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COURSEWARE DESIGN FOR 19K BNCOC

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The purpose of this report was to describe an instructional design model to be applied to five 19K Basic Noncommissioned Officer Course tasks that will be converted to computer-based training and to apply the model to two prototype lessons.

The objectives for each of the five tasks selected by the Army Research Institute were analyzed to determine the behavioral domain and instructional requirements of each. All five tasks were found to require

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procedural simulations using a manual or job aid. A review of currently available MicroTICCIT instructional models was conducted to determine if any existing model could be used. No models were found to satisfactorily match the instructional requirements for these tasks, so a unique instructional model was designed using Courseware Engineering techniques.

A procedural simulation model was developed to be used as a guide for developing the selected 19K BNCOC tasks. Each lesson developed using this model would contain three types of components: 1) topic introductions, 2) parts of the system instruction, and 3) procedural simulations. The procedural simulations include a Pretest, a Guided Demonstration, Practice Simulations, and a Posttest. All simulations are interaction intensive, requiring the student to simulate steps or answer questions on virtually every display. The simulations may differ in circumstances, outcomes, type of prompts and type of feedback.

Two prototype lessons were developed to illustrate how the model is applied to specific 19K BNCOC content. The prototype lessons were selected as representative of the procedural tasks identified to be included in this program. The prototype lessons developed were "Use and IM 174-A/PD Radiacmeter" and "Prepare and Submit a NBC-4 Report".

The approved model will be applied to other selected 19K procedural tasks, including "Prepare and Submit a NBC-1 Report", "Use an M256 Chemical Kit", and "Read and Report Radiation Dosages".

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COURSEWARE DESIGN FOR 19K BNCOC

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COURSEWARE DESIGN FOR 19K BNCOC

OVERVIEW

This report consists of two sections: an instructional model for procedural simulations and an application of this model to two lessons that will be developed using this model.

The first section of the report contains a description of each component of the model. Each component description includes a summary of the component content, a description of the component interaction, a description of the screen design and media selection. Help and icons available throughout the lesson are also described.

The second section of the report includes two lesson prototypes which have been included to serve as examples of how the model is applied to individual tasks. The two lessons included as prototypes are: "Use an IM-174A/PD Radiacmeter" and "Prepare and Submit a NBC-4 Report". These two lessons were selected because 1) Materials were available to develop prototypes, and 2) They are representative of the group of five segments selected by ARI to be included in this program. These lessons are not complete and should not be reviewed for technical accuracy. NOTE: The format of the prototype lessons was designed specifically for this report. Subsequent segment specifications will not include notes to the reader and will be formatted to go directly to the courseware developer for programming on-line.

This report was originally intended to contain all instructional design models to be used for 19K BNCOC lessons to be developed for Computer-Based Training (CBT) in this program. However, at the writing of the report, the new 19K BNCOC Program of Instruction had not yet been fully determined. Therefore, this task was performed using the 19K BNCOC tasks that had been specified and for which objectives and materials were available at the time.

PROCEDURAL SIMULATION INSTRUCTIONAL MODEL

Introduction

Once the Army Research Institute selected the 19K BNCOC tasks for courseware development, the instructional design team analyzed the task objectives to determine the instructional requirements of each. They found that five of the tasks had underlying behavioral similarities in that they each require procedural simulation using technical manuals (TMs) or field aids. The design team reviewed existing MicroTICCIT instructional design models to determine whether one might be suitable for use with the selected tasks. The design team concluded that existing design models could not present the types of interactions required to efficiently teach the selected tasks. Consequently, they decided to design an instructional model specifically suited for these procedural tasks. The design model which resulted employed the techniques of Courseware Engineering.

Courseware Engineering is a design tool which applies some of the techniques of software engineering to the development of CBT. Instead of requiring the designer to develop storyboards or screen design pages describing both the content and the logic design of a screen, Courseware Engineering separates content descriptions from logic specifications. This is possible because the design process uses templates to describe the logic specifications for all lessons sharing underlying behavioral similarities.

This instructional model is designed to be used for objectives which require the simulation of procedural steps. Tasks which will be developed using this model include:

1. Use an IM-174A/PD Radiacmeter (Single Cell).
2. Use the M256 Chemical Detector Kit.
3. Prepare and Submit a NBC-1 Report
4. Prepare and Submit a NBC-4 Report.
5. Read and Report Radiation Dosages.

This model will be used only for tasks in which the soldier must rely on procedural steps which always are available to him on the job in a reference book or job aid. It will not be used for tasks which require memorization of steps in a procedure or the application of general concepts to develop a procedure. The model provides the soldier with an opportunity to practice a procedure using CBT system to simulate circumstance, pieces of equipment, forms, systems, etc., which are not usually available for each student in the classroom.

Terminal Objective

Given a reference manual or job aid with a list of procedural steps, the soldier will simulate the steps of the procedure in sequence by marking a graphic, or icon, or answering multiple choice questions. The soldier will simulate the procedure with 80% accuracy, without making any critical errors which could result in personnel injury or serious damage to equipment.

Menu

Figure 1 contains the generic menu to be used in this model. Each item listed on the menu is referred to as a component. When entering the segment for the first time, the soldier will be required to see the Introduction. The soldier must then take the Pretest. If the soldier passes the Pretest, he may choose to review any of the components in the segment before going on to the next segment. If the soldier fails the Pretest, he must see all segment components before going on to the Test.

XXXXX System

Introduction

Pretest

Parts of the System

Overview

Simulations

Figure 1. Menu screen.

Except for the soldier who passes the Pretest, each soldier must see each segment component in sequence. The Computer Managed Instruction (CMI) system, already established for 19K BNCOC, will be applied to the menus. As a soldier completes each segment component, it will be listed in green text in the menu. Soldiers who already have passed this segment may enter any component at any time to review the material, as all components will be turned green.

The soldier may return to the menu from any lesson location by marking the MENU icon. If the student leaves the segment before completing it, his place will be saved, and he will be branched to that location when he returns.

Instructional Components

The procedural simulation model consists of three types of components:

1. Introductory Components.
2. Parts of the System.
3. Simulations.

Each type of component will be described by content, interaction, screen design and media selection. Similarities and differences among components within each type also will be discussed.

Introductory Components: Introduction and Overview

Below are descriptions of the content, interaction and screen design and media selection for the two introductory components: Introduction and Overview.

Introduction Content. The Introduction consists of five to seven screens containing:

1. An introduction to the topic covered in the segment.
2. A statement of the objective for the segment, including task, conditions, and measurable standards.
3. An explanation of why the objective is important to the soldier.
4. A description of the structure of the segment.
5. A description of the relationship of this segment to those that have come before and those that will come after.

Introduction Media Selection. Screens in the Introduction will consist of computer-generated graphics designed to motivate or reinforce the text.

Overview Content. The goal of this component is to provide an overview of the system and the procedures for using it. Depending upon the instructional requirements of the segment, the Overview may or may not precede the component on Parts of the System.

For example, in "Using an IM-174A/PD Radiacmeter", the Overview will be more useful to the soldier after he has learned the parts of the system. However, in "Preparing and Submitting a NBC-4 Report", the Overview explains the circumstances when such a report must be prepared. The soldier, therefore, need not already be familiar with the parts of the report. In this case the Overview would come first.

The Overview contains the following information:

1. A visual "tour" of the system, if applicable.

2. A video motion sequence or graphic or video still shots showing the system being used in context.

3. A summary of the conditions under which the system is used.

4. A summary of any unique features or procedures relating to the system.

5. A transition to the next segment component.

Overview Media Selection. When possible, the Overview will begin with a videodisc presentation of the system being used in context. The remaining information will be provided through text with computer-generated graphics or video stills.

Introduction and Overview Interaction. Because the information in these components is not tested, the soldier is only required to read the pages or watch the video. The soldier may also back up, ask for help on the segment component, or return to the menu.

Introduction and Overview Screen Design. The screen design for the Introduction and Overview will follow one of two formats depending on the type of visual used. For those pages with motion video and narration (for example, showing how the radiacmeter is used in the field), 15 lines will be used for the motion video, with the last two lines being reserved for icons and unanticipated feedback (Figure 2). For those pages with video still shots or graphics, the first twelve lines will be allotted for the visual; the next four lines will contain text and unanticipated feedback, and the last line will contain the icons (Figure 3).

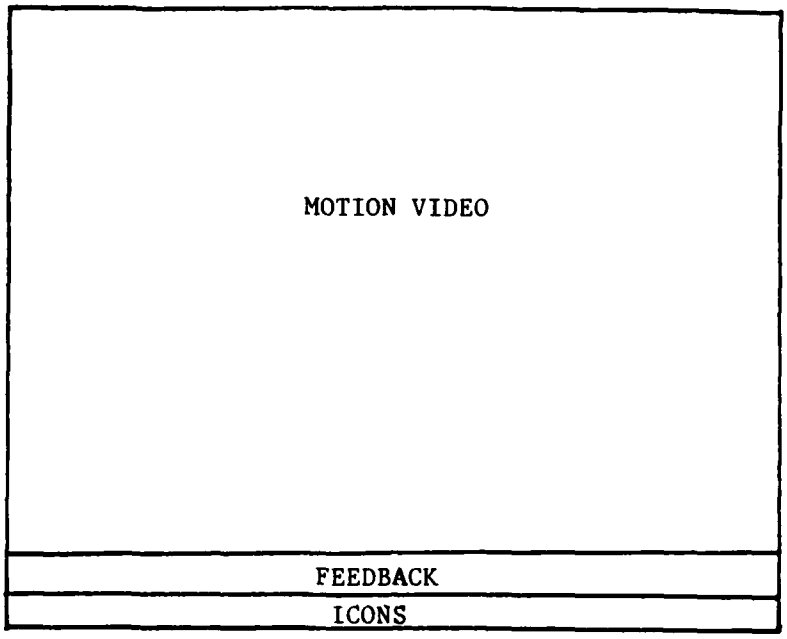

Figure 2. Motion video screen design.

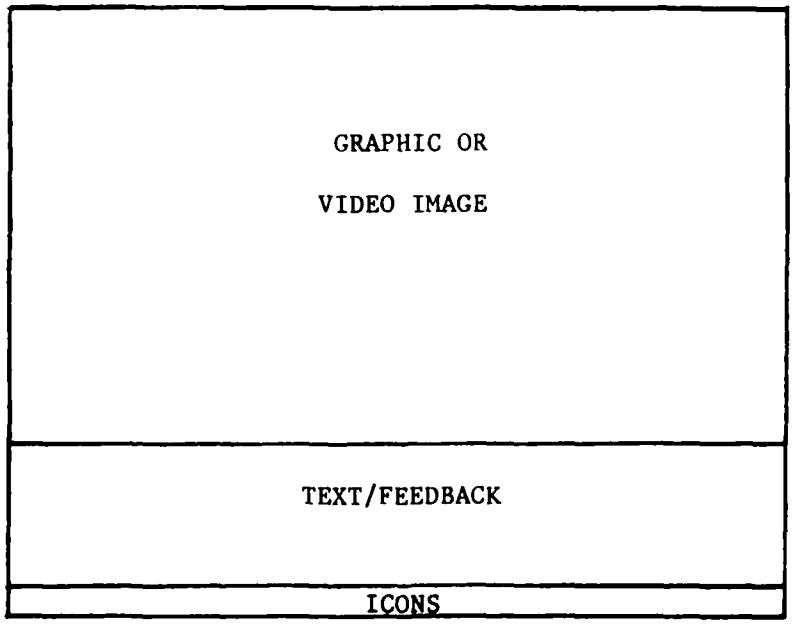

Figure 3. Graphic or video still presentation screen design.

