order thinking skills
● Help motivation
INSTRUCTOR 1B
March 1997
LESSON 10 OHT 10-4
CSFM/SFT
Page 4

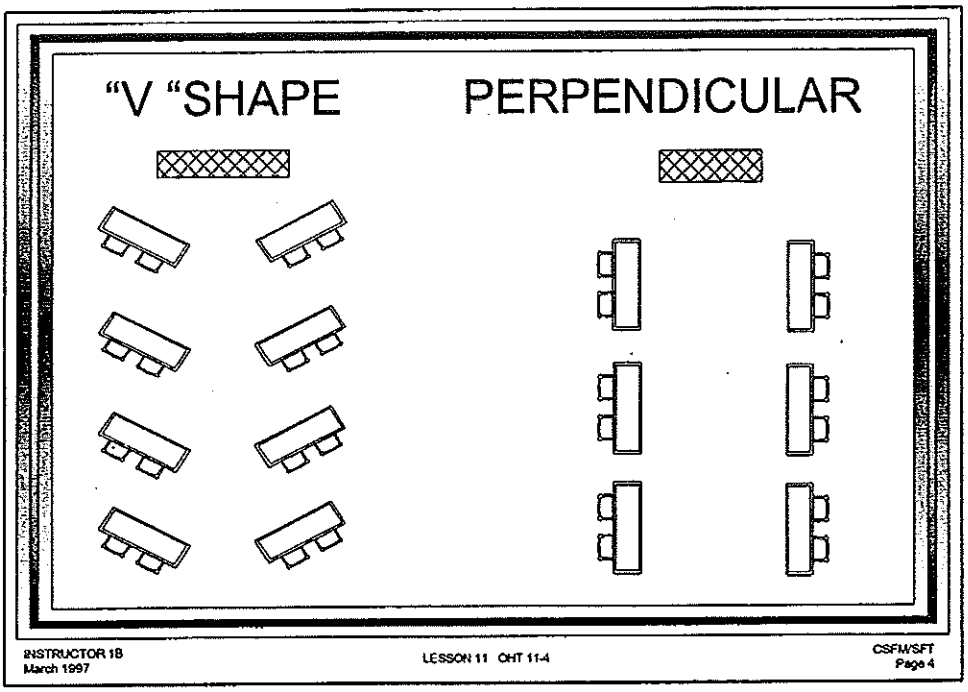

ACTIVITY SHEET
BENEFITS
● Gives direction to
– Reading material
– Other related documents
● Supports SBO
● Assigns homework, projects, group activities
INSTRUCTOR 1B
March 1997
LESSON 10 OHT 10-5
CSFM/SFT
Page 5

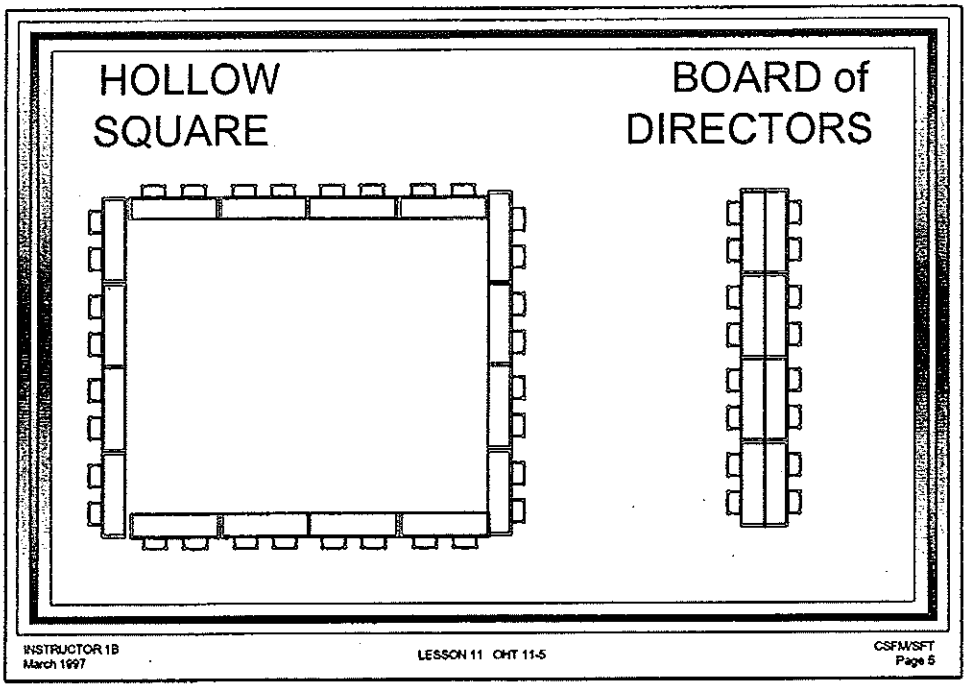

ACTIVITY SHEET
ELEMENTS
● Title
● Materials Needed
● Introduction
● Directions
INSTRUCTOR 1B
March 1997
LESSON 10 OHT 10-6
CSFM/SFT
Page 6

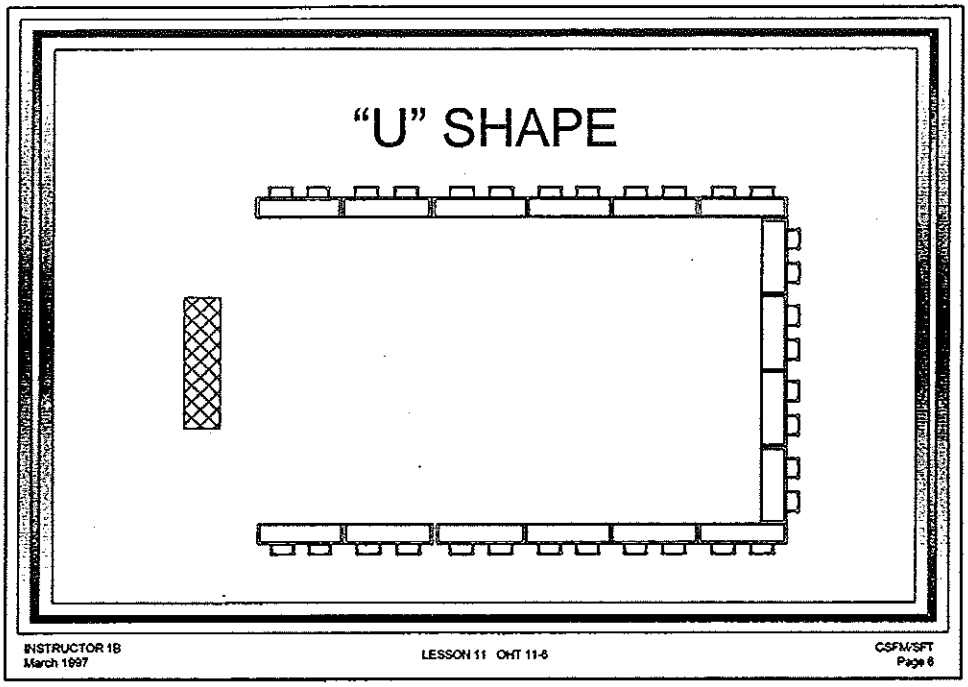

PHYSICAL SETTING
Lecture only
Group interaction
Class project
Note taking
Audio/visual
Seeing and hearing
INSTRUCTOR 1B
March 1997
LESSON 11 OHT 11-1
CSFM/SFT
Page 1

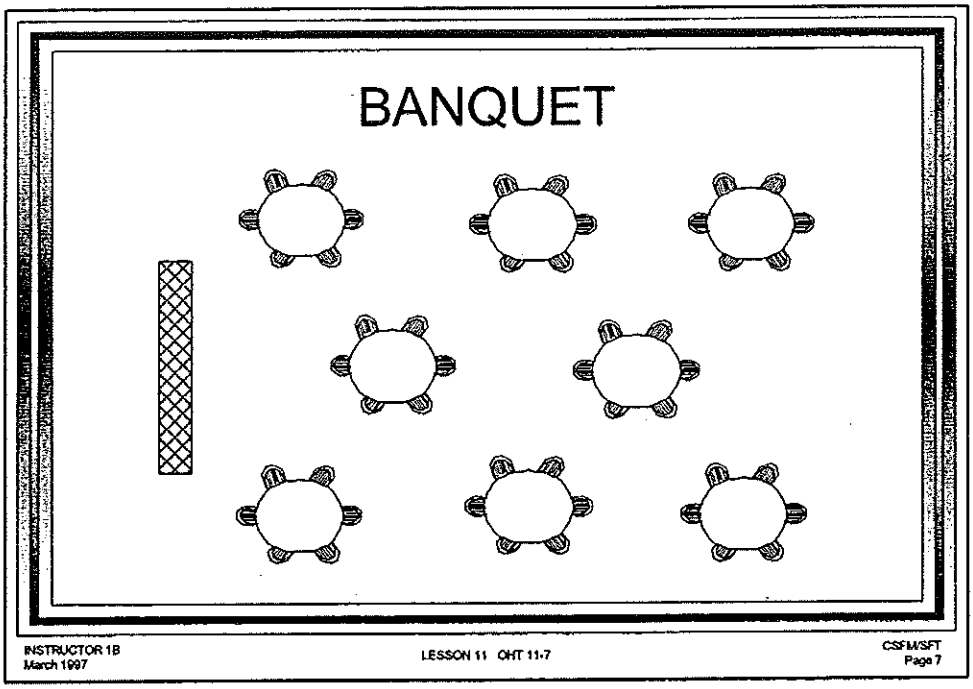

AUDITORIUM OR THEATER
INSTRUCTOR 1B
March 1997
LESSON 11 OHT 11-2
CSFM/SFT
Page 2

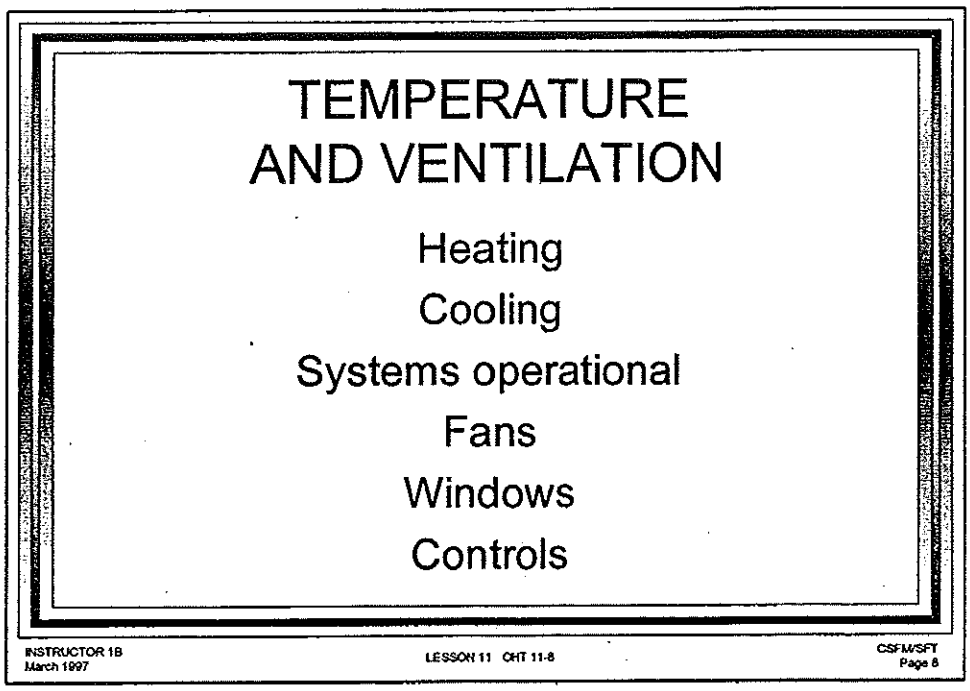

CLASSROOM
INSTRUCTOR 1B
March 1997
LESSON 11 OHT 11-3
CSFM/SFT
Page 3

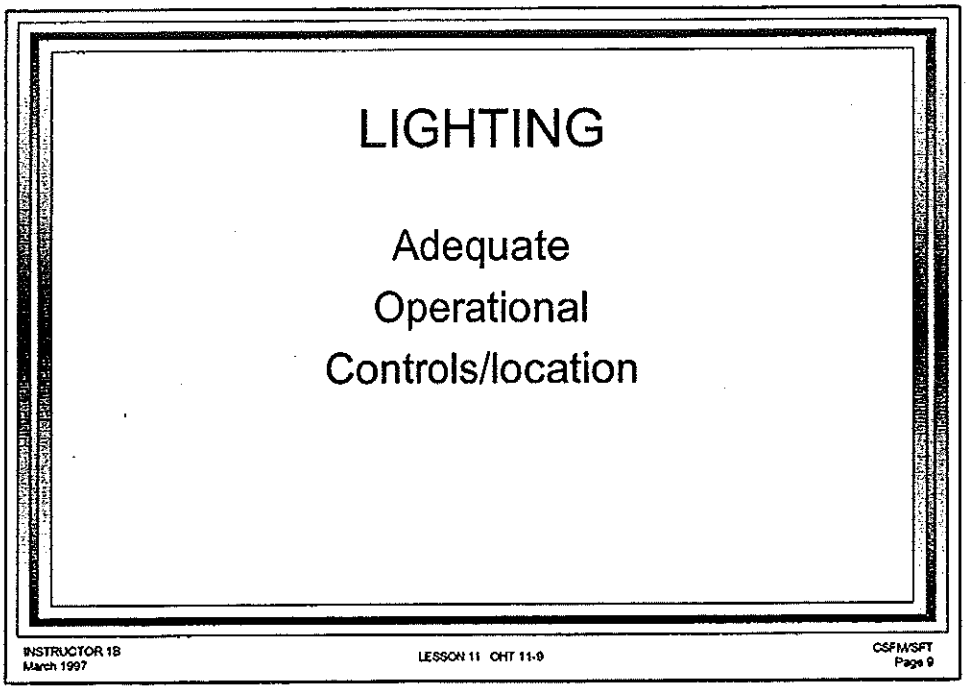

"V "SHAPE
PERPENDICULAR
INSTRUCTOR 1B
March 1997
LESSON 11 OHT 11-4
CSFM/SFT
Page 4

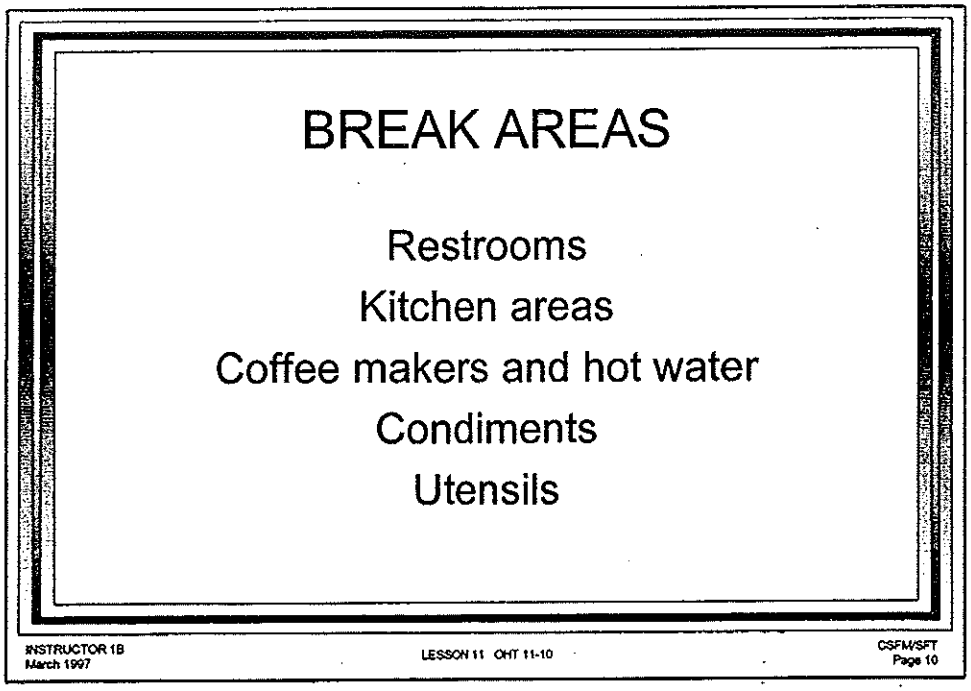

HOLLOW SQUARE
BOARD of DIRECTORS
INSTRUCTOR 1B
March 1997
LESSON 11 OHT 11-5
CSFM/SFT
Page 5

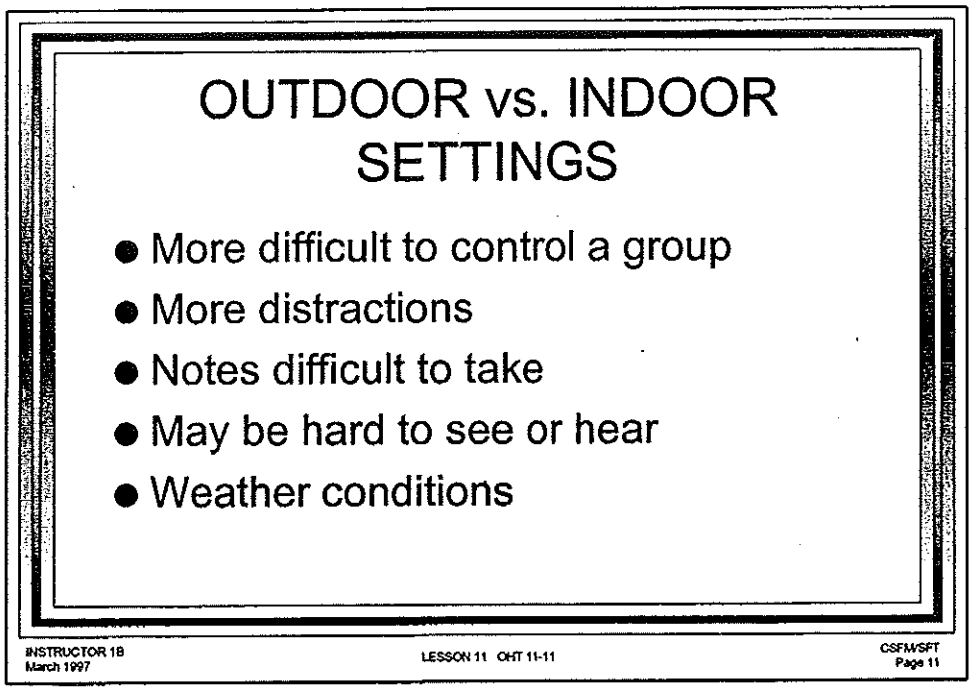

"U" SHAPE
INSTRUCTOR 1B
March 1997
LESSON 11 OHT 11-6
CSFM/SFT
Page 6


BANQUET
INSTRUCTOR 1B
March 1997
LESSON 11 OHT 11-7
CSFM/SFT
Page 7


TEMPERATURE
AND VENTILATION
Heating
Cooling
Systems operational
Fans
Windows
Controls
INSTRUCTOR 1B
March 1997
LESSON 11 CHT 11-8
CSFM/SFT
Page 8


LIGHTING
Adequate
Operational
Controls/location
INSTRUCTOR 1B
March 1997
LESSON 11 OHT 11-9
CSFM/SFT
Page 9