Parts of the System

Parts of the System Content. The purpose of this component is to teach (or review) the names, locations and functions of the parts of the system essential to performance of the procedure. For example, in the lesson "Use an IM-174A/PD Radiacmeter", the student would learn the names, locations and functions of the controls necessary to set up, operate and take readings on the radiacmeter.

This component will contain two sections: Instruction and Practice. In the Instruction, the student will be presented with the names, locations and functions of parts. In the Practice, the student will answer questions about what he has learned. The soldier must pass the Practice in this component before he can go on to the Simulations.

The Parts of the System will be included only for tasks which require knowledge of system parts prior to practicing the procedure. The inclusion of this component will be decided on a task-by-task basis.

Parts of the System Interaction

In the Instruction section of Parts of the System, the student will see a realistic graphic of the system ("parent" graphic) with important parts labeled. The student is prompted to select a part, note its location, and mark its name on the parent graphic. When the student marks the part name (for example, the ZERO/Check switch), the program branches to a page which shows a graphic or video of the part and provides a brief functional description of the part. When the student marks the right arrow, the program returns to the "parent" graphic. As the student selects and learns about each part, the part name turns green on the "parent" graphic, so the student knows which parts have been covered. When the student has seen all the parts, he may choose to review the Instruction or go on to the Parts Practice.

In the Practice section, the soldier is asked to demonstrate what he has learned by answering one or two types of multiple choice questions. For systems where appropriate, the soldier is given the name of a part and asked to mark its location on the system parent graphic. For all systems, the soldier will be given a functional description of a system part and will be required to select the correct part name from four choices. The criteria is 80%. The soldier must pass this Practice before going on to the Simulations.

Parts of the System Screen Design

This component will consist of three types of screens. The first screen the student will see is a "parent" graphic of the system being studied with each essential part labeled. This graphic will take up the top 14 lines of the screen. The following two lines will contain instructions and feedback. The last line will contain icons. (Figure 4). This design will also be used for questions which require the soldier to locate parts in the Practice.

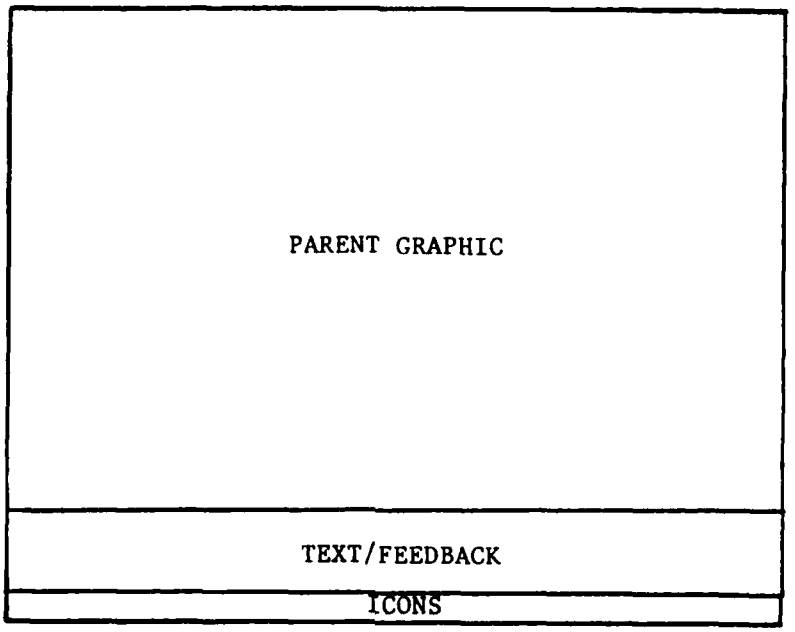

Figure 4. Parts of the system parent graphic screen design.

For each part the student marks, he will see one or two screens containing a graphic or video still of the part with a functional description of that part. (Figure 3).

In the Practice, in addition to the Parent Graphic page for location questions, the soldier will see a page which tests his knowledge of the names and functional descriptions of parts. The top part of the screen will give the soldier a functional description learned in the Instruction. The soldier selects the correct part name from a list of distractors below (Figure 5).

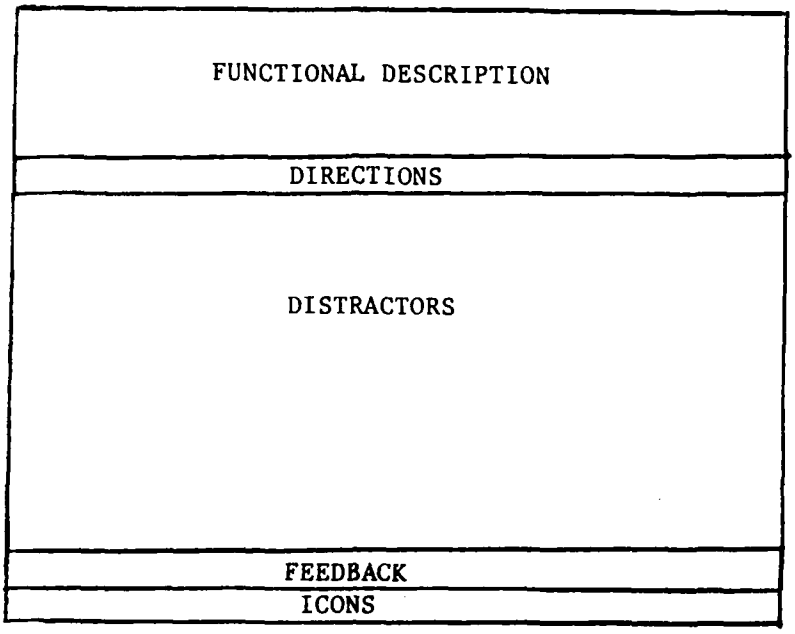

Figure 5. Functional description test screen design.

Parts of the System Media Selection For greater visual fidelity, the "parent" graphic will be a computer-generated graphic rather than video still. The visuals for each part will be a close-up video still or a computer-generated graphic, depending on which provides better visual fidelity for that part.

Simulations

There are four types of simulations included in this instructional model: Pretest, Guided Demonstration, Practice Simulations and Posttest. The first three simulations are included in a regular MicroTICCIT segment. The Posttest is contained in a special MicroTICCIT test file. Although the content and purpose of each of these simulations vary, the interaction is the same. The similarities and differences are discussed below.

Pretest. The purpose of the Pretest is to allow soldiers who already know the material in the segment to demonstrate their knowledge and skip over the instruction to the next lesson. The Pretest is mandatory.

After the soldier has completed the Pretest, he will be provided with his score and informed whether or not he passed. If he passed, all components on the menu will turn green, and the soldier may review the lesson or go on to the next one. The soldier who does not pass the Pretest will be required to complete all the components of the lesson before going

on to the lesson Posttest. The criteria for the Pretest will be 80% and correct answers for all critical items. A critical item is defined as one which, if performed incorrectly, could lead to personnel injury or serious damage to equipment and those steps which Subject Matter Experts have determined to be critical to successful task performance.

(For example, in "Use an IM-174A/PD Radiacmeter", in addition to getting 80% of all steps correct, the student must give the correct reading in centigrays (cGy).) The critical item or items must be passed regardless of the total score in order for the student to pass the simulation.

Guided Demonstration. The purpose of the Guided Demonstration is to teach the soldier the prerequisite skills needed to simulate the procedural tasks on the computer.

This component serves to familiarize the soldier with simulation on MicroTICCIT, including the use of icons. It also serves to train the soldier to follow the procedures exactly as stated in the manual. Assistance in going through some of the procedural steps is given through examples of the types of interactions required.

A sample of the types of interactions required by the simulations will be presented. For example in the lesson "Use an IM-174A/PD Radiacmeter", the student would be shown four sample interactions required in the procedure: 1) marking an action area on the screen, 2) marking the icon, 3) answering a multiple choice question, and 4) reading the text and marking the right arrow to go on.

Text and parts of graphic images will be highlighted to act as prompts to asssit the student in learning to perform the simulations. The Guided Demonstration provides feedback on individual responses, but is not graded.

Practice Simulations. The Practice Simulation is designed to provide the soldier with an opportunity to practice following procedural steps in a reference book or job aid. While the Guided Demonstration provides the soldier with practice of the types of interactions required to simulate the task by marking highlighted areas, the Practice Simulations will require the soldier to simulate all of the steps in the procedure without these prompts. Therefore, the soldier must rely on the job aid or reference book.

Each Practice Simulation will require the soldier to perform the procedure under different circumstances and/or with a different outcome than the other Simulations. For example, in the Pretest, the soldier might practice using the radiacmeter under normal conditions, finding a reading of 40 cGy/hr., while in the Practice Simulation, he might operate the radiacmeter under different conditions, finding a reading of 60 cGy/hr. These variations are designed to give the soldier practice using the procedure for a representative sample of the types of circumstances and outcomes. The soldier varies his actions based on the directions given in the job aid or reference book.

The number of Practice Simulations may vary from one to three depending on the number of different situations and outcomes possible for the task. The criteria for the Practice Simulations will be 80% with no errors on critical items (see above). The soldier must pass this component before going on to the Posttest.

Posttest. The Posttest is a separate MicroTICCIT test segment designed to test student mastery of the lesson objective. The Posttest requires the soldier to follow a procedure from beginning to end. It is identical to the Pretest except for circumstances and outcome. The criteria for the Posttest will be 80% and no errors on the critical item(s). Students who do not pass the test the first time will be allowed two additional attempts. This test will meet the requirements set by the CMI System, which allows instructors to view student progress.

Simulation Screen Design. All of the simulation components will have the same screen design. The top 12 lines of the MicroTICCIT screen generally will contain a computer-generated graphic, text, or a multiple choice question. In selected lessons, video motion or stills may appear in this part of the screen. The next three lines will contain text necessary to prompt the soldier through the procedure, instructional material and feedback. The last two lines will contain all icons used in the simulation. Icons will include the generic icons (back and forward arrows, help and menu) as well as icons specific to the content (for example, "remove", "replace"). See Figure 6 for an illustration of this screen design.