BREAK AREAS
Restrooms
Kitchen areas
Coffee makers and hot water
Condiments
Utensils
INSTRUCTOR 1B
March 1997
LESSON 11 OHT 11-10
CSFM/SFT
Page 10


OUTDOOR vs. INDOOR SETTINGS
● More difficult to control a group
● More distractions
● Notes difficult to take
● May be hard to see or hear
● Weather conditions
INSTRUCTOR 1B
March 1997
LESSON 11 OHT 11-11
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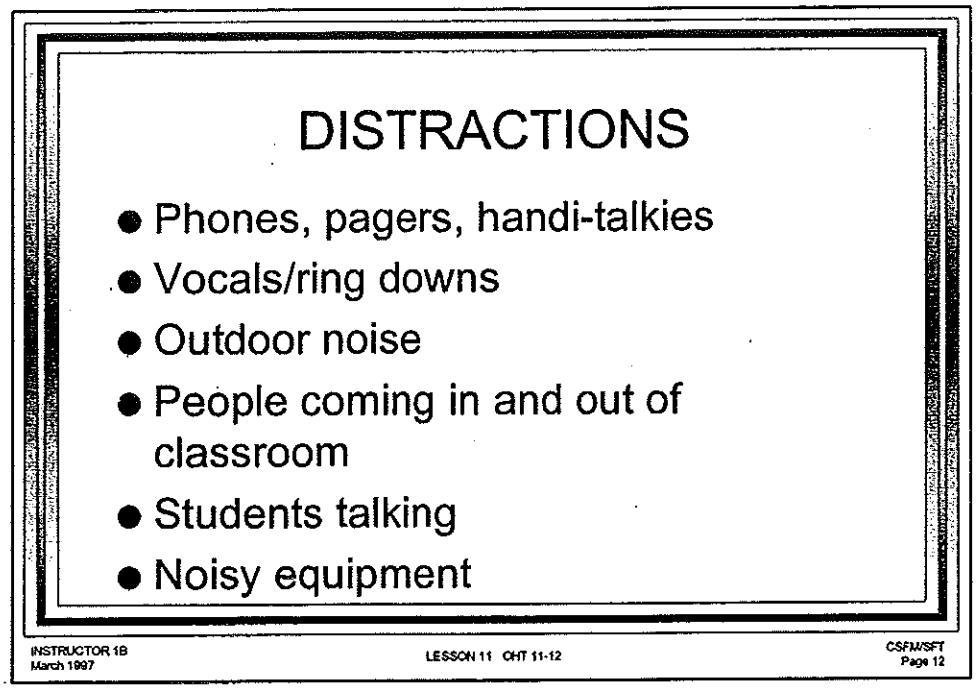
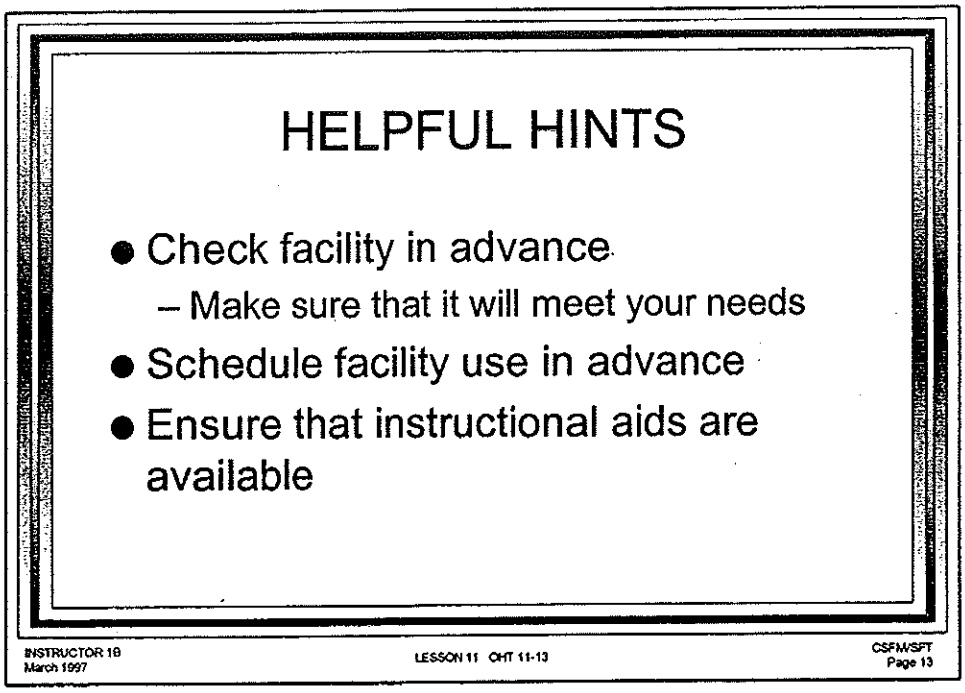
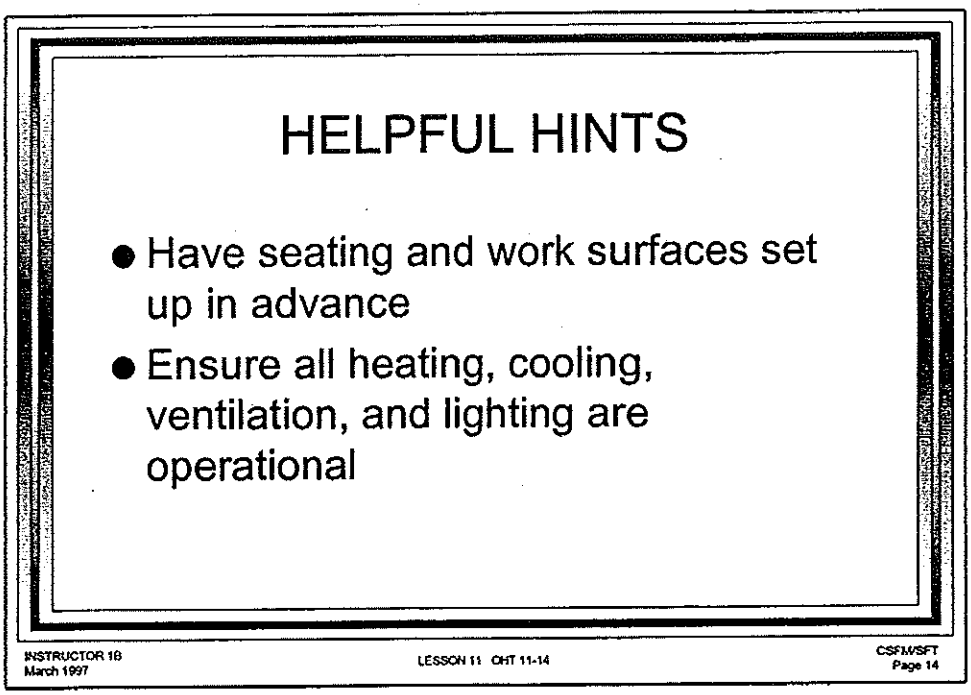
Page 11


DISTRACTIONS
● Phones, pagers, handi-talkies
● Vocals/ring downs
● Outdoor noise
● People coming in and out of classroom
● Students talking
● Noisy equipment
INSTRUCTOR 1B
March 1997
LESSON 11 OHT 11-12
CSFM/SFT
Page 12


HELPFUL HINTS
● Check facility in advance
– Make sure that it will meet your needs
● Schedule facility use in advance
● Ensure that instructional aids are available
INSTRUCTOR 1B March 1997
LESSON 11 OHT 11-13
CSFM/SFT Page 13


HELPFUL HINTS
● Have seating and work surfaces set up in advance
● Ensure all heating, cooling, ventilation, and lighting are operational
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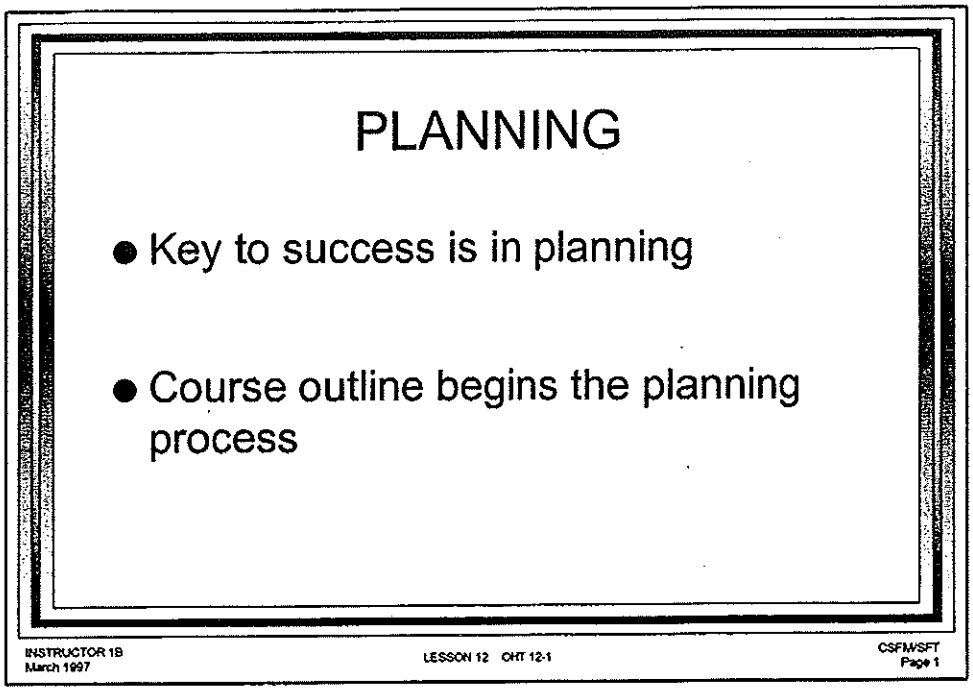
March 1997
LESSON 11 OHT 11-14
CSFM/SFT
Page 14


PLANNING
● Key to success is in planning
● Course outline begins the planning process
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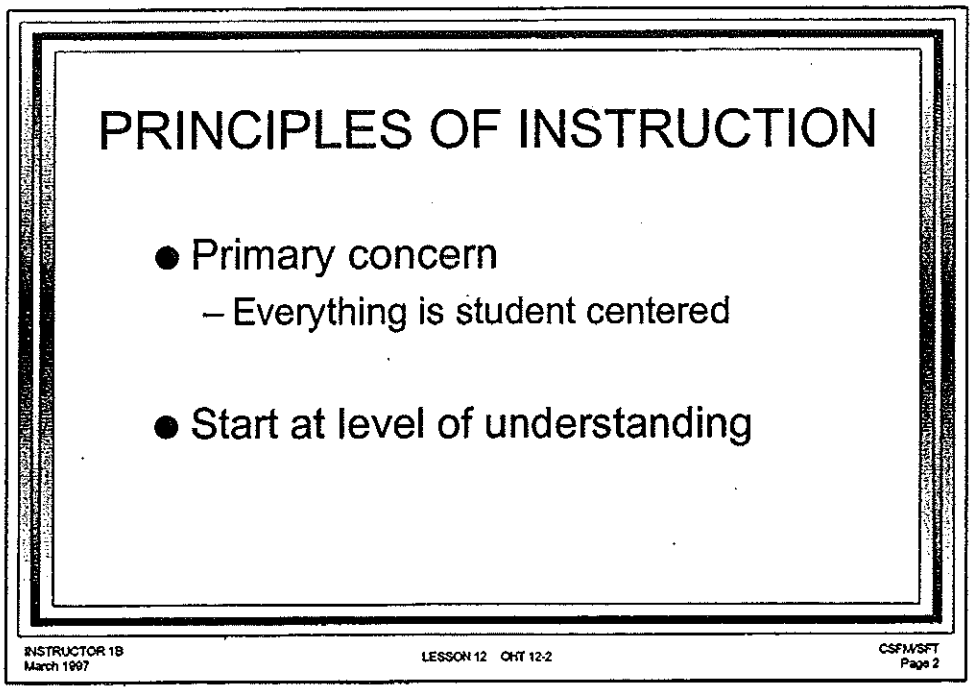
LESSON 12 OHT 12-1
CSFM/SFT
Page 1


PRINCIPLES OF INSTRUCTION
● Primary concern
– Everything is student centered
● Start at level of understanding
INSTRUCTOR 1B
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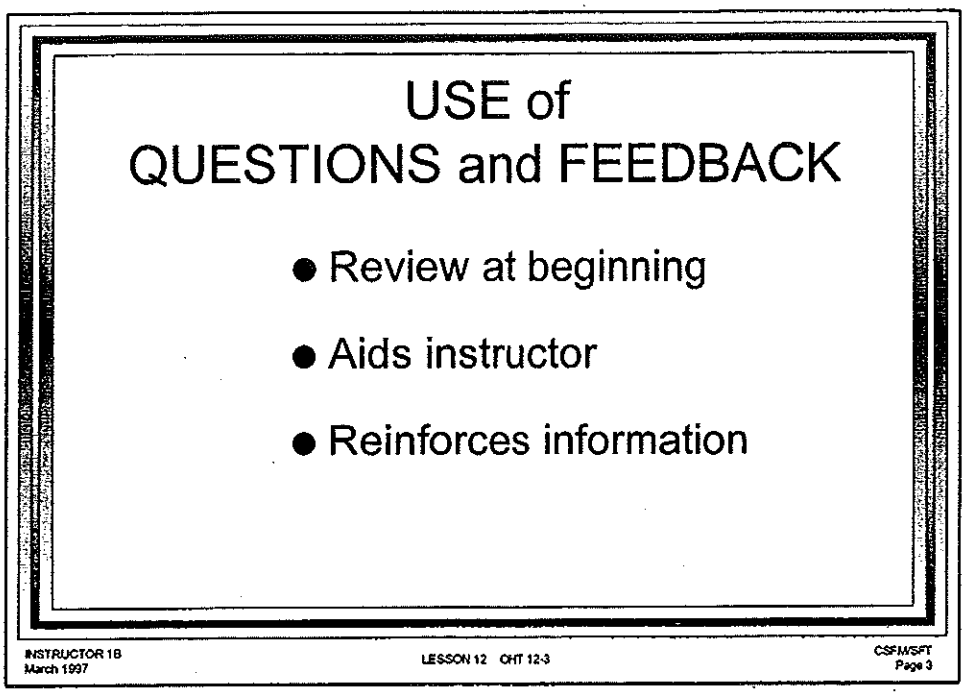
LESSON 12 OHT 12-2
CSFM/SFT
Page 2


USE of
QUESTIONS and FEEDBACK
● Review at beginning
● Aids instructor
● Reinforces information
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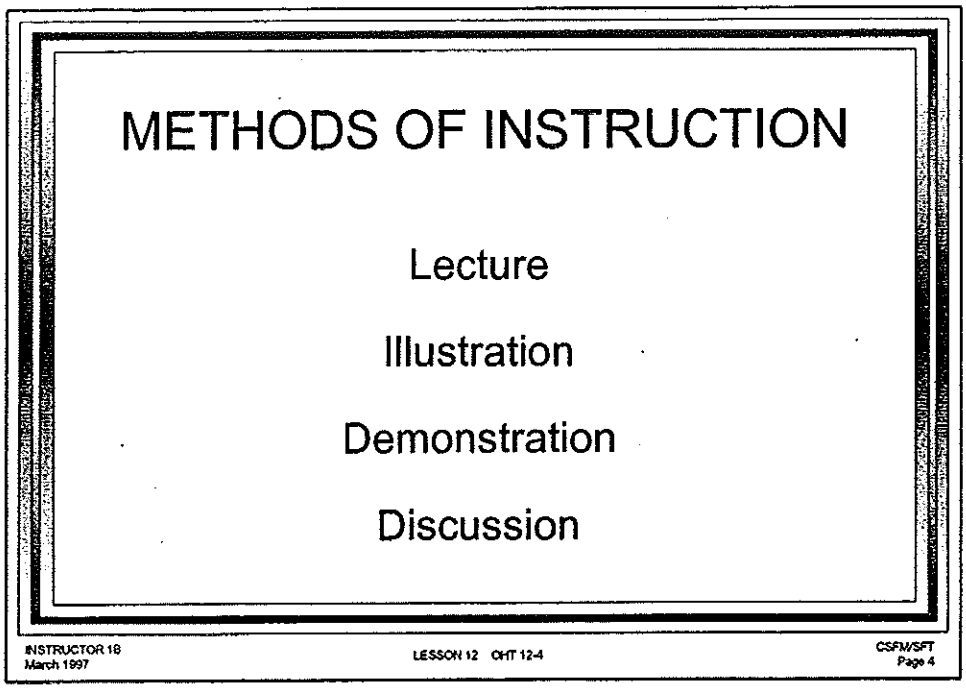
LESSON 12 OHT 12-3
CSFM/SFT
Page 3


METHODS OF INSTRUCTION
Lecture
Illustration
Demonstration
Discussion
INSTRUCTOR 1B
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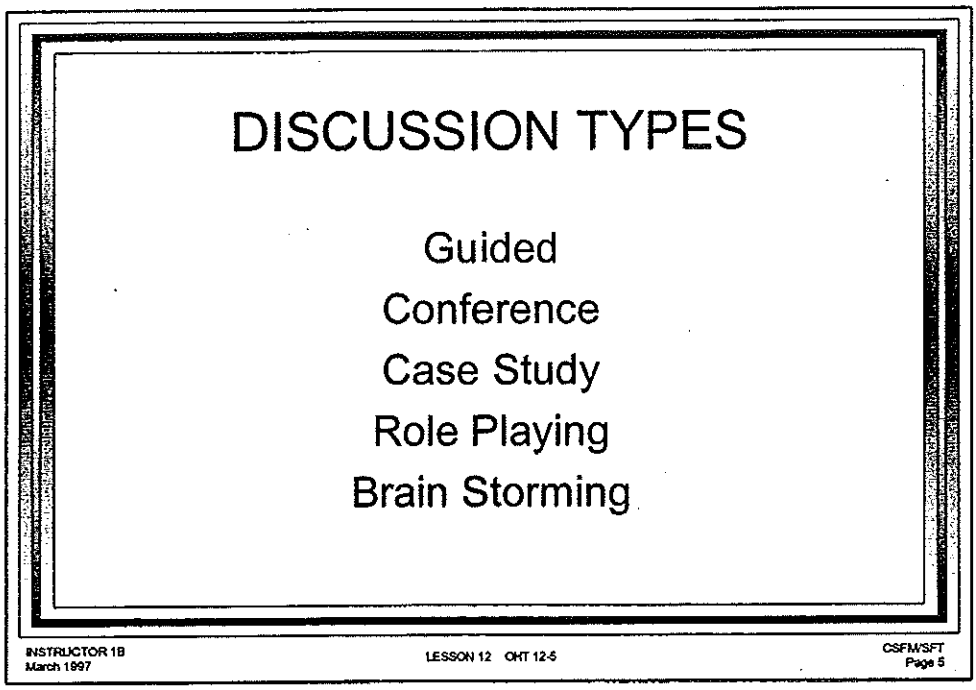
LESSON 12 OHT 12-4
CSFM/SFT
Page 4


DISCUSSION TYPES
Guided
Conference
Case Study
Role Playing
Brain Storming
INSTRUCTOR 1B
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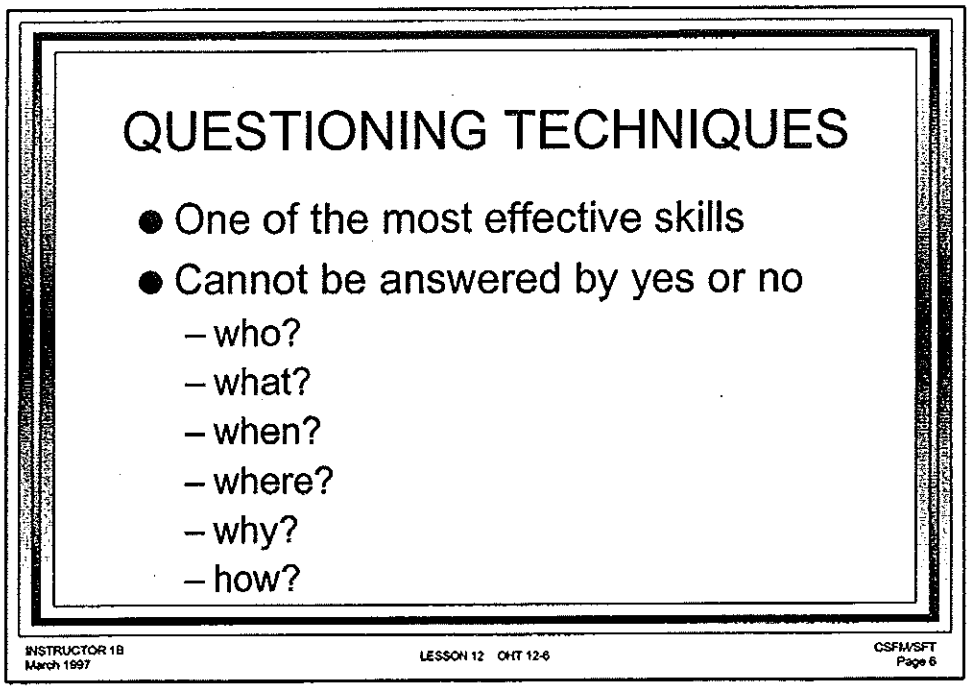
LESSON 12 OHT 12-5
CSFM/SFT
Page 5


QUESTIONING TECHNIQUES
● One of the most effective skills
● Cannot be answered by yes or no
– who?
– what?
– when?
– where?
– why?
– how?
INSTRUCTOR 1B
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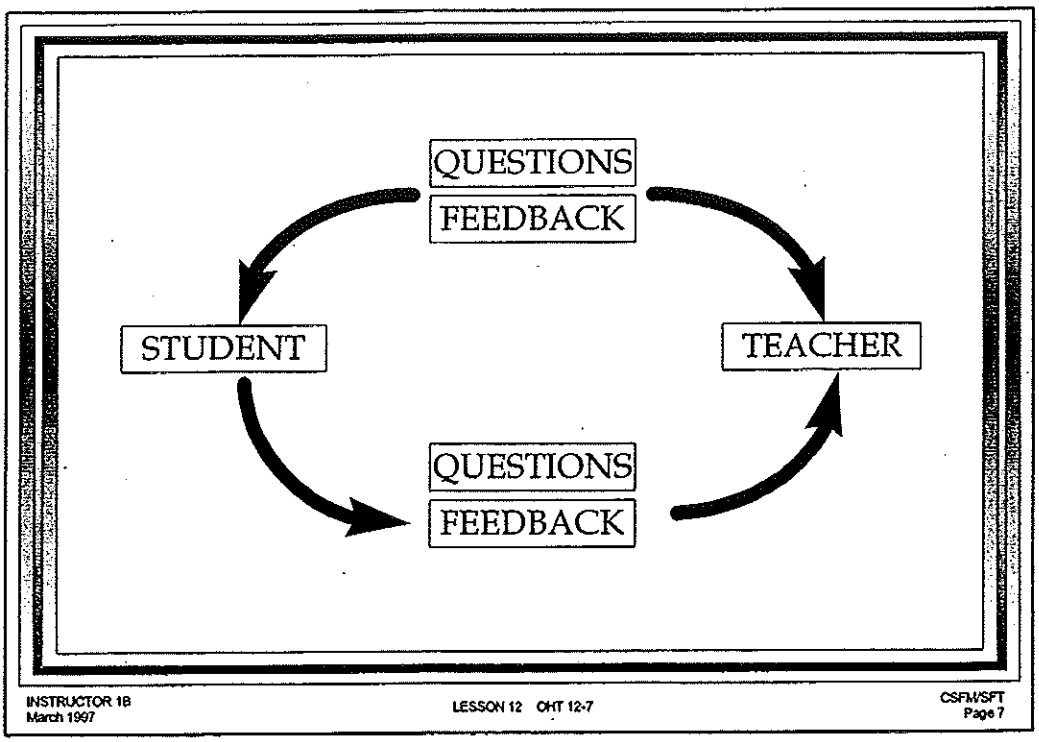
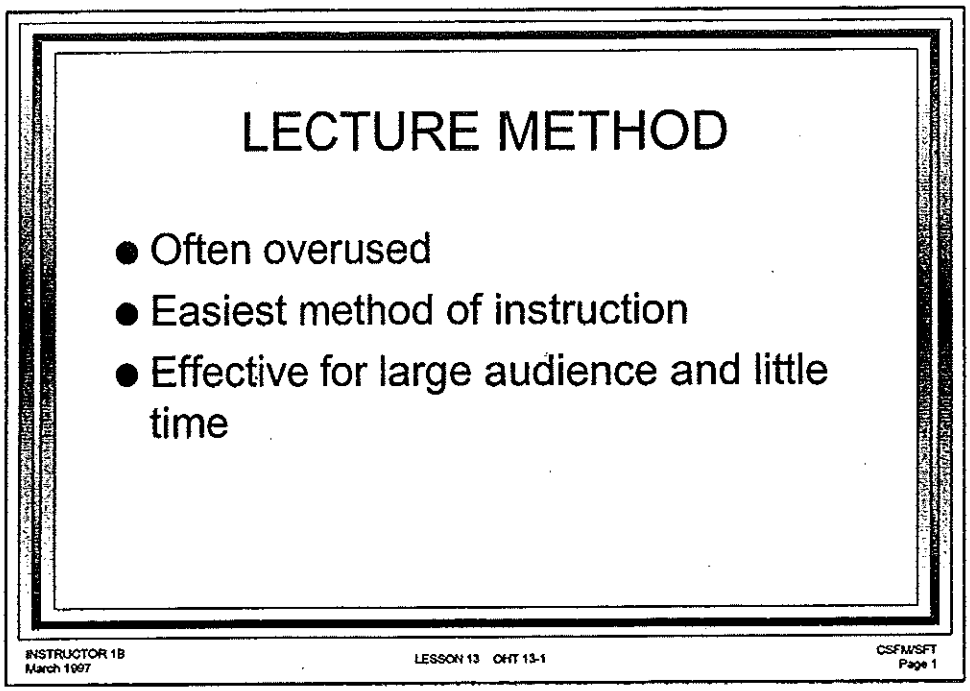
LESSON 12 OHT 12-6
CSFM/SFT
Page 6


QUESTIONS
FEEDBACK
STUDENT
TEACHER
QUESTIONS
FEEDBACK
INSTRUCTOR 1B
March 1997
LESSON 12 OHT 12-7
CSFM/SFT
Page 7


LECTURE METHOD
● Often overused
● Easiest method of instruction
● Effective for large audience and little time
INSTRUCTOR 1B
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LESSON 13 OHT 13-1
CSFM/SFT
Page 1

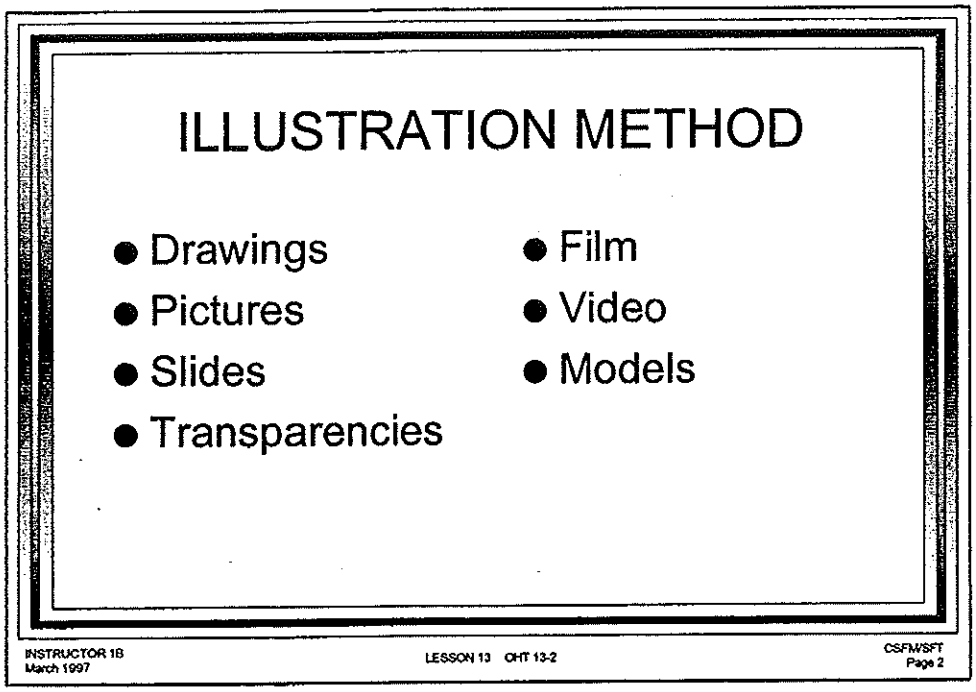
ILLUSTRATION METHOD
● Drawings
● Pictures
● Slides
● Transparencies
● Film
● Video
● Models
INSTRUCTOR 1B
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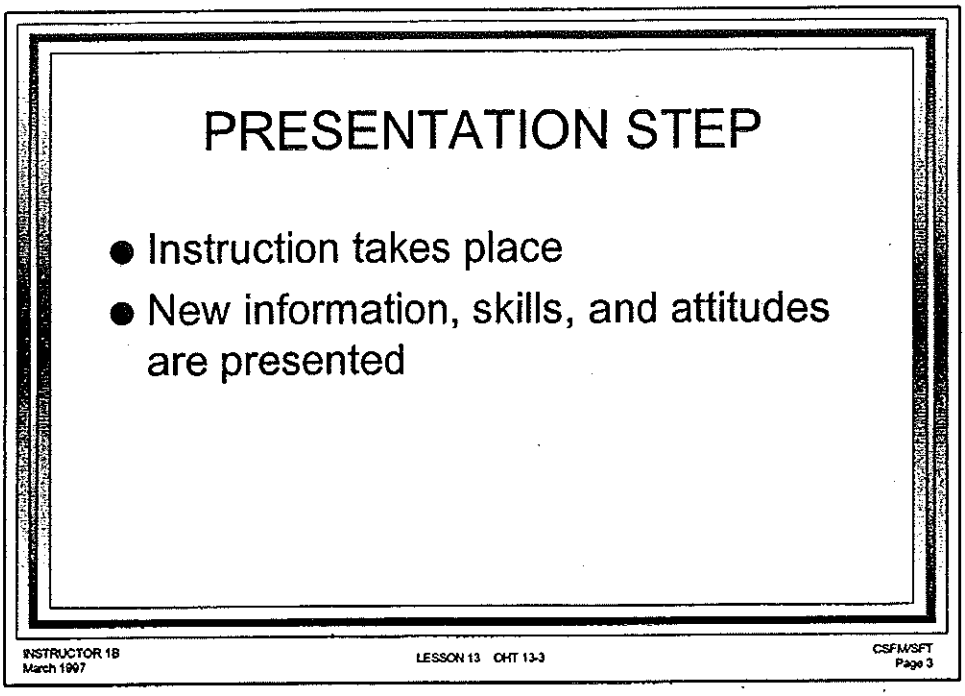
LESSON 13 OHT 13-2
CSFM/SFT
Page 2


PRESENTATION STEP
● Instruction takes place
● New information, skills, and attitudes are presented
INSTRUCTOR 1B
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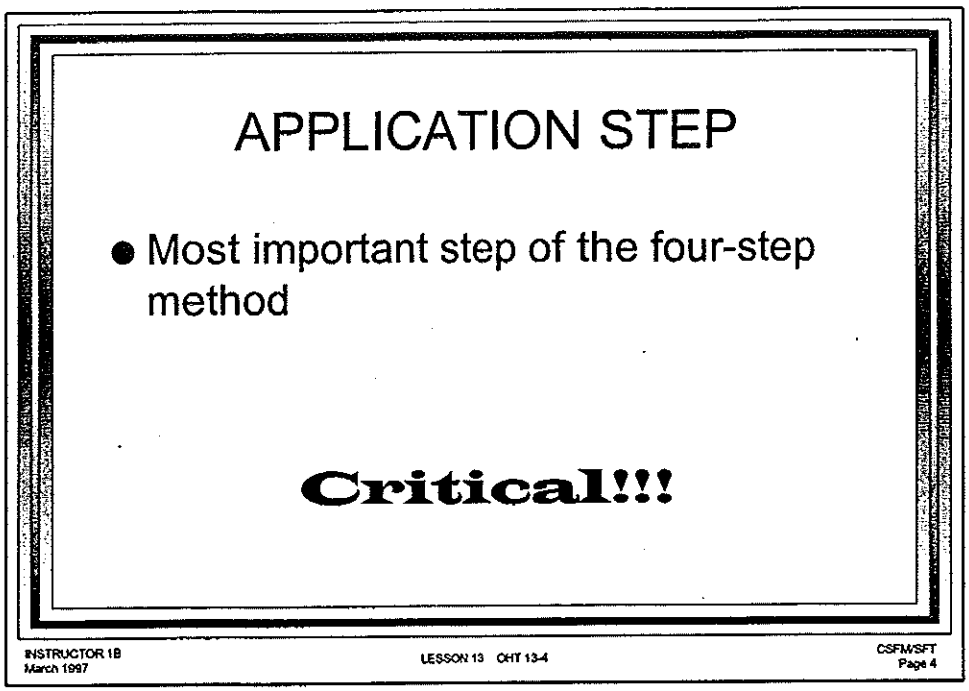
LESSON 13 OHT 13-3
CSFM/SFT
Page 3