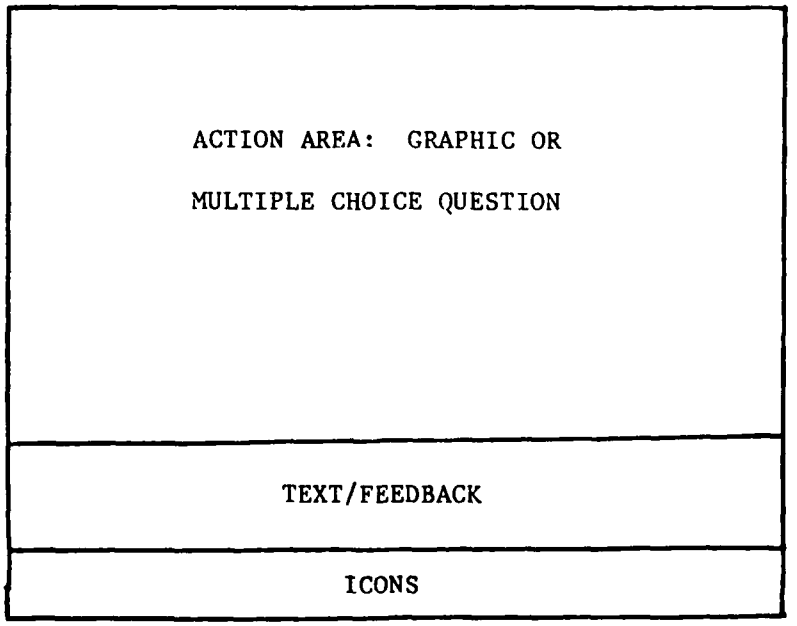

Figure 6. Simulation screen design.

Simulation Interaction. The interactions within all simulation components will be similiar. The Simulations are interaction intensive. Virtually every screen requires the soldier to simulate a procedural step or answer a question based on the procedure. A minimal number of transitional pages requires the soldier to read and then mark the right arrow icon to go on.

The Simulations may require up to four types of interactions from a soldier to simulate the procedure. First, the soldier may be required to mark an action icon. For example, in the step "Turn the ZERO/Set knob clockwise.", the soldier would be required to mark the "turn clockwise" icon. Second, the soldier may be required to mark an action spot on the graphic. In the example above, after marking the icon, the soldier would be prompted ,"Turn what?" and be required to mark the ZERO/Set knob. Third, the soldier may be required to answer a multiple choice question about the procedure. For example, the soldier might be asked, "What should you do next?" He would select the correct multiple choice answer, "Wait for warm-up.". Fourth, the soldier may mark one of the bottom row of icons to move backwards, forward, to help or to the menu.

Simulation Feedback and Prompts. The simulations vary in two major ways: prompts and feedback. The Guided Demonstration provides prompts to the student in the form of highlighting the correct answer. The student is expected to follow small portions of procedure using the highlights as a guide as he proceeds. The Pretest, Practice Simulation and Posttest do not have highlight prompts, because the student is required to perform the procedure on his own using just the job aid or manual.

Feedback is provided after incorrect responses to enable the student to learn the correct resonse. The item, however, is still counted as wrong, even after the student marks the correct response. This feedback consists of a text direction about what to do and a yellow highlight showing where to mark on the screen. correct response which must be marked in order to go on. This type of feedback enables the student to immediately correct his mistake. Soldiers are not permitted to follow incorrect paths in the simulations. The program branches the soldier to the next display whether or not his answers were correct. In all simulations, the soldier is informed as to how he met the criteria when he completes the component. Simulations (except the Guided Demonstration which is not graded) may contain one or more critical items. These are items which the student MUST get correct in order to pass, regardless of the percentage of correct responses. Critical items are steps which, if performed incorrectly, could result in injury to personnel or serious damage to equipment. For example, in using the chemical kit, finding an incorrect reading of SAFE instead of blister agent presence would be a critical error.

Simulations Media Selection. Graphics, rather than video, have been selected for these components, because of the higher fidelity of close-up images such as buttons, switches and writing on forms. Video may be used if continuous motion (such as the squeezing of ampules in the chemical kit) is necessary.

Help pages and movement icons will be the same throughout all components in this model. Following are descriptions of each.

Help

Each component of the lesson will have a one page help display which is available to the soldier at all times. The top portion of the page will contain an explanation of how the soldier is to interact with the computer in that component (for example, "Follow the steps in TM-11-6665-232-12 EXACTLY as they are stated. Do this by marking the green highlighted action spots or icons or marking the correct answer to the question.") The bottom component of the screen will contain icon definitions. Going to help does not count as a mistake, as it does not give answers for specific items.

Icons

Three icons will be available to the soldiers in all components of the lesson: forward arrow, menu and help. In addition, the soldier will have a back arrow available in all components except the Pretest and Posttest. Simulation components will have icons as required by the particular task (for example, simulations of using the radiacmeter require clockwise and counter-clockwise icons). Task specific icons are defined at the beginning of the simulation and are available thereafter in help.

PROTOTYPE LESSONS

Introduction

This section contains two prototype lessons developed to illustrate the application of the procedural simulation model. The first prototype illustrates how the model is applied to a strictly procedural task which requires the soldier to follow a manual step-by-step. The second prototype illustrates how the model is applied to a procedure which is more situation dependent. Each lesson prototype is formatted as a script with text and a description of the graphic or video image that would appear on the screen. For this report, in addition to the script format, a description of the steps required to perform the task of operating an IM-174A/PD Radiacmeter has been included. Subsequent segment specifications will not contain this additional information. Rather, ARI and Army Subject Matter Experts selected by the COR as reviewers will follow the content by reading the segment specifications along with the associated technical or field manual.

The prototype lessons below are not complete lessons. Once the instructional model has been approved, these prototypes will be completely developed and will reflect the content contained in the most up-to-date available technical or field manuals. Then the complete lesson will be submitted for technical review.

The first lesson prototype requires the use of the procedures found in TM-11-6665-232-12. Appendix A contains the appropriate excerpts from the TM.

Using an IM-174A/PD Radiacmeter

BN.4.3.1 IM 174 A/PD RADIACMETER

INTRODUCTION

MENU

RADIACMETER

INTRODUCTION
PRETEST
PARTS OF THE RADIACMETER
OVERVIEW
SIMULATIONS

USE AN IM-174 A/PD RADIACMETER

INTRODUCTION

Courseware Developer (CD): This section consists mostly of VIDEO still frames and text which will appear below the VIDEO window.The student will mark the --> to branch to the next screen. He may also use <---, MENU or HELP.

In this segment, you will learn to use an IM-174 A/PD radiacmeter to measure radiation dose rates. You will follow the steps listed in TM-11-6665-232-12.

Mark ---> to continue.

[Still frame VIDEO of IM-174 A/PD (single cell) in carrying case with the case in opened position.]

Although there are several models in the IM-174 series radiacmeter, they are operated in about the same way.

[Still frame VIDEO of different models, including IM-174, IM-174B/PD, IM-174A/PD.]

The IM-174 series radiacmeter is an instrument used to measure radiation dose rates after a nuclear burst.

[Still frame VIDEO: close-up (CU) of hands holding the IM-174 A/PD. The operator is holding the ZERO/CHECK switch to the CHECK position.]

The measurements you get from the radiacmeter can be used to learn if an area is safe for personnel.

[Still frame VIDEO: CU of hands holding the IM-174 A/PD. The meter face is visible and the needle is pointing to 50 on the scale.]

The skills you learn in this segment will be helpful to you when you complete NBC 1 and NBC 4 reports. You will learn to complete these reports in separate segments.

[Still frame VIDEO, CU of GTA 3-6-3 being held in hands. Opened to section on sending a NBC-4 report.]

CD Note: text only

This segment is made up of sections where you will learn:

1. How the radiacmeter is used in the field.
2. The names and locations of radiacmeter parts.
3. The steps to operate the IM-174 A/PD radiacmeter.
4. The steps in the manual to set-up, operate, and read radiation dose rates from the radiacmeter.

CD Note: text only

This ends the Introduction.

Before you begin Parts of the Radiacmeter, you must take the Pretest. If you pass the Pretest, you can take the Test. If you do not pass, you will continue with instruction.

Mark the MENU icon.

[Branch to MENU.]

PRETEST

To pass the Pretest, you must be able to set-up, operate, and take a reading using an IM-174 A/PD radiacmeter.

If you do not pass the Pretest, you will continue the segment starting with Parts of the Radiacmeter.

Before you start this Pretest, get a copy of TM-11-6665-232-12 (April 1983) from your proctor.

When you have a copy of the manual, open it to page 2-14.

Mark --> to continue.

Insert test items here.

[NOTE: There will be one scenario in the Pretest. Items are the same as described in the Practice Simulation.]

CD Note: If soldier passes Pretest by getting 80% correct or higher, branch to this screen.

Congratulations! You passed the Pretest. You may review the segment or go on to the next lesson.

Mark the MENU icon to continue.

[branch to MENU]

CD Note: If soldier does not pass the Pretest, branch to this screen.

You did not pass the Pretest. You must continue the segment from the Parts of the Radiacmeter.

Mark the MENU icon to continue.

[branch to MENU]

PARTS OF THE RADIACMETER

MENU

PARTS OF THE RADIACMETER

INSTRUCTION
PRACTICE

INSTRUCTION

Text: Now you will learn the names, locations, and functions of the parts of the IM-174 A/PD radiacmeter.

Graphic: Soldier working at a TICCIT terminal.

Text: After you complete the instruction, you will practice locating a part when you are told its name. You also will select the correct part name when given a functional description.

Graphic: Soldier working at a TICCIT terminal.

Text: Mark each part NAME to learn what it does.

Graphic: Parent graphic. BN.4.3.1.s/20

[CD NOTE: As a part name is marked, branch to associated page(s). Parts student have not seen are labeled in black. Parts seen are highlighted in green.]

OFF/SET knob

The OFF/SET knob has two functions: a) it is used to turn the meter on and off, and b) it is used with the ZERO/CHECK switch to adjust the meter needle to 0.

[VIDEO: Close-up of OFF/SET knob]

ZERO/CHECK SWITCH

The ZERO/CHECK switch can be set to three positions which allows the radiacmeter to perform different functions. Mark each position of the switch to learn what it does.

Graphic: BN.4.3.1.s/35 Mini-parent graphic of close-up of ZERO/CHECK switch. Each position of the switch is labelled, ZERO, CHECK, and MIDDLE.

CD Note: When the student marks a part name, branch to the corresponding page.

ZERO/CHECK SWITCH: ZERO POSITION

When the ZERO/CHECK switch is held at the ZERO position, the OFF/SET knob is used to adjust the meter needle to 0.

[VIDEO: Close-up of ZERO/CHECK switch with hand holding ZERO/CHECK switch in ZERO position. The OFF/SET knob must be visible and the knob must be turned to the SET position.]

ZERO/CHECK SWITCH: CHECK POSITION

When the ZERO/CHECK switch is held at the CHECK position, the condition of the battery can be checked.