APPLICATION STEP
● Most important step of the four-step method
Critical!!!
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LESSON 13 OHT 13-4
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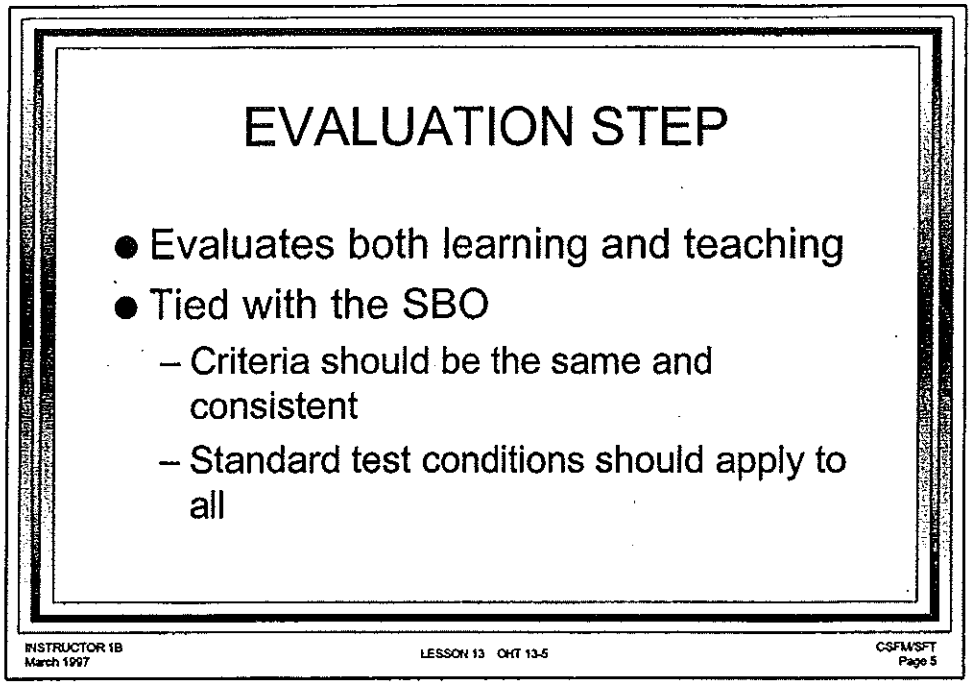
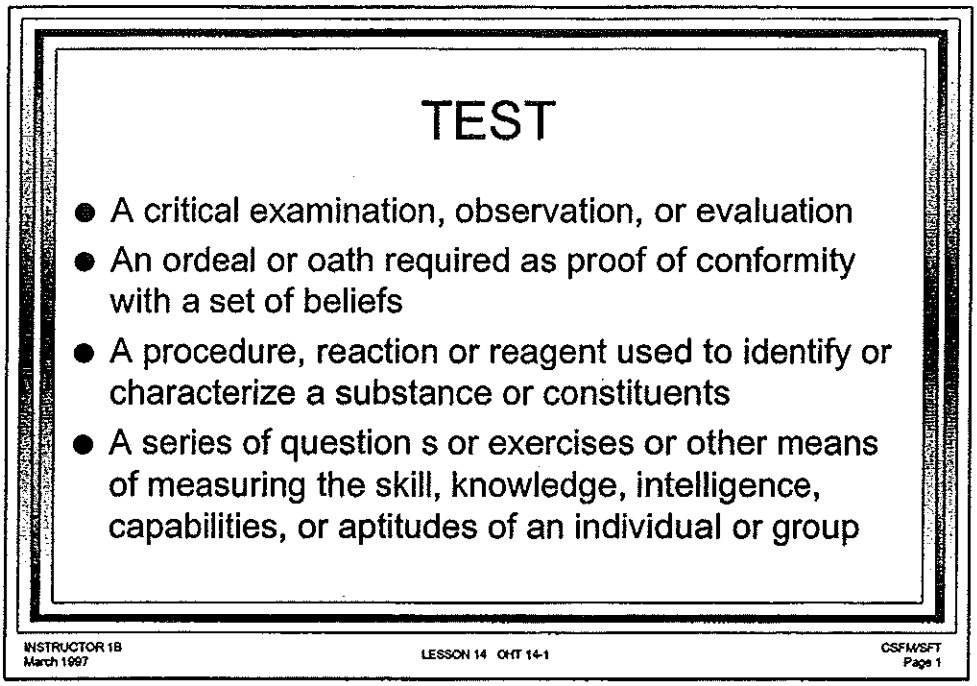
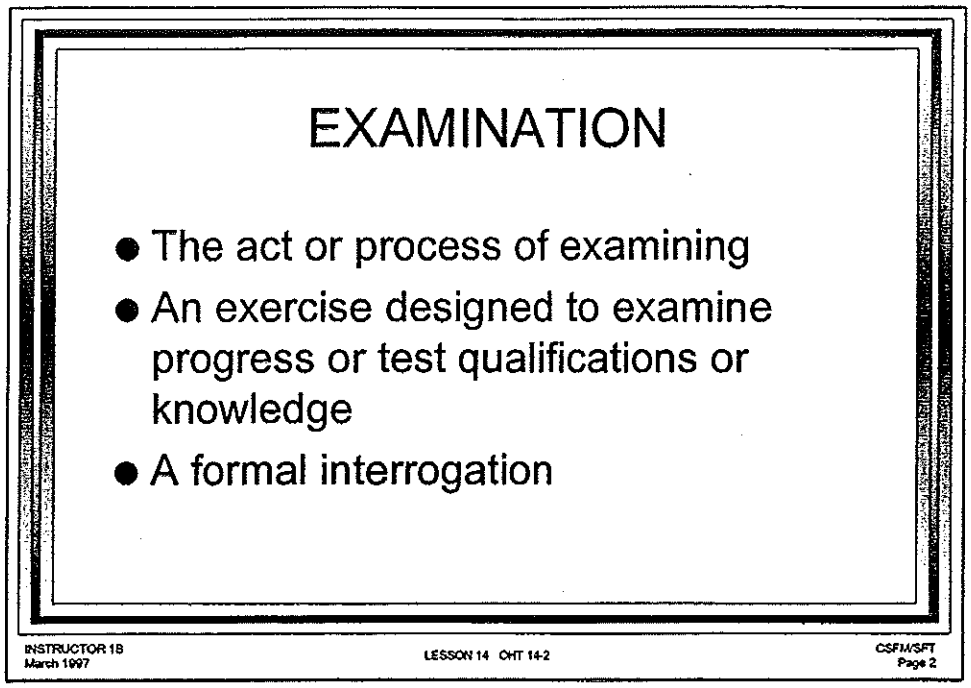
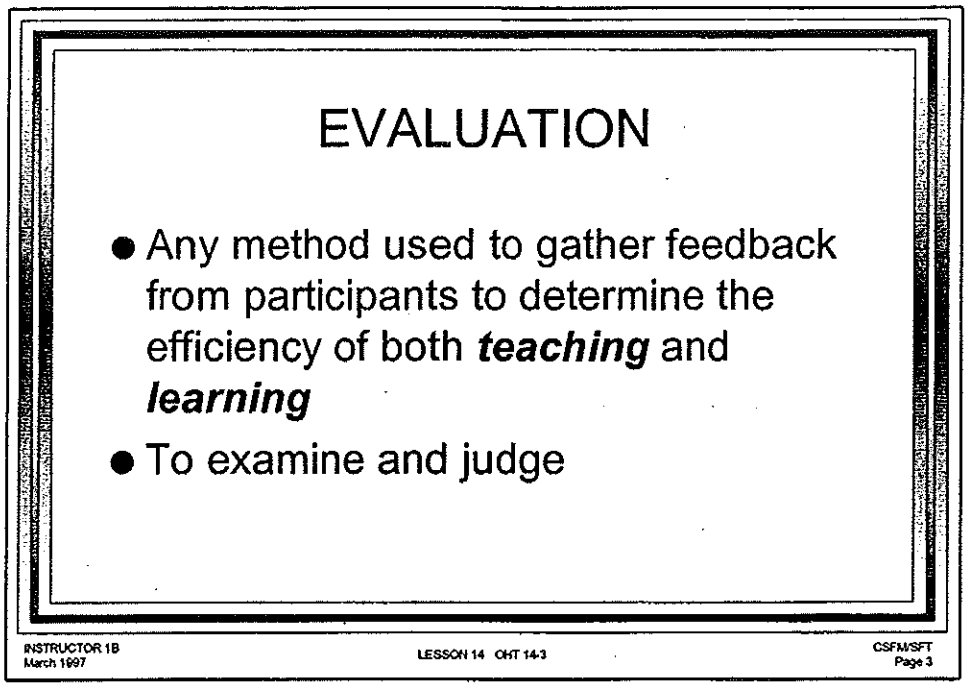
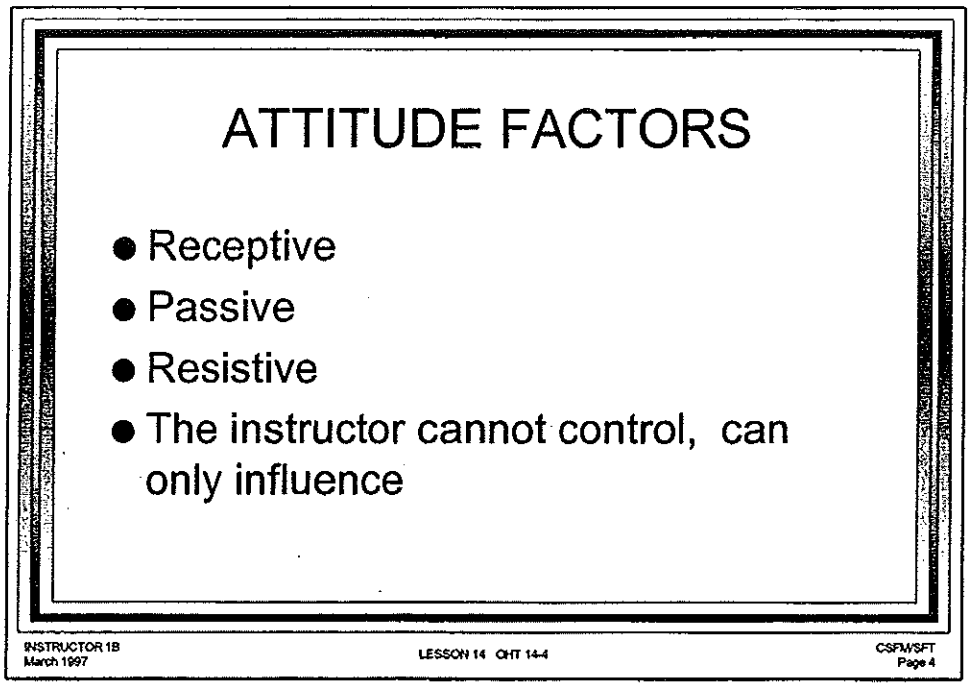
Page 4


EVALUATION STEP
● Evaluates both learning and teaching
● Tied with the SBO
– Criteria should be the same and consistent
– Standard test conditions should apply to all
INSTRUCTOR 1B
March 1997
LESSON 13 OHT 13-5
CSFM/SFT
Page 5


TEST
A critical examination, observation, or evaluation
An ordeal or oath required as proof of conformity with a set of beliefs
A procedure, reaction or reagent used to identify or characterize a substance or constituents
A series of question s or exercises or other means of measuring the skill, knowledge, intelligence, capabilities, or aptitudes of an individual or group
INSTRUCTOR 1B
March 1997
LESSON 14 OHT 14-1
CSFM/SFT
Page 1


EXAMINATION
● The act or process of examining
● An exercise designed to examine progress or test qualifications or knowledge
● A formal interrogation
INSTRUCTOR 1B
March 1997
LESSON 14 OHT 14-2
CSFM/SFT
Page 2


EVALUATION
● Any method used to gather feedback from participants to determine the efficiency of both ***teaching*** and ***learning***
● To examine and judge
INSTRUCTOR 1B
March 1997
LESSON 14 OHT 14-3
CSFM/SFT
Page 3


ATTITUDE FACTORS
● Receptive
● Passive
● Resistive
● The instructor cannot control, can only influence
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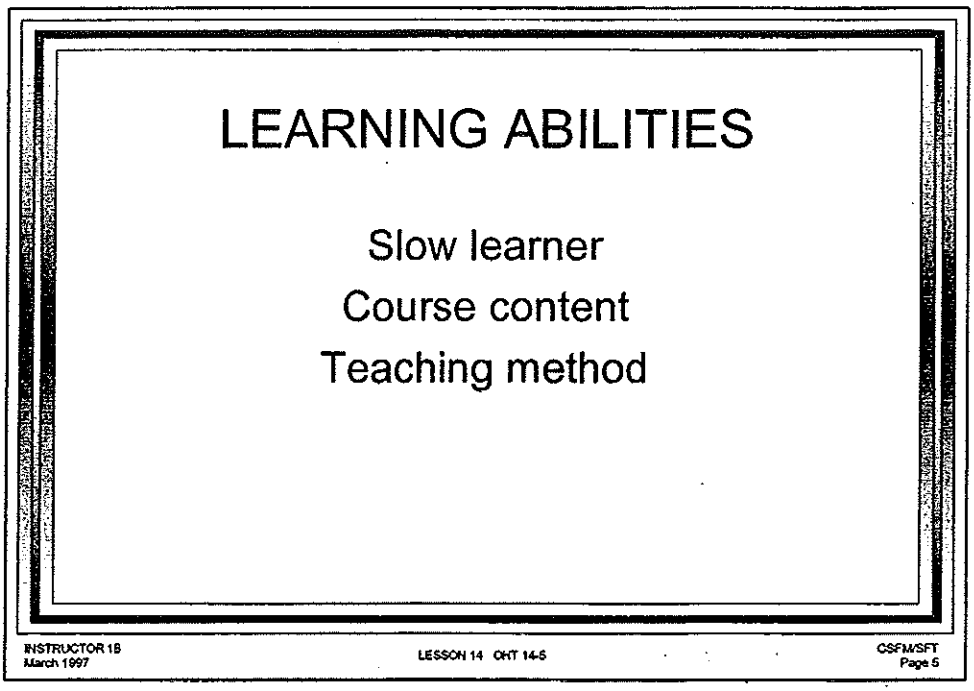
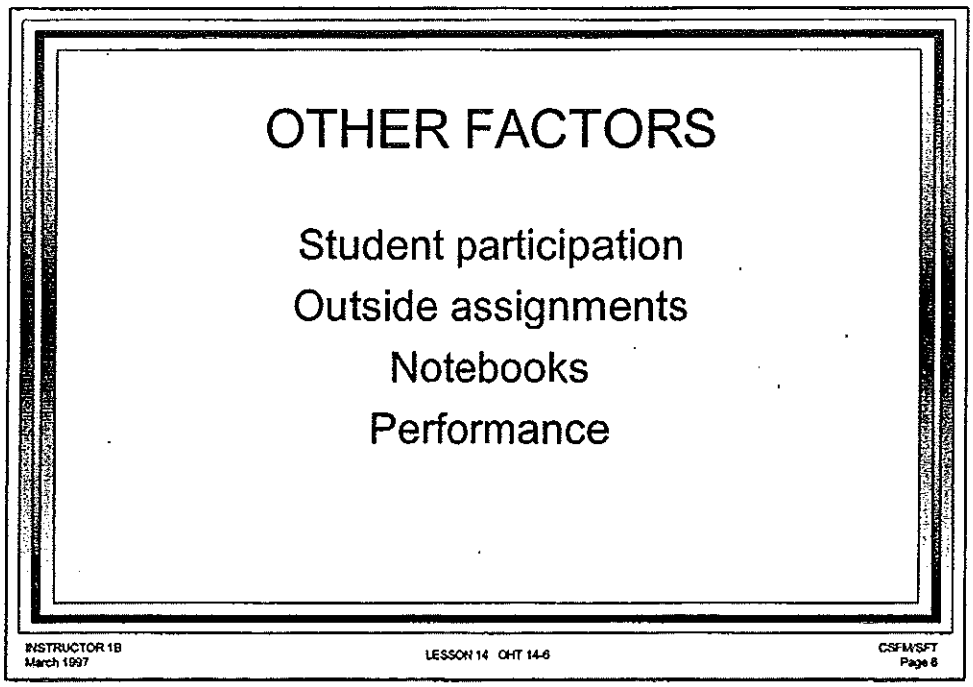
March 1997
LESSON 14 OHT 14-4
CSFM/SFT
Page 4


LEARNING ABILITIES
Slow learner
Course content
Teaching method
INSTRUCTOR 1B
March 1997
LESSON 14 OHT 14-5
CSFM/SFT
Page 5


OTHER FACTORS
Student participation
Outside assignments
Notebooks
Performance
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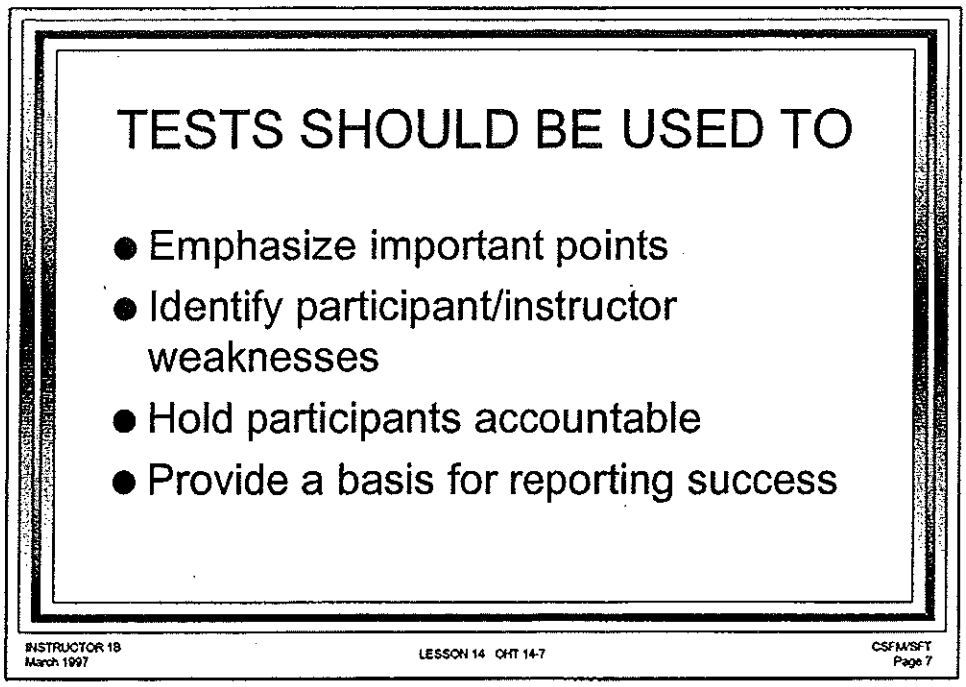
LESSON 14 OHT 14-6
CSFM/SFT
Page 6


TESTS SHOULD BE USED TO
● Emphasize important points
● Identify participant/instructor weaknesses
● Hold participants accountable
● Provide a basis for reporting success
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LESSON 14 OHT 14-7
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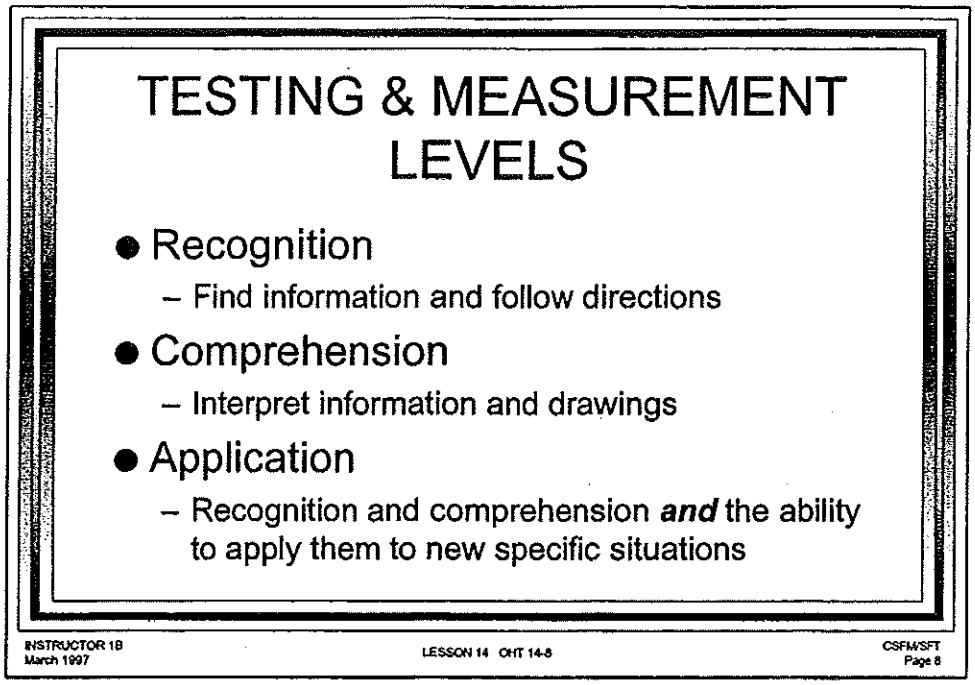
TESTING & MEASUREMENT LEVELS
● Recognition
– Find information and follow directions
● Comprehension
– Interpret information and drawings
● Application
– Recognition and comprehension *and* the ability to apply them to new specific situations
INSTRUCTOR 1B
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LESSON 14 OHT 14-8
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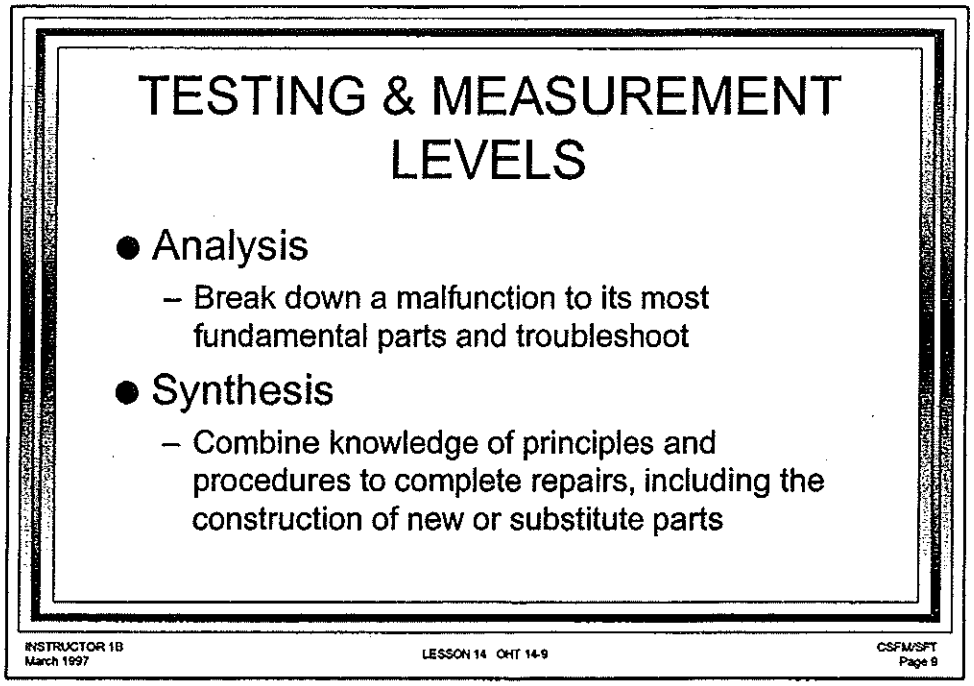
Page 8


TESTING & MEASUREMENT LEVELS
● Analysis
– Break down a malfunction to its most fundamental parts and troubleshoot
● Synthesis
– Combine knowledge of principles and procedures to complete repairs, including the construction of new or substitute parts
INSTRUCTOR 1B
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LESSON 14 OHT 14-9
CSFM/SFT
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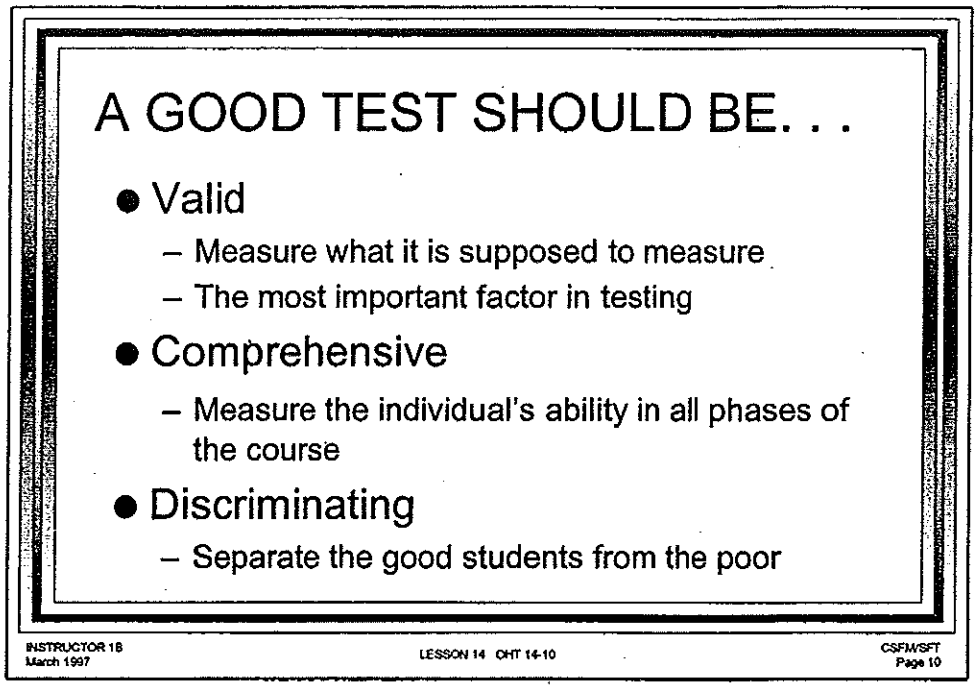
A GOOD TEST SHOULD BE. . .
Valid
– Measure what it is supposed to measure
– The most important factor in testing
Comprehensive
– Measure the individual's ability in all phases of the course
Discriminating
– Separate the good students from the poor
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LESSON 14 OHT 14-10
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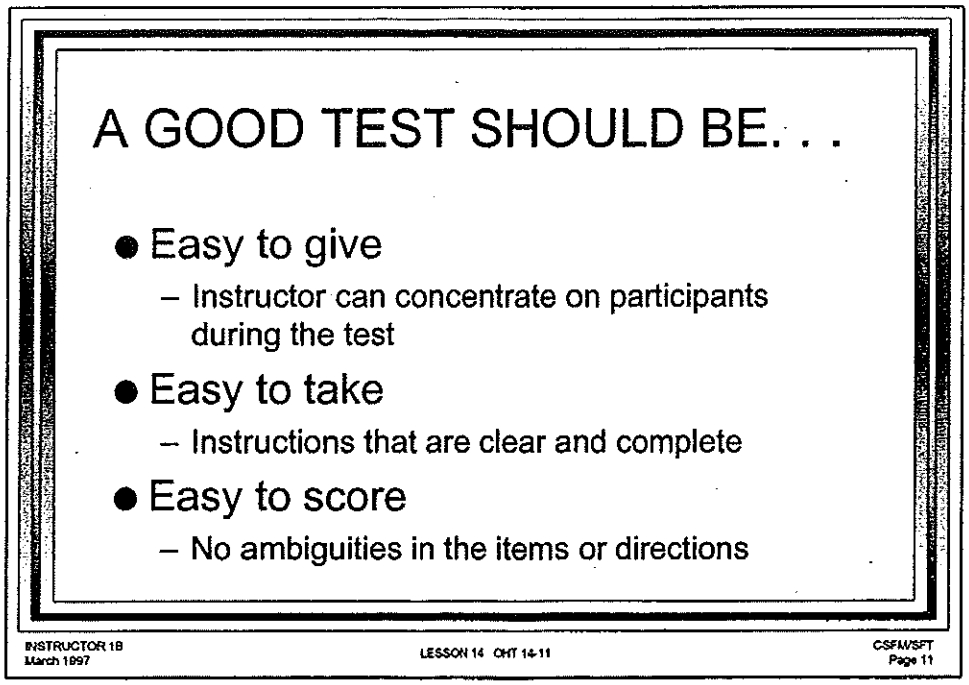
Page 10


A GOOD TEST SHOULD BE. . .
Easy to give
– Instructor can concentrate on participants during the test
Easy to take
– Instructions that are clear and complete
Easy to score
– No ambiguities in the items or directions
INSTRUCTOR 1B March 1997
LESSON 14 OHT 14-11
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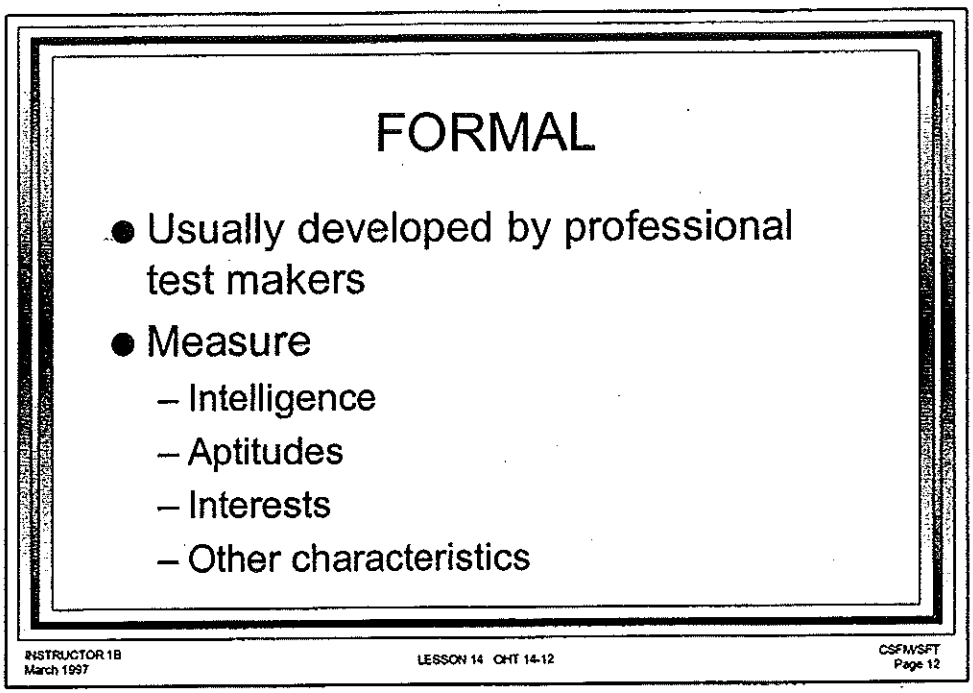
FORMAL
● Usually developed by professional test makers
● Measure
– Intelligence
– Aptitudes
– Interests
– Other characteristics
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LESSON 14 OHT 14-12
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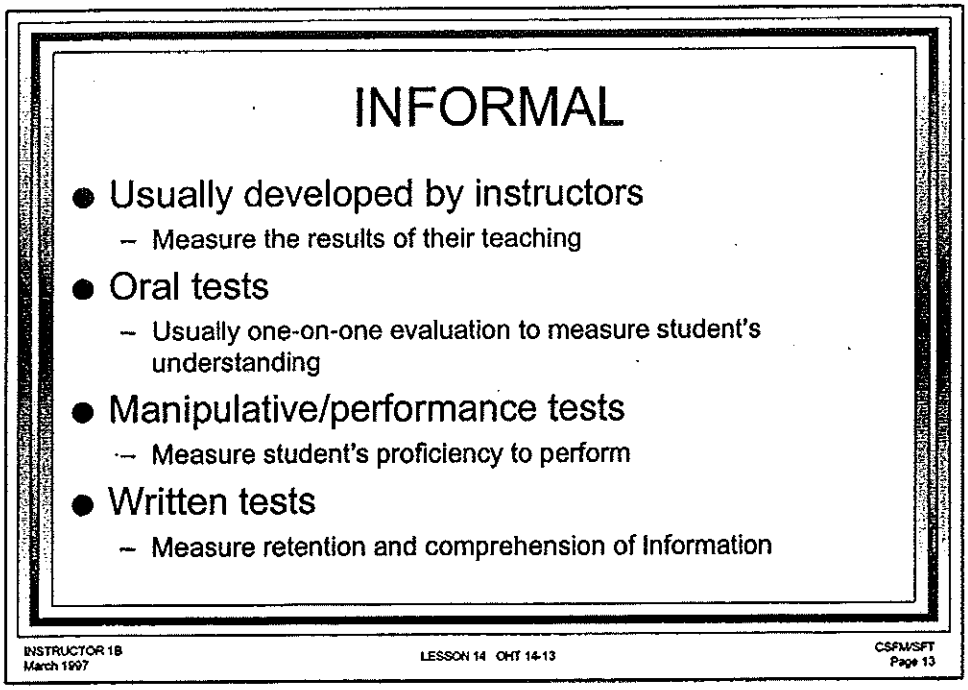
Page 12


INFORMAL
Usually developed by instructors
– Measure the results of their teaching
Oral tests
– Usually one-on-one evaluation to measure student's understanding
Manipulative/performance tests
– Measure student's proficiency to perform
Written tests
– Measure retention and comprehension of Information
INSTRUCTOR 1B
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LESSON 14 OHT 14-13
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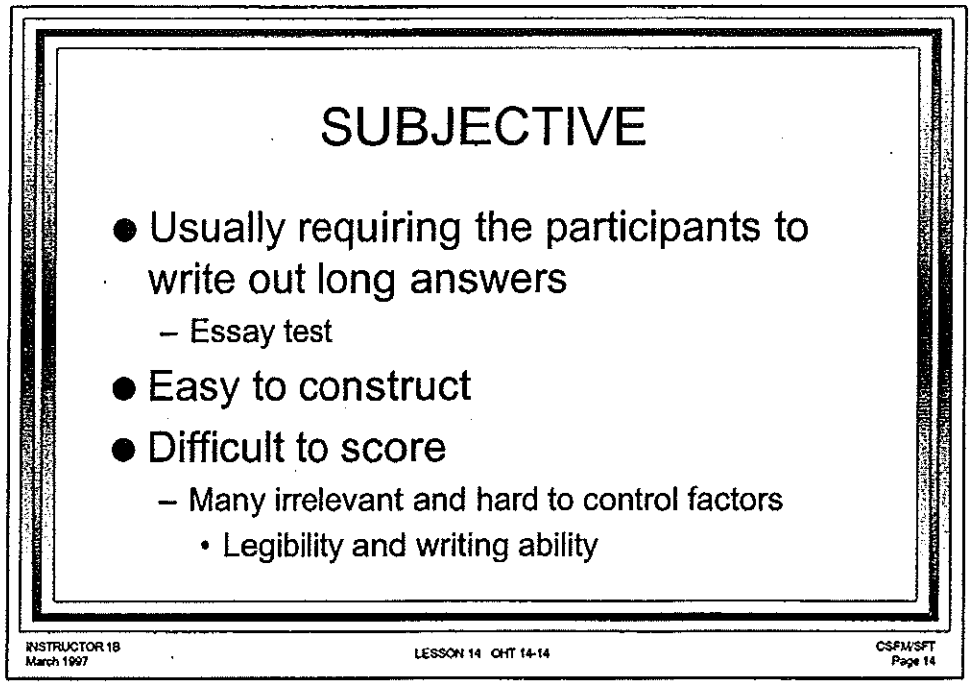
Page 13


SUBJECTIVE
● Usually requiring the participants to write out long answers
– Essay test
● Easy to construct
● Difficult to score
– Many irrelevant and hard to control factors
• Legibility and writing ability
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LESSON 14 OHT 14-14
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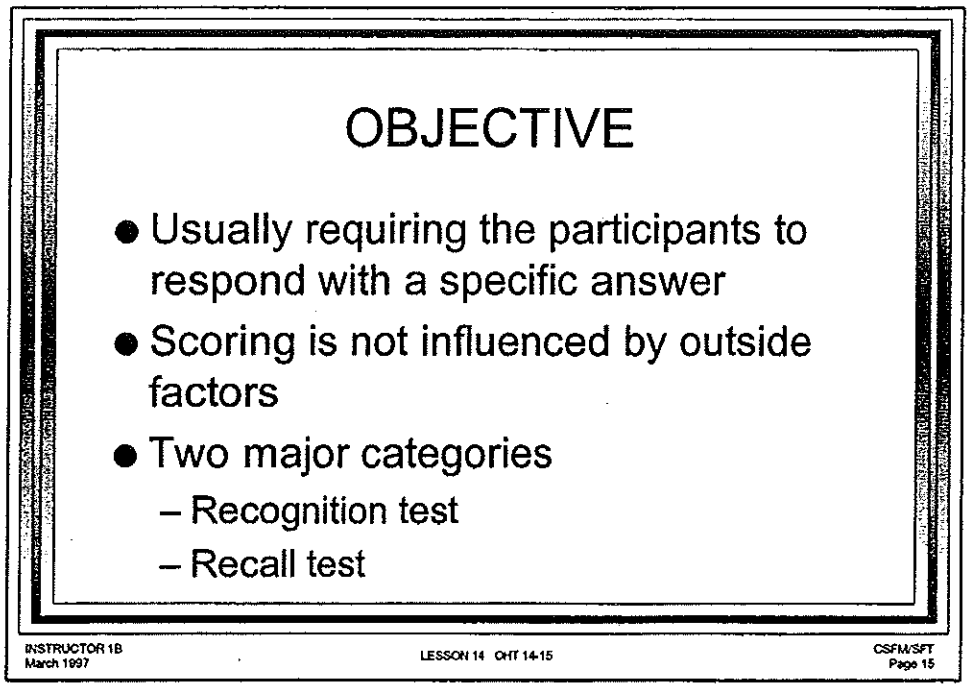
Page 14


OBJECTIVE
● Usually requiring the participants to respond with a specific answer
● Scoring is not influenced by outside factors
● Two major categories
– Recognition test
– Recall test
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LESSON 14 OHT 14-15
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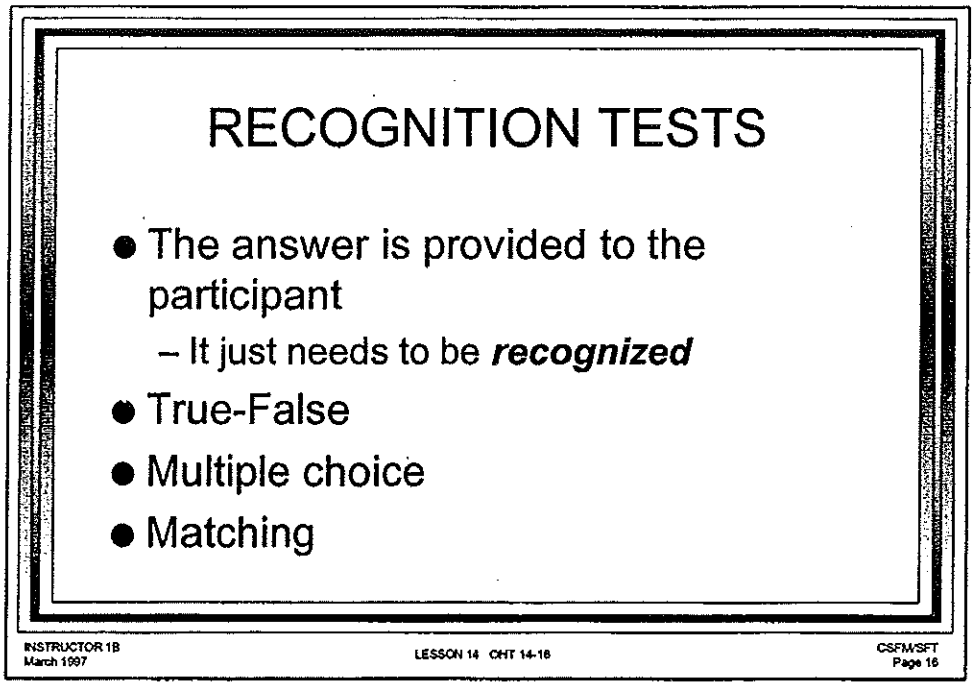
Page 15