[VIDEO Close up of ZERO/CHECK switch with fingers holding the switch to the CHECK position. The OFF/SET knob must be visible and the knob must be turned to the SET position.]

ZERO/CHECK SWITCH: MIDDLE POSITION

After the meter has been zeroed and the battery checked, release the switch and it returns to the middle position. Now the radiacmeter can be used to take a reading.

[VIDEO:Close up of ZERO/CHECK switch in middle position. Hand is not holding the switch.]

CALIBRATION CONTROL

Do not use the CALIBRATION CONTROL. It is used only by higher category maintenance personnel to calibrate the meter with a radioactive source.

[VIDEO: Close-up of front panel showing CALIBRATION CONTROL. Graphic overlay: Highlight or point arrow to control.]

METER

When used with ZERO/CHECK switch set at the middle position, the meter displays the dose rate in Centigray (cGy).

[VIDEO: Close-up of Meter face reading about 20 on the scale.]

[branch to next page]

METER - continued.

With the ZERO/CHECK switch set at CHECK, the meter displays the condition of the battery.

[VIDEO: Close-up of Meter face, the needle is pointing within the CHECK range scale.]

BATTERY COMPARTMENT

The Battery Compartment holds the battery which provides the electrical power to operate the radiacmeter. Some radiacmeters use more than one battery.

[Still frame VIDEO: Close-up of battery being inserted into compartment.]

OPERATING INSTRUCTIONS PLATE

When you use the radiacmeter, read the simplified operating instructions written on the Operating Instructions plate.

[Still frame VIDEO: Close-up of rear panel - instructions plate.]

[CD Note: When student has seen all parts, branch him to this page.]

[Graphic: Parent graphic]

You have seen all the parts of the IM-174 A/PD radiacmeter. You may now review the parts or mark the MENU go on to the practice.

MENU

PARTS OF THE RADIACMETER

INSTRUCTION
PRACTICE

PRACTICE

In this exercise, you must answer two types of questions. In the first type, you will answer a question by choosing from multiple choices. In the second type, you must locate a named part by marking the part on the diagram with the light pen.

[CD Note: There are two pools of questions; mark location, and multiple text response. Shuffle questions, but present a multiple choice question first then the related mark location question.]

Note The numbers in parentheses are for CDs to match the pairs of related questions.

Mark the location of the:

(1) OFF/SET knob
(2) ZERO/CHECK switch
(3) CALIBRATION control
(4) Meter
(5) Battery Compartment
(6) Operating Instructions plate

[Graphic:BN.4.3.1.s/21 Parent graphic without labels.]

[Feedback: If correct, "Correct" and highlight.]

[If incorrect, "No, The correct answer is highlighted above."]

---

(1) What part should you use to adjust the meter needle to 0 when the ZERO/CHECK switch is at the ZERO position?

Mark the correct answer.

LINEARITY switch
ZERO/CHECK switch
OFF/SET knob (correct)
CALIBRATION control

[Feedback: If correct, "Correct" and highlight.]

[If incorrect, "No, The correct answer is highlighted above."]

---

(2) Which part can be set to three positions where each position selects a different operation?

Mark the correct answer.

CALIBRATION control
CHECK switch

ZERO/CHECK switch (correct)
OFF/SET knob

[Feedback: If correct, "Correct" and highlight.]

[If incorrect, "No, The correct answer is highlighted above."]

---

(3) You should not adjust one of the controls. Which control is it?

Mark the correct answer.

OFF/SET knob
ZERO/CHECK switch
CHECK control
CALIBRATION control (correct)

[Feedback: If correct, "Correct" and highlight.]

[If incorrect, "No, The correct answer is highlighted above."]

---

(4) Which part of the radiacmeter will display the radiation dose rate in Centigray?

Mark the correct answer.

Digital display
Meter (correct)
ZERO pointer
CALIBRATION display

[Feedback: If correct, "Correct" and highlight.]

[If incorrect, "No, The correct answer is highlighted above."]

---

(5) Where is the power supply located?

Mark the correct answer.

Battery Compartment (correct)
Power Supply Box
Meter
Rear Panel

[Feedback: If correct, "Correct" and highlight.]

[If incorrect, "No, The correct answer is highlighted above."]

---

(6) Where will you find simple operating instructions?

Mark the correct answer.

Meter
Operating Instructions panel (correct)
Front panel
FM 23-32-1

[Feedback: If correct, "Correct" and highlight.]

[If incorrect, "No, The correct answer is highlighted above."]

[CD Note: Criterion: 80%. When criterion is met, branch to this page. If student does not meet the criterion, branch to the next page.]

Congratulations! You answered at least _____ questions correctly.

In the next section, you will see the Overview. It briefly shows you the use of the IM-174 A/PD radiacmeter.

[BRANCH TO MENU.]

[CD Note: If soldier does not meet criterion then branch to this page.]

You seem to be having difficulty answering these questions. Mark the MENU icon and return to INSTRUCTION.

[BRANCH TO MENU.]

OVERVIEW

CD Note: The Overview will be continuous. Once the student starts the section it will run to the end unless the student stops it by marking an icon. When student marks the icon, stop video and branch to screen at beginning of Overview.

CD Note: This will be the first screen of the Overview. Once the code has been written, create a page that explains what the student needs to do to start and stop the video.

[Voice-over narration: If your unit is exposed to a nuclear burst, it is important to know if the radiation levels in your location are safe for you and your crew.]

[VIDEO: Open with nuclear burst. Cut to tank commander (TC) exiting tank holding an IM-174A/PD radiacmeter in its carrying case.]

[Voice-over narration: The IM-174 radiacmeter is one instrument that can measure the amount of radiation in your area.

[VIDEO: close up of radiacmeter in its case. The TC is opening the case and fastening the case in its open position.]

[Voice-over narration: IM-174 A/PD radiacmeter is a portable instrument designed to measure gamma radiation dose rates in Centigray.]

[VIDEO: Extreme close-up (ECU) of meter dial, needle is pointing to 20 on the scale.]

[Voice over narration: Let's look at the typical operation of the radiacmeter.

[VIDEO: TC holding the meter in its carrying case.]

[Voice over narration: To prepare the meter for operation, first remove the meter from its carrying case.]

[VIDEO: close-up: TC unsnapping the snap fasteners and taking the radiacmeter out of its case.]

[Voice over narration: Radiacmeters are battery powered electrical instruments. The *IM-174 A/PD comes in two models. One model* uses two batteries; the other uses a single battery. Install the required battery in the battery compartment.]

[VIDEO: TC is opening the battery compartment and inserting a single cell battery]

[Voice over narration: Once the battery is installed, put the meter back in its carrying case.]

[VIDEO: TC securing the meter in the carrying case.]

[Voice over narration: On the rear panel of the meter is a plate which briefly describes the operating procedures.

[VIDEO - CU of operating instructions plate.]

[Voice over narration: Follow the instructions and turn the meter on. Allow it to warm up for at least two minutes.]

[VIDEO: ECU of TC turning the OFF/SET knob to SET position.]

[Voice over narration: Before taking a reading, the needle must be adjusted to 0. Hold the ZERO/CHECK switch to ZERO and turn the OFF/SET knob until the needle points to 0.]

[VIDEO: CU of lever in ZERO position and OFF/SET knob being turned. Cut to meter dial and show needle adjusting to 0 on the scale.]

[Voice over narration: Next check the battery. Hold the ZERO/CHECK switch at the CHECK position. The needle should read within the "check area" on the scale. If it doesn't, then a fresh battery must be inserted.]

[VIDEO: CU of lever in CHECK position. Cut to needle in "check area" of the scale.]

[Voice over narration: When taking a reading, hold the meter horizontal to the ground, about one meter high, at waist level. Slowly turn in a circle and read the meter.

[VIDEO: Medium shot (MS) TC turning 45 degrees. Cut to CU of meter reading. MS of TC turning. CU of meter etc. Readings change.]

[Voice over narration: By turning in a circle, you locate the direction where the meter gave the highest reading. Record the highest reading. Include the reading in a NBC-4 report.

[VIDEO: TC writing the meter reading on note paper.]

[Voice-over narration: Once you have taken a reading, report it to your platoon leader.]

[VIDEO: TC using the radio.]

[Voice-over narration: If you want to find more information about the IM-174 series radiacmeters, see Technical Manual TM-11-6665-232-12 (April 1983) or FM 21-3. In this segment you will use the technical manual.]

[VIDEO of soldier turning to page 2-14 of the TM.]

This is the end of the Overview. In the next section, you will learn how to simulate the operation of the IM-174 A/PD radiacmeter using the computer.

Mark the MENU icon to continue.

[CD note: branch to MENU]

MENU

SIMULATIONS
GUIDED DEMONSTRATION
PRACTICAL EXERCISE

MENU

GUIDED DEMONSTRATION

In this section, you will be guided through some of the steps to work the radiacmeter. You will learn how to use the computer to simulate different procedures needed to operate the radiacmeter.

Mark ---> to continue.

When you have completed this Guided Demonstration, you must do the steps of the complete task without cues in the Practice Simulation. Then you will take the Test.

Graphic: Student working at a microTICCIT terminal.

You will begin by following the steps listed in of TM-11-6665-232-12 (April 1983).

If you do not have one, stop and ask your proctor for a copy. Do not continue until you have a copy of this manual.

If you need help, mark the help icon (?).

SECTION HELP

In this section you should follow the directions EXACTLY as listed in TM-11-6665-232-12 (April 1983) on pages 2-14, 2-18, 2-20 and 2-21. Do this by marking the action spots or icons highlighted in green.

ICON HELP

[clockwise icon] Move clockwise.

[counter-clockwise icon] Move counter-clockwise.

[remove icon] Remove something.

[install icon] Install something.

[<---] Go back to previous page.

[?] Help.

[MENU] Go back to Menu (Use to Exit).

[--->] Go on to next page or question.

CD Note: The remainder of the Guided Demonstraion will contain the activities required to teach the soldier to use the computer. For example, the student will practice marking a knob and then marking the clockwise icon to rotate it clockwise. In the Guided Demonstration, the soldier will be cued, that is the action spots and icons will be highlighted. The soldier will then mark the highlighted area. In the Practice Simulation, these highlighted areas will not be used.

MENU

SIMULATIONS
PRACTICE

In this section, you must follow directions exactly. For example, when you install the battery into the meter, you must:
1. Remove the battery cover.
2. Install the battery.
3. Replace the battery cover.

To do the first step, first mark the remove icon. Second, mark the object you want to remove, in this case the battery cover.

Now you will learn to operate the IM-174 A/PD radiacmeter under normal conditions. Open TM-11-6665-232-12 (April 1983) to page 2-14. The bottom of the page looks like this:

Graphic: BN.4.3.1.s/36
Depicts bottom half of page 2-14.

NOTE TO THE READER

Figure 7 depicts the screen design for this section. The top twelve lines of the screen will contain either a graphic, or a multiple choice question. The next three lines will contain text when there is a graphic above it. The bottom two lines will contain the icons.

GRAPHIC OR MULTIPLE CHOICE QUESTION
(12 LINES)

==========

TEXT WHEN THERE IS A GRAPHIC ABOVE
(3 LINES)

==========

ICONS
(2 LINES)

Figure 7. Screen design for practice simulation.

For the purpose of clarity, each task in the procedure is described briefly before the page specifications. Each page typically is defined by four item specifications. They are:

1. Graphic.
2. Text.
3. Correct Answer (CA).
4. Wrong Answer (WA).

"Graphic" contains a brief description of the image that the student will see in the upper twelve lines of the screen. "Text" lists the words that will be displayed on the screen. If a graphic is not presented, text will appear in the upper twelve lines of the screen. "Correct Answer"

describes the response the student will see following a correct response. Conversely, "Wrong Answer" describes the response the student will see following an incorrect response.

Step 1. Graphic shows three-quarters rear view of the radiacmeter. The student must mark the remove icon and then open the battery compartment.

Graphic: BN.4.3.1.s/24 Bottom view of radiacmeter. Retaining screws holding the battery compartment closed. One single cell battery with positive and negative terminals labeled.

Text:Do step 1 on page 2-14.

Correct Answer: remove icon

Wrong Answer: Mark the remove icon.

Graphic: BN.4.3.1.s/24 Bottom view of radiacmeter. One single cell battery with positive and negative terminals labeled.

Text: Loosen what?

CA: Screws

Wrong Answer: Mark the screws that hold the battery cover on the bottom of the radiacmeter.

Step 2. Graphic of opened battery compartment. Student marks the install icon and then marks the battery.

Graphic:BN.4.3.1.s/25 Bottom view of radiacmeter with battery compartment opened. One single cell battery with positive and negative terminals labeled.

Text: Do step 2.

CA: Install icon

Wrong Answer: "Mark the install icon."

Graphic: BN.4.3.1.s/25 Bottom view of radiacmeter with compartment opened and cover to one side.

Text: Install what?

CA: the battery

Wrong Answer: Mark the battery.

Step 3.The graphic shows the battery has been installed. The student marks the install icon and then marks the battery compartment cover.

Graphic: BN.4.3.1.s/26 Bottom view of radiacmeter with battery installed, cover to one side.

Text: Do the next step.

CA: install icon

Wrong Answer: "Mark the install icon."

Graphic: BN.4.3.1.s/26 Bottom view of radiacmeter with installed battery, cover to one side.

Text: Install what?

CA: The cover.

Wrong Answer: Mark the battery compartment cover.

Step 4. The graphic shows the battery compartment is closed.

Graphic: BN.4.3.1.s/24 Bottom view of radiacmeter with battery compartment in place.

Text: You have successfully installed a battery in the IM-174 A/PD.

Mark the ---> to continue.

Step 5. Radiacmeter is enclosed in its carrying case. Student is told to find correct page of TM for operating procedures.

Graphic: BN.4.3.1.s/22 Radiacmeter enclosed in carrying case

Text: Now that you have installed the battery, you are ready to learn to operate the radiacmeter. Turn to page 2-18 in the Technical Manual.

Step 6. Radiacmeter in its case. Student marks remove icon and then the snap fasteners.

Graphic: BN.4.3.1.s/22 Radiacmeter enclosed in carrying case

Text: Do step 1.

CA: remove icon

WA: Mark the remove icon

Graphic: BN.4.3.1.s/22 Radiacmeter enclosed in carrying case

Text: Unsnap what?

CA: snap fasteners

WA: Mark the fasteners which hold the carrying case in place.

Step 7. Cover is opened and the operating controls of the meter are visible.

Graphic: BN.4.3.1.s/27 Front part of cover is opened and snapped back to reveal the controls.

Text: After you unsnap the cover, pull the cover back and snap it to the rear fastener.

Step 8. Graphic shows close-up of controls. Student marks clockwise icon and then OFF/SET knob.

Graphic: BN.4.3.1.s/28 is a front view of radiacmeter. Right side of screen is rear panel of radiacmeter.

Text: Do step 2.

CA: Clockwise icon

Wrong Answer: "Mark the clockwise icon."

Graphic: BN.4.3.1.s/28 Left side of screen is a front view of radiacmeter. Right side of screen is rear panel of radiacmeter.

Text: Turn what clockwise?

CA: OFF/SET knob
Wrong Answer: Mark the OFF/SET knob

Step 9. Multiple choice question. Student must look for information in the TM to answer what he should do after turning on the radiacmeter.

Text: After you turn the radiacmeter on, what should you do next?

Wait for warmup (correct)
Turn the OFF/SET control counter-clockwise
Read the meter
Turn the ZERO/CHECK switch to ZERO

WA: The correct answer is highlighted.

Step 10. Graphic depicts meter face and controls. Student marks counter-clockwise icon and ZERO/CHECK switch.

Graphic: BN.4.3.1.s/29 Left side of screen is a front view of radiacmeter. Right side of screen is rear panel of radiacmeter. Mark on OFF/SET knob is rotated to 3:00 o'clock position.

Text: Yes. After you turn the meter on, let it warm up for at least two minutes. Do step 3a.

Wrong Answer: Mark the counter-clockwise icon.

Graphic: BN.4.3.1.s/29 Left side of screen is a front view of radiacmeter. Right side of screen is rear panel of radiacmeter. Mark on OFF/SET knob is rotated to 3:00 o'clock position.

Text: Turn what counter-clockwise?

Wrong Answer: Mark the ZERO/CHECK switch.

Step 11. Graphic shows hand holding the ZERO/CHECK switch at the ZERO position. Student marks clockwise icon and OFF/SET knob.

Graphic: BN.4.3.1.s/30 Left side of screen is a front view of radiacmeter. Right side of screen is rear panel of radiacmeter. A hand is shown holding the ZERO/CHECK switch in the ZERO position. Mark on OFF/SET knob knob is rotated to 3:00 o'clock position.

Text: Do step 3b.

Wrong Answer: "Mark the clockwise icon. "

Graphic: BN.4.3.1.s/30 Left side of screen is a front view of radiacmeter. Right side of screen is rear panel of radiacmeter. A

hand is shown holding the ZERO/CHECK switch in the ZERO position. Mark on OFF/SET knob is rotated to 3:00 o'clock position.

Text: Adjust what clockwise?

Correct Answer: OFF/SET knob.

Wrong Answer: Mark the OFF/SET knob.

Step 12. Graphic continues to show hand holding ZERO/CHECK switch to Zero position, however the position of the OFF/SET knob and the meter reading have changed. Student marks clockwise icon and OFF/SET knob to adjust needle to zero.

Graphic: BN.4.3.1.s/31 overlay of needle deflected to reading of 50. OFF/SET knob moved 45 degrees.

Text: If needle is not pointing to zero, adjust OFF/SET knob clockwise.

Correct Answer: clockwise icon.

Wrong Answer: Mark the clockwise icon.

Graphic: BN.4.3.1.s/32 overlay of needle deflected to reading of 0. OFF/SET knob moved 45 degrees.

Text: Now that needle is adjusted to 0, do step 3c.

CA: Remove icon
WA: Mark the remove icon.

Step 13. A hand is shown holding the ZERO/CHECK switch in the ZERO position. The OFF/SET knob is in position of previous graphic and needle is at 0. Student marks remove icon to release the ZERO/CHECK switch.

Graphic: BN.4.3.1.s/32 overlay of needle deflected to reading of 0. OFF/SET knob moved 45 degrees.

Text: Now that needle is adjusted to
0, mark the remove icon to release the switch.

Wrong Answer: "Mark the remove icon."

Step 14. The meter needle swings from 0 to 10 then back to 0. Student marks clockwise icon and ZERO/CHECK switch in order to set it to the CHECK position.

Graphic: BN.4.3.1.s/33 Hand is removed from meter, ZERO/CHECK switch has returned to middle position. Needle is animated from 0 position to between 5 and 10, then back to 0.

Text: Did you notice the needle moved to 10 and then returned to 0? Now do step 4.

Wrong Answer: "Mark the clockwise icon."

Graphic: Bn.4.3.1.s/33, needle on 0.

Text: Turn what clockwise ?

Wrong Answer: " Mark the ZERO/CHECK switch."

Step 15. Graphic shows the needle reading in the "check area" indicating battery is in good condition. Student must then refer to the TM to answer a multiple choice question.

Graphic: BN.4.3.1.s/34 hand is holding ZERO/CHECK switch to CHECK position. Pointer is within Check band on meter scale.

Text: Note that the needle is in the Check band. This means the batteries are in good condition. Mark --> to continue.

Text: What should you do if the needle was low?

Mark the correct answer.

Replace the batteries. (correct)
Turn the ZERO/CHECK switch to ZERO.
Remove the CALIBRATION CONTROL.
Turn the OFF/SET knob clockwise.

WA: The correct answer is highlighted.

Step 16. Student marks remove icon to release the ZERO/CHECK switch.

Graphic: BN.4.3.1.s/34 hand is holding ZERO/CHECK switch to CHECK position. Pointer is within Check band on meter scale.

Text: Mark the remove icon to release the switch.

Wrong Answer: "Mark the remove icon."

Step 17. The graphic depicts the meter in the open carrying case. The student marks the remove icon and the fastener to cover the meter.

Graphic: BN.4.3.1.s/27 Front part of cover is opened and snapped back to reveal the controls.

Text: Do step 6

WA: Mark the remove icon.

Graphic: BN.4.3.1.s/27 Front part of cover is opened and snapped back to reveal the controls.

Text: Unsnap what?

WA: Mark the rear fastener to unsnap the cover.

Step 18. Graphic shows meter completely covered with its carrying case.

Graphic: BN.4.3.1.s/22 Radiacmeter enclosed in carrying case

Text: The radiacmeter is now covered and you are ready to take readings. Take several readings as you turn in a circle. Watch the meter and remember the highest reading.

Step 19. Soldier is told how to take a reading. Soldier marks the clockwise icon and the graphic changes, revealing image of soldier facing different directions. The meter needle reading is different for each position.

Graphic: BN.4.3.1.s/37 four views of soldier facing different directions with varying needle readings

To take a reading, hold the meter level about waist height. Take several readings as you turn yourself in a circle. Report the highest reading.

Graphic: BN.4.3.1.s/38 Soldier facing forward with radiacmeter. Meter dial.

Text: Remember the reading. Turn in what direction?

WA: Mark the clockwise icon.

Graphic: BN.4.3.1.s/39 Soldier facing left

Text: Remember the reading. Turn in what direction?

WA: Mark the clockwise icon.

Graphic: BN.4.3.1.s/41 Rear view of soldier

Text: Remember the reading. Turn in what direction?

WA: Mark the clockwise icon.

Graphic: BN.4.3.1.s/40 Soldier facing right

Text: Remember the reading.

Mark the --> to continue.

WA: Mark the clockwise icon.

Step 20. Student answers multiple choice question about the highest reading recorded on the radiacmeter.

What was the highest reading?

Mark the correct answer.

10-cGy
40-cGy (correct)
60-cGy
35-cGy

Wrong Answer: "The correct answer is highlighted."

Step 21. Graphic of radiacmeter in closed case. Student marks the remove icon and the fasteners to open the case.

Graphic: BN.4.3.1.s/22 Radiacmeter enclosed in carrying case

Text: Now that you have taken the readings, do step 8.

WA: Mark the remove icon.

Graphic: BN.4.3.1.s/22 Radiacmeter enclosed in carrying case

Text: Unsnap what?

WA: Mark the fasteners on the cover.

Step 22. Graphic depicts close-up of OFF/SET knob. Student marks counter-clockwise icon and knob to turn off the meter.

Graphic: BN.4.3.1.s/29 View of ZERO/CHECK switch and OFF/SET knob

Text: Do step 9.

Wrong Answer: Mark the counter-clockwise icon.

Graphic: BN.4.3.1.s/29 View of ZERO/CHECK switch and OFF/SET knob

Text: Turn what off?

WA: Mark the OFF/SET knob."

Step 23. The graphic depicts the meter in the open carrying case. The student marks the remove icon and the fastener to unsnap fasteners to cover the meter.

Graphic: BN.4.3.1.s/27 Front part of cover is opened and snapped back to reveal the controls.

Text: Do step 10.

WA: Mark the remove icon.

Graphic: BN.4.3.1.s/27 Front part of cover is opened and snapped back to reveal the controls.

Text: Unsnap what?

WA: Mark the fasteners on the cover.

Step 24. Graphic shows meter completely covered with its carrying case.

Graphic: BN.4.3.1.s/22 Radiacmeter enclosed in carrying case

This completes the Practice Simulation.

You got ____ out of ____ answers correct.

Now you must take the Test. Mark the Menu icon to go on.

[CD NOTE: If they scored less than 80% correct, then: "You appear to be having problems. Mark the MENU icon and repeat the Guided Demonstration."]

NOTE: Following the practice simulations, the student will see the main MENU from which he can select the Posttest.

The Posttest is a separate segment. The interactions will be the same as those in the practice simulations, except that the student will not receive feedback after every step. Instead, the student will be told the results of his performance after he has completed the Posttest.

Prepare and Submit a NBC-4 Report

NBC 4 REPORT

PREPARE AND SUBMIT A NBC-4 REPORT

INTRODUCTION
PRETEST
OVERVIEW
REPORT COMPONENTS
GUIDED DEMONSTRATION
PRACTICE SIMULATIONS

NBC-4 (NUCLEAR REPORT)

INTRODUCTION

Mark ----> to continue.

In this segment you will learn to use FM-21-40 to prepare a NBC-4 (Nuclear) Report. This report is used for monitoring radiation after a nuclear burst.

Graphic: Cartoon of NBC monitoring team dressed in MOPP gear using radiacmeter.

As a tank commander, you may be a member of the platoon's radiation monitoring team.

Graphic: Cartoon of NBC monitoring team dressed in MOPP gear using radiacmeter.

As a member of the monitoring team, you will use an IM-174 series radiacmeter to measure dose rates and you will report the information in a NBC-4 report.

Graphic: Cartoon of person dressed in MOPP gear using radiacmeter.

You will learn how to use the radiacmeter in a later segment. In an earlier segment, you learned to complete a NBC-1 report which is similar to a NBC-4 report.

Graphic: Student sitting at a MicroTICCIT terminal studying a lesson on screen.

In this segment you will:

1. Learn about the NBC-4 report and when it is used.
2. Learn the names and purposes of the parts of a NBC-4 report.
3. Learn the steps to follow to complete a NBC-4 report.
4. Practice completing NBC-4 reports given different situations.

You have completed the introduction.

Before you begin the Overview, you may wish to take the Pretest. If you pass the Pretest, you can skip this segment and take the Test.

Mark the MENU icon to continue.

[Branch to Menu.]

Pretest

To pass the Pretest, you must be able to read information contained in a scenario and fill-in a NBC-4 report with the correct information.

If you do not pass the Pretest, you will continue the segment starting with the Overview.

Mark --> to continue.

Before you start this Pretest, get a copy of FM 21-40 from your proctor.

When you have a copy of the manual, open it to page 6-20.

*** Insert test items here.

[NOTE: There will be one scenario in the Pretest. Items are the same as described in the Guided Demonstration, except the student does not receive cues or feedback until after he has answered all the items.]

Congratulations! You passed the Pretest. You got ____ of ____ correct. You may review the segment or skip it and take the test.

Mark the Menu icon to continue

[branch to menu]

You did not pass the Pretest. You got ____ of _____ correct. You must continue the segment from the Overview.

Mark the menu icon to continue.

[branch to menu]

OVERVIEW

Voice-over narration: The NBC-4 report is required immediately after you first detect any radiation. This report is not used for chemical or biological reporting. You also are required to complete a NBC-4 report when you receive an operation order.

Graphic: Nuclear burst.

You or your crew will measure the radiation dose rates using a dosimeter or an IM-174 series radiacmeter.

Graphic: Person in MOPP gear using a IM-174 radiacmeter.

The information required by the NBC-4 report should be written down so you do not forget it before you send the report.

Graphic: Soldier looking at radiacmeter and writing the highest reading. A GTA card is also in view. Soldier uses GTA to prepare a NBC-4 report.

NBC-4 reports should be given to your platoon leader or company commander. Use the most quickest method to send the report, for example the radio, or courier.

Graphic: Soldier is completing filling out a sheet of paper and handing it to a courier. Gestures which direction to take it.

The information in a NBC 4 report will be used to protect troops from receiving radiation doses that could harm or kill them.

Graphic: Courier has arrived at HQ with the report. Commander reads it and looks at map, moves pin on map from one spot to another.

Like the NBC-1 report, the information in the first part of the report identifies the precedence of the message, the date and time the message was sent, who the message is being sent to, who is sending the report, and the type of report being sent. You have completed the Overview. In the

Graphic: Close-up of Top half of NBC-4 form or GTA card.

The other information you report includes the grid location where you took the reading, the actual dose rate in rads per hour, and the date and time the reading was taken.

Graphic: Close-up of bottom half of NBC-4 form or GTA card.

In the next section, you will learn the names, and functions of the parts of the NBC-4 (Nuclear) report.

Mark the Menu Icon to continue.

[CD note: branch to Menu]

MENU

REPORT COMPONENTS

INSTRUCTION
PRACTICE

INSTRUCTION

Now you will learn the names and functions functions of the parts of the NBC-4 report.

After you complete the instruction, you will select the correct part name when given a functional description.

Graphic: Parent graphic of sample NBC-4 form or GTA 3-6-2.

Sample NBC-4 Report

Precedence: Flash_____
Date/Time: _____
To: A4C 32 _____
From: A4C 07_____
Type of Report: NBC-4 Nuclear_____

Q: LB 123 987
R: 1 Initial
S: 101805 local

These are the parts that make up an NBC-4 report. Mark each part to learn more about it.

[CD NOTE: Branch to the associated page of the marked item. When student has seen the associated page/s return to Parent Graphic and change color of marked item to green.]

PRECEDENCE

Report the message priority in the first line of a NBC-4 report.

For the initial report, the precedence is FLASH.

For follow-up reports, the precedence is IMMEDIATE.

If you are making your first report, the Precedence is FLASH.

Mark ----> to continue.

DATE/TIME:

On this line, report the time you sent the report.

You must specify Local or Zulu time.

If Local time, give the time Zone.

If it is 0900 Zulu time, then report Date/Time: 0900Z

TO:

On this line, identify the unit you are sending the NBC-4 report to. Use their radio call sign. For example, TO: R6T 27.

FROM:

On this line, identify yourself with your radio call. For example, FROM: R6T 12. sign.

TYPE OF REPORT:

On this line, name the type of report you are sending. For example: TYPE OF REPORT: NBC-4 Nuclear.

Q:

When you send a NBC-4 report on the radio, line "Q" is said as "QUEBEC." On line QUEBEC, report the Universal Transverse Mercator (UTM) 8 digit grid coordinates of the location where you took your reading. Remember to give this information in coded form. For example, if your coordinates are, MB 334602 it might be encoded as AC SZTTSFZB.

R: When you send a NBC-4 report on the radio, line "R" is said as "ROMEO" On line "ROMEO" report the dose rate in r/hr. You would get this information by using either a dosimeter or a IM-174 series radiacmeter.

Also, you may add one of these words to the dose rate:

Initial
Increasing
Peak
Decreasing

Mark each these words to learn more.

ROMEO/INITIAL --Continued--

If this is the first reading you are reporting, add INITIAL after the dose rate. If your first reading was 23 r/hr, you would send, ROMEO: 23 INITIAL.

ROMEO/PEAK --Continued--

If you made other NBC-4 reports and the dose rate you are reporting now is the highest you recorded, add PEAK after the dose rate. If your reading was 56 r/hr, you would send, ROMEO: 56 PEAK.

ROMEO/DECREASING --Continued--

If you made other NBC-4 reports and the dose rate you are reporting is now lower than an earlier report, add DECREASING after the dose rate. If your last reading was 21 r/hr, you would send, ROMEO: 21 DECREASING.

ROMEO/INCREASING --Continued--

If you made other NBC-4 reports and the dose rate you are reporting now is higher than an earlier report, add INCREASING after the dose rate. If your last reading was 33 r/hr, you would send, ROMEO: 33 DECREASING.

[CD NOTE: When all items have been seen branch back to Sample NBC-4 form and turn "Romeo" green.]

S:

When you send a NBC-4 report on the radio, line "S" is said as "SIERRA." On line SIERRA report the date and the time you took the reading, not the time you sent the report. You must tell if you are using Local or Zulu time. If the time you took the reading was 0745 Zulu time, you would send, SIERRA: 0745Z.

You have seen all the components of a NBC-4 report. You may now review the parts or go on to practice.

Mark the Menu icon to continue.

Graphic: Parent graphic.

MENU

REPORT COMPONENTS

INSTRUCTION
PRACTICE

PRACTICE

In this exercise, there are two types of questions. The first type is multiple choice. In the second type, you must locate the part named on the diagram. Mark your answer with the light pen.

Before you start this Practice, get a copy of FM 21-40 from your proctor.

When you have a copy of the manual, open it to page 6-20.

NOTE Listed below are sample questions. They are representative of the kinds of questions that will be used.

[CD Note: There are two pools of questions; mark location, and multiple text response. Shuffle questions, but present a mark location question first then the related multiple choice question.]

GRAPHIC

Precedence:
Date/Time:
To:
From:
Type of Report:
Q:

R:
S:

Highlight: correct answer as part of feedback.

Text: Mark the line on NBC-4 form where you report:

1. The date and time you sent the report. (Correct = Date/Time)

2. The date and time you took the reading. (Correct = Sierra)

3. The dose rate in rad/hr. (Correct = Romeo)

4. The message priority. (Correct = Precedence)

5. The location where you took the reading. (Correct = Quebec)

6. The call sign of the unit you are sending the report (Correct = To:)

7. Your own call sign. (Correct = From)

8. NBC-4 Nuclear (Correct = Type of Report)

CA: Yes. (highlight CA)

WA: No. The correct answer is [correct answer.] (highlight CA)

You have just measured dose rate of 24 rad/hr with a IM-174 series radiacmeter. You are making your first NBC-4 report. What do you report for line R?

Mark the correct answer.

ROMEO -- 24 PEAK
ROMEO -- 24 FIRST
ROMEO -- 24 INITIAL (correct)
ROMEO -- 24 INCREASING

CA: "Correct." Highlight correct answer.

WA: "No. The correct answer is, _____
[text plus highlight correct answer.]

You are a member of the monitoring team and you are responsible for sending the the NBC-4 report to your platoon leader. Your call sign is J7Y 53. The platoon leader's call sign is J7Y 09. What should you send on line "FROM:"?

FROM J7Y 53 (correct)
FROM J7Y 09
FROM J7Y 53 NBC-4
FROM J7Y 09 NBC-4

CA: "Correct." Highlight correct answer.

WA: "No. The correct answer is, _____
[text plus highlight correct answer.]

A member of your tank crew has taken a reading with the IM-174 series radiacmeter. What type of report should you send?

NBC 1
NBC 3
NBC 4
NBC 5

CA: "Correct." Highlight correct answer.

WA: "No. The correct answer is, _____
[text plus highlight correct answer.]

You have just measured dose rate of 12 rad/hr with a IM-174 series radiacmeter. Earlier you sent a NBC-4 report of 24 rad/hr. What do you report for line R?

ROMEO -- DECREASING FROM 24
ROMEO -- 24 DECREASING
ROMEO -- 24 INITIAL 12 DECREASING
ROMEO -- 12 DECREASING (correct)

CA: "Correct." Highlight correct answer.

WA: "No. The correct answer is, _____
[text plus highlight correct answer.]

Report the UTM 8 digit grid coordinates of the location where you took your reading on:

line QUEBEC (correct)
line SIERRA
line PRECEDENCE
line ROMEO

CA: "Correct." Highlight correct answer.

WA: "No. The correct answer is, _____
[text plus highlight correct answer.]

Earlier you sent a NBC-4 report of 24 rad/hr. You are now sending another report. What should you report on the PRECEDENCE line?

FLASH
IMMEDIATE (correct)
URGENT
PRIORITY

CA: "Correct." Highlight correct answer.

WA: "No. The correct answer is, _____
[text plus highlight correct answer.]

You have just measured dose rate of 24 rad/hr with a IM-174 series radiacmeter. Earlier you sent a NBC-4 report of 12 rad/hr. What do you report for line R?

ROMEO -- DECREASING FROM 12
ROMEO -- 24 DECREASING
ROMEO -- 24 INCREASING (correct)
ROMEO -- 12 INCREASING

CA: "Correct." Highlight correct answer.

WA: "No. The correct answer is, _____
[text plus highlight correct answer.]

[Criterion: When criterion is met, branch to this page. If student does not meet the criterion branch to the next page.]

Congratulations! You answered _____ questions correctly.

In the next exercise, you will learn to complete a NBC-4 report.

[BRANCH TO MENU.]

You seem to be having difficulty answering these questions. Mark the menu icon and return to INSTRUCTION.

[BRANCH TO MENU.]

GUIDED DEMONSTRATION

In this section you will be guided through all the steps necessary to complete a NBC-4 report.

Mark ---> to continue.

When you have completed this Guided Demonstration, you must do the steps of the task on your own, without cues.

You will begin by following the steps listed in FM 21-40. If you do not have one, stop and ask your supervisor for a copy. Do not continue until you have a copy of this manual.

You will do the steps listed in FM 21-40 by marking action spots or icons on the screen.

Action spots are highlighted places that you will mark on the screen. Icons are the symbols at the bottom of the screen.

Marking the "Form" icon will allow you to switch between the scenario that describes your situation and the NBC-4 form. Marking the "Situation" icon will allow you to switch back to the description of the situation from the NBC-4 form.

Look at the bottom of the screen. There are (?) icons. Mark each one to learn what it does.

(Situation icon) Mark this icon to see the page that describes your situation.

(NBC-4 icon) Mark this icon to see the list of items that make up a NBC-4 report.

(<---) Go back to previous page.

(?) Help

(MENU) Go back to MENU (use to exit).

(--->) Go on to next page or question.

[Note: this page will be available as on-line help for Guided demo and practical exercises.]

GUIDED DEMONSTRATION SECTION HELP

In this section you should follow the directions EXACTLY as listed in FM 21-40 page 6-20. Do this by marking the action spots or icons highlighted in green.

ICON HELP

(Situation icon) Mark this icon to see the page that describes your situation.

(NBC-4 icon) Mark this icon to see the list of items that make up a NBC-4 report.

(<---) Go back to previous page.

(?) Help

(MENU) Go back to MENU (use to exit).

(--->) Go on to next page or question.

In this section, you must follow directions exactly. For example, when you report the dose rate you must do two things. First, mark the highlighted dose rate. Second, mark the line on the NBC-4 report where that information goes.

Now you will learn to complete a NBC-4 Nuclear report. Open FM 21-40 to page 6-20.

NOTE In the Guided Demonstration, Practice Simulations, Pretest and Post-test, there are two different screens which the student may toggle between. The first screen he sees will be a text description of the situation. This will include all the information required to complete a NBC-4 report. In the Guided Demonstration, the icon for toggling to the NBC-4 form will be highlighted at the bottom of the screen. When the student marks the icon, he is presented with the "Form" screen. The graphics section of the form screen will be split vertically into two sections. On the left side, will be a list of data for the student to select from. For example, four different precedence priorities will be listed. The student will select from among these choices. On the right side of the graphic is a blank NBC-4 GTA card that lists the names of items required in a complete NBC-4 report. Figure 8 illustrates the design of the "Form" page.

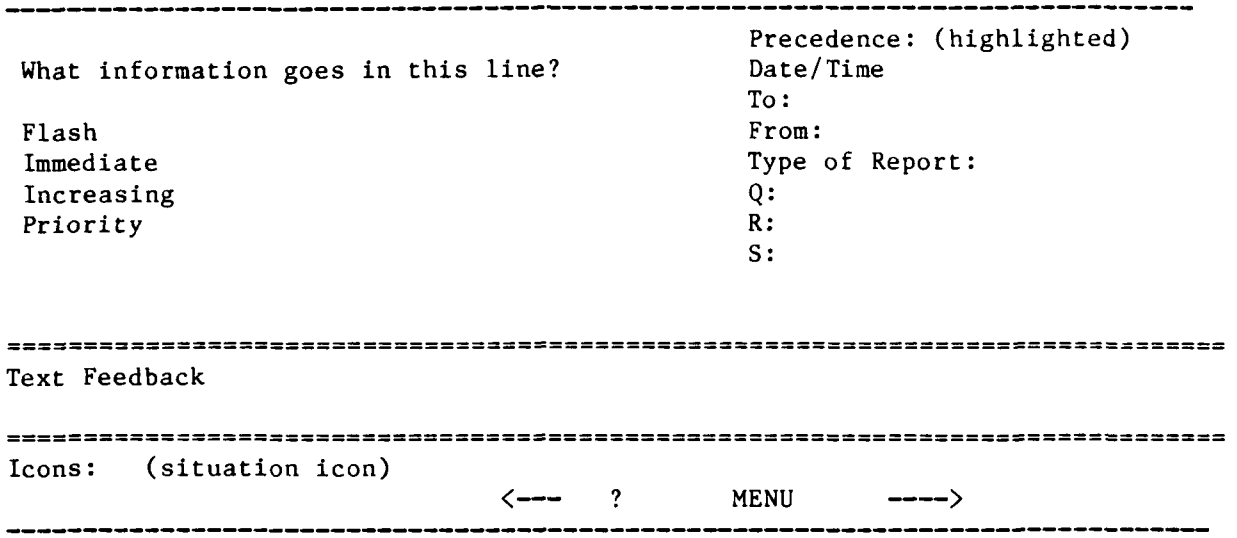

Figure 8. Design of guided demonstration "form" page.

The interaction will proceed in this manner. Once the student has read the "Situation" page, he is prompted to mark the "Form" icon to see the NBC-4 form. With the form screen before him, the student will be asked, "Complete which line?". In the Guided Demonstration the correct line will be highlighted. Once the student marks the designated line, a graphic overlay will appear on the left side of the screen. The overlay will present the list of data choices for the student to select from. In the Guided Demonstration, the prompt, "What information goes on this line?" and the correct answer will be highlighted. If the student does not recall the correct response, he has the option of returning to the "Situation" screen by marking the appropriate icon. If an incorrect answer is selected the feedback will be, "No. The correct answer is (correct answer). Mark the highlighted line." If the student marks the correct answer, it will be inserted into the selected line in the form. The student then marks the forward arrow to receive the next question. When all the lines of the form are completed, the student answers one final question about what he should do with the NBC-4 report. The situation will include a comment about whether the radio is operational. If it is not, then the soldier should transmit the NBC-4 report via courier.

SITUATION SCREEN

You are a member of a radiation survey and monitoring team located at grid MB 334602 (encoded as AC SZTTSFZB). At 0820Z, while conducting continuous monitoring and using a IM-174 series radiacmeter, you take a reading of 15 r/hr. This is lower than an earlier reading you have reported. Your radio is operating normally and you have orders to report the first signs of radiation. Your call sign is A5T 34 and the call sign of your platoon leader is A5T 12. The time now is 0825Z.

Mark the Form icon to continue.

Graphic: Form page, right side with NBC-4 items listed. Left side blank.

Highlight: Precedence

Text: Complete which line?

CA: If student marks correct line (precedence), text "Correct" and branch to next page.

WA: Text, "No. Mark the highlighted line."

Graphic: Same as above, except Text of choice item is displayed on left side of split screen.

Highlight: Correct answer (Immediate).

Text: What information goes on this line?

Immediate (correct)
Flash
Urgent
Secret

CA: If student marks the Correct answer, "Correct" then go to next page.

WA: "No the correct answer is _____.
Mark the highlighted line."

Graphic: Previous correct answer (immediate) has been inserted in the associated line on the NBC-4 form.

Highlight: Date/Time

Text: Complete which line?

CA:If student marks correct line (date/time) text "Correct" and branch to next page.

WA: Text, "No. Mark the highlighted line."

Graphic: Same as above, except Text of choice item is displayed on left side of split screen.

Highlight: Correct answer (0825Z)

Text: What information goes on this line?

0820Z
0825Z (correct)
0802Z
0582Z

CA: If student marks the Correct answer, "Correct" then go to next page.

WA: "No the correct answer is _____.
Mark the highlighted line."

Graphic: Previous correct answer (0825Z) has been inserted in the associated line on the NBC-4 form.

Highlight: TO:

Text: Complete which line?

CA:If student marks correct line (TO:) text "Correct" and branch to next page.

WA: Text, "No. Mark the highlighted line."

Graphic: Same as above, except Text of choice items is displayed on left side of split screen.

Highlight: Correct answer

Text: What information goes on this line?

A5T 23
A5T 35
A5T 21
A5T 12 (correct)

CA: If student marks the Correct answer, "Correct" then go to next page.

WA: "No the correct answer is _____.
Mark the highlighted line."

Graphic: Previous correct answer (A5T 12) has been inserted in the associated line on the NBC-4 form.

Highlight: FROM:

Text: Complete which line?

CA:If student marks correct line (FROM:) text "Correct" and branch to next page.

WA: Text, "No. Mark the highlighted line."

Graphic: Same as above, except Text of choice items is displayed on left side of split screen.

Highlight: Correct answer

Text: What information goes on this line?

A5T 23
A5T 35 (correct)
A5T 21
A5T 12

CA: If student marks the Correct answer, "Correct" then go to next page.

WA: "No the correct answer is _____.
Mark the highlighted line."

Graphic: Previous correct answer (A5T 35) has been inserted in the associated line on the NBC-4 form.

Highlight: TYPE REPORT:

Text: Complete which line?

CA: If student marks correct line (TYPE REPORT:) text "Correct" and branch to next page.

WA: Text, "No. Mark the highlighted line."

Graphic: Same as above, except Text of choice items is displayed on left side of split screen.

Highlight: Correct answer

Text: What information goes on this line?

NBC 1
NBC 2
NBC 4 (correct)
NBC 5

CA: If student marks the Correct answer, "Correct" then go to next page.

WA: "No the correct answer is _____.
Mark the highlighted line."

Graphic: Previous correct answer (NBC 4) has been inserted in the associated line on the NBC-4 form.

Highlight: QUEBEC

Text: Complete which line?

CA:If student marks correct line (QUEBEC) text "Correct" and branch to next page.

WA: Text, "No. Mark the highlighted line."

Graphic: Same as above, except Text of choice items is displayed on left side of split screen.

Highlight: Correct answer

Text: What information goes on this line?

AC SZTTSFZB (correct)
15 r-hr
15 r-hr decreasing
Flash

CA: If student marks the Correct answer, "Correct" then go to next page.

WA: "No the correct answer is _____.
Mark the highlighted line."

Graphic: Previous correct answer (AC SZTTSFZB) has been inserted in the associated line on the NBC-4 form.

Highlight: ROMEO

Text: Complete which line?

CA:If student marks correct line (ROMEO) text "Correct" and branch to next page.

WA: Text, "No. Mark the highlighted line."

Graphic: Same as above, except Text of choice items is displayed on left side of split screen.

Highlight: Correct answer

Text: What information goes on this line?

15 r/hr increasing
0820 r/hr increasing
12 r/hr peak
15 r/hr decreasing (correct)

CA: If student marks the Correct answer, "Correct" then go to next page.

WA: "No the correct answer is _____.
Mark the highlighted line."

Graphic: Previous correct answer (15 r/hr decreasing) has been inserted in the associated line on the NBC-4 form.

Highlight: SIERRA

Text: Complete which line?

CA:If student marks correct line (SIERRA) text "Correct" and branch to next page.

WA: Text, "No. Mark the highlighted line."

Graphic: Same as above, except Text of choice items is displayed on left side of split screen.

Highlight: Correct answer

Text: What information goes on this line?

0820Z (correct)
0825Z
0528Z
0520Z

CA: If student marks the Correct answer, "Correct" then go to next page.

WA: "No the correct answer is _____.
Mark the highlighted line."

Graphic: Previous correct answer (0820Z) has been inserted in the associated line on the NBC-4 form.

Highlight: Correct answer

Text: Once you have completed the NBC 4 report what should you do with it?

Report to the Division HQ via radio
Report to Company HQ via courier
Wait until you receive an order to report
Report to Platoon Leader via radio (correct)

CA: If student marks correct line text "Correct" and branch to next page.

WA: "No the correct answer is _____.
Mark the highlighted line."

This completes the Guided Demonstration.

You got ____ out of ____ answers correct.

[CD NOTE: If they scored less than X% correct, then: "You appear to be having difficulty answering the questions. Mark the MENU icon and repeat the Guided Demonstration."]

Now try some practice simulations.

You will follow the same procedures, without the cues in a new situation.

Use the steps listed in FM 21-40, page 6-20.

[CD Note: MENU only icon.]

MENU
PRACTICE SIMULATION #1
PRACTICE SIMULATION #2

PRACTICE SIMULATION #1

NOTE: The practice simulations are like the guided demo, but without the cues. Each simulation will present a different scenario, i.e., the radiation dose rates, times, locations, etc., will be different. The student will receive feedback after each step in the procedure.

NOTE: Following the practice simulations, the student will see the main menu from which he can select to take the post-test.

The post-test is a separate segment. The interactions will be the same as those in the practice simulations, except that the student will not receive feedback after every step. Instead, the student will be told the results of his performance after he has completed the post-test.

SUMMARY

A procedural simulation instructional model was designed to meet the instructional requirements of five 19K BNCOC tasks. The instructional model which will be used to teach these tasks consists of three types of instructional components: Introductory, Parts of the System, and Simulations. There are two Introductory Components: Introduction and Overview. In the Introduction, the soldier will be informed about the segment topic, objective, importance of the objective, and the structure of the segment. In the Overview, the student will be presented with a visual "tour" of the system or procedure as it is performed under field conditions.

The second component, Parts of the System, is composed of two sections. In the Instruction, the soldier will learn the names, locations and functions of the parts of the system necessary to perform the tasks. In the Practice, the soldier will practice what he has learned about the system parts.

Simulations are the third type of instructional component. Simulations include Pretest, Guided Demonstration, Practice Simulation, and Posttest.

The Pretest is designed to test the soldiers mastery of the objective. If he meets the passing criterion, the soldier may either review the instructional components of the lesson or may skip them and go on to the next lesson.

The Guided Demonstration is designed to familiarize the soldier with all interactions required to simulate the procedural task using the computer. In the Practice Simulation, the soldier practices all the steps necessary to perform the procedural task using the computer and following the steps listed in the appropriate technical field manual. In the Posttest, the soldier must demonstrate mastery of the objective by performing all the steps in the same manner as performed in the Practice Simulation.

The model was applied to two prototype lessons: "Prepare and Submit a NBC-4 Report" and "Use an IM-174A/PD Radiacmeter." The model will also be applied to the following 19K BNCOC tasks:

Read and Report Radiation Dosages.

Use the M256 Chemical Detector Kit.

Prepare and Submit a NBC-1 Reports.

APPENDIX
EXCERPT FROM TM 11-6665-232-12
'USE AN IM-174 SERIES RADIACMETER'

TM 11-6665-232-12

2-6. INSTALLATION OF BATTERY, SINGLE-BATTERY TYPE.

This task covers:

Installation

INITIAL SETUP

Tools	Personnel Required
Flat-tip screwdriver	One operator
Materials/Parts	**Equipment Condition**
Battery, BA-30/U Appendix D, Item 4	Case removed. OFF/SET knob set to OFF.

	LOCATION	ITEM	ACTION **REMARKS**
1.	Bottom of radiacmeter	Captive screws (1) and battery cover (2)	Using flat-tip screwdiver, loosen screws, remove cove
2.	Battery compartment	BA-30/U battery (3)	Install. **Follow polarity marks on battery compartment.**
3.		Battery cover (2) and captive screws (1)	Using flat-tip screwdriver, install.

2-7. INSTALLATION OF METER LAMP BATTERY, IM-174A/PD.

This task covers:

Installation

INITIAL SETUP

Tools	Personnel Required
Flat-tip screwdriver	One operator
Materials/Parts	**Equipment Condition**
Battery, BA-1391/U, Appendix D, Item 2	Case removed. OFF/SET knob set to OFF.

	LOCATION	ITEM	ACTION / **REMARKS**
1.	Front of radiacmeter	Screws (1) and cover (2)	Using flat-tip screwdriver, loosen screws. Remove cover. **Remove nonwaterproof meter lamp cover by lifting up tab on bottom of cover.**
2.	Battery compartment	Clip (3)	Remove.
3.		Battery (4) and clip (3)	Place battery in clip and install. **+ (positive) polarity faces into battery compartment.**
4.		Cover (2) and screws (1)	Using flat-tip screwdriver, install. **Nonwaterproof meter lamp cover snaps in place.**

2-8. OPERATING PROCEDURES.

This task covers:

Operation

INITIAL SETUP

Tools	Personnel Required
None	One operator
Materials/Parts	**Equipment Condition**
Radiacmeter	Batteries installed. (See paragraph 2-5.)

	LOCATION	ITEM	ACTION **REMARKS**
1.	Carrying case	Three snaps (1), cover (2) and fastener (3)	*Unsnap, pull back, and snap* to rear fastener.
2.	Radiacmeter	OFF/SET knob (4)	Turn clockwise to SET. **The radiacmeter must warm up for two minutes before use. If you have time, allow 20 minutes for complete warmup.**
3.		ZERO/CHECK switch (5) and OFF/SET knob (4)	a. Hold ZERO/CHECK switch at ZERO. b. Adjust OFF/SET knob until needle indicates 0. c. Release ZERO/CHECK switch. **Needle should move to between 5 and 10 rad/hr and then return to 0. If needle fails to do this, refer to troubleshooting procedures (para 3-1.)**

2-8. OPERATING PROCEDURES. (CONT)

	LOCATION	ITEM	ACTION REMARKS
4.		ZERO/CHECK switch (1)	Hold at CHECK. **Needle should move to and stay in CHECK band on meter. If reading is low, replace batteries. If new batteries were installed, a reading three needle widths above CHECK band is allowed. If reading is below CHECK or over three needle widths above, refer to a higher category of maintenance.**
5.		ZERO/CHECK switch (1)	Release.
6.	Case	Fastener (2), cover (3) and three snaps (4)	Unsnap, pull cover in place, and fasten.
7.	Radiacmeter	Rad/hr scale (5)	Record radiation readings. **If radiacmeter is being used without stopping for several hours, or in very hot or cold temperatures, the zero reading may change. To correct zero reading, repeat steps 1 thru 6.**
8.	Case	Three snaps (4), cover (3) and fastener (2)	Unsnap, pull back and snap to rear fastener.
9.	Radiacmeter	OFF/SET knob (6)	Turn to OFF.

2-8. OPERATING PROCEDURES. (CONT)

LOCATION	ITEM	ACTION	REMARKS

CAUTION

If radiacmeter will not be used right away after initial use, remove batteries (para 3-5, 3-6, and 3-7).

10.	Fastener (2), cover (3) and three snaps (4)	Unsnap, pull cover in place, and fasten.