RECOGNITION TESTS
● The answer is provided to the participant
– It just needs to be ***recognized***
● True-False
● Multiple choice
● Matching
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LESSON 14 CHT 14-16
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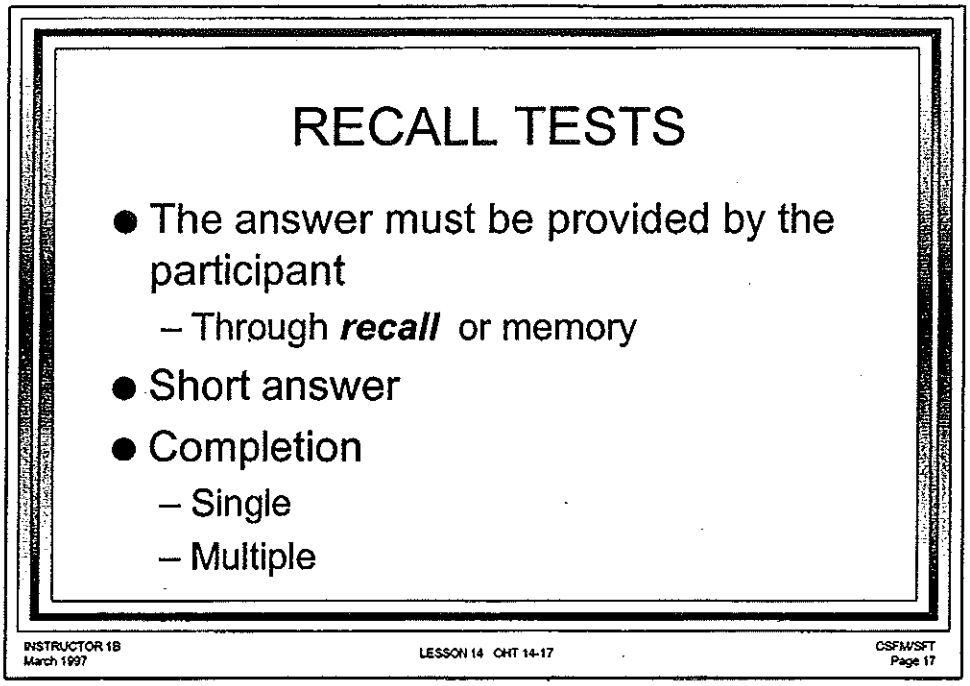
RECALL TESTS
● The answer must be provided by the participant
– Through ***recall*** or memory
● Short answer
● Completion
– Single
– Multiple
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LESSON 14 OHT 14-17
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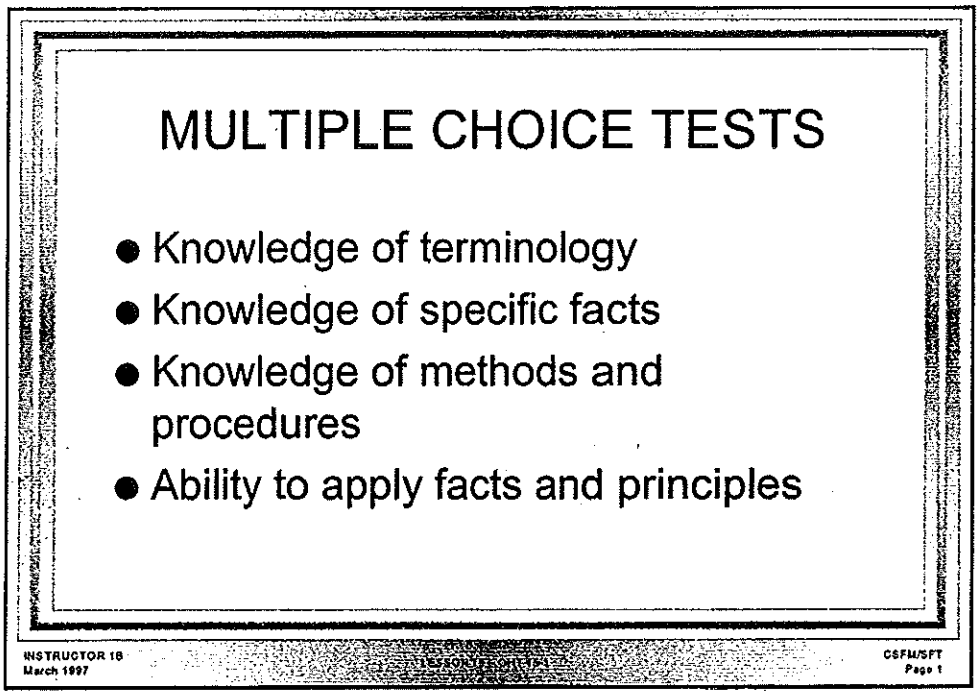
MULTIPLE CHOICE TESTS
● Knowledge of terminology
● Knowledge of specific facts
● Knowledge of methods and procedures
● Ability to apply facts and principles
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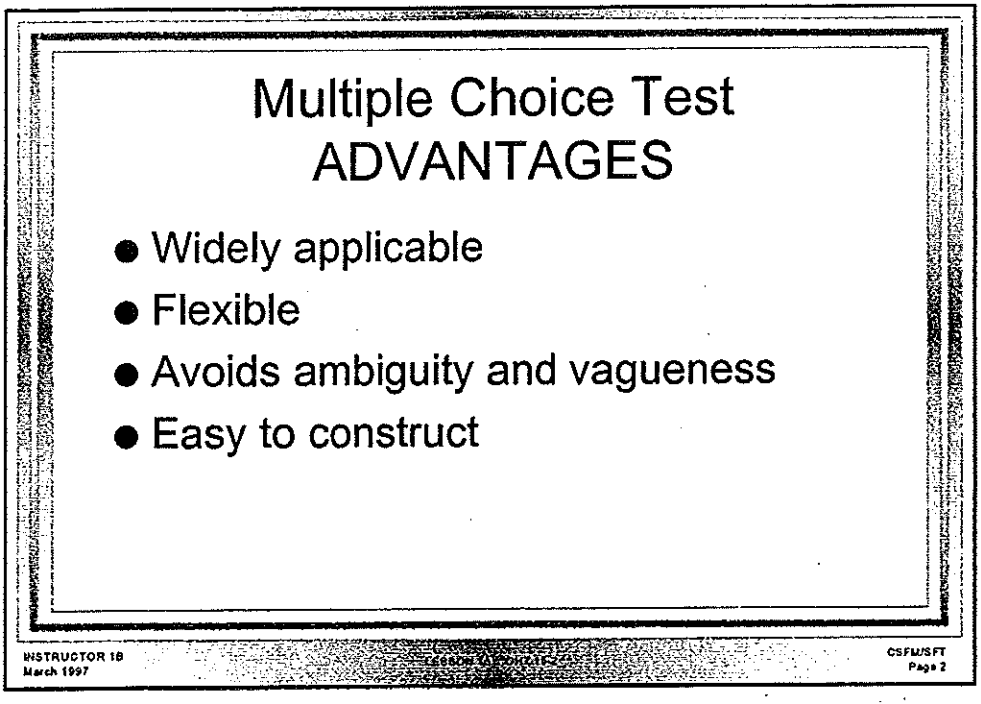
Page 1


Multiple Choice Test
ADVANTAGES
● Widely applicable
● Flexible
● Avoids ambiguity and vagueness
● Easy to construct
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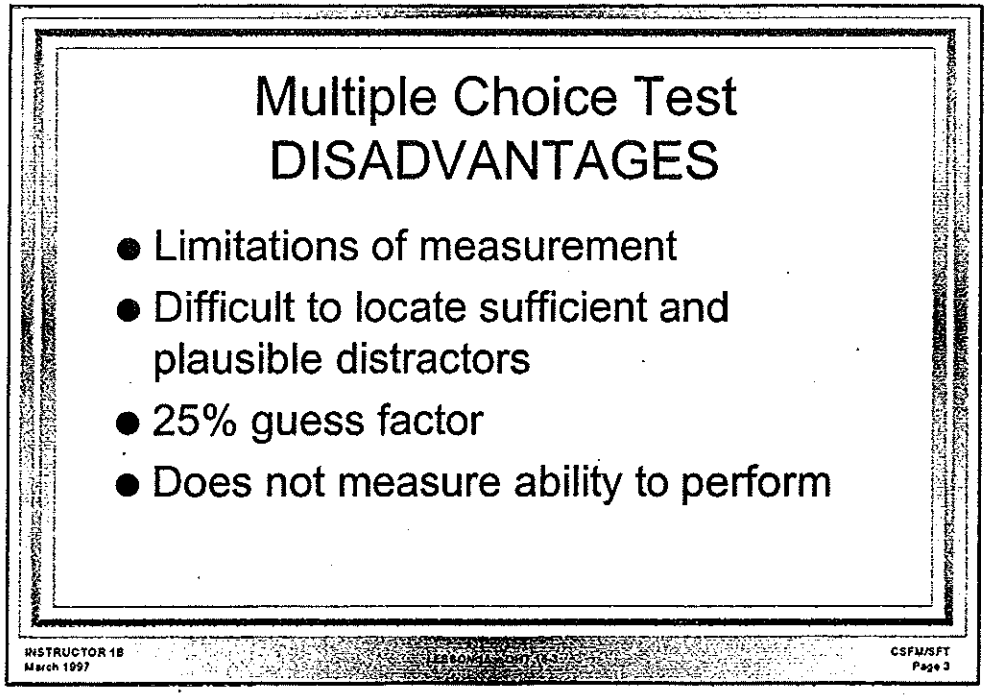
Page 2


Multiple Choice Test
DISADVANTAGES
● Limitations of measurement
● Difficult to locate sufficient and plausible distractors
● 25% guess factor
● Does not measure ability to perform
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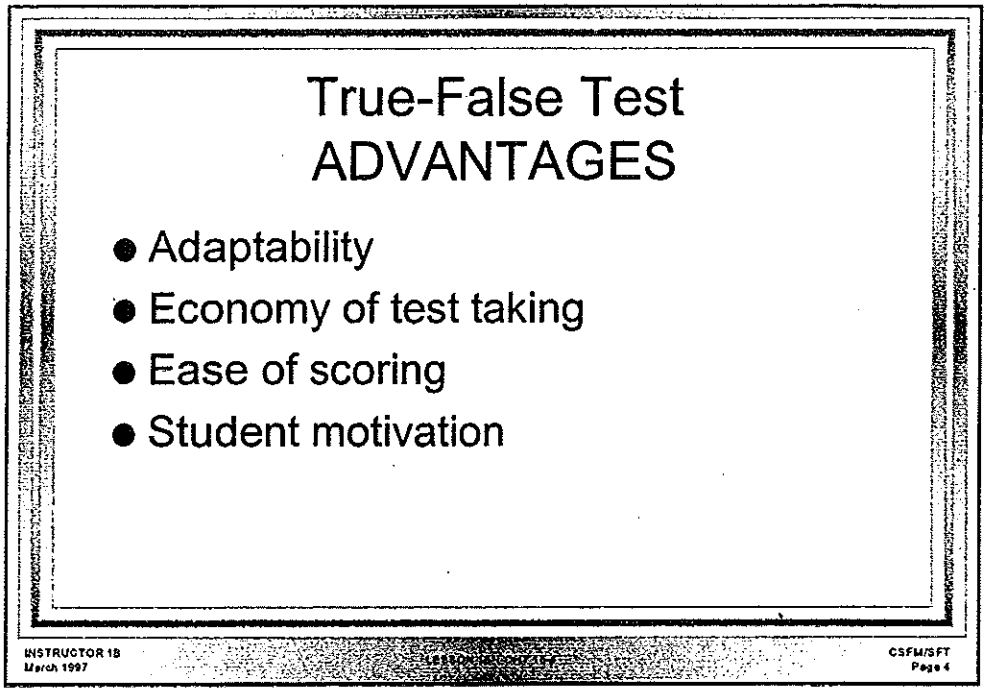
Page 3


True-False Test
ADVANTAGES
● Adaptability
● Economy of test taking
● Ease of scoring
● Student motivation
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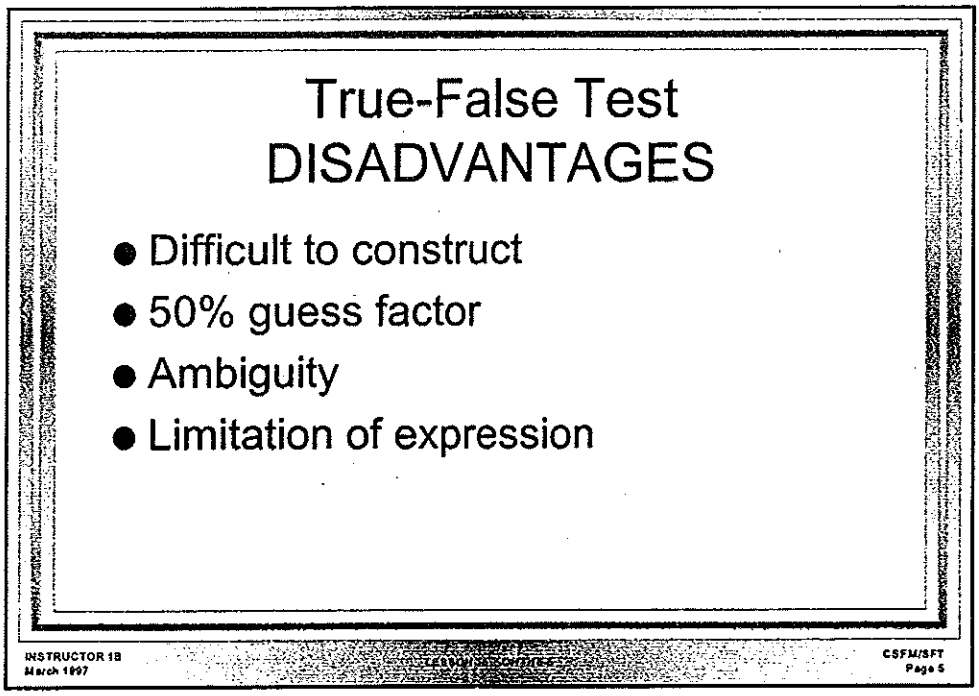
Page 4


True-False Test
DISADVANTAGES
● Difficult to construct
● 50% guess factor
● Ambiguity
● Limitation of expression
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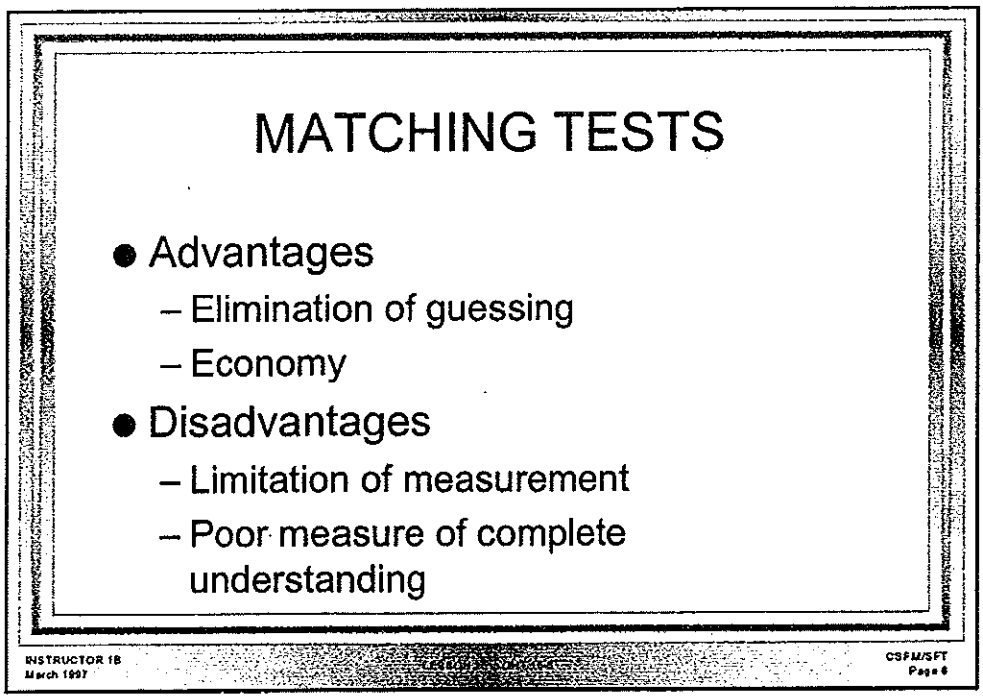
Page 5


MATCHING TESTS
● Advantages
– Elimination of guessing
– Economy
● Disadvantages
– Limitation of measurement
– Poor measure of complete understanding
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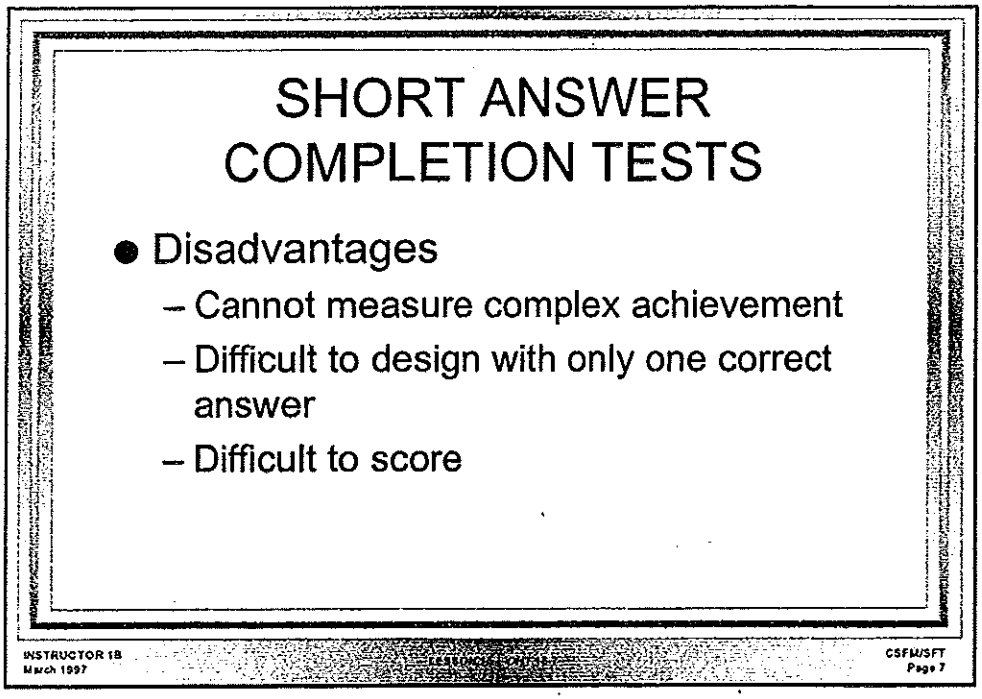
Page 6


SHORT ANSWER
COMPLETION TESTS
● Disadvantages
– Cannot measure complex achievement
– Difficult to design with only one correct answer
– Difficult to score
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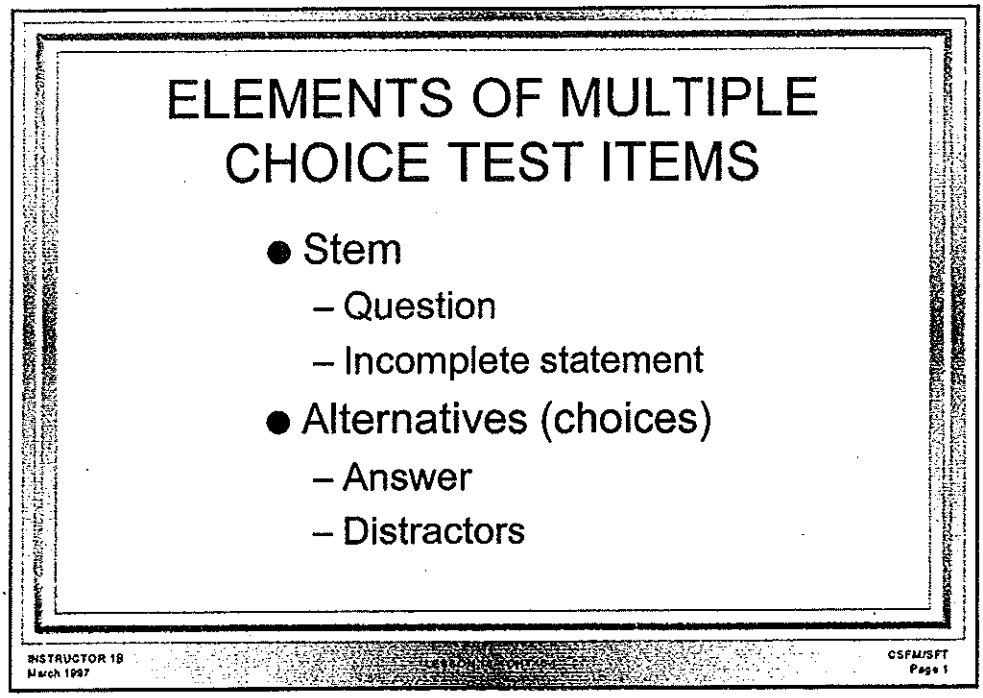
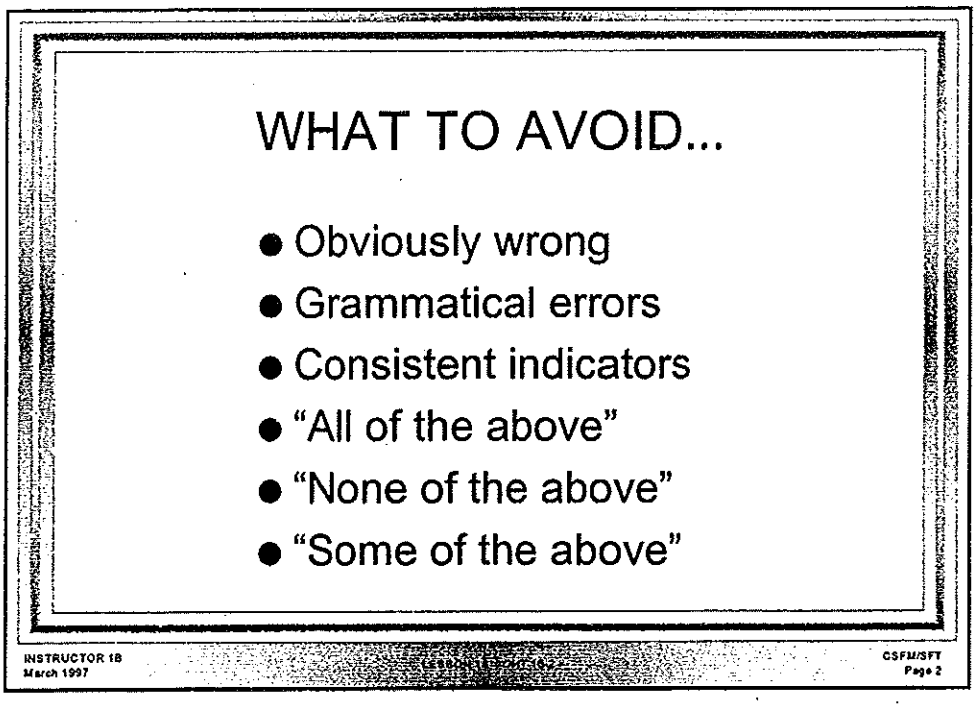
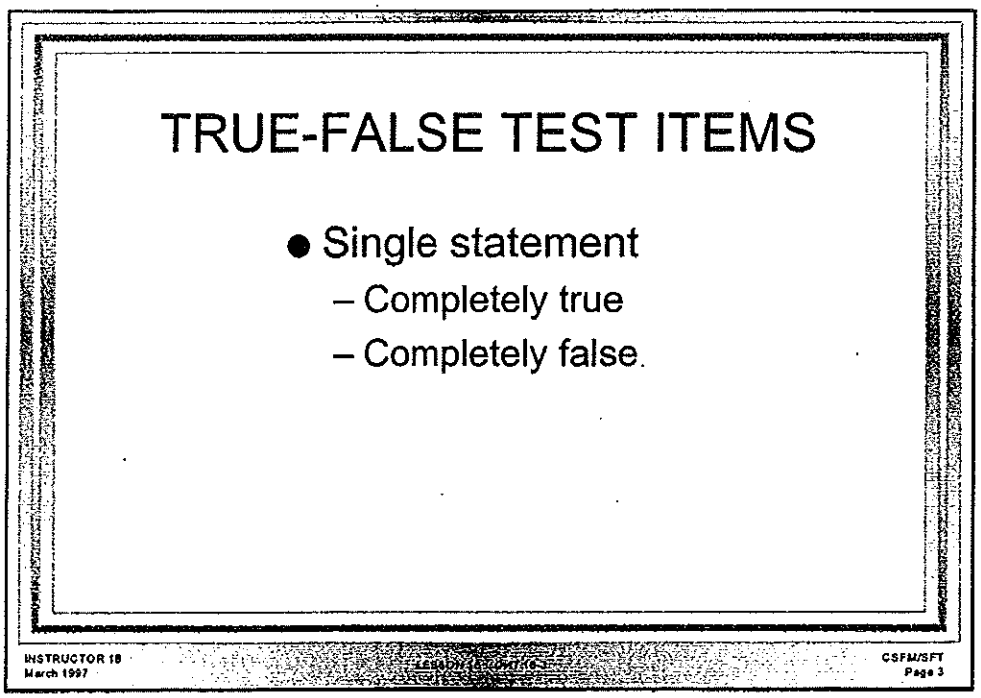
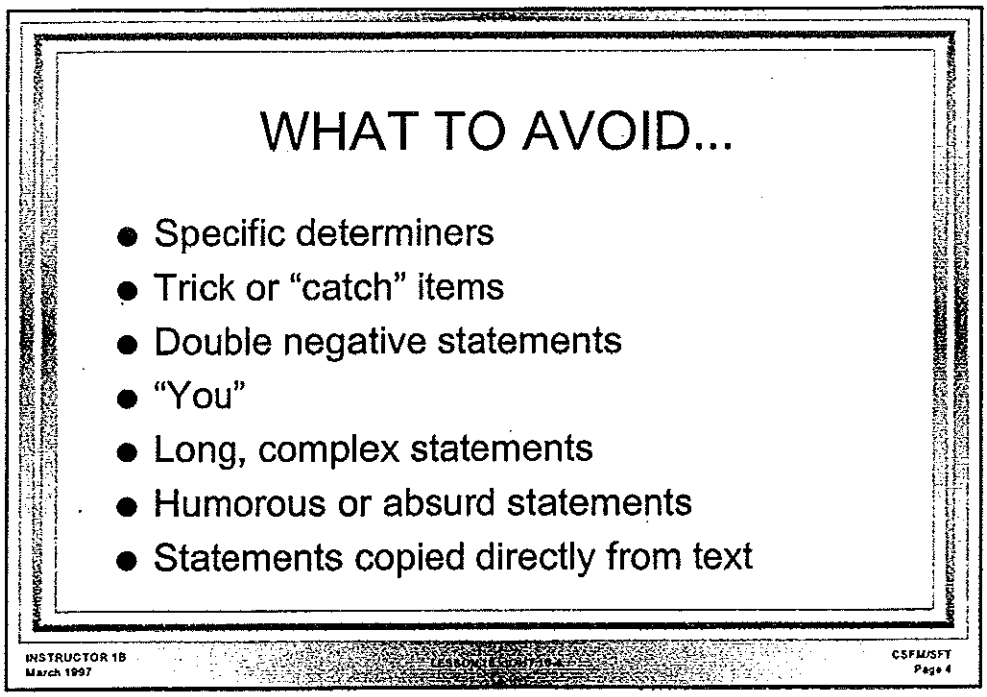
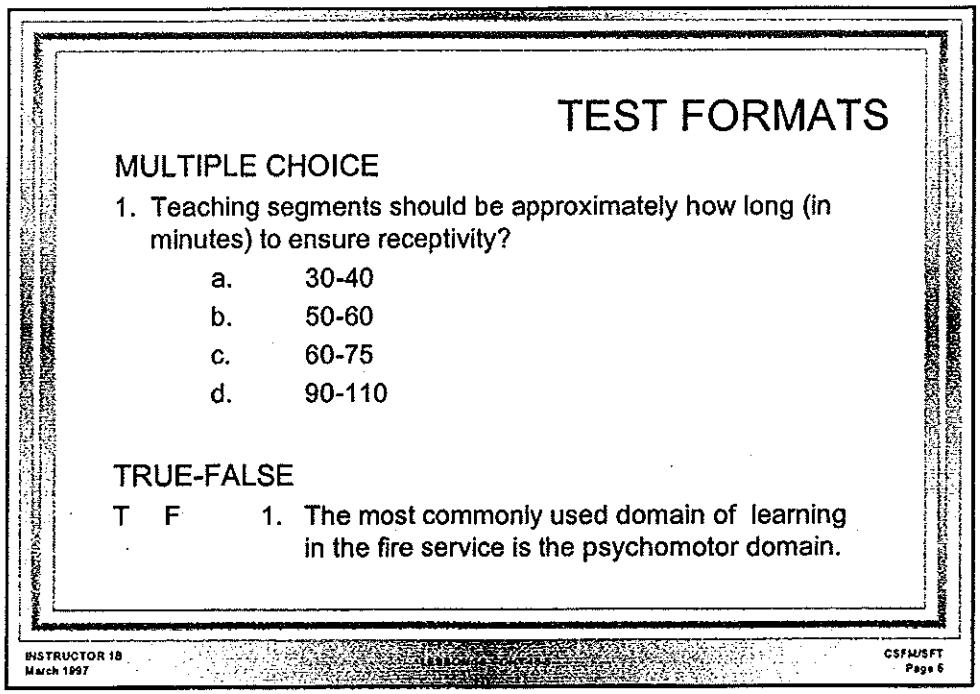
CSFM/SFT
Page 7

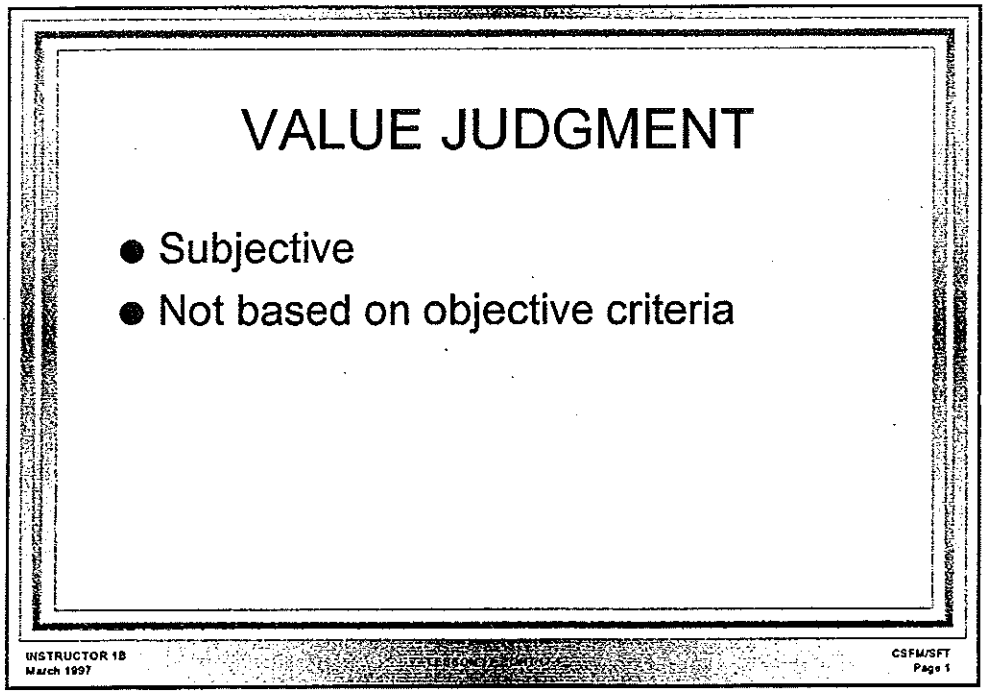

ELEMENTS OF MULTIPLE CHOICE TEST ITEMS
● Stem
– Question
– Incomplete statement
● Alternatives (choices)
– Answer
– Distractors
INSTRUCTOR 1B
March 1997
CSFM/SFT
Page 1

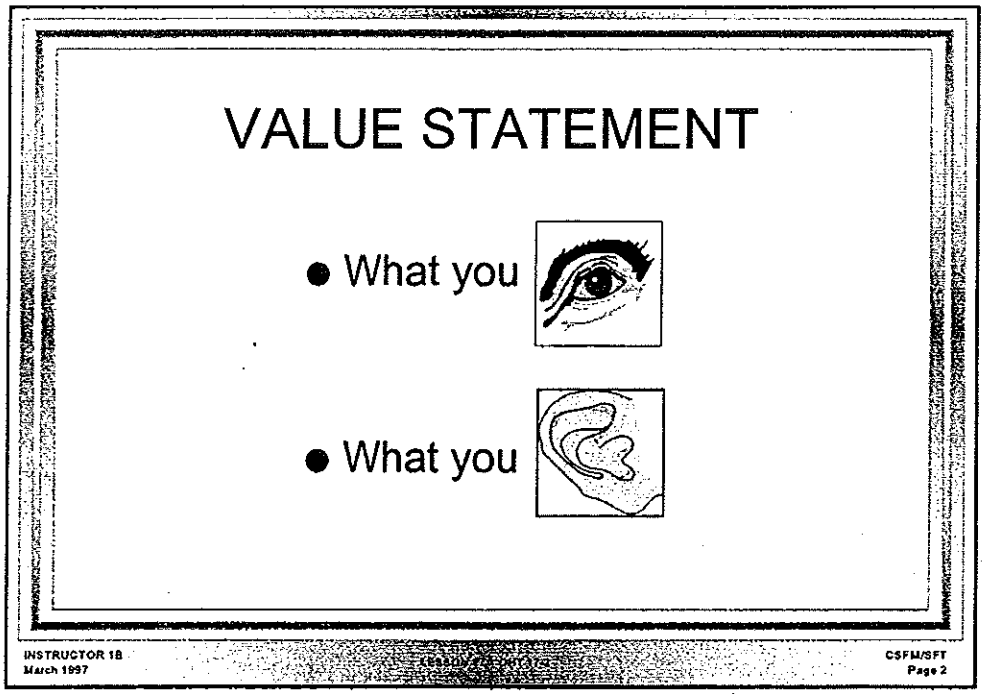

WHAT TO AVOID...
● Obviously wrong
● Grammatical errors
● Consistent indicators
● "All of the above"
● "None of the above"
● "Some of the above"
INSTRUCTOR 1B
March 1997
CSFM/SFT
Page 2

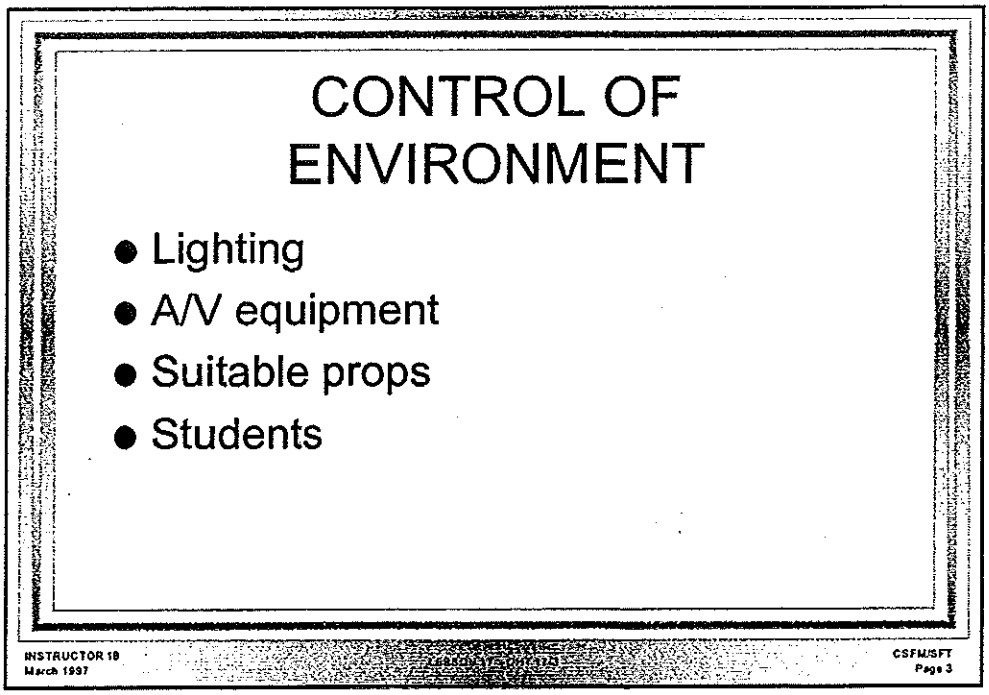

TRUE-FALSE TEST ITEMS
● Single statement
– Completely true
– Completely false.
INSTRUCTOR 1B
March 1997
CSFM/SFT
Page 3

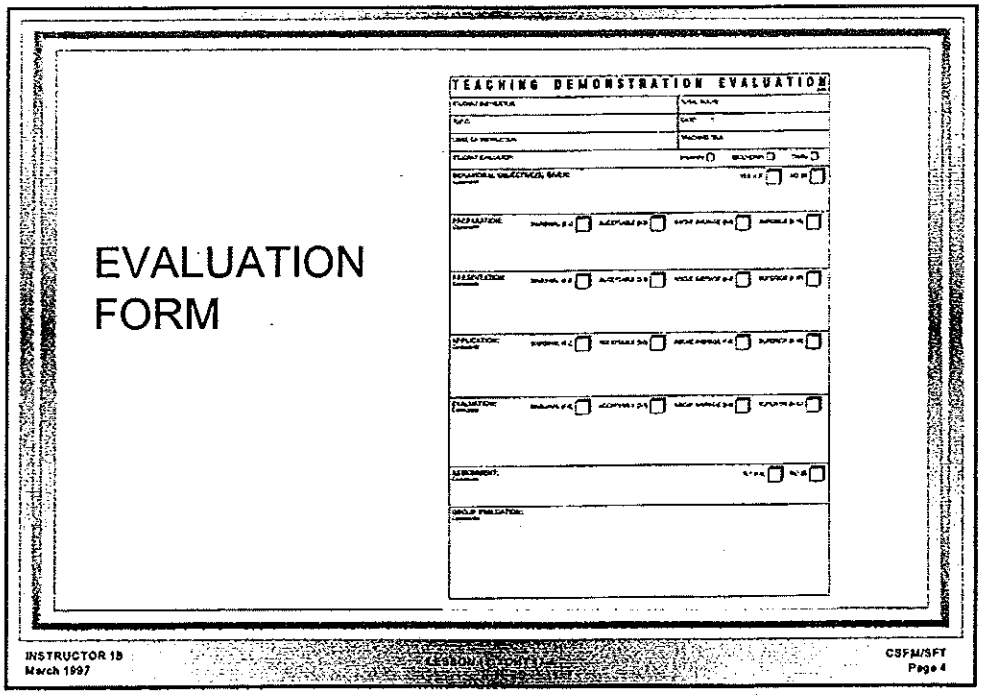

WHAT TO AVOID...
Specific determiners
Trick or "catch" items
Double negative statements
"You"
Long, complex statements
Humorous or absurd statements
Statements copied directly from text
INSTRUCTOR 1B
March 1997
CSFM/SFT
Page 4

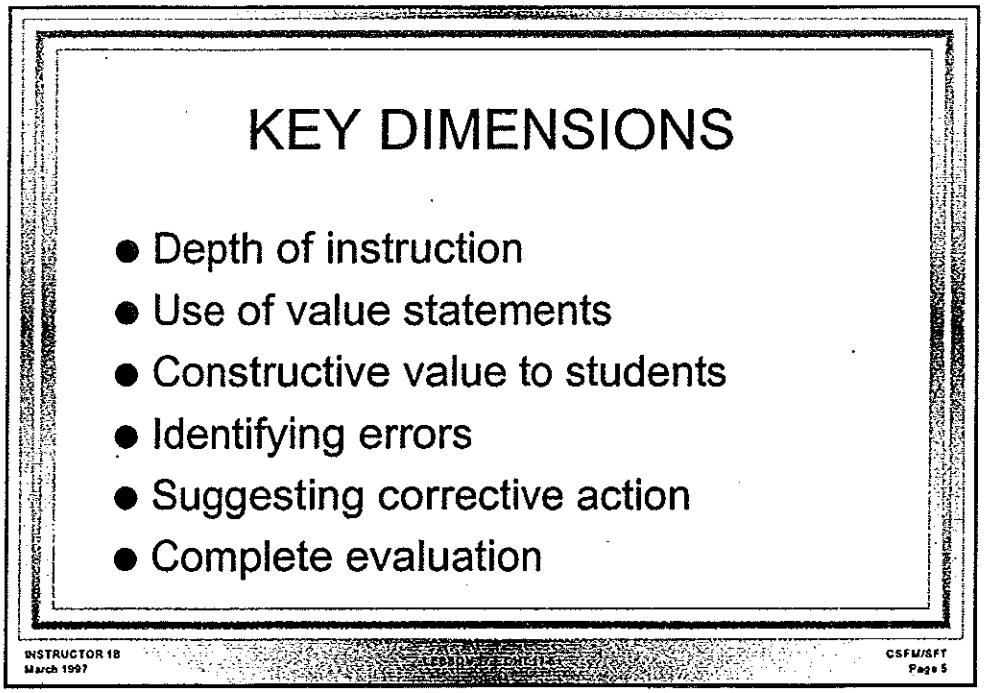

TEST FORMATS
MULTIPLE CHOICE
1. Teaching segments should be approximately how long (in minutes) to ensure receptivity?
a. 30-40
b. 50-60
c. 60-75
d. 90-110
TRUE-FALSE
T F 1. The most commonly used domain of learning in the fire service is the psychomotor domain.
INSTRUCTOR 1B
March 1997
CSFM/SFT
Page 6

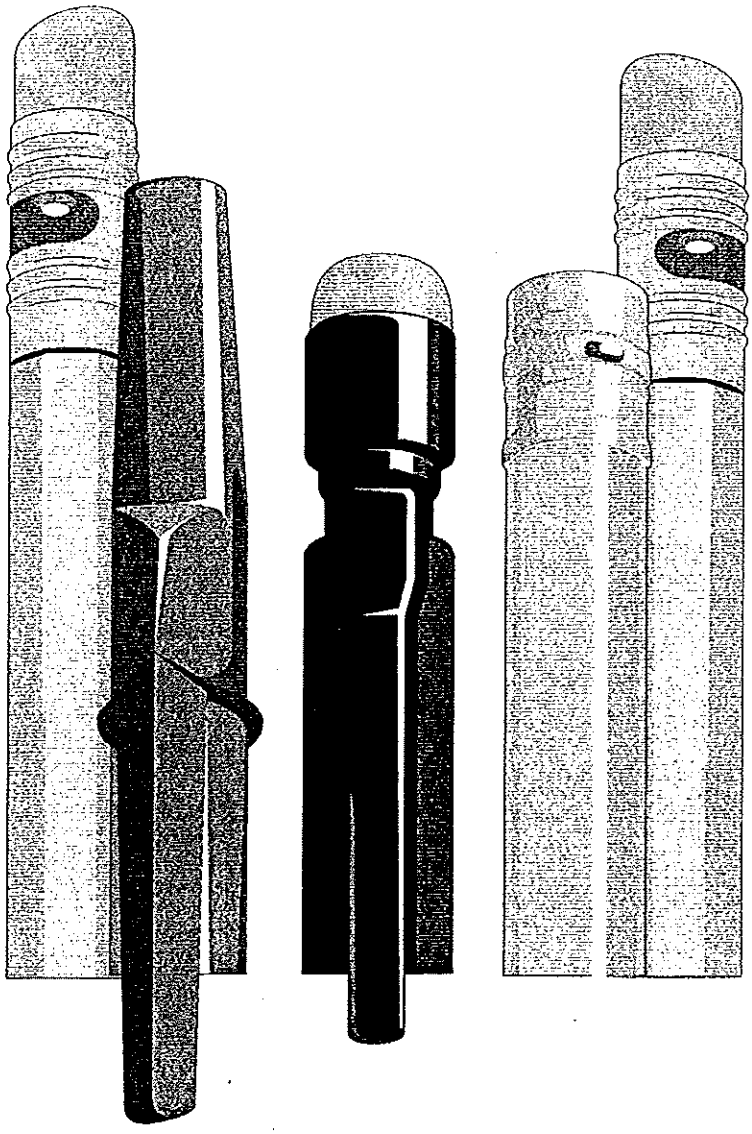

VALUE JUDGMENT
● Subjective
● Not based on objective criteria
INSTRUCTOR 1B
March 1997
CSFM/SFT
Page 1


VALUE STATEMENT
● What you
● What you
INSTRUCTOR 1B
March 1997
CSFM/SFT
Page 2


CONTROL OF
ENVIRONMENT
● Lighting
● A/V equipment
● Suitable props
● Students
INSTRUCTOR 1B
March 1997
CSFM/SFT
Page 3

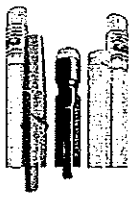

EVALUATION
FORM
TEACHING DEMONSTRATION EVALUATION
INSTRUCTOR 1B
March 1997
CSFM/SFT
Page 4


KEY DIMENSIONS
● Depth of instruction
● Use of value statements
● Constructive value to students
● Identifying errors
● Suggesting corrective action
● Complete evaluation
INSTRUCTOR 1B
March 1997
CSFM/SFT
Page 5



APPENDIX B

Activity Sheets



REASONS FOR FIRE INSTRUCTOR 1B

MATERIALS NEEDED:

Fire Service Instructor, IFSTA, 5th Edition
Fire Instructor 1B Student Supplement, CFSTES, 1997

INTRODUCTION:

Prior to moving ahead into the technical aspects of instructor training, it is necessary to ensure that all participating students are brought to the same base level of knowledge on instruction preparation. This review material is intended for, and serves as a basis from which all additional information is presented for this course.

DIRECTIONS:

1. Read Information Sheet 2-1, "The Value of Instructor Training."

2. Read Information Sheet 2-2, "Course Development Flow Chart."

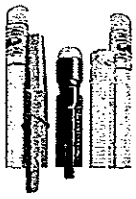
3. Read Information Sheet 2-3, "Impact of Some Constitutional Texts on the Instructor."

4. Read Information Sheet 2-4, "Technical Lesson Plan Overview."

5. Read Information Sheet 2-5, "Instructor Qualities and Responsibilities."

6. Read Fire Service Instructor, IFSTA, 5th Edition, pages 1-20.

7. Be prepared for a written quiz on course outlines on _____
(enter session or date)



COURSE OUTLINE DEVELOPMENT #1

MATERIALS NEEDED:

Fire Service Instructor, IFSTA, 5th Edition
California Fire Service Occupational Analysis, CFSTES, 1996
Fire Instructor 1B Student Supplement, CFSTES, 1997
Easel, pads, and markers for each group

INTRODUCTION:

After training needs have been identified, the next step in course development is preparation of a course outline. The course outline serves as a basis for all other planning for the course, including the selection and use of materials, so it must be constructed with utmost care. The jobs listed in a course outline must fulfill the objectives of the course.

DIRECTIONS:

1. Instructor will break class into four groups.

2. Each group will prepare a course outline for a course between 15-30 hours long that includes:
   a. A descriptive course title
   b. A list of the objectives you plan to accomplish in the course
   c. The jobs you plan to teach based upon the Occupational Analysis so that your stated objectives may be reached
   d. Both manipulative and technical lessons in their appropriate teaching sequence.

3. Refer to Fire Service Instructor, IFSTA, 5th Edition, pages 102-104.

4. Refer to Information Sheet 3-1, "Course Outline Development."

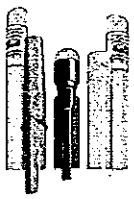
5. List, in the right margin, the anticipated instruction time for each job (lesson) covered in the outline.

6. Identify each job by coding it to the Occupational Analysis.

7. Follow the sample course outline in Information Sheet 3-1 as a guide.

8. Each group has 30 minutes to complete the activity.

9. Each group will discuss their course outline with the class.



COURSE OUTLINE DEVELOPMENT #2

MATERIALS NEEDED:

Fire Service Instructor, IFSTA, 5th Edition
California Fire Service Occupational Analysis, CFSTES, 1996
Fire Instructor 1B Student Supplement, CFSTES, 1997

INTRODUCTION:

After training needs have been identified, the next step in course development is preparation of a course outline. The course outline serves as a basis for all other planning for the course, including the selection and use of materials, so it must be constructed with utmost care. The jobs listed in a course outline must fulfill the objectives of the course.

DIRECTIONS:

1. Review Fire Service Instructor, IFSTA, 5th Edition, pages 102-104.

2. Review Information Sheet 3-1, "Course Outline Development."

3. Prepare a course outline for a course between 15-30 hours long that includes:
   a. A descriptive course title
   b. A list of the objectives you plan to accomplish in the course
   c. The jobs you plan to teach based upon the Occupational Analysis so that your stated objectives may be reached
   d. Both manipulative and technical lessons in their appropriate teaching sequence.

   In future activities, you will be developing two technical lesson plans for two of the jobs listed in this course outline.

4. List, in the right margin, the anticipated instruction time for each job (lesson) covered in the outline.

5. Identify each job by coding it to the Occupational Analysis.

6. Follow the sample course outline in Information Sheet 3-1 as a guide.

7. Submit your completed course outline on _____
(enter session or date)

8. Be prepared for a written quiz on course outlines on _____
(enter session or date)

LEVELS OF INSTRUCTION

MATERIALS NEEDED:

Fire Service Instructor, IFSTA, 5th Edition
Fire Instructor 1B Student Supplement, CFSTES, 1997

DIRECTIONS:

Listed below are common lesson topics that are typically included in training programs. Based on the information provided to you regarding levels of instruction, assign the appropriate level of instruction.

	TOPIC	LEVEL
1.	Identify flammability range	_____
2.	How to conduct a five year sprinkler test	_____
3.	How to conduct an annual pumper test	_____
4.	Develop fire response zones	_____
5.	Identify three types of fire extinguishers	_____
6.	Conduct a pretrip inspection	_____
7.	How to operate a ground monitor	_____
8.	Formulate a prefire plan program	_____
9.	Diagnose a malfunctioning SCBA	_____
10.	Determine the area of a right triangle	_____
11.	Determine response times based on available	_____
12.	Ventilate a pitched roof	_____
13.	Determine engine pump pressure	_____
14.	How to operate aerial apparatus	_____

STUDENT BEHAVIORAL OBJECTIVES

MATERIALS NEEDED:

Fire Service Instructor, IFSTA, 5th Edition
Fire Instructor 1B Student Supplement, CFSTES, 1997
Easel, pads, and markers for each group

INTRODUCTION:

Now that you have developed your course outline, you must determine your behavioral objectives (expected outcomes) for each job. Clear objectives are essential for instruction.

DIRECTIONS:

1. Instructor will break class into groups of 3-4 students.

2. Instructor will list ten (10) jobs on the board.

3. Each group will write one (1) student behavioral objective for each of the ten jobs listed by the instructor.

4. Refer to Information Sheet 6-1, "Student Behavioral Objectives."

5. Refer to Fire Service Instructor, IFSTA, 5th Edition, pages 94-102.

6. Each group has 30 minutes to complete the activity.

7. Each group will discuss their student behavioral objectives with the class and stress the importance of clear objectives.

TECHNICAL LESSON PLAN #1

MATERIALS NEEDED:

Fire Service Instructor, IFSTA, 5th Edition
Fire Instructor 1B Student Supplement, CFSTES, 1997
Previously prepared course outline

INTRODUCTION:

A lesson plan is a guide for the instructor. It lists, in an organized sequence, those things that instructors must say and do to help their students learn.

DIRECTIONS:

1. Review Fire Service Instructor, IFSTA, 5th Edition, pages 104-112.

2. Review Information Sheet 5-1, "Levels of Instruction."

3. Review Information Sheet 6-1, "Student Behavioral Objectives."

4. Review Information Sheet 4-1, "Sample Technical Lesson Plan."

5. Review your previously prepared course outline from Activity Sheet 3-2 and select a 30-minute technical topic.

6. Following the sample lesson plan format in Information Sheet 4-1, develop a technical lesson plan for your selected topic.

7. Be prepared to deliver a 30-minute presentation using your completed technical lesson plan on _____

(enter session or date)

TECHNICAL LESSON PLAN #2

MATERIALS NEEDED:

Fire Service Instructor, IFSTA, 5th Edition
Fire Instructor 1B Student Supplement, CFSTES, 1997
Previously prepared course outline

INTRODUCTION:

A lesson plan is a guide for the instructor. It lists, in an organized sequence, those things that instructors must say and do to help their students learn.

DIRECTIONS:

1. Review Fire Service Instructor, IFSTA, 5th Edition, pages 104-112.

2. Review Information Sheet 5-1, "Levels of Instruction."

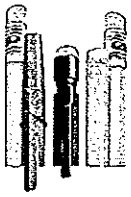
3. Review Information Sheet 6-1, "Student Behavioral Objectives."

4. Review Information Sheet 4-1, "Sample Technical Lesson Plan."

5. Review your previously prepared course outline from Activity Sheet 3-2 and select a technical topic.

6. Following the sample lesson plan format in Information Sheet 4-1, develop a technical lesson plan for your selected topic.

7. Submit your completed technical lesson plan on _____
(enter session or date)



INFORMATION SHEETS

MATERIALS NEEDED:

Fire Service Instructor, IFSTA, 5th Edition
Fire Instructor 1B Student Supplement, CFSTES, 1997

INTRODUCTION:

One technique an instructor can use to present information to students outside of the class is to distribute information sheets. Information sheets are prepared for each student when the required information is not otherwise available or the instructor wants to combine several sources together for one comprehensive document.

DIRECTIONS:

1. Read Information Sheet 10-1, "Information Sheets" and review the sample.

2. Read Fire Service Instructor, IFSTA, 5th Edition, pages 117-120.

3. Prepare a minimum three-page information sheet for your technical lesson plan #2.

4. Submit your completed information sheet on _____
(enter session or date)

ACTIVITY SHEETS

MATERIALS NEEDED:

Fire Service Instructor, IFSTA, 5th Edition
Fire Instructor 1B Student Supplement, CFSTES, 1997

INTRODUCTION:

The instructor usually finds it difficult to cover necessary related information within class session, and must therefore, supplement classroom instruction with class activities and outside assignments. One of the easiest ways to communicate the intent, purpose, and scope of these supplemental assignments is to make activity sheets to cover the required work.

DIRECTIONS:

1. Read Information Sheet 10-2, "Activity Sheets" and review the sample.

2. Read Fire Service Instructor, IFSTA, 5th Edition, pages 117-120.

3. Prepare an activity sheet for your technical lesson plan #2.

4. Submit your completed activity sheet on _____
(enter session or date)

STUDENT APPLICATION TECHNIQUES

MATERIALS NEEDED:

Fire Service Instructor, IFSTA, 5th Edition
Fire Instructor 1B Student Supplement, CFSTES, 1997

INTRODUCTION:

A proficient instructor should be able to call upon a number of different techniques in the classroom setting. The student should be able to demonstrate one of the application techniques available by the end of the lesson and discuss why they utilized that application.

DIRECTIONS:

1. Read Information Sheet 12-1, "Psychology of Learning."

2. Read Information Sheet 12-2, "Teaching Methods."

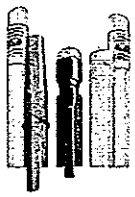
3. Read Information Sheet 12-3, "Techniques of Questioning."

4. Read Fire Service Instructor, IFSTA, 5th Edition, pages 125-150.

5. Review Information Sheet 2-4, "Technical Lesson Plan Overview."

6. Review Information Sheet 2-5, "Instructor Qualities and Responsibilities."

7. Be prepared to answer questions on these reading assignments during class discussions, on quizzes, and the final exam.



TEST CONSTRUCTION #1

MATERIALS NEEDED:

Fire Service Instructor, IFSTA, 5th Edition
Fire Instructor 1B Student Supplement, CFSTES, 1997
Easel, pads, and markers for each group

INTRODUCTION:

Instructors must constantly evaluate each student to know how much learning is taking place. Written tests are one means of evaluating student progress. Test items must be well constructed to accurately measure student progress.

DIRECTIONS:

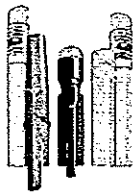
1. Instructor will break class into four groups.

2. Review Fire Service Instructor, IFSTA, 5th Edition, pages 193-217.

3. Review Information Sheet 14-1, "Using and Constructing Test Questions."

4. Prepare a 20-item test that covers the subject matter from your course outline and includes:
   a. Test title
   b. Spaces for name and date
   c. Ten (10) ***true-false*** items
   d. Ten (10) ***multiple choice*** items or questions
   e. Instructions/directions with an example that are clear, easy-to-follow, and precede each test section
   e. Answers to each item
   f. Reference/source for each answer

5. Each group will present their test to the class.



TEST CONSTRUCTION #2

MATERIALS NEEDED:

Fire Service Instructor, IFSTA, 5th Edition
Fire Instructor 1B Student Supplement, CFSTES, 1997

INTRODUCTION:

Instructors must constantly evaluate each student to know how much learning is taking place. Written tests are one means of evaluating student progress. Test items must be well constructed to accurately measure student progress.

DIRECTIONS:

1. Review Fire Service Instructor, IFSTA, 5th Edition, pages 193-217.

2. Review Information Sheet 14-1, "Using and Constructing Test Questions."

3. Prepare a 20-item test that covers the subject matter from your course outline and includes:
   a. Test title
   b. Spaces for name and date
   c. Ten (10) ***true-false*** items
   d. Ten (10) ***multiple choice*** items or questions
   e. Instructions/directions with an example that are clear, easy-to-follow, and precede each test section
   e. Answers to each item
   f. Reference/source for each answer

4. Submit your completed test on _____
   (enter session or date)

5. Be prepared for a written quiz on test construction on _____
   (enter session or date)

TEACHING DEMONSTRATION EVALUATION

MATERIALS NEEDED:

Fire Service Instructor, IFSTA, 5th Edition
Fire Instructor 1B Student Supplement, CFSTES, 1997
Blank Teaching Demonstration Evaluation Form

INTRODUCTION:

Evaluations of teaching demonstrations by one's peers can provide the student teacher with a means to improve his or her teaching techniques and identify and correct any distracting mannerisms that the student teacher may possess. Evaluations also give the other students experience in recognizing valuable teaching techniques and the opportunity to improve their own techniques through observation and discussion.

DIRECTIONS:

1. Review Information Sheet 17-1, "Sample Teaching Demonstration Evaluation."

2. While watching a student's teaching demonstration, complete a Teaching Demonstration Evaluation form.

3. Conduct a class discussion on your evaluation of the student's presentation.

4. Submit the completed Teaching Demonstration Evaluation form to the instructor.

TEACHING DEMONSTRATION EVALUATION

3/96

STUDENT INSTRUCTOR:	TOTAL SCORE:
TOPIC:	DATE:
LEVEL OF INSTRUCTION:	TEACHING TIME:
STUDENT EVALUATOR:	PRIMARY ☐ SECONDARY ☐ THIRD ☐

BEHAVIORAL OBJECTIVE(S) GIVEN: YES (1-5) ☐ NO (0) ☐
Comments

PREPARATION: MARGINAL (1-2) ☐ ACCEPTABLE (3-5) ☐ ABOVE AVERAGE (6-8) ☐ SUPERIOR (9-10) ☐
Comments:

PRESENTATION: MARGINAL (1-2) ☐ ACCEPTABLE (3-5) ☐ ABOVE AVERAGE (6-8) ☐ SUPERIOR (9-10) ☐
Comments:

APPLICATION: MARGINAL (1-2) ☐ ACCEPTABLE (3-5) ☐ ABOVE AVERAGE (6-8) ☐ SUPERIOR (9-10) ☐
Comments:

EVALUATION: MARGINAL (1-2) ☐ ACCEPTABLE (3-5) ☐ ABOVE AVERAGE (6-8) ☐ SUPERIOR (9-10) ☐
Comments:

ASSIGNMENT: YES (1-5) ☐ NO (0) ☐
Comments:

GROUP EVALUATION:
Comments: