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ABSTRACT

The Workplace Educational Skills Analysis (WESA) is a systematic process used to identify and analyze basic educational skills required to perform a job or cluster of jobs. The WESA methodology consists of the following six stages: WESA design meetings, interview preparation, interviews and observations, data analysis and draft reports, clarification meetings, and WESA final reports. This supplement is designed to be used in conjunction with the "Workplace Educational Skills Analysis Training Guide," which was developed to guide workplace education program developers in implementing the WESA process. The supplement is intended to improve the efficiency of the overall WESA process and its products. Discussed first are the WESA process, products, uses, and benefits and planned WESA enhancements. The next two sections contain sample forms/instruments and information on the procedures to be followed during the interview and observation stage and data analysis and draft reports stage of the WESA process. The following are provided in a section of tips for WESA analysts: interview, observation, employee close-out interview, and report writing suggestions; a document and data collection checklist; and sample workplace educational competency statements. Concluding the supplement are examples of completed WESA process attendant reports. (MN)

Workplace Educational Skills Analysis

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Training Guide Supplement

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CONTENTS

INTRODUCTION

The *Workplace Educational Skills Analysis Training Guide Supplement* offers new strategies, techniques and tools for conducting workplace educational skills analyses (WESAs). The *Supplement* is designed for use in conjunction with the *Workplace Educational Skills Analysis Training Guide* which was developed in 1991. Used in tandem, the analyst will increase the efficiency of the overall WESA process and improve the effectiveness of the end products.

WESA Process, Products, Uses and Benefits

As described in the *Workplace Educational Skills Analysis Training Guide*, WESA is a systematic process used to identify and analyze basic educational skills required to perform a job or cluster of jobs. The WESA methodology consists of six stages: (1) WESA design meeting(s), (2) interview preparation, (3) interviews and observations, (4) data analysis and draft reports, (5) clarification meeting(s), and (6) WESA final report(s). The six-stage process is detailed below.

STAGE 1 -- WESA DESIGN MEETING(S)
(Management - Labor - Education Representatives)

- Discuss and Agree Upon WESA Uses
- Determine Workplace Basic Skill Areas, Specific WESA Procedures and Content Areas for WESA Reports
- Identify and Collect Preparatory Information for Interviews
- Establish Priorities and Schedules for WESA Interviews

STAGE 2 -- INTERVIEW PREPARATION
(WESA Analyst)

- Research, Organize and Analyze Data Collected
- Review Interview Questions
- Confirm Interview and Observation Schedule

STAGE 3 -- INTERVIEWS AND OBSERVATIONS
(WESA Analyst)

- Interview Supervisors and Employees
- Identify Job Activities
- Determine Workplace Educational Competencies Required to Perform Job(s)
- Observe Work Performed and Validate Job Activities and Educational Competencies Required

STAGE 4 -- DATA ANALYSIS AND DRAFT REPORTS
(WESA Analyst)

- Review Information from Interviews and Observations
- Draft Summary and Detailed Reports

STAGE 5 -- CLARIFICATION MEETING(S)
(Management - Labor - Education Representatives and Content Experts)

- Discuss Divergent Information Obtained Through Interviews and Observations
- Clarify and Validate the Accuracy of Collected Data
- Discuss Revisions to Draft Reports

STAGE 6 -- WESA FINAL REPORT(S)
(WESA Analyst)

- Identify the Rationale and Timeline for the WESAs Conducted
- Outline Current and Future Skill Needs Identified through WESAs
- Provide Recommendations for Educational Initiatives
- Include Finalized Summary and Detailed Reports

The end products of the WESA process include three types of reports: summary, detailed and final. (The summary and detailed reports are discussed more fully on pages 44 - 48 of the *Supplement*. Additional information regarding the final report is provided in the *WESA Training Guide*.)

The three WESA reports serve numerous purposes which vary to some extent based on the needs of each workplace education program. Most often, WESA reports aid in developing work-related curricula, learner assessment instruments, career-pathing alternatives and individualized education plans. These and other common WESA report uses are outlined below.

- Creating workplace-specific curricula and instructional activities
- Constructing competency-based learner assessment instruments
- Aiding employees in assessing personal competencies
- Developing individualized education plans
- Illustrating the workplace educational competencies needed for career advancement or job security
- Identifying work-related materials for possible incorporation in instruction
- Assisting organizations in assessing workforce training needs
- Planning educational initiatives consistent with future basic skills needs

By conducting WESAs and fully utilizing the end products, a more effective workplace education program results. WESA-related benefits include:

- Effective and efficient instruction resulting from the use of workplace-specific curricula and instructional activities
- Documentation of instructional impact through assessments measuring the content taught and the learner's ability to apply that information
- Effective use of employee time as a result of individualized education plans designed to achieve learner goals
- Increased opportunities for employers and employees to promote from within due to instruction that is geared to the basic skills required for future job openings
- Meaningful educational initiatives linked to current and future workforce basic skills needs

The bottom line is that WESAs contribute to a more effective workplace education program which means increased security and career advancement opportunities for employees, and a more productive and competitive workforce for employers.

Supplement Innovations

The foundation for the innovations within this *Supplement* is a checklist of workplace educational competencies titled the *Interview and Observation Checklist*. This checklist was designed by the WESA Development Committee based on three primary sources of information. These sources included reports resulting from more than 200 WESAs conducted by analysts since 1991 when the WESA methodology was pioneered by the Wisconsin

Workplace Partnership Training Program; skills identified in the reports authored by the Secretary's Commission on Achieving Necessary Skills (SCANS); and feedback thoughtfully provided by more than a dozen workplace education practitioners.

The *Interview and Observation Checklist* is organized into three educational skill areas or domains (communications, critical thinking and mathematics). While the *WESA Training Guide* recommends seven basic skill areas for analysis (computing, listening, problem-solving, reading, speaking, team-building and writing), these areas are grouped into three domains on the checklist. Another modification reflected in the checklist is the expansion of problem-solving, from one to six areas grouped within a critical thinking domain. The table below identifies the educational skill areas included in the *Supplement* by domain and by skill dimension. For comparison purposes, the table also indicates the educational skill areas listed in the *WESA Training Guide* and those that are categorized in the *SCANS* reports[1] as basic and thinking skills.

Workplace Educational Skill Areas Identified in Reference Documents

Workplace Educational Skills Areas	*WESA Supplement*	*WESA Training Guide*	*SCANS Basic and Thinking Skills*
Communications Domain			
Listening	✓	✓	✓
Speaking	✓	✓	✓
Reading	✓	✓	✓
Writing	✓	✓	✓
Team-Building	✓	✓	[2]
Critical Thinking Domain			
Creative Thinking	✓		✓
Decision-Making	✓		✓
Problem-Solving	✓	✓	✓
Mental Visualization	✓		✓
Knowing How to Learn	✓		✓
Reasoning	✓		✓
Mathematics Domain			
Arithmetic	✓	✓[3]	✓
Mathematics	✓	✓[3]	✓

[1] *The referenced SCANS reports include: What Work Requires of Schools -- A SCANS Report for America 2000 (1991); Skills and Tasks for Jobs -- A SCANS Report for America 2000 (1992); and Learning a Living: A Blueprint for High Performance -- A SCANS Report for America 2000 (1992).*

[2] *While team-building is not identified within the SCANS basic and thinking skills, many of the team-building competencies listed in the Supplement are included as interpersonal competencies or personal qualities in the SCANS reports.*

[3] *Within the WESA Training Guide, this category is referred to as "computing".*

The SCANS reports are the product of a thirty-one member commission consisting of business, union, education and government representatives that was formed by the Secretary of Labor in 1990. The Secretary's Commission on Achieving Necessary Skills (SCANS) was charged with determining the skills needed to succeed in the workplace. To meet this challenge, the commission, its staff and a team of researchers conducted in-depth analyses of 50 jobs, which involved more than 200 interviews with employees and supervisors from more than 146 organizations across the country. As a result, SCANS identified skills required for effective job performance today and in the future. These skills are grouped into foundation skills (basic skills, thinking skills and personal qualities) and workplace competencies (resources, interpersonal skills, information, systems and technology).

All of the basic and thinking skills identified by SCANS are incorporated in the *Interview and Observation Checklist*. The checklist also includes some skills listed within the SCANS reports as "interpersonal skills" and "personal qualities".

The inclusion of the SCANS data not only bolsters the content validity of the checklist, but provides a framework for comparisons among worksites on a national level. In addition, the comprehensive *Interview and Observation Checklist* is expected to benefit WESA analysts in three distinct ways. The checklist will:

- Allow more time to analyze how academic skills are applied on the job by reducing the amount of time spent wording the educational competencies.
- Assist analysts with limited knowledge in one or more content areas by providing a comprehensive listing of 212 educational competencies distributed among three domains (communications, critical thinking and mathematics).
- Substantially reduce the amount of time spent ordering and sequencing educational skills by structuring competencies within subskills, dimensions and domains as well as by listing competencies in ascending order of difficulty.

Insofar as the overall WESA process is concerned, the development of the *Interview and Observation Checklist* directly impacts two of the six WESA stages. Therefore, it is these two stages (stage 3 -- WESA interviews and observations; and stage 4 -- data analysis and draft reports) that are the focus of this *Supplement*. The principal modifications to these stages as compared to the *WESA Training Guide* are identified below.

- A structure for reporting workplace educational competencies is provided by the checklist.
- Interview and observation questions and procedures are tied directly to the checklist.
- Through use in the observation stage, the checklist helps to validate the information provided during the employee and supervisory interviews.

Transitional information relative to the other WESA stages (stage 1 -- WESA design meetings; stage 2 -- interview preparation; stage 5 -- WESA clarification meetings and stage 6 -- WESA final reports), is provided in the *Supplement*; however, the analyst is encouraged to review each of these stages as fully detailed in the *WESA Training Guide*.

The latter sections of the *Supplement* provide guidance to analysts who are conducting WESAs for the first time as well as to experienced analysts who are interested in updating their techniques. The section on Tips for WESA Analysts (pages 84 - 104) offers practical recommendations to follow when conducting WESAs. The Completed WESA Report section (pages 108 - 137) includes WESA reports that were prepared using the new strategies, techniques and tools presented in this *Supplement*.

Future WESA Enhancements

A request for funding is pending which would enable the materials within the *WESA Training Guide Supplement* (including the *Interview and Observation Checklist*) to be available on computer disk. If funded, this proposal will permit analysts to rapidly customize summary and detailed WESA reports rather than taking the time to create the report formats and enter educational competencies and other foundation data.

If funded, a second three-year proposal will provide for the development, refinement and distribution of workplace educational skills analysis software. This software will be IBM-compatible and will provide:

- An expedited report-writing process.
- An updated and comprehensive database of workplace educational competencies that could be searched and sorted in a variety of ways (e.g., position type, job activity and educational competency).
- Immediate access to information contained in the *Standard Occupational Classifications* and the *Dictionary of Occupational Titles* (documents that are often used to prepare for WESA interviews and to draft reports).
- An ability to identify and highlight divergent information.
- Charting and graphing features for final WESA report data.
- An ability for data to be entered once and then organized, examined and reported on a cost-effective basis for a variety of purposes (e.g., for curriculum and assessment development, career planning and learner self-assessment).

At publication, the procedures outlined in this *Supplement* are in the initial stages of use. It is hoped that over time, as experience increases relative to the checklist and the reporting forms presented in the *Supplement*, comparable data for a large number of similar and dissimilar positions will be available for comprehensive analysis.

WESA INTERVIEWS AND OBSERVATIONS

Activities Completed Prior to the Interview and Observation Stage

The interview and observation stage is the third stage in the six-step WESA process. The first two stages (WESA design meetings and interview preparation) are fully described in the *Workplace Educational Skills Analysis Training Guide* and are not revisited in detail in the *Supplement*. However, it is critical that the activities outlined in the prior two stages are accomplished before beginning the interviews and observations. Among the activities to be completed prior to initiating the third stage are:

- Forming a WESA design team which consists of management, labor and education representatives (including the WESA analyst).
- Deciding who on the WESA design team will serve as the primary contact for the analyst. (The primary contact is typically the person at the worksite who will gather materials and handle the scheduling of meetings, interviews and observations for the analyst.)
- Discussing and agreeing upon the specifics of the WESA process and the uses of the resulting products to ensure that the needs of the stakeholders are met. (The WESA methodology was designed solely for educational and training purposes. Accordingly, it is not intended to supplant or conflict with collective bargaining contracts, job evaluations, studies or similar systems established for other purposes.)
- Establishing which positions will be reviewed and in what priority.
- Scheduling the WESA interviews and observations.
- Identifying and collecting preparatory interview information. This typically includes job descriptions and items used on the job, such as forms, reading materials and lists of frequently used vocabulary and technical terminology. (See the *Document and Data Collection Checklist* on page 98 for additional information.)
- Discussing worksite dress and safety requirements that apply to the WESA analyst.
- Conducting a tour with the analyst of the department(s) where the interviews and observations will occur.
- Researching, organizing and analyzing the data collected in preparation for the interviews.
- Confirming the interview and observation schedule with the primary contact or with others, as determined in the WESA design meeting(s).
- Reviewing and completing known information on the employee and supervisory interview questionnaires as well as on the *Interview and Observation Checklist.*

Before the analyst begins the interviews, it is important to remember that the effectiveness of the entire WESA process is dependent upon the quality of the interviews and observations. While the ability to interview and observe is learned and perfected with practice, the tools included in this section and in the remainder of the *Supplement* are designed to help first-time analysts conduct effective, professional and efficient WESAs. They are also intended to assist more seasoned analysts in streamlining the overall WESA process and in improving summary and detailed report quality.

Insofar as this stage of the WESA process is concerned, three new tools have been created: a *Supervisor or Lead Worker Interview Questionnaire*, an *Employee Interview and Observation Questionnaire*, and an *Interview and Observation Checklist.* As stated earlier, the checklist serves as the foundation for the interviews and observations and for the data analysis and draft report activities. Therefore, the questions contained within the interview instruments are designed to elicit the information necessary to complete the checklist; and subsequently, to draft the summary and detailed WESA reports.

Interview and Observation Questionnaires

Before beginning the actual interviews with supervisors and employees, introductions are customary and necessary. After exchanging greetings, the analyst shares introductory information with the interviewee regarding the WESA process. Typically, during the introduction, the analyst clearly communicates the purpose of the interview, establishes a positive tone, and answers any initial questions the interviewee may have.

It is important for the analyst to make every effort to put the interviewee at ease and establish a level of trust, as quickly as possible. The comfort level of the interviewee is often increased when the analyst explains that the purpose of the review is to help the workplace education program instructor provide the best training possible.

Analysts should clearly communicate that at no time during the WESA process will any data be collected about individual employees or employee performance. Also, it is helpful for the analyst to explain that he or she will complete a report at the end of the review process outlining the skills needed for the positions analyzed, but that specific comments provided during the interviews and observations by supervisors and employees will be kept confidential.

The information conveyed during the interview introduction should be tailored to each worksite, and agreed upon by the design team members during the first stage of the WESA process. To provide assistance in drafting introductory remarks, sample language is included at the beginning of both the employee and supervisory interview questionnaires.

After the interview introduction, the analyst will use the interview questionnaires to seek information specific to the position(s) selected for analysis from supervisory personnel and employees. Typically, the analyst begins by interviewing the supervisor for the position or positions identified for review. While the title of the appropriate person for this interview may vary from site to site (e.g., lead worker, team leader, foreman or manager), each design team selects the individuals it believes will best fulfill the goals established for the interview. To some extent, sites may adjust or expand the goals of the supervisory interview. Most commonly, its purpose is two-fold:

- To learn general information about the work unit, such as anticipated changes in equipment, work processes and job assignments; career advancement and promotional practices; and training needs.
- To gain overview information about the position(s) to be analyzed.

The supervisory interview generally requires about 45 minutes, although it may necessitate more or less time depending upon the number of positions within the work unit that are scheduled for analysis. In some cases, all of the positions within a specific work unit (e.g., department, team or cell) may be reviewed; whereas at other sites, one job from each department will be analyzed.

After interviewing the supervisor or lead worker, the analyst should review his or her notes to prepare for the upcoming employee interview. While the supervisory interview provides general information about the jobs being analyzed, the employee interview provides first-hand information about the skill demands of the position. For most employee interviews, the following sequence is recommended. First, interview the employee in a quiet and private area. Second, observe the employee performing his or her primary job activities. Third, hold a close-out interview with the employee in the area where the initial interview was held, or at the work station, if that location is more convenient and is conducive to discussion.

The initial employee interview generally requires 45 to 60 minutes. The observation may take an additional 45 minutes, and the close-out interview typically lasts 10 to 15 minutes. The length of time indicated for each of these activities is approximate. Much depends upon the complexity of the job, the amount of preparation work completed before the interviews, and the experience of the analyst in reviewing similar positions.

Experience has shown that better prepared analysts and interviewees result in a more effective and cost-efficient WESA process. For example, if the work materials (e.g., position descriptions, forms and reading materials used on the job) are not provided to the analyst in advance of the interviews, then the interviews and observations require more time. On the other hand, if the analyst is provided with two sets of current forms used on the job (one blank and one completed) as well as with copies of manuals and other reading materials, the interviews and observations usually require significantly less time.

On both the supervisory and the employee interview questionnaires, the analyst should complete the data collection section prior to beginning the interviews. (This section includes the following background information: the job title, the employer, the name of the analyst, the analyst's affiliation, and the date of the analysis.) It may also be helpful for the analyst to review the interview and observation suggestions included in the Tips for WESA Analysts section on pages 84 - 104 of the *Supplement*.

Interview and Observation Checklist Overview

The analyst will use the *Interview and Observation Checklist* to some extent during the supervisory interview, but more so during the employee interview and observation. During the interviews, the analyst may use the checklist to probe for further information (particularly in areas where the analyst has less experience), or to record how the educational competencies are applied on the job. Regardless of its function during the interviews, it will be important for the analyst to use the checklist during the employee observation to validate the information obtained during the interviews (i.e., the competencies identified during the interviews are used on the job and those that were not identified are not used). As with the employee and supervisory interview questionnaires, the background information should be completed on the *Interview and Observation Checklist* prior to beginning the interviews.

As explained in the introduction to this *Supplement*, the checklist is grouped into three educational domains: communications, critical thinking and mathematics. The domains are divided into skill dimensions (13 total). The dimensions, except the four with the fewest competencies listed, are divided into subskills (24 total). At the next level of specificity, there are a total of 212 workplace educational competencies identified.

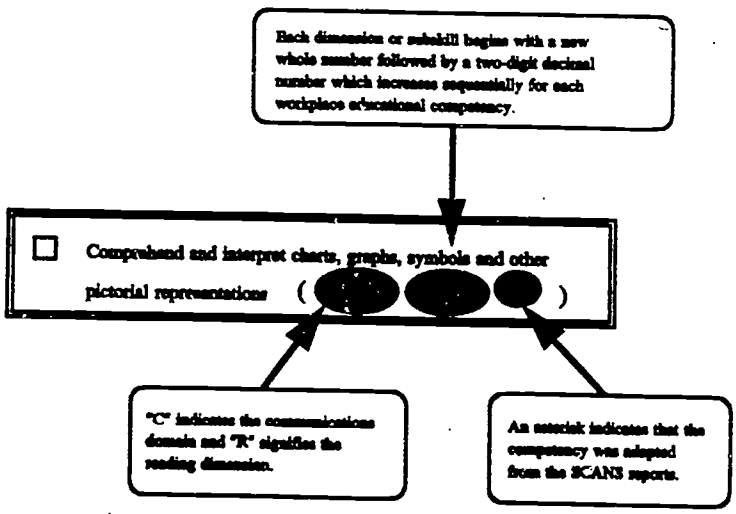
To facilitate referencing, adding, deleting and locating workplace educational competencies within the checklist, it is important for the analyst to understand the coding system. Within the checklist, each workplace educational competency is identified by an alpha-numeric code which is designed to increase efficiency and to allow comparisons of competencies across multiple jobs. The alpha code consists of two letters. The first letter indicates the domain and the second letter signifies the dimension. For clarification purposes, the following table is provided.

Interview and Observation Checklist Coding System

DOMAIN	DIMENSION	SUBSKILL	EDUCATIONAL COMPETENCIES
Communications (C)	Listening (L)	Verbal Non-Verbal	5 4
	Speaking (S)	Preparation Delivery	8 7
	Reading (R)	Vocabulary Comprehension Reference	5 10 7
	Writing (W)	Recording Composition	2 8
	Team-Building (T)	Group Discussion Goal Setting Team Participation Problem Resolution	3 5 10 8
Critical Thinking (T)	Creative Thinking (C)	None	7
	Decision-Making (D)	Analysis Resolution Evaluation	6 3 2
	Problem-Solving (P)	Recognition Analysis Resolution	4 7 9
	Mental Visualization (M)	None	6
	Knowing How to Learn (K)	None	14
	Reasoning (R)	None	6
Mathematics (M)	Arithmetic (A)	Computations Tables Measurement	20 8 11
	Mathematics (M)	Equations Statistics	18 9

To further illustrate how the checklist alpha structure works, all of the workplace educational competencies in the reading dimension have an alpha code of CR ("C" for the communications domain and "R" for the reading dimension). Similarly, all of the workplace educational competencies in the reasoning dimension have an alpha code of TR ("T" for the critical thinking domain and "R" for the reasoning dimension).

For added specificity, the alpha code is followed by a three-digit number. Each new dimension or when provided, each new subskill begins with the next whole number (e.g., 1.01, 2.01, and 3.01). The workplace educational competencies within the dimension or subskill are numbered sequentially as indicated by the numbers to the right of the decimal (e.g., 1.01, 1.02, and 1.03). Lastly, an asterisk follows the three-digit number, if the workplace educational competency was adapted from the SCANS reports. For example:



As indicated in the example above, a box precedes each workplace educational competency listed on the checklist to facilitate the analyst checking those skills that are applicable to the position(s) analyzed. On the actual checklist, space is provided to the right of each competency and beneath it in order for the analyst to note how that skill is applied on the job and to record other relevant information.

The checklist is also formatted to aid the analyst in conveniently recording how frequently each subskill is used and how critical that subskill is to performing the work. (When a dimension is not divided into subskills, the information is sought for the dimension.) It is recommended that on the *Interview and Observation Checklist*, the analyst use the following scale to record the frequency information: D for *Daily*, W for *Weekly* and L for *Less Often*. To specify the criticality data, the following scale is suggested: V for *Very Critical*, C for *Critical* and L for *Less Critical*. For example, if reading comprehension is very critical to the job analyzed and is performed on a daily basis, the analyst would complete the checklist as indicated below.

COMMUNICATIONS DOMAIN
Reading Dimension
Subskill: **Comprehension**
Frequency: **D** Criticality: **V**

When collecting the frequency and criticality information, it is important for the analyst to remember the purposes it will serve. Typically, this information will be used by workplace education program instructors to create individualized education plans for employees. Consider the employee-learner who has a short period of time to master a job. The instructor and learner may initially decide to target skills that are used most frequently (daily) and are most critical (very critical) to that job. Also, the frequency and criticality information may be employed by program administrators to establish priorities for the development of curriculum. For example, a particular worksite may decide to focus initial curriculum development activities on those areas which are most critical to the largest number of positions.

Employee Observation

As stated earlier, during the observation it is crucial for the analyst to use the *Interview and Observation Checklist* to confirm or clarify previously identified workplace educational competencies and to note any skills used on the job that were not discussed during prior interviews. It is also important for the analyst to verify frequency and criticality information.

Throughout the observation, the analyst must be keenly aware of his or her surroundings. If there are tools, work aids or reading materials in the area that have not been discussed, the analyst should ask about them. For example, an analyst may see a calculator at a work station and then ask, "Do you use calculators?" Also, during the observation, the analyst should note terms and technical vocabulary that are used, if they are not included on the list that was prepared for the interview.

If the analyst is unable to ask questions during part or all of the observation, he or she should list the questions for discussion during the employee close-out interview. Additional suggestions on conducting employee observations are included on pages 89 - 90 of the Tips for WESA Analysts section of the *Supplement*.

Employee Close-Out Interview

At the conclusion of the observation, the analyst holds a brief close-out interview with the employee in the area where the initial interview was held, or at the work station, if that location is more convenient and is conducive to discussion. The close-out interview is conducted principally for four reasons:

- To discuss any observed activities or skills that were different from those discussed during the employee or supervisory interviews.
- To verify the accuracy of information collected relative to frequency and criticality; tools, equipment and work aids; and vocabulary and technical terminology.
- To permit the analyst to clarify any remaining areas of confusion.
- To enable the employee to ask any questions that he or she may have.

The close-out interview is also the appropriate time for the analyst to reiterate the next steps in the WESA process and to thank the interviewee for sharing his or her time.

WESA Interview and Observation Instruments

- Supervisory or Lead Worker Interview Questionnaire
- Employee Interview and Observation Questionnaire
- Interview and Observation Checklist

Workplace Educational Skills Analysis
Supervisor or Lead Worker Interview Questionnaire

Data Collection Information

Job Title: _____
Employer: _____
Analyst: _____
Analyst Affiliation: _____
Date of Analysis: _____

Introduction

Hello! My name is (name) and I am from (organization). As (name of person who scheduled the interview) probably told you, I am here to gather information that will be helpful to the (name of the Education Center or program). I am not sure how much you know about the program. (Based on the response, provide a brief description.) In short, the workplace education program began through the initiation of a partnership among (names of the program partners). The program is designed to assist employers and employees successfully deal with the rapidly changing workplace, particularly by helping employees to gain skills that are needed for current jobs and for future job opportunities.

Through this program, instruction is provided in workplace basic skills such as communications, critical thinking and mathematics. The instruction is provided on-site in the (name of the Education Center or program). Have you met the instructor (instructor's name)? In order for the instructor to offer the most meaningful training possible, it needs to be job-related. That is why I am here to talk with you today.

As you know, in your department I am scheduled to interview and observe (names of employees and times and locations for the interviews and observations). Before I talk with them about each of their jobs, it would be helpful if you could provide me with some general information pertaining to this department and then a few specifics about the jobs I am scheduled to analyze. If you do not have an answer to a particular question, that is okay. Perhaps you could suggest someone else for me to ask. All in all, this discussion should take about 45 minutes.

The information I will be gathering throughout the interviews and observations will be about the skills needed to perform particular jobs. I will not be collecting any data about individual employees or about employee job performance. After conducting the interviews and observations, I will draft a report detailing the skills needed for each job. The WESA clarification team, which includes (names of the team members), will review the draft report for completeness and accuracy before it is made available to the instructor and placed in a binder in the (name of the Education Center or program). Any comments you or your employees provide during the interview process will be kept confidential. I will also give you a copy of my draft report to review before I submit it to the WESA clarification team.

Before we get started do you have any questions?

Departmental Role in Organization

1. What are the primary responsibilities of this department?
   - How does the work contribute to the end product(s)?
   - Does much of the work involve other departments or external customers?

2. How many positions are in this (name of department)?
   - What are the job titles and pay ranges of the positions?
   - How many employees do you supervise?

3. Are there other departments that perform similar work?
   - How many?
   - What do they do?

Departmental Overview

4. Has this department experienced many changes within the last five years or so?
   - New technology?
   - New work processes?
   - Fewer resources?
   - Higher quality standards?
   - Increased customer demands?

5. Do you expect many changes to the department in the future?
   - What type of change(s) and when?
   - How is the change(s) expected to impact employees?

6. Typically, how are new hires selected for this department?
   - Are there testing procedures?
   - Are there certification, licensure, educational or other requirements?
   - Are training (probationary) periods required?
   - Are these long-standing requirements or are they fairly new?

Position 1: Position 3:

Position 2: Position 4:

7. How are promotions and job transfers handled?
   - By seniority?
   - Through testing?

8. Are there career advancement opportunities for positions in your department?
   - Is there formal or informal progression from one to another?
   - Is there a pay for knowledge system in place?
   - Is there a tuition reimbursement program?

Position 1: Position 3:

Position 2: Position 4:

9. What type of on-the-job training is provided?
   - Formal?
   - Informal?
   - Orientation?
   - Hours required per year?
   - Cross-training?

10. How do you see the (name of workplace education program) benefitting your department?
    - Helping to prepare employees for technical or other on-site training?
    - Increasing productivity?
    - Improving communications or teamwork?
    - Improving reading, writing or math skills?
    - Improving safety?
    - Improving quality?
    - Encouraging employees to problem solve?
    - Better equipping employees to deal with change?

Primary Job Activities

11. What are the primary job responsibilities for each member of your department?
    - Primary responsibilities would be the tasks that are performed most frequently and those that are most critical.
    - The main job activities.

Position 1: Position 3:

Position 2: Position 4:

Critical Workplace Educational Skills

12. What are the most critical and frequently used **communications skills**?
    - Listening?
    - Speaking?
    - Reading?
    - Writing?
    - Team-Building?

Position 1: Position 3:

Position 2: Position 4:

13. What are the most critical and frequently used **critical thinking skills**?
    - Creative thinking (e.g., suggesting new ideas, procedures or systems)?
    - Decision-Making (e.g., evaluating and choosing the best alternatives)?
    - Problem-Solving (e.g., generating alternative solutions to a problem)?
    - Mental visualization (e.g., conceptualizing internal machine parts or processes)?
    - Knowing how to learn (e.g., memorizing facts or processes)?
    - Reasoning (e.g., applying policies to new situations)?

Position 1:

Position 3:

Position 2:

Position 4:

14. What are the most critical and frequently used **mathematics skills**?
    - Computing numbers?
    - Charting?
    - Measuring?
    - Solving equations?
    - Calculating statistics?

Position 1:

Position 3:

Position 2:

Position 4:

Tools, Equipment and Work Aids

15. What are the most frequently used tools, equipment and work aids?
    - Calculators?
    - Computers?
    - Common hand tools?
    - Measuring instruments?
    - Cash registers?
    - Conversion charts?

16. Do you anticipate any new equipment being added to the department in the future?
    - What?
    - When?
    - Will training be provided?

Reading Materials

17. What is the range of materials that need to be read by employees in your department?
    - Safety signs?
    - Forms?
    - Notes?
    - Instructions?
    - Manuals?
    - Trade magazines?

18. The WESA design team gathered the following work materials from your department. Among the materials should be one set of blank forms as well as a sample set of completed forms used by employees. Are all of the major forms and documents here? (*If the work materials have not been provided, ask the lead worker or supervisor if he or she could help get them together.*)
    - Position descriptions or job activity summaries?
    - Quality assurance forms?
    - Safety or other regulatory information?
    - Logbooks, blueprints or control charts?
    - Work instructions, job tickets or schedules?
    - Equipment, training, specification or procedural manuals?
    - Trade magazines or professional journals?
    - Maintenance request, complaint or rework forms?
    - Personnel or employee handbooks?
    - Payroll, benefits or employee suggestion policies and forms?

Vocabulary and Technical Terminology

19. The WESA design team provided me with an initial list of vocabulary and technical terminology that is critical to the work in your department. This list will be augmented during subsequent phases of the WESA process. Definitions will be provided by the instructor, peer advisors and/or the steering committee. *(If the list has not been provided, ask the lead worker or supervisor if he or she could help get you started.)*
    - Is there anything you would like to add to the list?
    - Anything that is incorrect or not used?

Closing

20. I have asked a lot of questions. Do you have any questions for me?

21. I really appreciate you taking the time to talk with me. When I finish writing the report, I would like to give you a copy so that you can make sure it is accurate and complete, before I share it with the clarification team. Would that be okay?

22. Would you mind giving me your telephone number at work, in case I have any questions when I am finishing the report? *(If a tour of the department was not previously provided, ask the supervisor or lead worker if he or she would mind showing you the area before the employee interviews and observations.)*

Thanks again for your time and help!

Workplace Educational Skills Analysis
Employee Interview and Observation Questionnaire

PART I: INITIAL EMPLOYEE INTERVIEW

Data Collection Information

Job Title: _____
Employer: _____
Analyst: _____
Analyst Affiliation: _____
Date of Analysis: _____

Introduction

Hello! My name is (name) and I am from (organization). As (name of person who scheduled the interview) probably told you, I am here to gather information that will be helpful to the (name of the Education Center or program). I am not sure how much you know about the program. (Based on the response, provide a brief description.) In short, the workplace education program began through the initiation of a partnership among (names of the program partners). The program is designed to assist employers and employees successfully deal with the rapidly changing workplace, particularly by helping employees to gain skills that are needed for current jobs and for future job opportunities.

Through this program, instruction is provided in workplace basic skills such as communications, critical thinking and mathematics. The instruction is provided on-site in the (name of the Education Center or program). Have you met the instructor (instructor's name)? In order for the instructor to offer the most meaningful training possible, it needs to be job-related. That is why I am here to talk with you today.

With your help, I will analyze the skills used in your job that involve communications, critical thinking and mathematics. I will begin by asking you background questions to help me better understand your work. Then we will talk more specifically about the different skills required for your job. If you do not have an answer to a particular question, that is okay. Perhaps you could suggest someone else for me to ask.

The initial interview should take 45 to 60 minutes. Afterward, I will ask you to take me to your work area and show me your job, step-by-step. The observation phase generally takes about 45 minutes. And lastly, we will stop back here or pick a quiet spot near your work area for me to ask any remaining questions and to give you a chance to ask me any questions you might have.

Please realize that the information I am gathering is about the skills needed to perform this job. No data will be collected about you or your performance. I will complete a report outlining the skills needed for this job, but specific comments you provide during this interview will be kept confidential. I will also give you a copy of my report to review before I submit it to the program partners.

Before we get started do you have any questions?

Background Information

1. I understand that your position is (job title)?
   - How long have you been in this position?
   - How long have you been with the (organization name)?
   - Have you held other jobs here?

2. When you were selected for this job, were you required to have specific qualifications or prior training?
   - What specific qualifications?
   - What specific training?
   - How long was the training (probationary) period?
   - Are there specific qualifications or prior training requirements for new applicants?

3. Since you have been in this position, have you attended any special training?
   - Cross-training in different jobs?
   - Safety training?
   - What about quality training such as total quality management or statistical process control?
   - Technical training?

4. Has your job changed much since you started?
   - How has it changed?
   - Was any training provided or other steps taken to prepare you for these changes?

5. Do you expect many changes to your job in the future?
   - What type of change(s)?
   - When do you expect them to take place?

6. How many positions at (name of employer) are similar to yours?

7. Are there positions at (employer name) that you would like to promote or transfer into?
   - Is there a career path for your position?
   - What skills would you need to be promoted?
   - How does your job differ, in terms of the skills needed, from the level above it?
   - How does your job differ, in terms of the skills needed, from the level below it?

Primary Job Activities

8. In order for me to better understand your work, could you describe the primary responsibilities of your job?
   - Primary responsibilities would be the tasks you perform most frequently and those that are most critical to your job.
   - It may be helpful to think about what you do in a day from start to finish.
   - What are the main activities you perform?

Job Activity A:

Job Activity B:

Job Activity C:

Job Activity D:

Job Activity E:

Job Activity F:

9. To help me see how your work fits within your department and the organization overall, could you describe what work needs to be done before and after the work you do?

10. Would you say that the main responsibilities of your job are (list the activities you identified above)? *Make corrections as necessary.*

Communication Skills Used on the Job

11. Does your job require you to interact with co-workers, supervisors, customers or others?
    - For what purposes?
    - Is this mostly **verbal, nonverbal, written** or how?
    - Do you use the **phone, a pager, e-mail**?
    - How do you receive **job instructions**?
    - Handle **shift changes**?
    - **Schedule** work?
    - Seek **assistance**?
    - Receive or provide **training**?
    - Receive or give **job assignments**?

12. For any specific purposes in your job, do you use your sense of sight, sound, touch, taste or smell?
    - To watch for **changes in color**?
    - To detect **odors**?
    - To determine **surface irregularities** by touch?
    - To listen for sounds such as **noises in machinery** or equipment?

13. Do you attend meetings as part of your job?
    - Do you need to **listen** carefully to details or is more general information conveyed?
    - Offer **ideas**?
    - Do you need to take **notes**?
    - Hand-in written **reports**?

14. Are you required to do much formal or informal speaking as part of your job?
    - Answer or clarify **questions** from co-workers, managers or others?
    - Speak at **team meetings** or **staff meetings**?
    - Make **presentations** or give **reports**?
    - How do you prepare for these talks?

15. Do I have copies of the materials you read or use most often? (*Review materials provided by the WESA design meeting participants, supervisor or lead worker.*)
    - Could you briefly describe what these materials are?
    - Are they current?
    - Are there any that do not pertain to your job?

16. Are there other types of materials you read at work? (*Ask for copies of other critical materials.*)
    - Warning **signs**?
    - **Notices** on bulletin boards or other posted information?
    - **Personnel information** such as benefits or payroll data?
    - Employer, customer or governmental **forms**?
    - Abbreviations or alphanumeric **codes**?
    - Entries in **logbooks**?
    - **Charts, graphs** or other pictorial representations?
    - **Messages** on computer screens?
    - **Notes** from employees or supervisors?
    - Technical words or **terms**?
    - Operating **instructions**?
    - OSHA or other **regulatory information**?
    - Trade **magazines**?
    - Operational, training or procedural **manuals**?

17. What do you usually do with the information you read?
    - **Complete** personnel or employer forms?
    - **Follow directions**?
    - **Locate** information or data?
    - **Share** with co-workers?
    - **Memorize** or **refer** to it when necessary?
    - **Write** reports?

18. What (other) type of writing do you do on the job?
    - Record **data** or take **notes**?
    - Chart data in a **logbook**?
    - Write or edit **memos, letters** or **reports**?
    - Write **directions** or **procedures**?
    - Develop **forms** for others to complete?

19. Do you work on any teams?
    - In what situations?
    - Do you **share information, set goals, give feedback** on new ideas or **resolve problems**?
    - What other responsibilities do you have?

Critical Thinking Skills Used on the Job

20. Are there situations when you need to think creatively in your job?
    - When?
    - Using new **equipment**?
    - Brainstorming **ideas**?
    - Implementing new **procedures**?
    - Making **recommendations**?

21. Do you need to make many decisions in your job?
    - In what situations?
    - **Juggling priorities**?
    - **Deciding what to do**?
    - How do you know if you made the right decision?

22. Do you have to analyze or solve many problems on the job?
    - In what situations?
    - Do you need to **determine causes of errors** or problems?
    - Must you **follow policies** or rules?
    - How do you usually come up with the solution?
    - Do you need to **memorize** or **research** information or processes?
    - Are there steps you usually take to try to keep the problem from happening again?

23. What do you do when something goes wrong on the job?
    - A machine breaks down or **malfunctions**?
    - **A step was skipped** in the process?
    - **Faulty work** was given to you?
    - There are **disagreements** among team members?

24. Do you need to mentally visualize objects or processes?
    - Examine two- or three-dimensional **blueprints**?
    - Conceptualize the **inner workings** of a machine component?
    - Work from mirrored or **reversed images**?

Mathematical Skills Used on the Job

25. Do you use many math skills in your job?
    - Taking inventory?
      (**matching, counting** or **comparing whole numbers**)
    - Making change?
    - Determining if numbers are within specifications, tolerances or ranges?
      (**adding, subtracting, multiplying** or **dividing**)
    - Computing **percentages, fractions** or **decimals**?
    - **Charting** or **graphing** information?
    - Calculating **measurements**?
    - Measuring **angles, diameters** or **circumferences**?
    - Solving **equations**?
    - Calculating **averages** (mean, median and modes)?
    - Computing **standard deviations** and variances?

26. Do you generally do math in your head, by hand, with a calculator, a computer or how?
    - When do you use each method?
    - What degree of accuracy is required?

PART II: OBSERVATION OF WORK PERFORMED

27. Next, could you take me to your work area and show me your job, step-by-step?
    - It might be helpful to pretend that you are training me for your job.
    - Are there some things you cannot show me today that you do on other days?
    - Are there some things that are too difficult to show me?

28. Is it okay to ask you questions as you demonstrate your job, or would it be better for me to jot down the questions I have and ask you about them later?
    - Are there any times when it would be dangerous to ask you questions?
    - Are there any precautions I should be sure to take or special procedures I should follow?

29. Are there any other activities you would like to show me?
    - Help me to remember, have I seen all of the activities that we discussed earlier?
    - All of the activities described in response to question 8?
    - All of the primary responsibilities?

PART III: EMPLOYEE CLOSE-OUT INTERVIEW

Workplace Educational Skill Competencies

30. In reviewing my notes, it appears that these skills are the most critical and used the most often in your job. *(Read the list or show the employee the checklist.)* Is this accurate?

Tools, Equipment and Work Aids

31. Are there other tools, equipment or work aids that you use on the job other than those listed here? *(Read or show the employee the list.)*
    - Maybe in unique situations?
    - On different days?
    - To prevent or remedy unsafe conditions?

32. Which do you use the most often?

33. Is there any new equipment that you will be using in the near future?
    - What and when?
    - How will it change your job?

Vocabulary and Technical Terminology

34. Is this a fairly complete list of the words or terms that are used in your job? *(Read or show the employee the list that has been compiled.)*
    - Are there any words or terms that should be added?
    - Any words or terms that should be deleted?

Closing

35. I have asked you a lot of questions. Do you have any questions for me?

36. Would you like anything to be added to the report?

37. I really appreciate you taking the time to talk with me and show me your job. When I finish writing the report, I would like to give you a copy so that you can make sure it is accurate and complete, before I share it with the program partners. Would that be okay?

38. Would you mind giving me your telephone number at work, in case I have any questions when I am finishing the report?

Thanks again for your time and help!

Workplace Educational Skills Analysis
Interview and Observation Checklist

Job Title: _____
Employer: _____
Analyst: _____
Analyst Affiliation: _____
Date of Analysis: _____

Frequency: D = Daily, W = Weekly, L = Less Often
Criticality: V = Very Critical, C = Critical, L = Less Critical

COMMUNICATIONS DOMAIN

Listening Dimension

Subskill: **Verbal**

Frequency: ____ Criticality: ____

- ☐ Receive verbal information in ways appropriate to the purpose (CL 1.01*)
- ☐ Pay attention to and interpret verbal messages in ways that are appropriate to the purpose (CL 1.02*)
- ☐ Respond to verbal messages in ways appropriate to the purpose (CL 1.03*)
- ☐ Comprehend terminology (CL 1.04)
- ☐ Listen for context clues (CL 1.05)

Subskill: **Non-Verbal**

Frequency: ____ Criticality: ____

- ☐ Detect sounds within the workplace (CL 2.01)
- ☐ Receive non-verbal messages in ways that are appropriate to the purpose (CL 2.02*)
- ☐ Pay attention to and interpret non-verbal messages in ways that are appropriate to the purpose (CL 2.03*)
- ☐ Respond to non-verbal messages in ways that are appropriate to the purpose (CL 2.04*)

Listening Notes

Speaking Dimension

Subskill: **Preparation**

Frequency: ____ Criticality: ____

- ☐ Organize ideas to communicate a message (CS 1.01*)
- ☐ Select appropriate patterns (chronological, priority order, etc.) and cues (next, most important, etc.) for conveying a message (CS 1.02)
- ☐ Select an appropriate language for conveying a message (CS 1.03)
- ☐ Select an appropriate medium for conveying a message (CS 1.04*)

Speaking Notes

- ☐ Design and adapt messages appropriate to listeners and situations (CS 1.05*)
- ☐ Prepare appropriate visual aids (CS 1.06)
- ☐ Support viewpoints with reasons and evidence (CS 1.07)
- ☐ Critique content for effectiveness (CS 1.08)

Subskill: **Delivery**
Frequency: ____ Criticality: ____

- ☐ Speak clearly to communicate a message (CS 2.01*)
- ☐ Select verbal and non-verbal language appropriate to the audience and to the occasion (CS 2.02*)
- ☐ Ask and answer questions when needed (CS 2.03*)
- ☐ Participate in conversation, discussion, group presentations and meetings (CS 2.04*)
- ☐ Express ideas, opinions, facts and feelings (CS 2.05)
- ☐ Adjust statements to increase comprehension by the listener (CS 2.06)
- ☐ Restate, clarify and paraphrase to convey main points (CS 2.07)

Speaking Notes (continued)

Reading Dimension

Subskill: **Vocabulary**
Frequency: ____ Criticality: ____

- ☐ Discriminate among letters (CR 1.01)
- ☐ Discriminate among alphanumeric, alphabetic and color codes (CR 1.02)
- ☐ Interpret abbreviations and acronyms (CR 1.03)
- ☐ Recognize terminology and vocabulary specific to the industry (CR 1.04)
- ☐ Infer the meaning of unknown and technical vocabulary (CR 1.05*)

Subskill: **Comprehension**
Frequency: ____ Criticality: ____

- ☐ Comprehend terminology and vocabulary specific to the industry (CR 2.01*)
- ☐ Comprehend and interpret charts, graphs, symbols and other pictorial representations (CR 2.02*)
- ☐ Identify components of a diagram or a schematic (CR 2.03)
- ☐ Read, comprehend and interpret stated and implied information (CR 2.04*)
- ☐ Follow directions from stated and implied information (CR 2.05*)
- ☐ Summarize the main idea or essential message (CR 2.06*)
- ☐ Identify relevant details or specifications (CR 2.07*)

Reading Notes

- ☐ Identify cause and effect within written material (CR 2.08)
- ☐ Compare and contrast information found in multiple locations (CR 2.09)
- ☐ Determine the accuracy, appropriateness, style and plausibility of reports, proposals or theories of other writers (CR 2.10*)

Subskill: **Reference**
Frequency: ____ Criticality: ____

- ☐ Skim and scan to locate relevant information (CR 3.01)
- ☐ Locate written information in prose or documents (CR 3.02*)
- ☐ Locate the meaning of unknown or technical vocabulary (CR 3.03*)
- ☐ Locate information in charts and graphs and in other work aids (CR 3.04)
- ☐ Obtain information from multiple sources (CR 3.05)
- ☐ Cross-reference information or material (CR 3.06)
- ☐ Extract and apply information from charts, graphs, symbols and other pictorial representations (CR 3.07)

Writing Dimension
Subskill: **Recording**
Frequency: ____ Criticality: ____

- ☐ Record numbers completely and accurately (CW 1.01*)
- ☐ Record words completely and accurately (CW 1.02*)

Subskill: **Composition**
Frequency: ____ Criticality: ____

- ☐ Communicate thoughts, ideas, information and messages in writing (CW 2.01*)
- ☐ Compose and create documents and other written information (CW 2.02*)
- ☐ Check, edit and revise for correct grammar, spelling and punctuation (CW 2.03*)
- ☐ Check, edit and revise for correct information, clarity, emphasis, organization and format (CW 2.04*)
- ☐ Diagram information (CW 2.05)
- ☐ Apply language, style and format appropriate to the subject matter, purpose and audience (CW 2.06*)
- ☐ Document appropriate supporting information (CW 2.07*)
- ☐ Verify the accuracy of details in the final document (CW 2.08*)

Reading Notes (continued)

Writing Notes

Team-Building Dimension

Subskill: **Group Discussion**

Frequency: ____ Criticality: ____

- ☐ Share speaking time with all members of a group (CT 1.01)
- ☐ Be aware of one's impression on others (CT 1.02*)
- ☐ Offer constructive feedback (CT 1.03)

Subskill: **Goal Setting**

Frequency: ____ Criticality: ____

- ☐ Share team goals and mission (CT 2.01)
- ☐ Discuss and clarify expectations of team members and those external to the team (CT 2.02)
- ☐ Participate in setting well-defined and realistic team goals (CT 2.03*)
- ☐ Suggest creative and effective means to achieve team goals (CT 2.04)
- ☐ Set individual goals and objectives consistent with group goals (CT 2.05)

Subskill: **Team Participation**

Frequency: ____ Criticality: ____

- ☐ Take an interest in what others say and do (CT 3.01*)
- ☐ Share information and expertise to help others learn needed knowledge and skill (CT 3.02*)
- ☐ Recognize accomplishments, give credit and thanks for accomplishments to others (CT 3.03)
- ☐ Facilitate positive interactions and excellence in others (CT 3.04)
- ☐ Contribute to group efforts with ideas and suggestions and by fulfilling individual responsibilities (CT 3.05*)
- ☐ Work constructively with others (CT 3.06*)
- ☐ Demonstrate understanding, friendliness, adaptability, empathy and politeness in new and ongoing group settings (CT 3.07*)
- ☐ Inspire mutual support of team members (CT 3.08)
- ☐ Motivate team members with enthusiasm, vitality and optimism in approaching and completing tasks (CT 3.09)
- ☐ Recognize the value of diversity in increasing team effectiveness (CT 3.10*)

Subskill: **Collaborative Problem Resolution**

Frequency: ____ Criticality: ____

- ☐ See another's point of view (perspective taking) (CT 4.01)
- ☐ Exhibit self-control and respond rationally and nondefensively to feedback (CT 4.02*)

Team-Building Notes

- ☐ Demonstrate patience, collaboration and flexibility in diagnosing and solving problems (CT 4.03)
- ☐ Work effectively with diverse personalities (CT 4.04)
- ☐ Request expertise external to the team as needed (CT 4.05)
- ☐ Mediate conflict before it becomes destructive (CT 4.06)
- ☐ Work independently (without close supervision) to accomplish group goals (CT 4.07)
- ☐ Work toward a consensus that may involve exchanging specific resources or resolving different interests (CT 4.08*)

Team-Building Notes (continued)

CRITICAL THINKING DOMAIN

Creative Thinking Dimension

Frequency: ____ Criticality: ____

- ☐ Imagine new possibilities to generate creative ideas (TC 1.01*)
- ☐ Make nonlinear or unusual connections to generate new ideas (TC 1.02*)
- ☐ Change or reshape goals to generate new ideas (TC 1.03*)
- ☐ Reshape goals and make connections between seemingly unrelated ideas, processes, etc. to reveal new possibilities (TC 1.04*)
- ☐ Combine ideas and information in new ways (TC 1.05*)
- ☐ Analyze operations to make them more efficient and effective (TC 1.06)
- ☐ Participate in brainstorming sessions (TC 1.07)

Creative Thinking Notes

Decision-Making Dimension

Subskill: **Analysis**

Frequency: ____ Criticality: ____

- ☐ Specify goals (TD 1.01*)
- ☐ Identify and understand constraints (TD 1.02*)
- ☐ Analyze situations and recognize that a decision needs to be made (TD 1.03)
- ☐ Judge the credibility of sources of information (TD 1.04)
- ☐ Distinguish major problems from minor problems (TD 1.05)
- ☐ Recognize when being faced with a decision that may violate commonly held personal or organizational beliefs and understand the potential effects of those decisions (TD 1.06*)

Decision-Making Notes

Subskill: **Resolution**

Frequency: ____ Criticality: ____

- ☐ Generate alternatives and implementation strategies (TD 2.01*)
- ☐ Consider risks and likely consequences associated with alternatives (TD 2.02*)
- ☐ Evaluate and choose the best alternatives (TD 2.03*)

Subskill: **Evaluation**

Frequency: ____ Criticality: ____

- ☐ Evaluate actual effects of decisions (TD 3.01)
- ☐ Evaluate new situations as they arise (TD 3.02)

Problem-Solving Dimension

Subskill: **Recognition**

Frequency: ____ Criticality: ____

- ☐ Recognize that a problem exists (TP 1.01*)
- ☐ Clarify the problem (TP 1.02)

Problem-Solving Notes

- ☐ Verify the existence of the problem (TP 1.03)
- ☐ Recognize patterns in problem situations (TP 1.04)

Subskill: **Analysis**
Frequency: ____ Criticality: ____

- ☐ Identify possible reasons or causes for a problem and differentiate between cause and effect (TP 2.01*)
- ☐ Collect and evaluate necessary data for relevance and accuracy (TP 2.02)
- ☐ Organize, process and maintain relevant information (TP 2.03*)
- ☐ Assess accurately the severity and any patterns in problem situations (TP 2.04)
- ☐ Isolate problem components and characteristics (TP 2.05)
- ☐ Trace the root cause of the problem (TP 2.06)
- ☐ Research and analyze the perceived problem (TP 2.07)

Subskill: **Resolution**
Frequency: ____ Criticality: ____

- ☐ Generate possible alternative solutions to a problem (TP 3.01)
- ☐ Prioritize job tasks for effectiveness and efficiency (TP 3.02)
- ☐ Notify and consult others, as appropriate, when problems or potential problems arise (TP 3.03)
- ☐ Inform others of the solution and, when appropriate, how the problem was resolved (TP 3.04)
- ☐ Consider the knowledge and skills of the workforce and distribute work accordingly (TP 3.05*)
- ☐ Devise and implement a plan of action to resolve the problem (TP 3.06*)
- ☐ Evaluate alternatives and select a solution (TP 3.07)
- ☐ Evaluate and monitor the progress of the Problem-Solving plan (TP 3.08*)
- ☐ Revise Problem-Solving activities as indicated by findings (TP 3.09*)

Mental Visualization Dimension
Frequency: ____ Criticality: ____

- ☐ Visualize objects, processes and modifications (TM 1.01*)
- ☐ Conceptualize the inner workings of a machine component or mechanism that may not be visually apparent (TM 1.02)
- ☐ Examine a schematic or blueprint and visualize the object or operation (TM 1.03)
- ☐ Look at components and visualize the whole (TM 1.04)

Problem-Solving Notes (continued)

Mental Visualization Notes

- ☐ Look at the whole and break it into parts (TM 1.05)
- ☐ Interpret two and three dimensional drawings of objects (TM 1.06)

Knowing How to Learn Dimension

Frequency: ____ Criticality: ____

- ☐ Recognize and apply learning styles, techniques, strategies, tools and resources (TK 1.01*)
- ☐ Sort, classify or match objects by physical characteristics (e.g., color, size, shape or marking) (TK 1.02)
- ☐ Research information (TK 1.03)
- ☐ Memorize facts and other frequently used information (TK 1.04)
- ☐ Estimate the time required to perform activities (TK 1.05)
- ☐ Perform multiple tasks simultaneously (TK 1.06)
- ☐ Utilize sense discrimination of sight, sound, touch and smell (TK 1.07)
- ☐ Manage time efficiently (TK 1.08)
- ☐ Apply and adapt existing and new knowledge and skills in both familiar and changing situations (TK 1.09*)
- ☐ Create flow charts, graphs and organizational charts (TK 1.10)
- ☐ Attend to details (TK 1.11*)
- ☐ Maintain a high level of concentration (TK 1.12*)
- ☐ Locate materials needed (TK 1.13)
- ☐ Reflect on the product at various stages for correctness and on the completed product before submission (TK 1.14)

Reasoning Dimension

Frequency: ____ Criticality: ____

- ☐ Extract rules or principles from a set of objects or a written text (TR 1.01*)
- ☐ Apply rules, principles and policies to a new situation (TR 1.02*)
- ☐ Determine if a step is missing in the process (TR 1.03)
- ☐ Determine and apply a rule or principle underlying the relationship between two or more objects to reach conclusions or improve situations (TR 1.04*)
- ☐ Use logic to draw conclusions from available information (TR 1.05*)
- ☐ Determine which conclusions are correct when given a set of facts and a set of conclusions (TR 1.06*)

Knowing How to Learn Notes

Reasoning Notes

MATHEMATICS DOMAIN

Arithmetic Dimension

Subskill: **Computations**

Frequency: ____ Criticality: ____

- ☐ Read, match, count and compare whole numbers (MA 1.01)
- ☐ Add, subtract, multiply and divide whole numbers (MA 1.02)
- ☐ Read, match, compare and sequence decimals and percents (MA 1.03)
- ☐ Add, subtract, multiply and divide decimals and percents (MA 1.04)
- ☐ Make monetary computations involving dollars and cents (MA 1.05)
- ☐ Determine and communicate place value (MA 1.06)
- ☐ Read, match, compare and sequence fractions (MA 1.07)
- ☐ Add, subtract, multiply and divide fractions (MA 1.08)
- ☐ Locate positive and negative whole, decimal, and fractional numbers (MA 1.09)
- ☐ Compare and compute positive and negative numbers (MA 1.10)
- ☐ Recognize numeric equivalents (MA 1.11)
- ☐ Determine if numbers are within a range (MA 1.12)
- ☐ Determine if maximum and minimum allowable measurements are within given numeric tolerances (MA 1.13)
- ☐ Determine maximum and minimum limits given percentage tolerances (MA 1.14)
- ☐ Apply basic numerical concepts in practical situations (MA 1.15*)
- ☐ Write comparisons as ratios (MA 1.16)
- ☐ Calculate proportions (MA 1.17)
- ☐ Make reasonable estimates of arithmetic results without a calculator (MA 1.18*)
- ☐ Round off decimals and multiple digit whole numbers to desired accuracy or precision (MA 1.19)
- ☐ Check work for accuracy and reasonableness (MA 1.20)

Subskill: **Tables, Graphs, Diagrams and Charts**

Frequency: ____ Criticality: ____

- ☐ Obtain or convey numeric information (MA 2.01*)
- ☐ Chart information (MA 2.02)
- ☐ Plot measurements and points on graphs (MA 2.03)

Arithmetic Notes

- ☐ Interpret and create charts and graphs (MA 2.04)
- ☐ Recognize and interpret geometric and other symbols (MA 2.05)
- ☐ Sketch and label compound angular components and edges (MA 2.06)
- ☐ Identify rectangular coordinates (MA 2.07)
- ☐ Apply appropriate principles of tables, graphs, diagrams and charts to situations on the job (MA 2.08)

Subskill: **Measurements**
Frequency: ____ Criticality: ____

- ☐ Read, record and interpret measurements (MA 3.01)
- ☐ Read and interpret measurements on gauges and tools (MA 3.02)
- ☐ Understand the relationship between measurement units (MA 3.03)
- ☐ Construct angles (MA 3.04)
- ☐ Calculate diameters, angles, radii, circumferences and perimeters in terms of degrees, minutes and seconds (MA 3.05)
- ☐ Convert degrees, minutes and seconds into decimal and fractional degrees (MA 3.06)
- ☐ Compute measurements such as time, temperature, weight, volume, distance and velocity in fractions and decimals (MA 3.07)
- ☐ Convert measurements into fractions and decimals (MA 3.08)
- ☐ Identify types of angles such as right, acute, obtuse and straight (MA 3.09)
- ☐ Interpret measurements such as time, temperatures, ohms, volts, amps, watts, weight, volume, distance and velocity in fractions and decimals (MA 3.10)
- ☐ Apply appropriate principles of measurement on the job (MA 3.11)

Mathematics Dimension
Subskill: **Equations**
Frequency: ____ Criticality: ____

- ☐ Express decimal numbers in scientific notation form (MM 1.01)
- ☐ Solve simple equations and inequalities (MM 1.02)
- ☐ Solve problems involving single-step and multiple-step word problems with whole numbers, fractions and decimals (MM 1.03)
- ☐ Express word statements and diagram dimensions as algebraic expressions (MM 1.04)
- ☐ Translate information into formulas and calculations (MM 1.05)
- ☐ Evaluate formulas by substituting numbers for symbols (MM 1.06)

Arithmetic Notes (continued)

Mathematics Notes

- ☐ Perform algebraic operations of powers and roots (MM 1.07)
- ☐ Understand and apply geometric principles such as principles of spheres, cubes, circles and angles (MM 1.08)
- ☐ Determine unknown angles using the principle of opposite, alternate interior, corresponding, parallel and perpendicular angles (MM 1.09)
- ☐ Compute dimensions such as true lengths, true angles, front and side view angles, and angles of rotation and tilt (MM 1.10)
- ☐ Compute functions and co-functions of a variety of angles (MM 1.11)
- ☐ Apply trigonometric functions (MM 1.12)
- ☐ Determine whether quantities are directly or inversely proportional or not related (MM 1.13)
- ☐ Apply the laws of sine, cosine and tangent (MM 1.14)
- ☐ Describe and interpret technical and statistical notations (MM 1.15)
- ☐ Express mathematical ideas and concepts orally and in writing (MM 1.16*)
- ☐ Approach practical problems by choosing appropriately from a variety of mathematical techniques (MM 1.17*)
- ☐ Apply numeric data to construct logical explanations for job-related situations (MM 1.18*)

Subskill: **Statistics**

Frequency: ____ Criticality: ____

- ☐ Calculate mean (average), median, mode, and range (MM 2.01)
- ☐ Express statistical ideas and concepts orally and in writing (MM 2.02)
- ☐ Arrange and interpret numerical data using statistical models (MM 2.03)
- ☐ Approach practical problems by choosing appropriately from a variety of statistical procedures (MM 2.04)
- ☐ Apply numeric production data to a statistical format such as Statistical Process Control (MM 2.05)
- ☐ Design experiments to analyze variation and appropriate correction procedures (MM 2.06)
- ☐ Apply the role of chance (probability theory) in the occurrence and prediction of events (MM 2.07*)
- ☐ Apply understanding of the normal probability curve (MM 2.08)
- ☐ Compute standard deviation and variance (MM 2.09)

Mathematics Notes (continued)

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* **Adapted from the Secretary's Commission on Achieving Necessary Skills (A SCANS Report for America 2000) published by the U.S. Department of Labor, 1992.**

DATA ANALYSIS AND DRAFT REPORTS

The data analysis and draft reports stage is the fourth stage of the six-step WESA process. It primarily involves completing a summary and detailed report for each position or group of positions analyzed. The *Summary Report* is most commonly reviewed by employees when examining career options or developing a training plan. The detailed report is principally used by workplace education program instructors to develop workplace-specific curricula, other instructional materials, competency-based learner assessments and individualized education plans.

After completing the interviews and observations for a given job or cluster of jobs, it is important for the analyst to review the information collected and begin the report-writing phase, as soon as possible. The more time that elapses before preparing the reports, the more difficult and time-consuming the report-writing

Detailed Reports

Two types of detailed reports are presented in the *Supplement* (a *Detailed Report by Educational Competencies* and a *Detailed Report by Job Activities*). At most worksites, the type of detailed report is selected during the first stage of the process by the WESA design meeting participants. The principal difference between the two reports is how the workplace educational competencies are organized. On the *Detailed Report by Educational Competencies* (beginning on page 54), the workplace educational competencies are listed in academic categories (i.e., educational domain, dimension, subskill and competency). By contrast, on the *Detailed Report by Job Activities* (which begins on page 76) the workplace educational competencies are identified beneath each of the primary job activities for the position(s) analyzed.

Regardless of which of the two report formats is selected, the WESA analyst typically finishes the detailed report before preparing the *Summary Report.* In most situations, the analyst will record much of the information needed to complete the detailed report on the *Interview and Observation Checklist* during earlier phases of the WESA process. The background data (i.e., job title, employer, analyst, analyst affiliation and date of analysis) and the frequency and criticality ratings are usually taken directly from the checklist.

The analyst indicates the frequency and criticality information for each subskill or dimension identified throughout the first section of the *Detailed Report by Educational Competencies.* This information is not noted on the *Detailed Report by Job Activities*, but is recorded on the *Interview and Observation Checklist* for use in preparing the accompanying *Summary Report.* (As described on page 47, the *Summary Report* includes overview information pertaining to frequency and criticality.)

For both types of detailed reports, the analyst completes workplace educational competency statements throughout the first section. The workplace educational competency statement consists of three components: an "*academic*" phrase which identifies an educational skill required to perform a job or cluster of jobs; a "*using or context*" phrase which indicates work aids, materials or techniques used in conjunction with the academic skill; and an "*in order to*" phrase which details how or for what purpose the skill is applied on the job.

The *Interview and Observation Checklist* provides the analyst with a comprehensive list of educational competencies which are intended to serve as the academic skill portion of the statement. However, it is not anticipated that a single position or a group of positions will employ all 212 competencies listed on the *Interview and Observation Checklist*. Similarly, it is not envisioned that the checklist will identify all of the educational competencies used in every job. Accordingly, the analyst will need to add and delete workplace educational competencies from the checklist, based on what is appropriate for the position(s) analyzed.

The remainder of the workplace educational competency statement is completed by the analyst based on information obtained during the WESA interviews (supervisory questions 12 - 14; and employee questions 11 - 26), and during the employee observation.

Three examples of completed workplace educational competency statements for a process attendant position are provided below. Note that for this particular position, workplace educational competency CR 2.03 (identify components of a diagram or a schematic) is not included, as it was determined to be inapplicable during the WESA process.

CR 2.01*	Comprehend terminology and vocabulary specific to the company as found in specifications, logbooks, and safety materials so that instructions can be followed, understood and explained.
CR 2.02*	Comprehend charts, graphs and symbols from temperature recording forms, formation charts, and symbols noting battery charge in order to complete logged information and arrange batteries in a safe, effective manner.
CR 2.04*	Read, comprehend and interpret stated information when using specifications, float test information, gel mix formulas and instructions in order to follow specified procedures.

Additional information on how to write effective workplace educational competency statements is provided in the section titled, "Tips for WESA Analysts". Also, sample workplace educational competency statements are provided on pages 100 - 104.

If completing the *Detailed Report by Educational Competencies*, the analyst writes the workplace educational competency statement and then identifies the primary job activities with which the statement is associated. The primary job activities or the main responsibilities of each position analyzed are discussed during the interviews (supervisory question 11; and employee questions 8 - 10) and, to the extent possible, verified during the employee observation. For ease of recording this information, the analyst assigns each job activity an alpha code. In order to indicate the job activities in which the educational competency is applied, the analyst simply enters the alpha code for each appropriate job activity.

In the second section of the *Detailed Report by Educational Competencies*, the analyst completes a matrix linking the alpha code to the assigned job activity. In this section of the report, the analyst fully describes the job activity.

The third section of the *Detailed Report by Educational Competencies*, titled "Other Skill-Related, Training and Career-Pathing Information", is written by the analyst based on information provided during the supervisory interviews (questions 6 -10), and the employee interviews (questions 1 - 3, 6 and 7). The data included in this section will vary considerably from site to site. In some cases, much of this information may be provided during the WESA design meeting(s) or in the interview preparation stage.

The fourth section of the *Detailed Report by Educational Competencies* identifies the critical vocabulary and technical terminology used in the job reviewed. The analyst gains information needed to draft this section from the supervisory interview (question 19); the employee observation; and the employee close-out interview (question 34). This section is formatted to encourage the subsequent insertion of definitions for the terms listed. Often this initiative is undertaken at the worksite by the workplace education program instructor in conjunction with learners, peer advisors, program steering committee members or other interested parties. The vocabulary and technical terminology listing is intended to lay the foundation for incorporating worksite and job-specific terms in curricula and instructional activities.

The fifth and final section of the *Detailed Report by Educational Competencies* pertains to the tools, equipment and work aids used in the job analyzed. The listing provided within this section is intended to be complete, with all items accurately labeled. The analyst gains the information necessary to draft this section of the report from the supervisory interview (questions 15 and 16); the employee observation; and the employee close-out interview (questions 31 - 33). As was the case with the vocabulary and technical terminology section, this section is formatted to encourage subsequent insertion of the use(s) of the items identified. Again, this initiative is often undertaken at the worksite by the workplace education program instructor in conjunction with learners, peer advisors, program steering committee members or other interested parties. This listing is also intended to be utilized in curriculum development and instructional activities.

If the analyst is completing the *Detailed Report by Job Activities*, then it is the educational competencies which must be coded throughout the first section of the report, rather than the job activities. The analyst inserts the code in the far left column on this report using the alpha-numeric code provided on the *Interview and Observation Checklist* for the appropriate educational competency.

Throughout the first section of the *Detailed Report by Job Activities*, the analyst writes workplace educational competency statements and orders each statement beneath the appropriate job activity. The only exception occurs when an educational competency statement applies to three or more primary job activities. In such situations, the workplace educational competency statement is listed at the end of the first section in a subsection titled, "Majority of Job Activities". Grouping the competency statements which apply to three or more job activities under a single heading, saves the analyst from repeating the statement multiple times and provides easy reference to those competencies which are required for the majority of job activities.

For those workplace educational competency statements listed in the "Majority of Job Activities" subsection, an alpha code is listed in the column to the right to clarify the specific

job activities that apply. (At the beginning of the "Majority of Job Activities" subsection, each primary job activity is identified with an alpha code.)

In that this report is structured by job activities, there is no need for a matrix linking the alpha codes with the corresponding job activities, as is the case in second section of the *Detailed Report by Educational Competencies*. Therefore, the job activity section is omitted on the *Detailed Report by Job Activities*. The remainder of the sections are identical on the two detailed reports.

Also, on both the *Detailed Report by Educational Competencies* and the *Detailed Report by Job Activities* the column on the far right, titled "Self/Needs Assessment", is not completed by the analyst. This column is designed to serve two purposes after the detailed report is finalized. First, it can be used by organizations to assess workforce training needs. Second, it can be used by employees, with the guidance of a workplace education program instructor, as a self-assessment tool (as a means of assessing personal competencies). Suggested rating scales for these activities are provided at the end of the first section on both detailed report forms. The recommended rating scale for self-assessment purposes is: 1 - no training wanted; 2 - some training wanted; and 3 - extensive training wanted. For organizational training needs assessments, the suggested rating scale is: 1 - no training needed; 2 - some training needed; and 3 - extensive training needed.

To further assist analysts in drafting detailed reports, the last section of the *Supplement* (which begins on page 108) includes two completed detailed reports. A *Detailed Report by Educational Competencies* and a *Detailed Report by Job Activities* were completed for a process attendant position.

Summary Reports

A *Summary Report* is generally completed after the analyst finishes the detailed report for the position or group of positions analyzed. When preparing the *Summary Report*, it is important for the analyst to remember its purpose and audience. This report is designed to provide stakeholders (e.g., interested employees, WESA design meeting participants, workplace education program instructors and program administrators), with an accurate and concise overview of the position(s) analyzed. As with the detailed report, the *Summary Report* contains background information which clearly identifies the position reviewed. This information includes: the job title, employer, analyst, analyst affiliation and date of analysis.

The remainder of the *Summary Report* is designed to convey critical, position-specific information which was obtained and, to the extent possible, verified during earlier phases of the WESA process. The first section of this report summarizes the primary job activities performed by the position(s). General information pertaining to the job activities under review is typically obtained during WESA design meetings and while preparing for the interviews (the first two stages of the WESA process). Specific details are elicited during the supervisory interview (question 11), and the employee interview (questions 8 - 10). As many of the primary job activities as possible, are subsequently verified during the employee observation phase.

The second section of the *Summary Report* pertains to the job-related educational skills required to perform the job(s) analyzed. In this section, a brief overview is provided of the educational skill requirements which are identified in a comprehensive manner on the detailed report for the position. This overview focuses on those educational skills that are very critical to the job and are used on a daily basis. Typically, the *Summary Report* emphasizes the broader categories of educational skills required (e.g., domains, dimensions and subskills), rather than competency-specific information.

The next section of the *Summary Report* offers a description of the material read by individuals in the position(s) analyzed. Here, it is helpful for the analyst to convey the degree to which reading must be performed on the job, the titles of the most common materials read, and the range of reading materials (i.e., easier to more complex). The analyst obtains this information during supervisory and employee interviews (supervisory questions 17 and 18; and employee questions 15 - 17), and while observing the employee.

In the following section ("Tools, Equipment and Work Aids Used on the Job"), the analyst identifies the items or types of items that are most frequently used in the position(s) analyzed. A complete listing is provided in the detailed report. The data necessary to complete this section is obtained through the interviews (supervisory questions 15 and 16; and employee questions 31 - 33), and verified during the employee observation.

The *Summary Report* section, titled "Career-Pathing and Training Information Relevant to the Position", is completed by the analyst based on information obtained during the WESA design meetings and the interview preparation stage. It is augmented during the supervisory and employee interviews (supervisory questions 4 - 10; and employee questions 1 - 7). Within this section, it is extremely important for the analyst to clarify information such as the level of the position (e.g., entry or advanced), if a formal or informal progression series exists, if specific training or other qualifications are required, and if testing procedures are used for new hires, transfers or promotions.

The last section of the *Summary Report* is titled "Future Changes Anticipated to Impact the Job". Most generally, the analyst receives the majority of the information needed to complete this section during the first two WESA stages and, to the extent possible, verifies it during the supervisory and employee interviews (supervisory questions 4, 5 and 16; and employee questions 4, 5 and 33). The data presented in this section should focus on work-related changes that will require additional skills, new applications of educational skills currently used on the job, or other information that will be helpful when designing individualized education plans or developing job-related curricula or learner assessments.

To further assist analysts in drafting summary reports, a completed *Summary Report* for a process attendant position is included in the last section of the *Supplement* on page 112.

Interviewee Verification of Reports

When appropriate, it is suggested that analysts give a draft copy of the summary and detailed report to those employees and supervisors who were interviewed for the position(s) analyzed.

Principally, interviewees are asked to review both reports to ensure that the reports are complete and accurate.

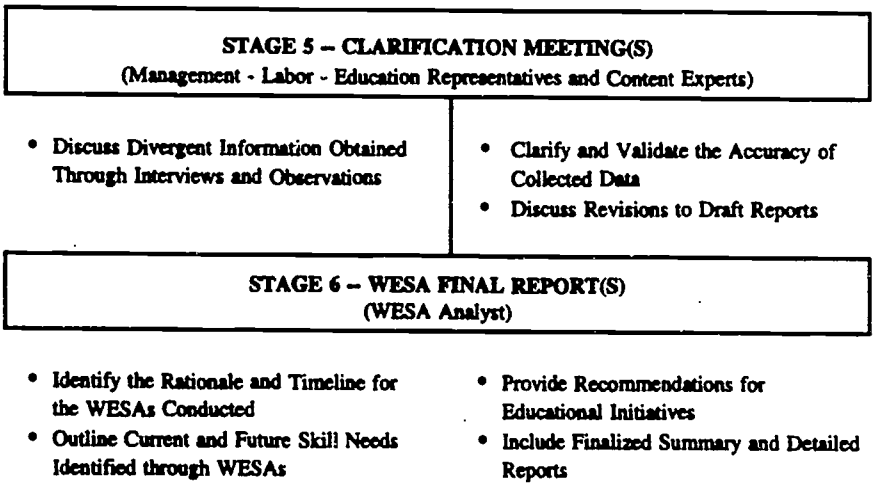
If the analyst perceives that an interviewee may have difficulty reading or analyzing the reports, or would be made to feel uncomfortable in any way, then the analyst should not ask the interviewee to review them. An alternative in this situation may be to request that the employee or supervisor discuss the contents of the reports over the telephone or in a face-to-face meeting.

On occasions when divergent feedback is provided by individuals interviewed for a specific position or group of positions, the analyst should highlight, underline or bold the discrepant information on the detailed and summary reports. The draft reports will then be ready for the next stage of the WESA process (the clarification meeting).

Final WESA Stages

After the interviewees verify the summary and detailed reports, the analyst prepares for the next stage of the WESA process which is stage 5 -- the clarification meeting(s). It is during this stage that the reports are reviewed in one or more clarification meetings by those who were involved in the first stage of the WESA process and other content area experts.

This aspect of the clarification meeting, as well as subsequent WESA activities in stages 5 and 6, are outlined below.



The final WESA stages are fully detailed in the *WESA Training Guide*. It is recommended that analysts review these sections of the *Training Guide* before completing the WESA process for any position or group of positions.

Data Analysis and Draft Report Instruments

- Summary Report
- Detailed Report by Educational Competencies
- Detailed Report by Job Activities

Workplace Educational Skills Analysis
Summary Report

Job Title:
Employer:
Analyst:
Analyst Affiliation:
Date of Analysis:

Primary Job Activities

Job-Related Educational Skills

Description of Material Read on the Job

Tools, Equipment and Work Aids Used on the Job

Career-Pathing and Training Information Relevant to the Position

Future Changes Anticipated to Impact the Job

Workplace Educational Skills Analysis
Detailed Report by Educational Competencies

Job Title:
Employer:
Analyst:
Analyst Affiliation:
Date of Analysis:

SECTION 1 -- WORKPLACE EDUCATIONAL COMPETENCIES

Communications Domain

Listening Dimension

Subskill: **Verbal**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
CL 1.01*	Receive verbal information in ways appropriate to the purpose		1 2 3
CL 1.02*	Pay attention to and interpret verbal messages in ways that are appropriate to the purpose		1 2 3
CL 1.03*	Respond to verbal messages in ways appropriate to the purpose		1 2 3
CL 1.04	Comprehend terminology		1 2 3
CL 1.05	Listen for context clues		1 2 3

Subskill: **Non-Verbal**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

CL 2.01	Detect sounds within the workplace		1 2 3
CL 2.02*	Receive non-verbal messages in ways that are appropriate to the purpose		1 2 3
CL 2.03*	Pay attention to and interpret non-verbal messages in ways that are appropriate to the purpose		1 2 3

CL 2.04*	Respond to non-verbal messages in ways that are appropriate to the purpose		1 2 3

Speaking Dimension

Subskill: **Preparation**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
CS 1.01*	Organize ideas to communicate a message		1 2 3
CS 1.02	Select appropriate patterns (chronological, priority order, etc.) and cues (next, most important, etc.) for conveying a message		1 2 3
CS 1.03	Select an appropriate language for conveying a message		1 2 3
CS 1.04*	Select an appropriate medium for conveying a message		1 2 3
CS 1.05*	Design and adapt messages appropriate to listeners and situations		1 2 3
CS 1.06	Prepare appropriate visual aids		1 2 3
CS 1.07	Support viewpoints with reasons and evidence		1 2 3
CS 1.08	Critique content for effectiveness		1 2 3

Subskill: **Delivery**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

CS 2.01*	Speak clearly to communicate a message		1 2 3
CS 2.02*	Select verbal and non-verbal language appropriate to the audience and to the occasion		1 2 3
CS 2.03*	Ask and answer questions when needed		1 2 3

CS 2.04*	Participate in conversation, discussion, group presentations and meetings		1 2 3
CS 2.05	Express ideas, opinions, facts and feelings		1 2 3
CS 2.06	Adjust statements to increase comprehension by the listener		1 2 3
CS 2.07	Restate, clarify and paraphrase to convey main points		1 2 3

Reading Dimension

Subskill: **Vocabulary**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
CR 1.01	Discriminate among letters		1 2 3
CR 1.02	Discriminate among alphanumeric, alphabetic and color codes		1 2 3
CR 1.03	Interpret abbreviations and acronyms		1 2 3
CR 1.04	Recognize terminology and vocabulary specific to the industry		1 2 3
CR 1.05*	Infer the meaning of unknown and technical vocabulary		1 2 3

Subskill: **Comprehension**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

CR 2.01*	Comprehend terminology and vocabulary specific to the industry		1 2 3
CR 2.02*	Comprehend and interpret charts, graphs, symbols and other pictorial representations		1 2 3
CR 2.03	Identify components of a diagram or a schematic		1 2 3

CR 2.04*	Read, comprehend and interpret stated and implied information		1 2 3
CR 2.05*	Follow directions from stated and implied information		1 2 3
CR 2.06*	Summarize the main idea or essential message		1 2 3
CR 2.07*	Identify relevant details or specifications		1 2 3
CR 2.08	Identify cause and effect in written material		1 2 3
CR 2.09	Compare and contrast information found in multiple locations		1 2 3
CR 2.10*	Determine the accuracy, appropriateness, style and plausibility of reports, proposals or theories of other writers		1 2 3

Subskill: **Reference**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

CR 3.01	Skim and scan to locate relevant information		1 2 3
CR 3.02*	Locate written information in prose or documents		1 2 3
CR 3.03*	Locate the meaning of unknown or technical vocabulary		1 2 3
CR 3.04	Locate information in charts and graphs and in other work aids		1 2 3
CR 3.05	Obtain information from multiple sources		1 2 3
CR 3.06	Cross-reference information or material		1 2 3
CR 3.07	Extract and apply information from charts, graphs, symbols and other pictorial representations		1 2 3

Writing Dimension

Subskill: **Recording**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
CW 1.01*	Record numbers completely and accurately		1 2 3
CW 1.02*	Record words completely and accurately		1 2 3

Subskill: **Composition**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

CW 2.01*	Communicate thoughts, ideas, information and messages in writing		1 2 3
CW 2.02*	Compose and create documents and other written information		1 2 3
CW 2.03*	Check, edit and revise for correct grammar, spelling and punctuation		1 2 3
CW 2.04*	Check, edit and revise for correct information, clarity, emphasis, organization and format		1 2 3
CW 2.05	Diagram information		1 2 3
CW 2.06*	Apply language, style and format appropriate to the subject matter, purpose and audience		1 2 3
CW 2.07*	Document appropriate supporting information		1 2 3
CW 2.08*	Verify the accuracy of details in the final document		1 2 3

Team-Building Dimension

Subskill: **Group Discussion**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
CT 1.01	Share speaking time with all members of a group		1 2 3
CT 1.02*	Be aware of one's impression on others		1 2 3
CT 1.03	Offer constructive feedback		1 2 3

Subskill: **Goal Setting**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

CT 2.01	Share team goals and mission		1 2 3
CT 2.02	Discuss and clarify expectations of team members and those external to the team		1 2 3
CT 2.03*	Participate in setting well-defined and realistic team goals		1 2 3
CT 2.04	Suggest creative and effective means to achieve team goals		1 2 3
CT 2.05	Set individual goals and objectives consistent with group goals		1 2 3

Subskill: **Team Participation**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

CT 3.01*	Take an interest in what others say and do		1 2 3
CT 3.02*	Share information and expertise to help others learn needed knowledge and skill		1 2 3
CT 3.03	Recognize accomplishments, give credit and thanks for accomplishments to others		1 2 3

CT 3.04	Facilitate positive interactions and excellence in others		1 2 3
CT 3.05*	Contribute to group efforts with ideas and suggestions and by fulfilling individual responsibilities		1 2 3
CT 3.06*	Work constructively with others		1 2 3
CT 3.07*	Demonstrate understanding, friendliness, adaptability, empathy and politeness in new and ongoing group settings		1 2 3
CT 3.08	Inspire mutual support of team members		1 2 3
CT 3.09	Motivate team members with enthusiasm, vitality and optimism in approaching and completing tasks		1 2 3
CT 3.10*	Recognize the value of diversity in increasing team effectiveness		1 2 3

Subskill: **Collaborative Problem Resolution**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

CT 4.01	See another's point of view (perspective taking)		1 2 3
CT 4.02*	Exhibit self-control and respond rationally and nondefensively to feedback		1 2 3
CT 4.03	Demonstrate patience, collaboration and flexibility in diagnosing and solving problems		1 2 3
CT 4.04	Work effectively with diverse personalities		1 2 3
CT 4.05	Request expertise external to the team as needed		1 2 3
CT 4.06	Mediate conflict before it becomes destructive		1 2 3
CT 4.07	Work independently (without close supervision) to accomplish group goals		1 2 3

CT 4.08*	Work toward a consensus that may involve exchanging specific resources or resolving different interests		1 2 3

Critical Thinking Domain

Creative Thinking Dimension

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
TC 1.01*	Imagine new possibilities to generate creative ideas		1 2 3
TC 1.02*	Make nonlinear or unusual connections to generate new ideas		1 2 3
TC 1.03*	Change or reshape goals to generate new ideas		1 2 3
TC 1.04*	Reshape goals and make connections between seemingly unrelated ideas, processes, etc. to reveal new possibilities		1 2 3
TC 1.05*	Combine ideas and information in new ways		1 2 3
TC 1.06	Analyze operations to make them more efficient and effective		1 2 3
TC 1.07	Participate in brainstorming sessions		1 2 3

Decision-Making Dimension

Subskill: **Analysis**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
TD 1.01*	Specify goals		1 2 3
TD 1.02*	Identify and understand constraints		1 2 3

TD 1.03	Analyze situations and recognize that a decision needs to be made		1 2 3
TD 1.04	Judge the credibility of sources of information		1 2 3
TD 1.05	Distinguish major problems from minor problems		1 2 3
TD 1.06*	Recognize when being faced with a decision that may violate commonly held personal or organizational beliefs and understand the potential effects of those decisions		1 2 3

Subskill: **Resolution**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

TD 2.01*	Generate alternatives and implementation strategies		1 2 3
TD 2.02*	Consider risks and likely consequences associated with alternatives		1 2 3
TD 2.03*	Evaluate and choose the best alternatives		1 2 3

Subskill: **Evaluation**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

TD 3.01	Evaluate actual effects of decisions		1 2 3
TD 3.02	Evaluate new situations as they arise		1 2 3

Problem-Solving Dimension

Subskill: **Recognition**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
TP 1.01*	Recognize that a problem exists		1 2 3

TP 1.02	Clarify the problem		1 2 3
TP 1.03	Verify the existence of the problem		1 2 3
TP 1.04	Recognize patterns in problem situations		1 2 3

Subskill: **Analysis**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

TP 2.01*	Identify possible reasons or causes for a problem and differentiate between cause and effect		1 2 3
TP 2.02	Collect and evaluate necessary data for relevance and accuracy		1 2 3
TP 2.03*	Organize, process and maintain relevant information		1 2 3
TP 2.04	Assess accurately the severity and any patterns in problem situations		1 2 3
TP 2.05	Isolate problem components and characteristics		1 2 3
TP 2.06	Trace the root cause of the problem		1 2 3
TP 2.07	Research and analyze the perceived problem		1 2 3

Subskill: **Resolution**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

TP 3.01	Generate possible alternative solutions to a problem		1 2 3
TP 3.02	Prioritize job tasks for effectiveness and efficiency		1 2 3
TP 3.03	Notify and consult others, as appropriate, when problems or potential problems arise		1 2 3

TP 3.04	Inform others of the solution and, when appropriate, how the problem was resolved		1 2 3
TP 3.05*	Consider the knowledge and skills of the workforce and distribute work accordingly		1 2 3
TP 3.06*	Devise and implement a plan of action to resolve the problem		1 2 3
TP 3.07	Evaluate alternatives and select a solution		1 2 3
TP 3.08*	Evaluate and monitor the progress of the Problem-Solving plan		1 2 3
TP 3.09*	Revise Problem-Solving activities as indicated by findings		1 2 3

Mental Visualization Dimension

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
TM 1.01*	Visualize objects, processes and modifications		1 2 3
TM 1.02	Conceptualize the inner workings of a machine component or mechanism that may not be visually apparent		1 2 3
TM 1.03	Examine a schematic or blueprint and visualize the object or operation		1 2 3
TM 1.04	Look at components and visualize the whole		1 2 3
TM 1.05	Look at the whole and break it into parts		1 2 3
TM 1.06	Interpret two and three dimensional drawings of objects		1 2 3

Knowing How to Learn Dimension

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
TK 1.01*	Recognize and apply learning styles, techniques, strategies, tools and resources		1 2 3
TK 1.02	Sort, classify or match objects by physical characteristics (e.g., color, size, shape or marking)		1 2 3
TK 1.03	Research information		1 2 3
TK 1.04	Memorize facts and other frequently used information		1 2 3
TK 1.05	Estimate the time required to perform activities		1 2 3
TK 1.06	Perform multiple tasks simultaneously		1 2 3
TK 1.07	Utilize sense discrimination of sight, sound, touch and smell		1 2 3
TK 1.08	Manage time efficiently		1 2 3
TK 1.09*	Apply and adapt existing and new knowledge and skills in both familiar and changing situations		1 2 3
TK 1.10	Create flow charts, graphs and organizational charts		1 2 3
TK 1.11*	Attend to details		1 2 3
TK 1.12*	Maintain a high level of concentration		1 2 3
TK 1.13	Locate materials needed		1 2 3
TK 1.14	Reflect on the product at various stages for correctness and on the completed product before submission		1 2 3

Reasoning Dimension

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
TR 1.01*	Extract rules or principles from a set of objects or a written text		1 2 3
TR 1.02*	Apply rules, principles and policies to a new situation		1 2 3
TR 1.03	Determine if a step is missing in the process		1 2 3
TR 1.04*	Determine and apply a rule or principle underlying the relationship between two or more objects to reach conclusions or improve situations		1 2 3
TR 1.05*	Use logic to draw conclusions from available information		1 2 3
TR 1.06*	Determine which conclusions are correct when given a set of facts and a set of conclusions		1 2 3

Mathematics Domain

Arithmetic Dimension

Subskill: **Computations**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
MA 1.01	Read, match, count and compare whole numbers		1 2 3
MA 1.02	Add, subtract, multiply and divide whole numbers		1 2 3
MA 1.03	Read, match, compare and sequence decimals and percents		1 2 3
MA 1.04	Add, subtract, multiply and divide decimals and percents		1 2 3
MA 1.05	Make monetary computations involving dollars and cents		1 2 3

MA 1.06	Determine and communicate place value		1 2 3
MA 1.07	Read, match, compare and sequence fractions		1 2 3
MA 1.08	Add, subtract, multiply and divide fractions		1 2 3
MA 1.09	Locate positive and negative whole, decimal and fractional numbers		1 2 3
MA 1.10	Compare and compute positive and negative numbers		1 2 3
MA 1.11	Recognize numeric equivalents		1 2 3
MA 1.12	Determine if numbers are within a range		1 2 3
MA 1.13	Determine if maximum and minimum allowable measurements are within given numeric tolerances		1 2 3
MA 1.14	Determine maximum and minimum limits given percentage tolerances		1 2 3
MA 1.15*	Apply basic numerical concepts in practical situations		1 2 3
MA 1.16	Write comparisons as ratios		1 2 3
MA 1.17	Calculate proportions		1 2 3
MA 1.18*	Make reasonable estimates of arithmetic results without a calculator		1 2 3
MA 1.19	Round off decimals and multiple digit whole numbers to desired accuracy or precision		1 2 3
MA 1.20	Check work for accuracy and reasonableness		1 2 3

Subskill: **Tables, Graphs, Diagrams and Charts**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

MA 2.01*	Obtain or convey numeric information		1 2 3
MA 2.02	Chart information		1 2 3
MA 2.03	Plot measurements and points on graphs		1 2 3
MA 2.04	Interpret and create charts and graphs		1 2 3
MA 2.05	Recognize and interpret geometric and other symbols		1 2 3
MA 2.06	Sketch and label compound angular components and edges		1 2 3
MA 2.07	Identify rectangular coordinates		1 2 3
MA 2.08	Apply appropriate principles of tables, graphs, diagrams and charts to situations on the job		1 2 3

Subskill: **Measurements**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

MA 3.01	Read, record and interpret measurements		1 2 3
MA 3.02	Read and interpret measurements on gauges and tools		1 2 3
MA 3.03	Understand the relationship between measurement units		1 2 3
MA 3.04	Construct angles		1 2 3
MA 3.05	Calculate diameters, angles, radii, circumferences and perimeters in terms of degrees, minutes and seconds		1 2 3

MA 3.06	Convert degrees, minutes and seconds into decimal and fractional degrees		1 2 3
MA 3.07	Compute measurements such as time, temperature, weight, volume, distance and velocity in fractions and decimals		1 2 3
MA 3.08	Convert measurements into fractions and decimals		1 2 3
MA 3.09	Identify types of angles such as right, acute, obtuse and straight		1 2 3
MA 3.10	Interpret measurements such as time, temperatures, ohms, volts, amps, watts, weight, volume, distance and velocity in fractions and decimals		1 2 3
MA 3.11	Apply appropriate principles of measurement on the job		1 2 3

Mathematics Dimension

Subskill: **Equations**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
MM 1.01	Express decimal numbers in scientific notation form		1 2 3
MM 1.02	Solve simple equations and inequalities		1 2 3
MM 1.03	Solve problems involving single-step and multiple-step word problems with whole numbers, fractions and decimals		1 2 3
MM 1.04	Express word statements and diagram dimensions as algebraic expressions		1 2 3
MM 1.05	Translate information into formulas and calculations		1 2 3
MM 1.06	Evaluate formulas by substituting numbers for symbols		1 2 3
MM 1.07	Perform algebraic operations of powers and roots		1 2 3

MM 1.08	Understand and apply geometric principles such as principles of spheres, cubes, circles and angles		1 2 3
MM 1.09	Determine unknown angles using the principle of opposite, alternate interior, corresponding, parallel and perpendicular angles		1 2 3
MM 1.10	Compute dimensions such as true lengths, true angles, front and side view angles, and angles of rotation and tilt		1 2 3
MM 1.11	Compute functions and co-functions of a variety of angles		1 2 3
MM 1.12	Apply trigonometric functions		1 2 3
MM 1.13	Determine whether quantities are directly or inversely proportional or not related		1 2 3
MM 1.14	Apply the laws of sine, cosine and tangent		1 2 3
MM 1.15	Describe and interpret technical and statistical notations		1 2 3
MM 1.16*	Express mathematical ideas and concepts orally and in writing		1 2 3
MM 1.17*	Approach practical problems by choosing appropriately from a variety of mathematical techniques		1 2 3
MM 1.18*	Apply numeric data to construct logical explanations for job-related situations		1 2 3

Subskill: **Statistics**

Frequency: **Daily** ☐ **Weekly** ☐ **Less Often** ☐ Criticality: **Very Critical** ☐ **Critical** ☐ **Less Critical** ☐

MM 2.01	Calculate mean (average), median, mode, and range		1 2 3
MM 2.02	Express statistical ideas and concepts orally and in writing		1 2 3
MM 2.03	Arrange and interpret numerical data using statistical models		1 2 3

MM 2.04	Approach practical problems by choosing appropriately from a variety of statistical procedures		1 2 3
MM 2.05	Apply numeric production data to a statistical format such as Statistical Process Control		1 2 3
MM 2.06	Design experiments to analyze variation and appropriate correction procedures		1 2 3
MM 2.07*	Apply the role of chance (probability theory) in the occurrence and prediction of events		1 2 3
MM 2.08	Apply understanding of the normal probability curve		1 2 3
MM 2.09	Compute standard deviation and variance		1 2 3

[1] Each workplace educational competency is identified by an alpha-numeric code. The first letter of the alpha code represents the educational domain and the second letter identifies the dimension. The first number indicates a new dimension or subskill, if provided. Then each workplace educational competency is numbered sequentially as specified by the numbers to the right of the decimal. Lastly, an asterisk follows the three-digit number, if it was adapted from the skills and competencies included in the Secretary's Commission on Achieving Necessary Skills (A SCANS Report for America 2000) which was published by the U.S. Department of Labor, 1992.

[2] Each workplace educational competency statement identifies an academic skill required to perform a job or cluster of jobs; indicates the context in which the academic skill is used (e.g., identifies tools or equipment used); and details how or for what purpose the skill is applied on the job (i.e., in order to accomplish what purpose).

[3] The primary activities (main responsibilities) of each job are identified during the interview and observation process and given an alpha code. The primary job activities are detailed in Section 2 of this report.

[4] The rating scale recommended for self-assessment (learner assessment) is: 1 - No Training Wanted; 2 - Some Training Wanted; and 3 - Extensive Training Wanted. The rating scale suggested for conducting training needs assessments within departments or organizations is: 1 - No Training Needed; 2 - Some Training Needed; and 3 - Extensive Training Needed.

SECTION 2 -- PRIMARY JOB ACTIVITIES

Alpha Code	Job Activity
A	
B	
C	
D	
E	
F	

SECTION 3 -- OTHER SKILL-RELATED, TRAINING AND CAREER-PATHING INFORMATION

SECTION 4 -- VOCABULARY AND TECHNICAL TERMINOLOGY

Term	Definition*

* *The critical vocabulary and technical terminology relevant to this job or jobs is identified during the workplace educational skills analyses process. Definitions are typically provided by the workplace education instructor in conjunction with learners, peer advisors, program steering committee members or others.*

SECTION 5 -- TOOLS, EQUIPMENT AND WORK AIDS

Tools, Equipment and Work Aids	**Use(s)***

* *The tools, equipment and work aids used to perform this job or jobs are identified during the workplace educational skills analysis process. The use(s) for these materials are typically added by the workplace education instructor in conjunction with learners, peer advisors, program steering committee members or others.*

Workplace Educational Skills Analysis
Detailed Report by Job Activities

Job Title:
Employer:
Analyst:
Analyst Affiliation:
Date of Analysis:

SECTION 1 -- WORKPLACE EDUCATIONAL COMPETENCIES

Job Activity A:

Code[1]	Workplace Educational Competency Statement[2]	Self/Needs Assessment[3]
		1 2 3
		1 2 3
		1 2 3
		1 2 3
		1 2 3

Job Activity B:

Code[1]	Workplace Educational Competency Statement[2]	Self/Needs Assessment[3]
		1 2 3
		1 2 3
		1 2 3
		1 2 3
		1 2 3

Job Activity C:

Code[1]	Workplace Educational Competency Statement[2]	Self/Needs Assessment[3]
		1 2 3
		1 2 3
		1 2 3
		1 2 3
		1 2 3

Job Activity D:

Code[1]	Workplace Educational Competency Statement[2]	Self/Needs Assessment[3]
		1 2 3
		1 2 3
		1 2 3
		1 2 3
		1 2 3

Job Activity E:

Code[1]	Workplace Educational Competency Statement[2]	Self/Needs Assessment[3]
		1 2 3
		1 2 3
		1 2 3
		1 2 3
		1 2 3

Job Activity F:

Code[1]	Workplace Educational Competency Statement[2]	Self/Needs Assessment[3]
		1 2 3
		1 2 3
		1 2 3
		1 2 3
		1 2 3

Majority of Job Activities:

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[4]	Self/Needs Assessment[3]
			1 2 3
			1 2 3
			1 2 3
			1 2 3
			1 2 3

[1] Each workplace educational competency is identified by an alpha-numeric code. The first letter of the alpha code represents the educational domain and the second letter identifies the dimension. The first number indicates a new dimension or subskill, if provided. Then each workplace educational competency is numbered sequentially as specified by the numbers to the right of the decimal. Lastly, an asterisk follows the three-digit number, if it was adapted from the skills and competencies included in the Secretary's Commission on Achieving Necessary Skills (A SCANS Report for America 2000) which was published by the U.S. Department of Labor, 1992.

[2] Each workplace educational competency statement identifies an academic skill required to perform a job or cluster of jobs; indicates the context in which the academic skill is used (e.g., identifies tools or equipment used); and details how or for what purpose the skill is applied on the job (i.e., in order to accomplish what purpose).

[3] The rating scale recommended for self-assessment (learner assessment) is: 1 - No Training Wanted; 2 - Some Training Wanted; and 3 - Extensive Training Wanted. The rating scale suggested for conducting training needs assessments within departments or organizations is: 1 - No Training Needed; 2 - Some Training Needed; and 3 - Extensive Training Needed.

[4] If a workplace educational competency statement applies to three or more primary job activities, it is listed in the section titled "Majority of Job Activities" rather than repeating the statement under each job activity. To clarify the activities to which these statements apply, the alpha code assigned to the corresponding job activity is listed in this column.

SECTION 2 -- OTHER SKILL-RELATED, TRAINING AND CAREER-PATHING INFORMATION

SECTION 3 -- VOCABULARY AND TECHNICAL TERMINOLOGY

Term	Definition*

* *The critical vocabulary and technical terminology relevant to this job or jobs is identified during the workplace educational skills analyses process. Definitions are typically provided by the workplace education instructor in conjunction with learners, peer advisors, program steering committee members or others.*

SECTION 4 -- TOOLS, EQUIPMENT AND WORK AIDS

Tools, Equipment and Work Aids	**Use(s)***

* *The tools, equipment and work aids used to perform this job or jobs are identified during the workplace educational skills analysis process. The use(s) for these materials are typically added by the workplace education instructor in conjunction with learners, peer advisors, program steering committee members or others.*

TIPS FOR WESA ANALYSTS

This section of the *Supplement* provides analysts with suggestions on how to enhance the effectiveness and efficiency of the WESA process. Tips are offered relative to interviewing, observing and report-writing.

It is important to realize that many interviewing, observing and report-writing activities are directly affected by decisions that are reached during the first stage of the WESA process (the WESA design meeting). Three critical decisions typically determined during that meeting involve: the number of employees to be interviewed per job title or classification (two to three are recommended); the criteria for selecting interview candidates (e.g., knows and communicates job activities well, is willing to participate, etc.); and the interview and observation schedule (15 to 30 minutes is recommended between ending an observation and beginning the next interview to allow the analyst time to clarify notes from the last interview and prepare for the upcoming one). More information on the WESA design meeting is included in the *WESA Training Guide*.

The suggestions that follow are based on the experience of analysts who have conducted more than 200 WESAs since the methodology was pioneered in 1991. One overriding recommendation, which is applicable throughout the interviewing, observing and report-writing activities, is for the analyst to be flexible. Production deadlines, unforeseeable emergencies, facility conflicts and other work priorities will require the analyst to adjust plans with little notice. Being flexible as well as creative when accommodating worksite needs is often essential to maintaining the overall quality of the WESA process.

Interview Suggestions

The most critical activities relative to the WESA interview include preparing for the interview, establishing a positive interview climate, conducting the interview, effectively using interview tools, asking follow-up questions, listening to the interviewee, and closing the interview. Tips are provided below to assist analysts in each of these areas.

Preparing for the Interview

- Be sure to obtain complete contact information (e.g., name, telephone number and fax number) for the primary contact at the worksite. (The primary contact is typically a person from the worksite who is identified during the design meeting to gather materials and handle the scheduling of meetings, interviews and observations for the analyst.)

- Obtain and review preparatory documents discussed during the design meeting. Use the *Document and Data Collection Checklist* on page 98 to ensure that the appropriate materials have been received and reviewed.

- Tour the work unit(s) where the interviews and observations will occur, if these areas were not included in a prior tour. (Typically, the analyst is given a tour of the organization during the first stage of the WESA process.)

- Preview the job(s) to be analyzed in the *Dictionary of Occupational Titles* (*DOT*) or in other standard resources. The *DOT* and other resources such as the *Occupational Outlook Handbook* and the *Enhanced Guide for Occupational Exploration* are available from the **Center on Education and Work**, University of Wisconsin-Madison, 964 Educational Sciences Building, 1025 West Johnson Street, Madison, WI 53176. Telephone: 1-800-446-0399. The computerized version of the *DOT*, *DOT Plus*, is available from **Wintergreen Software**, P.O. Box 15899, New Orleans, LA 70175-5899. Telephone: 1-800-321-9479.

- Review and complete known information on the employee and supervisory interview questionnaires. Use one color of ink when entering preparatory data and a second ink color during the interview and observation stage in order to provide added clarity when drafting the summary and detailed reports.

- Reconfirm the interview schedule with the primary contact at the worksite, one to two days before the interviews are to be conducted. Also, verify that interviewees have been provided with advance notice of the interview to afford them time to juggle schedules, secure coverage and prepare for the interview.

- Be sure to know what attire is appropriate for the worksite (e.g., safety goggles, steel-tip boots, and flat shoes). Typically, this is discussed during the design meeting.

- Be thoroughly prepared. The importance of proper preparation cannot be over emphasized. It is critical not only for effectiveness, but for cost-efficiency as well.

- Arrive early for the first interview to allow sufficient time for organizational and preparatory activities.

- Arrange the interview area to facilitate quiet conversation and comfort (e.g., adjust seating, lighting and temperature controls as appropriate).

Establishing a Positive Interview Climate

- Establish rapport as quickly as possible. Strive for a relaxed, yet professional atmosphere.

- Cover all of the points outlined in the interview introduction as agreed upon during the design meeting. Be sure to fully explain the need for the interview and that individual comments will be kept confidential.

- Before beginning the interview, give the interviewee the opportunity to ask any questions that he or she might have.

- When appropriate, share insights gained while researching and preparing for the interview. Be careful not to falsely indicate understanding of job-related activities or organizational initiatives.

- Be sensitive to possible defensive attitudes and responses on the part of the interviewee, and do not respond defensively.

- Be sincere and show respect.

- Explain to each interviewee that there may be some questions for which he or she may not have an answer. Provide necessary reassurance that not having an answer is okay.

- Be discreet if sensitive information is provided.

Conducting the Interview

- Guide, but do not stifle responses.

- Listen carefully and observe the interviewee when responding to questions.

- Be sure to respect break times for employees while interviewing.

- If the interviewee becomes too talkative during the interview, be attentive and polite. Remind the interviewee of the time schedule and ask for his or her help in ending the discussion on time. Also, it may be appropriate from time to time to defer less germane conversation to the end of the interview, when it can be discussed if time permits.

- If the interview becomes bogged down with detailed descriptions of work activities or if the interviewee has a difficult time articulating how educational skills are applied on the job, the analyst may wish to defer questions to the observation stage or to the employee close-out interview, whichever is more appropriate.

- If the interviewee indicates that what he or she does is different from what he or she is supposed to do and that difference impacts on the educational skills used, then ask the employee if it is okay to record what he or she does. (The interviewee is given the opportunity to review the draft report, and divergent information from employee and supervisory interviews is typically discussed during the clarification meeting.)

- Close an interview early but in a polite manner, if the employee or supervisor does not meet the criteria that was established for interviewees during the design meeting (e.g., is uncooperative, feels threatened or does not sufficiently respond to questions). The

conditions and techniques for handling difficult interview situations are usually discussed during the WESA design meeting and it is these discussions that should provide more specific guidance to the analyst.

Using the Interview Instruments

- Use the supervisory and employee interview questionnaires carefully, but informally. This requires the analyst to be thoroughly familiar with the questions, especially the wording and the order of the items.

- Provide smooth transitions from one question to another, when needed.

- Address every question on the interview instrument. The exact order is not as important as maintaining a fluid, relaxed discussion. However, be sure to review each section before closing the interview to prevent questions from being skipped.

- In situations when an interviewee offers comments which seem to answer a later question, jot the response by the later question. At that point, reference the earlier remark.

- Use the *Interview and Observation Checklist* to check each educational competency identified by the interviewee as used on the job. To the extent possible, note how the skill is applied on the job beneath the appropriate competency. Insert the alpha code for the frequency and criticality information for each dimension or subskill, and write general notes in the column to the right.

- Select an ink color for taking notes during the interviews and observations that will be distinguished easily from the ink color that was used to enter data in preparation for the interviews.

- Take sufficient notes for later reference, but do not let taking notes interfere with actively listening to what is being said.

Listening to the Interviewee

- Think about what the interviewee is saying.

- Listen "between-the-lines" for meaning.

- Set aside any personal biases or prejudices that may interfere with accurately processing what is being said.

- Maintain frequent eye contact, but do not stare.

- Use reflective responses to indicate interest and understanding (e.g., "uh huh", "I see", and "hmm"). The non-verbal nod of the head works well, too.

- Pay attention to and interpret non-verbal responses.

- Avoid or overcome physical or mental distractions.

- Distinguish relevant from irrelevant information offered in response to questions.

- Allow sufficient time for the interviewee to fully respond to each question asked.

Asking Follow-up Questions

- Ask follow-up questions to gain more in-depth information from the interviewee than was provided by his or her first response.

- Vary the type of follow-up questions used to elicit additional data.

- Use the information following the bullets on the supervisory and employee interview questionnaires as the basis for follow-up questions. The words that appear in bold print are designed to serve as a quick reference for the analyst.

- Consider using elaboration probes, open-ended questions or clarification probes when additional information is needed. Examples of each are provided below.

Elaboration Probes:	*"How do you mean?"*
	"Anything else?"
Open-Ended Questions:	*"When do you use the policy manual?"*
	"How do you calculate the diameter of that part?"
Clarification Probes:	*"I'm sorry, I'm not clear about what you mean. Could you tell me a little more?"*
	"Could you give me some examples of that, so I can better understand it?"

- Use the techniques of paraphrasing or repeating what the interviewee said and then asking if the restatement is correct, for another effective means of clarifying the initial response.

Closing the Interview

- Give the interviewee an opportunity to ask questions or add information.
- Request the telephone number (with the area code and extension number, if needed) of person being interviewed, in case it is necessary to contact him or her during the report-writing.
- Close the interview with a discussion of what will happen next in the WESA process and provide an estimated timeline for the remaining activities.

Observation Suggestions

The principal purpose of the observation is for the analyst to confirm or clarify previously identified workplace educational competencies and note any skills used on the job that were not discussed during the prior interviews. Throughout the observation, it is important for the analyst to focus on the educational skills required to perform the job being analyzed, not to focus on the individual or on his or her skill level.

Tips are provided below relative to initiating and conducting employee observations.

Initiating the Observation

- Confirm the date, time and location of the observation when the interview is scheduled.
- As the observation begins, restate its purpose and respond to any questions the employee might have.
- Ask the employee to demonstrate his or her job, step-by-step.
- Ask the employee if there are any job activities that he or she cannot demonstrate. Certain job activities may be too difficult or too dangerous to perform during an observation. Also, some job activities may be performed only at certain times of the day, week or year; or may require resources that are not available.
- Determine if it is appropriate to ask questions during the observation. If not, list the questions for discussion during the employee close-out interview.

- Be sure to determine if there are any safety precautions that should be taken when in the work area (things not to touch, distances to be kept while observing, etc.)

Conducting the Observation

- Try to maintain a relaxed atmosphere and be sensitive to any discomfort that the observation may cause the employee.
- Discontinue the observation if the employee becomes uncomfortable or distracted.
- Be sure to respect break times for employees while conducting the observation.
- Use the *Interview and Observation Checklist* to verify the data provided during the supervisory and employee interviews. Be sure to see the application of the competencies identified during the interviews.
- If a competency is observed that was not discussed in prior interviews, flag that competency for discussion during the employee close-out interview.
- Be observant. If there are tools, work aids or reading materials in the work area that have not been discussed, ask about them (e.g., An analyst may see a calculator and then ask, "Do you use calculators?").
- Think about the frequency with which educational skills (at the dimension or subskill level) are used and how critical they are. Use the alpha code on the *Interview and Observation Checklist* to quickly record this information.
- Be sure to add any vocabulary or technical terms used, if those terms are not on the listing that was provided for the interview.
- Observe a particular job activity just long enough to get the information needed.
- The observation is complete when little additional data can be gained from continued observation.

Employee Close-Out Interview Suggestions

The close-out interview with the employee follows the observation and provides an excellent opportunity to clarify any remaining questions on the part of the analyst and the employee. This interview generally requires 10 - 15 minutes to complete. Below are tips to follow during this phase of the interview process.

- Hold the close-out interview in a convenient location which facilitates discussion (e.g., is not too loud and affords some privacy).
- Discuss any observed activities or skills that were different from those discussed during the employee and supervisory interviews.
- Verify the accuracy of the information collected relative to frequency and criticality; tools, equipment and work aids; and vocabulary and technical terminology.
- Skim the interview and observation notes for readability and comprehension. Clarify any remaining areas of confusion necessary to begin the next step, report-writing.
- Fully respond to any questions the employee may have.
- Be sure to thank the employee for demonstrating his or her job.

Report-Writing Suggestions

The fourth stage of the WESA process primarily involves completing a summary and detailed report for each position or group of positions analyzed. The detailed report may be ordered by educational competencies or job activities. (Blank forms as well as detailed instructions for preparing each of these types of reports is contained within the section on data analysis and draft reports which begins on page 44 of the *Supplement*.)

Specific report-writing suggestions are offered in the following areas: preparing to write WESA reports, drafting detailed reports, drafting summary reports, verifying draft report content with interviewees, and preparing the draft reports for future WESA stages. Although future WESA stages (i.e., stage 5 - clarification meetings and stage 6 - WESA final reports) are referenced below, more detailed information is provided in the *WESA Training Guide*.

Preparing to Write WESA Reports

- Write the detailed report as soon as possible after the interview and observation so that information is fresh.

- Review any agreements made with involved parties before beginning to write, so that only information that was agreed upon is included in the report.

- Re-read all notes taken during the interviews and observations and review work-related materials that have been gathered, before beginning to write.

Drafting Detailed Reports

- Refer to notes continuously. It is important to rely on documentation. Memories can be faulty and fade with time.

- Include the job title and date of analysis as a heading on each page of the detailed report. This will allow the reader to know at a glance when the analysis took place. It also allows for easy identification of individual pages, if the report were to become separated.

- When writing, if discrepant information was provided (e.g., information from interviewees is inconsistent or there is a difference between what was said and what was observed) highlight, underline or bold the divergent information for discussion during the clarification meeting.

- When preparing the report, if questions develop about the use of skills that were not discussed and verified during the interviews and observations, flag them on the *Interview and Observation Checklist* for discussion during the clarification meeting.

- If an organization would like to highlight one component of the workplace educational competency statement over others (e.g., the "*academic*" phrase or the "*in order to*" phrase), the analyst could use a bold font to emphasize that portion of the statement.

- Enter the frequency and criticality information for each dimension or subskill provided, using the scales from the *Interview and Observation Checklist*. (The frequency scale is: daily, weekly and less often. The criticality scale is: very critical, critical and less critical.)

- When writing workplace educational competency statements, refer to pages 100-104 of the *Supplement* for sample workplace educational competency statements.

- Carefully review each workplace educational competency listed on the *Interview and Observation Checklist* and delete any competencies that are not applicable to the job(s) analyzed.

- Scrutinize the wording of each competency used in the job(s) analyzed and delete wording as appropriate. For example, in reviewing

competency TM 1.01* (visualize objects, processes and modifications), if the position only visualizes objects, then the remainder of the phrase referring to visualizing processes and modifications should be deleted.

- When appropriate, add to or alter the competency wording identified on the checklist in order to reflect the skill performed in the job(s) analyzed. For example, competency CT 1.01 (share speaking time with all members of a group), typically should be modified to specify which group or groups (e.g., share speaking time with co-workers).

- After finalizing the competency or "*academic*" phrase for the workplace educational competency statement, add the "*using or context*" phrase. This phrase should clearly indicate the context in which the academic skill is applied (e.g., the tools, equipment and work aids used).

- To make the "*using or context*" phrase less redundant, use alternate terminology. Examples of words with which to begin this phrase include: "*using*", "*found on*", "*as found in*", "*based on*", "*from*", "*such as*", "*contained in*", "*when*", and "*by*".

- When completing the third and last portion of the workplace educational competency statement, add the "*in order to*" phrase. This details how or for what purpose the skill is applied on the job (i.e., in order to accomplish what purpose).

- For improved readability of the detailed report, the beginning of the "*in order to*" phrase may be varied somewhat. If clarity is not lost, "*in order*" may be deleted and the phrase may simply begin with "*to*". For example, "*to deliver*", "*to carry out*", and "*to identify*". Other suggested lead-ins to the "*in order to*" phrase include: "*in an effort to*" and "*so that*".

- After drafting all of the workplace educational competency statements, the sequencing of the statements should be reviewed, if a hierarchy of skills is to be maintained. To the extent possible, the competencies are ordered on the *Interview and Observation Checklist* in ascending degree of complexity (from least to most difficult); however, the application of the competency may significantly impact the overall complexity of the skill and require the competencies to be reordered.

Drafting Summary Reports

- Limit the *Summary Report* to overview information which is relevant to its audience and intended purpose.

- When identifying the job-related educational skills for the *Summary Report*, identify those skills (by dimension) which are "*very critical*" and used on a daily basis. Be sure to add application information at the

subskill level (e.g., reading to reference and follow product specifications). Then, add those skills (by dimension) that are used less frequently but are "*very critical*", including application information at the subskill level. Lastly, identify any skills (by dimension) that are used on a daily basis, but have not been identified as "*very critical*".

- For the description of material read on the job, identify the full range of materials read and be descriptive.

- Remember to list only those tools, equipment and work aids that are used most frequently on the job.

- Focus the information in the career-pathing section on data that would be useful to the reader (e.g., Is this information helpful to employees considering the position for promotional or transfer purposes?).

- Be sure to provide timeline information when describing future changes anticipated to impact the job.

Verifying Draft Report Content with Interviewees

- If agreed upon during the design meeting and readability is not an issue, provide the interviewees with a copy of applicable summary and detailed reports in draft form.

- Ask the interviewees to review the reports for accuracy and completeness.

- Make necessary revisions to the reports before distributing them to the clarification meeting participants.

Preparing the Draft Reports for Future WESA Stages

- Distribute draft copies of the summary and detailed reports, allowing sufficient review time by the clarification meeting participants. The time requirements will vary from site to site, but typically at least one week is needed. (Based on the WESA design meeting, a draft of the WESA final report may also be distributed at this time.)

- Ask clarification meeting participants to carefully review the reports, and identify items that require revision, clarification or further discussion. Reviewing the reports prior to the clarification meeting, will help to make the meeting time as productive as possible.

- When extensive report modifications are requested during the initial clarification meeting, ask the participants if a follow-up meeting should be scheduled to review the revised reports.

- Modify the detailed and summary reports based on the feedback provided during the clarification meeting(s).

- Based on WESA design meeting discussions, prepare sufficient copies of the summary and detailed reports for distribution. Typically, one copy is provided to the workplace education program partners (e.g., management, labor and education), and two copies are given to the instructor (one for curriculum development purposes and one for review by employees in the Education Center).

- If any proprietary issues remain relative to the reports, ensure that they are resolved prior to distribution. (Propriety issues are most commonly addressed during the WESA design meeting.)

Tips for WESA Analysts Instruments

- Document and Data Collection Checklist
- Sample Workplace Educational Competency Statements

Workplace Educational Skills Analysis
Design Meeting and Interview Preparation
Document and Data Collection Checklist

Job Title(s): _____

Employer: _____

Will Provide	Does Not Apply	Worksite Materials of Value to WESA Analysts*	Received	Reviewed
☐	☐	**Position Descriptions or Job Activity Summaries**	☐	☐
☐	☐	**One Set of Blank Forms Used by the Position(s) to Be Analyzed** • Quality Assurance Forms • Maintenance Request, Complaint or Rework Forms • Logs, Charts or Job Tickets • Payroll, Benefits or Employee Suggestion Forms	☐	☐
☐	☐	**One Set of Completed Forms Used by the Position(s) to Be Analyzed** • Quality Assurance Forms • Maintenance Request, Complaint or Rework Forms • Logs, Charts or Job Tickets • Payroll, Benefits or Employee Suggestion Forms	☐	☐
☐	☐	**Documents that Are Read or Referenced by Those in the Position(s) to Be Analyzed** • Work Instructions, Job Tickets or Schedules • Equipment, Specification, Training or Procedural Manuals • Personnel or Employee Handbooks • Safety or Other Regulatory Information • Trade Magazines or Professional Journals	☐	☐
☐	☐	**A List of the Most Frequently Used Vocabulary and Technical Terminology for the Position(s) to Be Analyzed**	☐	☐
☐	☐	**Background Information on the Organization** • A Current Annual Report • Organizational Charts • Collective Bargaining Agreements • Overview Materials on Educational Initiatives (On-Site Training, Tuition Reimbursement Policies, etc.) • Overview Materials on Career Development Systems (Pay for Knowledge, Qualifying Requirements, etc.)	☐	☐

* *Examples of materials valuable to WESA analysts are provided; however, each worksite should add and delete items based on what is most appropriate for that site.*

Sample Workplace Educational Competency Statements

A sample workplace educational competency statement is provided below for each dimension or subskill identified on the *Interview and Observation Checklist*. As detailed in the *WESA Training Guide Supplement*, each workplace educational competency statement generally consists of an "*academic*" phrase, a "*using or context*" phrase, and an "*in order to*" phrase.

The academic portion of the statement is most typically a result of customizing the educational competency listed on the *Interview and Observation Checklist* to reflect the specific skill required for the job(s) analyzed. For clarification purposes, the educational competency from the checklist is identified in a footnote for each corresponding "*academic*" phrase. In addition to the "*academic*" phrase, the "*using or context*" and "*in order to*" phrases are clearly delineated to illustrate each of the components of a workplace educational competency statement.

COMMUNICATIONS DOMAIN
Listening Dimension

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Receive verbal information [1]	from co-workers and supervisor	to carry out job duties, schedule maintenance and repairs, and ensure the proper functioning of equipment.
Respond to the non-verbal messages of co-workers [2]	by asking questions and visually inspecting equipment	in an effort to differentiate between real and perceived problems in equipment and interpersonal relations.

[1] *Receive verbal information in ways that are appropriate to the purpose (CL 1.01*)*
[2] *Respond to non-verbal messages in ways that are appropriate to the purpose (CL 2.04*)*

Speaking Dimension

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Select appropriate patterns (chronological, priority order, etc.) [1]	when passing information on to other shifts and training co-workers	in order to clearly explain procedures and priorities.
Select verbal and non-verbal language appropriate to the audience and to the occasion [2]	using correct terminology, eye contact and gestures	to deliver clear and understandable messages to trainees and co-workers.

[1] *Select appropriate patterns (chronological, priority order, etc.) and cues (next, most important, etc.) for conveying a message (CS 1.02)*
[2] *Select verbal and non-verbal language appropriate to the audience and to the occasion (CS 2.02*)*

Reading Dimension

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Interpret abbreviations and acronyms [1]	found on formation record logs, float test forms and other documents	in order to effectively monitor equipment and procedures.
Comprehend terminology and vocabulary specific to the company [2]	as found in specifications, logbooks and safety materials	so that instructions can be followed, understood and explained.
Locate information in work aids [3]	such as temperature line graphs and formation record charts	to ensure conformance with specifications and to provide answers regarding readings and trends.

[1] *Interpret abbreviations and acronyms (CR 1.03)*
[2] *Comprehend terminology and vocabulary specific to the industry (CR 2.01•)*
[3] *Locate information in charts and graphs and in other work aids (CR 3.04)*

Writing Dimension

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Record numbers completely and accurately [1]	when filling out logs, step forms (first, second and third), and float test records	to document specific gravity and temperature measurements.
Communicate thoughts, ideas, information and instructions [2]	when leaving notes for co-workers and supervisors	in order to identify activities, time frames, problems and new procedures.

[1] *Record numbers completely and accurately (CW 1.01•)*
[2] *Communicate thoughts, ideas, information and messages in writing (CW 2.01•)*

Team-Building Dimension

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Share speaking time with co-workers [1]	when discussing problems and possible solutions during CAP meetings	to enable all team members to contribute ideas.
Participate in setting well-defined and realistic team goals [2]	based on company and customer expectations	in order to determine how these expectations can best be met.

[1] *Share speaking time with all members of a group (CT 1.01)*
[2] *Participate in setting well-defined and realistic team goals (CT 2.03•)*

Team-Building Dimension (Continued)

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Work constructively with others [3]	in Assembly and Test departments during product "rush" times and when discussing rework issues	to be sure customer delivery deadlines and quality standards are met.
Request expertise [4]	from Maintenance, Assembly, Test and Shipping departments when needed	to allow the battery process to flow smoothly from start to finish.

[3] *Work constructively with others (CT 3.06*)*
[4] *Request expertise external to the team as needed (CT 4.05)*

CRITICAL THINKING DOMAIN
Creative Thinking Dimension

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Change or reshape goals [1]	based on level of authority, established policy, personal knowledge and past experience	in order to generate new ideas which may result in cost-saving techniques, improved production, and more efficient methods.

[1] *Change or reshape goals to generate new ideas (TC 1.03*)*

Decision-Making Dimension

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Distinguish major problems from minor ones [1]	based on the nature, severity and impact of the problem	in order to decide when to stop a process and when to ask for advice or assistance.
Consider risks and likely consequences associated with alternatives [2]	given past experience, knowledge, and specifications	in order to choose the safest, most effective solution possible (particularly when adjusting battery acid levels).
Evaluate new situations [3]	relative to product introductions, system modifications and co-worker training, based on knowledge and experience	in order to determine if prior procedures will be effective or if new approaches are needed.

[1] *Distinguish major problems from minor problems (TD 1.05)*
[2] *Consider risks and likely consequences associated with alternatives (TD 2.02*)*
[3] *Evaluate new situations as they arise (TD 3.02)*

Problem-Solving Dimension

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Clarify the problem [1]	through visual inspection, interviews with key personnel, and reference to manuals	in order to accurately diagnose the cause and effect of the problem.
Trace the root cause of the problem [2]	using one's senses (touch, smell and sight), knowledge, and experience	to identify solutions and estimate repair time and costs.
Revise problem-solving activities [3]	as indicated by findings such as when a recently repaired machine begins to work improperly	to ensure the output of quality products.

[1] *Clarify the problem (TP 1.02)*
[2] *Trace the root cause of the problem (TP 2.06)*
[3] *Revise problem-solving activities as indicated by findings (TP 3.09*)*

Mental Visualization Dimension

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Visualize objects [1]	such as batteries, cable lengths and cable designs	to efficiently hook-up battery cables and place batteries in tanks and on pallets.

[1] *Visualize objects, processes and modifications (TM 1.01*)*

Knowing How to Learn Dimension

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Estimate the time required to perform activities [1]	by using a calculator, reference manuals and prior knowledge and experience	to develop and revise schedules.

[1] *Estimate the time required to perform activities (TK 1.05)*

Reasoning Dimension

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Extract rule principles [1]	from charts, logbooks, or manuals	in order to machine parts and repair or modify procedures and setups.

[1] *Extract rules or principles from a set of objects or a written text (TR 1.01*)*

MATHEMATICS DOMAIN

Arithmetic Dimension

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Read, match, count and compare whole numbers [1]	using order forms	to match battery types with specific processing activities (e.g., matching tank and rectifier numbers).
Chart information gathered [2]	regarding battery type, ampage, time and rectifier number	in order to complete formation record and one - three step charts.
Calculate diameters, angles, radii, circumferences and perimeters in terms of degrees, minutes and seconds [3]	using a scientific calculator	to install, measure, design, repair and fabricate parts.

[1] *Read, match, count and compare whole numbers (MA 1.01)*
[2] *Chart information (MA 2.02)*
[3] *Calculate diameters, angles, radii, circumferences and perimeters in terms of degrees, minutes and seconds (MA 3.05)*

Mathematics Dimension

WORKPLACE EDUCATIONAL COMPETENCY STATEMENT		
"Academic" Phrase	**"Using or Context" Phrase**	**"In order to" Phrase**
Translate information into formulas [1]	which are provided in SOP manuals	to install, measure, design, repair and fabricate parts.
Express statistical ideas and concepts in writing [2]	using DOS computer applications, WordPerfect 5.1 and Harvard Graphics	in order to effectively convey information to team members.

[1] *Translate information into formulas and calculations (MM 1.05)*
[2] *Express statistical ideas and concepts orally and in writing (MM 2.02)*

COMPLETED WESA REPORTS

Process Attendant Position Reports

This section of the *WESA Training Guide Supplement* includes completed WESA reports for a Process Attendant position. The *Summary Report*, the *Detailed Report by Educational Competencies* and the *Detailed Report by Job Activities* were prepared using the report formats presented earlier in the Data Analysis and Draft Reports section. (See pages 52 - 81 for blank forms.)

The analysis for the Process Attendant position was conducted in May, 1994 for a large manufacturing company. Based on prior practice when publicly distributing completed WESA reports, the identity of the employer is not disclosed. On the completed reports for the Process Attendant position, the employer is referred to as "Anonymous Manufacturing Company". Similarly, the affiliation of the WESA analyst is listed as "Anonymous Technical College".

WESA Process Used for Report Development

To the extent possible, the analysis and resulting WESA reports for the Process Attendant position are based on the process outlined in this *Supplement*. Kelly Kornacki (a member of the WESA Development Committee) conducted the interview, observation, verification and clarification activities, while another member (Donna Manly) observed. These two committee members drafted the summary and detailed reports, with involvement and assistance from Cindy Bentley-Knickrehm and Lisa Flesch who are also WESA Development Committee members.

Completed WESA Reports

- Summary Report for Process Attendant
- Detailed Report by Educational Competencies for Process Attendant
- Detailed Report by Job Activities for Process Attendant

Workplace Educational Skills Analysis
Summary Report

Job Title:	Process Attendant - Battery Formation
Employer:	Anonymous Manufacturing Company
Analyst:	WESA Development Committee Members
Analyst Affiliation:	Anonymous Technical College
Date of Analysis:	May 4, 1994

Primary Job Activities

The process attendant in the special battery division is principally responsible for forming and charging liquid and gel batteries. The primary job activities are: (a) mixing acid, forming batteries and preparing processing equipment for charging; (b) monitoring, testing and adjusting equipment and systems to ensure compliance to specifications; (c) recording data to complete formation, float and one - three step forms; (d) training new workers, participating in departmental (team) meetings and directing the work of others on three shifts; and (e) maintaining the work area and equipment for safe operation.

Job-Related Educational Skills

Very critical educational skills used on a daily basis are: reading, writing and arithmetic. These skills are primarily applied as follows: reading to reference and follow product specifications; writing to record formation information and compose notes for employees; and arithmetic to read measurements on forms and charts and to compute tolerances. Problem-Solving skills are used less frequently, but are very critical in order to recognize when batteries do not meet specifications and to determine what corrective action is needed. Other skills used daily are: listening, speaking, team-building and knowing how to learn.

Description of Material Read on the Job

The majority of materials read on this job are: measurement gauges and dials; data collection forms and charts; short phrases and technical vocabulary from customer specifications; and brief notes from supervisors and co-workers.

Tools, Equipment and Work Aids Used on the Job

The tools used most frequently are: thermometers, hydrometers, voltmeters and common hand tools. A hand truck is also operated on a daily basis.

Career-Pathing and Training Information Relevant to the Position

This is an advanced position for production personnel (class range 35-37). Openings are filled on a seniority basis, with a qualifying period required. Incentive pay rates do not apply. On-the-job training and cross-training for other formation department positions is provided.

Future Changes Anticipated to Impact the Job

Installation of major equipment (celloggers) is expected to occur in June. (Celloggers are designed to record cell voltage measurements, improving accuracy and simplifying record keeping.) Celloggers will require operators to distinguish six digit numbers, decimal placement and measurements to an 1/8 of an inch. On-the-job training will be provided.

Continued cross-training is also expected for this position which will require accessing information on computer screens and entering data on a computer keyboard.

Workplace Educational Skills Analysis
Detailed Report by Educational Competencies

Job Title: Process Attendant - Battery Formation
Employer: Anonymous Manufacturing Company
Analyst: WESA Development Committee Members
Analyst Affiliation: Anonymous Technical College
Date of Analysis: May 4, 1994

SECTION 1 -- WORKPLACE EDUCATIONAL COMPETENCIES

Communications Domain

Listening Dimension

Subskill: **Verbal**

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [ ] **Critical** [X] **Less Critical** [ ]

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
CL 1.01*	Receive verbal information from co-workers and supervisor in order to effectively carry out work assignments and special instructions.	A, D	1 2 3
CL 1.02*	Pay attention to and interpret verbal messages received from co-workers and supervisor in order to adjust schedules, equipment and systems.	A, B, D	1 2 3
CL 1.03*	Respond to verbal messages from co-workers on other shifts and in other departments in order to maintain the proper sequence of the battery charge operation.	A, B, D	1 2 3
CL 1.04	Comprehend terminology specific to the battery industry to ensure correct interpretation of verbal instructions and messages conveyed in training sessions.	A, B, D, E	1 2 3

Subskill: **Non-Verbal**

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [ ] **Critical** [X] **Less Critical** [ ]

CL 2.01	Detect sounds within the workplace from hand and battery-powered trucks and other indoor material handling equipment to avoid injury.	A, B, C, D, E	1 2 3
CL 2.02*	Receive non-verbal messages such as hand signals and motions from co-workers and supervisors due to loud work environment in order to know if assistance is needed and to identify other messages.	A, B, D, E	1 2 3
CL 2.03*	Pay attention to and interpret non-verbal messages such as hand signals and motions given due to the loud work environment in order to maintain effective operations.	A, B, D, E	1 2 3

Speaking Dimension

Subskill: **Preparation**

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [ ] **Critical** [X] **Less Critical** [ ]

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
CS 1.01*	Organize ideas while training co-workers in order to ensure the message is clearly understood.	D	1 2 3
CS 1.02	Select appropriate patterns (chronological, priority order, etc.) when passing information on to other shifts and training co-workers in order to clearly explain procedures and priorities.	D	1 2 3
CS 1.03	Select appropriate language for conveying a message based on the situation and the listener in order to choose a way of speaking (e.g., slang, standard, vernacular) that the listener will understand.	A, B, D	1 2 3
CS 1.05*	Design and adapt messages appropriate to listeners when training new workers in order to present information in the best manner (amount, complexity, sequence, etc.) for maximum comprehension.	D	1 2 3
CS 1.07	Support viewpoints with reasons and evidence when discussing opinions during CAP meetings in order to fully explain ideas.	D	1 2 3

Subskill: **Delivery**

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [ ] **Critical** [X] **Less Critical** [ ]

CS 2.01*	Speak clearly when communicating ideas or instructions to ensure correct delivery and interpretation of messages.	A, B, D	1 2 3
CS 2.02*	Select verbal and non-verbal language appropriate to the audience and to the occasion using correct terminology, eye contact and gestures to deliver clear and understandable messages to trainees and co-workers.	A, B, D	1 2 3
CS 2.03*	Ask and answer questions when needed in order to clarify work orders, establish priorities and provide information.	A, B, D	1 2 3
CS 2.04*	Participate in discussions and CAP meetings in order to contribute to a more efficient production process.	A, B, D	1 2 3
CS 2.05	Express ideas, opinions, facts and feelings using respectful language and complete thoughts in order to enhance team effectiveness.	A, B, D	1 2 3
CS 2.06	Adjust statements to increase comprehension by the listener when training or providing information to co-workers in order to maximize the impact of the message.	A, B, D	1 2 3
CS 2.07	Restate, clarify and paraphrase to convey main points when training or providing information in order to increase understanding by trainees.	A, B, D	1 2 3

Reading Dimension

Subskill: **Vocabulary**

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [X] **Critical** [ ] **Less Critical** [ ]

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
CR 1.02	Discriminate among alphanumeric and color codes found on formation record logs, stationary process specifications and charts in order to properly match battery numbers, identify +/- battery cables, and record information.	A, B, C, E	1 2 3
CR 1.03	Interpret abbreviations and acronyms found on formation record logs, float test forms and other documents in order to effectively monitor equipment and procedures.	A, B, C, E	1 2 3
CR 1.04	Recognize terminology and vocabulary specific to the company in order to mix acid, form batteries, and monitor, test and adjust equipment and systems.	A, B, C, E	1 2 3

Subskill: **Comprehension**

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [X] **Critical** [ ] **Less Critical** [ ]

CR 2.01*	Comprehend terminology and vocabulary specific to the company as found in specifications, logbooks, and safety materials so that instructions can be followed, understood and explained.	A, B, C, D, E	1 2 3
CR 2.02*	Comprehend charts, graphs and symbols from temperature recording forms, formation charts, and symbols noting battery charge in order to complete logged information and arrange batteries in a safe, effective manner.	A, B, C, D, E	1 2 3
CR 2.04*	Read, comprehend and interpret stated information when using specifications, float test information, gel mix formulas and instructions in order to follow specified procedures.	A, B, C, D, E	1 2 3
CR 2.05*	Follow directions from stated information found in instructions, specifications and gel mix formulas in order to perform the outlined steps in sequence.	A, B, C, D, E	1 2 3
CR 2.07*	Identify relevant details found on schedules, specification sheets and instructions in order to respond to priorities and changes.	A, B, C, D, E	1 2 3

Subskill: **Reference**

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [X] **Critical** [ ] **Less Critical** [ ]

CR 3.01	Skim and scan specifications to locate relevant information about batteries and procedures.	A, B	1 2 3
CR 3.02*	Locate written information using document number in specification books and prior entries in logs to find out corresponding procedures, safety information, etc.	A, B, C, D, E	1 2 3
CR 3.03*	Locate the meaning of unknown or unfamiliar words when used in order to ensure conformance with specifications, requested procedures or stated policies.	A, B, D, E	1 2 3
CR 3.04	Locate information in work aids such as temperature line graphs and formation record charts to ensure conformance with specifications and to provide answers regarding readings and trends.	A, B, D	1 2 3
CR 3.05	Obtain information from multiple sources such as specifications, machine read outs, and work order forms in order to set-up and monitor processes and take corrective action.	A, B, C	1 2 3

Writing Dimension

Subskill: **Recording**

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [X] **Critical** [ ] **Less Critical** [ ]

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
CW 1.01*	Record numbers completely and accurately when filling out logs, step forms (first, second and third), and float test records to document specific gravity and temperature measurements.	B, C	1 2 3

Subskill: **Composition**

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [X] **Critical** [ ] **Less Critical** [ ]

CW 2.01*	Communicate thoughts, ideas, information and instructions when leaving notes for co-workers and supervisors in order to identify activities, time frames, problems and new procedures.	D	1 2 3
CW 2.04*	Check and revise message for correct information, clarity, and organization in order to ensure that priorities, procedures and other information is conveyed accurately.	C, D	1 2 3

Team-Building Dimension

Subskill: **Group Discussion**

Frequency: **Daily** [ ] **Weekly** [X] **Less Often** [ ] Criticality: **Very Critical** [ ] **Critical** [ ] **Less Critical** [X]

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
CT 1.01	Share speaking time with co-workers when discussing problems and possible solutions during CAP meetings to enable all team members to contribute ideas.	D	1 2 3
CT 1.03	Offer constructive feedback regarding work activities when training co-workers in order to improve work performance.	D	1 2 3

Subskill: **Goal Setting**

Frequency: **Daily** [ ] **Weekly** [X] **Less Often** [ ] Criticality: **Very Critical** [ ] **Critical** [X] **Less Critical** [ ]

CT 2.01	Share the team goals and the mission of the company and the Formation Division in order to sustain and enhance a cooperative work atmosphere.	D	1 2 3
CT 2.03*	Participate in setting well-defined and realistic team goals based on company and customer expectations in order to determine how these expectations can best be met.	D	1 2 3
CT 2.04	Suggest creative and effective means to achieve team goals based on knowledge and experience in order to increase effectiveness, efficiency and product quality (e.g., creation of measuring tubes).	D	1 2 3
CT 2.05	Set individual goals and objectives consistent with group goals in order to work independently to meet product deadlines and quality standards set by the company and the customer.	A, B, C, D, E	1 2 3

Subskill: **Team Participation**

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [ ] **Critical** [X] **Less Critical** [ ]

CT 3.01*	Take an interest in what others say and do when interacting with co-workers in a work or break environment in order to show respect for all team members and strengthen group cohesiveness.	A, B, C, D, E	1 2 3
CT 3.02*	Share information and expertise to improve situations and to help others learn when providing training or offering assistance in order to minimize training time and maximize efficiency within the department.	A, B, C, D, E	1 2 3
CT 3.03	Recognize accomplishments, give credit and thanks for accomplishments to others when receiving assistance or when an innovative idea is given in order to reinforce positive efforts.	A, B, C, D, E	1 2 3
CT 3.05*	Contribute to group efforts with ideas and suggestions particularly in departmental meetings and training sessions to maximize product quality and safety.	A, B, C, D, E	1 2 3

Subskill: **Team Participation (Continued)**

CT 3.06*	Work constructively with others in Assembly and Test departments during product "rush" times and when discussing rework issues to be sure customer delivery deadlines and quality standards are met.	A, B	1 2 3
CT 3.07*	Demonstrate understanding, friendliness, adaptability, empathy and politeness in group settings when making requests of material handlers, giving feedback to the Assembly department, and providing information to the Test department in order to effectively communicate and accomplish work priorities.	A, B, D	1 2 3
CT 3.08	Inspire mutual support of co-workers in the Formation Department and in other departments (e.g., Test, Assembly and Shipping) in order to work together to meet production goals.	D	1 2 3

Subskill: **Collaborative Problem Resolution**

Frequency: **Daily** [ ] **Weekly** [X] **Less Often** [ ] Criticality: **Very Critical** [ ] **Critical** [X] **Less Critical** [ ]

CT 4.01	See another's point of view (perspective taking) during discussions and CAP meetings in order to better understand ideas and benefit from suggestions.	D	1 2 3
CT 4.04	Work effectively with diverse personalities at the company to strengthen individual efforts and those of the department.	D	1 2 3
CT 4.05	Request expertise from Maintenance, Assembly, Test, and Shipping departments when needed to allow the battery process to flow smoothly from start to finish.	A, B, C, D, E	1 2 3
CT 4.07	Work independently (without close supervision) a majority of the time to accomplish individual responsibilities in accordance with departmental goals.	A, B, C, D, E	1 2 3

Critical Thinking Domain

Creative Thinking Dimension

Frequency: **Daily** [ ] **Weekly** [ ] **Less Often** [X] Criticality: **Very Critical** [ ] **Critical** [ ] **Less Critical** [X]

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
TC 1.01*	Imagine new possibilities to generate ideas and offer suggestions at departmental meetings and in informal discussions to improve productivity, effectiveness and safety.	A, B, C, D, E	1 2 3
TC 1.05*	Combine ideas and information in new ways when new tools or machines (such as celloggers) are installed in order to apply past knowledge and effectively adapt to different situations.	A, B, C, D, E	1 2 3

Decision-Making Dimension

Subskill: **Analysis**

Frequency: **Daily** [ ] **Weekly** [X] **Less Often** [ ] Criticality: **Very Critical** [ ] **Critical** [X] **Less Critical** [ ]

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
TD 1.01*	Specify goals for new trainees and co-workers to maximize their understanding of work priorities and activities.	D	1 2 3
TD 1.02*	Identify and understand constraints given product deadlines, safety measures, and procedural requirements in order to schedule production efficiently and safely.	A, B, C, D, E	1 2 3
TD 1.03	Analyze situations and recognize that a decision needs to be made based on specifications and rectifier readouts when procedural steps have been completed, omitted or require adjustments.	A, B, C, D, E	1 2 3
TD 1.05	Distinguish major problems from minor ones based on the nature, severity and impact of the problem in order to decide when to stop a process and when to ask for advice or assistance.	A, B, C, D, E	1 2 3

Subskill: **Resolution**

Frequency: **Daily** [ ] **Weekly** [X] **Less Often** [ ] Criticality: **Very Critical** [ ] **Critical** [X] **Less Critical** [ ]

TD 2.01*	Generate alternatives and implementation strategies when deciding an appropriate course of action such as what to do when the specific gravity is out of tolerance or when a deadline is in danger of being missed.	A, B, C, D, E	1 2 3
TD 2.02*	Consider risks and likely consequences associated with alternatives given past experience, knowledge and specifications in order to choose the safest, most effective solution possible (particularly when adjusting battery acid levels).	A, B, C, D, E	1 2 3

Subskill: **Evaluation**

Frequency: **Daily** [ ] **Weekly** [ ] **Less Often** [X] Criticality: **Very Critical** [ ] **Critical** [X] **Less Critical** [ ]

TD 3.01	Evaluate actual effects of decisions based on the results in order to determine if further action is needed.	A, B, D, E	1 2 3
TD 3.02	Evaluate new situations relative to product introductions, system modifications and co-worker training based on knowledge and experience in order to determine if prior procedures will be effective or if new approaches are needed.	A, B, C, D, E	1 2 3

Problem-Solving Dimension

Subskill: **Recognition**

Frequency: **Daily** [ ] **Weekly** [X] **Less Often** [ ] Criticality: **Very Critical** [X] **Critical** [ ] **Less Critical** [ ]

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
TP 1.01*	Recognize that a problem exists using personal judgment and knowledge of quality standards or input from qualified co-workers in order to begin the troubleshooting process.	A, B, C, D, E	1 2 3
TP 1.04	Recognize patterns in problem situations such as repeated returns from the Test department for rework or similar errors by a trainee in order to prevent future occurrences.	B, D	1 2 3

Subskill: **Analysis**

Frequency: **Daily** [ ] **Weekly** [X] **Less Often** [ ] Criticality: **Very Critical** [X] **Critical** [ ] **Less Critical** [ ]

TP 2.01*	Identify possible reasons or causes for a problem using measurement instruments, recorded data, digital readouts, and past experience in order to effectively analyze the problem.	A, B, C	1 2 3

Subskill: **Resolution**

Frequency: **Daily** [ ] **Weekly** [X] **Less Often** [ ] Criticality: **Very Critical** [X] **Critical** [ ] **Less Critical** [ ]

TP 3.01	Generate possible alternative solutions to a problem based on experience, troubleshooting specifications, and input of others in order to choose the most effective solution.	A, B, D	1 2 3
TP 3.02	Prioritize job tasks for effectiveness and efficiency based on charge and float times, order size, and deadlines in order to alternate procedures to make each shift as productive as possible.	A, B, C, D, E	1 2 3
TP 3.03	Notify and consult others based on the nature and severity of the problem in order to effectively use the skills and training of others (e.g., maintenance staff and supervisors) to maximize production time.	A, B, C, D, E	1 2 3
TP 3.04	Inform others of the solution and, when appropriate, how the problem was resolved in order to allow Formation Department workers to benefit from the knowledge and experience of others and to take preventive action in similar situations.	D	1 2 3
TP 3.05*	Consider the knowledge and skills of the workforce and distribute work accordingly in order to best utilize the strengths of co-workers and trainees.	D	1 2 3

Mental Visualization Dimension

Frequency: **Daily** [ ] **Weekly** [ ] **Less Often** [X] Criticality: **Very Critical** [ ] **Critical** [ ] **Less Critical** [X]

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
TM 1.01*	Visualize objects such as batteries, cable lengths and cable designs to efficiently hook-up battery cables and place batteries in tanks and on pallets.	A	1 2 3

Knowing How to Learn Dimension

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [ ] **Critical** [X] **Less Critical** [ ]

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
TK 1.02	Match objects by positive and negative designations, color, length and size using knowledge of electricity and batteries to properly connect cables to batteries, apply caps and put batteries in tanks and on pallets in a efficient manner.	A	1 2 3
TK 1.04	Memorize facts and other frequently used information such as steps used in formation procedures and in mixing various types of acid to function most efficiently.	A, B, C, D, E	1 2 3
TK 1.05	Estimate the time required to perform activities based on specifications, job priorities, and the sequencing of procedures in order to meet deadlines and instruct co-workers on various shifts how to most efficiently proceed with each process.	A, B, D	1 2 3
TK 1.06	Perform multiple tasks simultaneously based on past experience and with the aid of mental and written notes in order to perform job activities in a safe and effective manner (e.g., keeping 18 tanks operating at various stages in the formation process).	A, B, C, D, E	1 2 3
TK 1.07	Utilize visual discrimination to identify colors and correct lengths of cables and levels of acid and water in order to perform set-up, preventive and corrective tasks.	A, B	1 2 3
TK 1.11*	Attend to details relative to mixing acid, recordkeeping, setting rectifier and monitoring test results to ensure accuracy.	A, B, C	1 2 3
TK 1.12*	Maintain a high level of concentration given the inherent dangers of working with electricity and acid in order to maintain a safe work environment.	A, B, E	1 2 3
TK 1.14	Reflect on the product at various stages and on the completed product for correctness based on specifications in order to meet quality standards and to correct any errors as soon as possible.	A, B, C	1 2 3

Reasoning Dimension

Frequency: **Daily** [ ] **Weekly** [X] **Less Often** [ ] Criticality: **Very Critical** [ ] **Critical** [X] **Less Critical** [ ]

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
TR 1.03	Determine if a step is missing in a process based on past experience, principles of electricity, knowledge of the process and specifications to take corrective action.	A, B	1 2 3

Mathematics Domain

Arithmetic Dimension

Subskill: **Computations**

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [X] **Critical** [ ] **Less Critical** [ ]

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
MA 1.01	Read, match, count and compare whole numbers using order forms to match battery types with specific processing activities (e.g., matching tank and rectifier numbers).	A, B, C	1 2 3
MA 1.02	Add, subtract, and multiply whole numbers using the number of skids and the number of batteries per skid in order to determine the number of batteries available to begin the formation process.	A	1 2 3
MA 1.03	Read, match, compare and sequence decimals found on specification and float test sheets in order to locate appropriate settings in specification book and perform float tests.	A, B, C	1 2 3
MA 1.04	Add, subtract and multiply decimals found on specification sheets in order to determine if specific gravity is within tolerance and to estimate settings for rectifier.	A, B, C	1 2 3
MA 1.09	Locate positive and negative whole and decimal numbers on specification sheets and measuring tools in order to reference, read and compare actual readings to desired values.	B, C	1 2 3
MA 1.12	Determine if measurement readings are within allowable ranges based on specifications in order to ensure battery quality.	B, C	1 2 3
MA 1.13	Determine if maximum and minimum allowable measurements are within given numeric tolerances based on specifications in order to know if a readout given or measurement taken is within tolerances.	B, C	1 2 3
MA 1.20	Check work for accuracy and reasonableness when completing records, taking measurements and completing other tasks in order to minimize errors.	A, B, C	1 2 3

Subskill: **Tables, Graphs, Diagrams and Charts**

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [X] **Critical** [ ] **Less Critical** [ ]

MA 2.01*	Obtain or convey numeric information received from measurements taken during the formation process in order to record information for customer and ISO 9000 records.	C	1 2 3
MA 2.02	Chart information gathered regarding battery type, ampage, time and rectifier number in order to complete formation record and one - three step charts.	C	1 2 3
MA 2.03	Plot measurements and points on graphs read from temperature measuring devices for batteries in order to pass this information onto the Test department and for documentation purposes.	C	1 2 3

Subskill: **Measurements**

Frequency: **Daily** [X] **Weekly** [ ] **Less Often** [ ] Criticality: **Very Critical** [X] **Critical** [ ] **Less Critical** [ ]

MA 3.01	Read, record and interpret measurements based on specification sheets and procedures in order to know if measurements (e.g., specific gravity and temperature) are within tolerances.	B, C	1 2 3
MA 3.02	Read and interpret measurements on gauges and tools when using thermometers, hydrometers and voltmeters in order to determine if the readout is within specifications.	B, C	1 2 3

Mathematics Dimension

Subskill: **Equations**

Frequency: **Daily** [ ] **Weekly** [ ] **Less Often** [X] Criticality: **Very Critical** [ ] **Critical** [ ] **Less Critical** [X]

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[3]	Self/Needs Assessment[4]
MM 1.02	Solve simple equations found on float sheets in order to find a value which will become the initial rectifier setting.	A	1 2 3
MM 1.03	Solve problems involving single-step and multiple-step word problems with whole numbers and decimals as seen in specification 515.1 (float test procedure) in order to find the average float voltage.	A, B	1 2 3

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1 Each workplace educational competency is identified by an alpha-numeric code. The first letter of the alpha code represents the educational domain and the second letter identifies the dimension. The first number indicates a new dimension or subskill, if provided. Then each workplace educational competency is numbered sequentially as specified by the numbers to the right of the decimal. Lastly, an asterisk follows the three-digit number, if it was adapted from the skills and competencies included in the Secretary's Commission on Achieving Necessary Skills (A SCANS Report for America 2000) which was published by the U.S. Department of Labor, 1992.

2 Each workplace educational competency statement identifies an academic skill required to perform a job or cluster of jobs; indicates the context in which the academic skill is used (e.g., identifies tools or equipment used); and details how or for what purpose the skill is applied on the job (i.e., in order to accomplish what purpose).

3 The primary activities (main responsibilities) of each job are identified during the interview and observation process and given an alpha code. The primary job activities are detailed in Section 2 of this report.

4 The rating scale recommended for self-assessment (learner assessment) is: 1 - No Training Wanted; 2 - Some Training Wanted; and 3 - Extensive Training Wanted. The rating scale suggested for conducting training needs assessments within departments or organizations is: 1 - No Training Needed; 2 - Some Training Needed; and 3 - Extensive Training Needed.

SECTION 2 -- PRIMARY JOB ACTIVITIES

Alpha Code	Job Activity
A	Mixing acid, forming batteries and preparing processing equipment for charging.
B	Monitoring, testing and adjusting equipment and systems to ensure compliance to specifications.
C	Recording data to complete formation, float and one - three step charts.
D	Training new workers, participating in team meetings and directing the work of others on three shifts.
E	Maintaining the work area and equipment for safe operation.

SECTION 3 -- OTHER SKILL-RELATED, TRAINING AND CAREER-PATHING INFORMATION

This is an advanced position for production personnel (class range 35-37). Openings are filled on a seniority basis, with a qualifying period required. Incentive pay rates do not apply. On-the-job training and cross-training for other formation department positions is provided.

Installation of major equipment (celloggers) is expected to occur in June. (Celloggers are designed to record cell voltage measurements, improving accuracy and simplifying record keeping.) Celloggers will require operators to distinguish six digit numbers, decimal placement and measurements to an 1/8 of an inch. On-the-job training will be provided.

Continued cross-training is also expected for this position which will require accessing information on computer screens and entering data on a computer keyboard.

SECTION 4 -- VOCABULARY AND TECHNICAL TERMINOLOGY

Term	Definition*
Acid	
Amperes	
Bag	
Balance	
"Blood"	
Cables	
Contaminated Sample	
"Cook"	
Decals	
Drops	
Float Machine	
Float Tests (Monocell, Two Cell, and Three Cell)	
Formation	
Gallon	
Gel	
Hydrometer	
ISO 9000	
"Juice"	
Kilogram (Kg)	
On Charge Voltage	
Plugs	
Pound	
Processing Room	
Recharge	
Rectifier	
Silicone	
Specific Gravity (s.g.)	
Specifications	
Tanks	
Test Solution	
Tolerance	
Volt	
Water	

* *The critical vocabulary and technical terminology relevant to this job or jobs is identified during the workplace educational skills analyses process. Definitions are typically provided by the workplace education instructor in conjunction with learners, peer advisors, program steering committee members or others.*

SECTION 5 -- TOOLS, EQUIPMENT AND WORK AIDS

Tools, Equipment and Work Aids	Use(s)*
Acid Hoses	
Amp Meter	
Apron	
Cables	
Calculator	
Cellogger	
Dial Meter	
Digital Counter	
Dummy Battery	
Eye Wash Station	
Face Shield	
Float Machine	
Gel Acid	
Hammer	
Hydrometer	
Labels	
Ratchet Wrench	
Rectifier	
Rubber Gloves	
Rubber Boots	
Rustoleum	
Safety Glasses	
Scraper	
Screwdriver	
Silicone	
Tanks	
Thermometer	
Vacuum Pump	
Voltmeter	
Water Hoses	
Withdrawl Tube	
1/2" Wrench	

* *The tools, equipment and work aids used to perform this job or jobs are identified during the workplace educational skills analysis process. The use(s) for these materials are typically added by the workplace education instructor in conjunction with learners, peer advisors, program steering committee members or others.*

Workplace Educational Skills Analysis
Detailed Report by Job Activities

Job Title:	Process Attendant - Battery Formation
Employer:	Anonymous Manufacturing Company
Analyst:	WESA Development Committee Members
Analyst Affiliation:	Anonymous Technical College
Date of Analysis:	May 4, 1994

SECTION 1 -- WORKPLACE EDUCATIONAL COMPETENCIES

Job Activity A: Mixing acid, forming batteries and preparing processing equipment for charging.

Code[1]	Workplace Educational Competency Statement[2]	Self/Needs Assessment[3]
CL 1.01*	Receive verbal information from co-workers and supervisor in order to effectively carry out work assignments and special instructions.	1 2 3
CR 3.01	Skim and scan specifications to locate relevant information about batteries and procedures.	1 2 3
CT 3.06*	Work constructively with others in Assembly and Test departments during product "rush" times and when discussing rework issues to be sure customer delivery deadlines and quality standards are met.	1 2 3
TM 1.01*	Visualize objects such as batteries, cable lengths and cable designs to efficiently hook-up battery cables and place batteries in tanks and on pallets.	1 2 3
TK 1.02	Match objects by positive and negative designations, color, length and size using knowledge of electricity and batteries to properly connect cables to batteries, apply caps and put batteries in tanks and on pallets in a efficient manner.	1 2 3
TK 1.07	Utilize visual discrimination to identify colors and correct lengths of cables and levels of acid and water in order to perform set-up, preventive and corrective tasks.	1 2 3
TR 1.03	Determine if a step is missing in a process based on past experience, principles of electricity, knowledge of the process and specifications to take corrective action.	1 2 3
MA 1.02	Add, subtract, and multiply whole numbers using the number of skids and the number of batteries per skid in order to determine the number of batteries available to begin the formation process.	1 2 3
MM 1.02	Solve simple equations found on float sheets in order to find a value which will become the initial rectifier setting.	1 2 3
MM 1.03	Solve problems involving single-step and multiple-step word problems with whole numbers and decimals as seen in specification 515.1 (float test procedure) in order to find the average float voltage.	1 2 3

Job Activity B: Monitoring, testing and adjusting equipment and systems to ensure compliance to specifications.

Code[1]	Workplace Educational Competency Statement[2]	Self/Needs Assessment[3]
CR 3.01	Skim and scan specifications to locate relevant information about batteries and procedures.	1 2 3
CW 1.01*	Record numbers completely and accurately when filling out logs, step forms (first, second and third), and float test records to document specific gravity and temperature measurements.	1 2 3

CT 3.06*	Work constructively with others in Assembly and Test departments during product "rush" times and when discussing rework issues to be sure customer delivery deadlines and quality standards are met.	1 2 3
TP 1.04	Recognize patterns in problem situations such as repeated returns from the Test department for rework or similar errors by a trainee in order to prevent future occurrences.	1 2 3
TK 1.07	Utilize visual discrimination to identify colors and correct lengths of cables and levels of acid and water in order to perform set-up, preventive and corrective tasks.	1 2 3
TR 1.03	Determine if a step is missing in a process based on past experience, principles of electricity, knowledge of the process and specifications to take corrective action.	1 2 3
MA 1.09	Locate positive and negative whole and decimal numbers on specification sheets and measuring tools in order to reference, read and compare actual readings to desired values.	1 2 3
MA 1.12	Determine if measurement readings are within allowable ranges based on specifications in order to ensure battery quality.	1 2 3
MA 1.13	Determine if maximum and minimum allowable measurements are within given numeric tolerances based on specifications in order to know if a readout given or measurement taken is within tolerances.	1 2 3
MA 3.01	Read, record and interpret measurements based on specification sheets and procedures in order to know if measurements (e.g., specific gravity and temperature) are within tolerances.	1 2 3
MA 3.02	Read and interpret measurements on gauges and tools when using thermometers, hydrometers and voltmeters in order to determine if the readout is within specifications.	1 2 3
MM 1.03	Solve problems involving single-step and multiple-step word problems with whole numbers and decimals as seen in specification 515.1 (float test procedure) in order to find the average float voltage.	1 2 3

Job Activity C: Recording data to complete formation, float and one - three step charts.

Code[1]	Workplace Educational Competency Statement[2]	Self/Needs Assessment[3]
CW 1.01*	Record numbers completely and accurately when filling out logs, step forms (first, second and third), and float test records to document specific gravity and temperature measurements.	1 2 3
CW 2.04*	Check and revise message for correct information, clarity, and organization in order to ensure that priorities, procedures and other information is conveyed accurately.	1 2 3
MA 1.09	Locate positive and negative whole and decimal numbers on specification sheets and measuring tools in order to reference, read and compare actual readings to desired values.	1 2 3
MA 1.12	Determine if measurement readings are within allowable ranges based on specifications in order to ensure battery quality.	1 2 3
MA 1.13	Determine if maximum and minimum allowable measurements are within given numeric tolerances based on specifications in order to know if a readout given or measurement taken is within tolerances.	1 2 3
MA 2.01*	Obtain or convey numeric information received from measurements taken during the formation process in order to record information for customer and ISO 9000 records.	1 2 3
MA 2.02	Chart information gathered regarding battery type, ampage, time and rectifier number in order to complete formation record and one - three step charts.	1 2 3
MA 2.03	Plot measurements and points on graphs read from temperature measuring devices for batteries in order to pass this information onto the Test department and for documentation purposes.	1 2 3

MA 3.01	Read, record and interpret measurements based on specification sheets and procedures in order to know if measurements (e.g., specific gravity and temperature) are within tolerances.	1 2 3
MA 3.02	Read and interpret measurements on gauges and tools when using thermometers, hydrometers and voltmeters in order to determine if the readout is within specifications.	1 2 3

Job Activity D: Training new workers, participating in team meetings and directing the work of others on three shifts.

Code[1]	Workplace Educational Competency Statement[2]	Self/Needs Assessment[3]
CL 1.01*	Receive verbal information from co-workers and supervisor in order to effectively carry out work assignments and special instructions.	1 2 3
CS 1.01*	Organize ideas while training co-workers in order to ensure the message is clearly understood.	1 2 3
CS 1.02	Select appropriate patterns (chronological, priority order, etc.) when passing information on to other shifts and training co-workers in order to clearly explain procedures and priorities.	1 2 3
CS 1.05*	Design and adapt messages appropriate to listeners when training new workers in order to present information in the best manner (amount, complexity, sequence, etc.) for maximum comprehension.	1 2 3
CS 1.07	Support viewpoints with reasons and evidence when discussing opinions during CAP meetings in order to fully explain ideas.	1 2 3
CW 2.01	Communicate thoughts, ideas, information and instructions when leaving notes for co-workers and supervisors in order to identify activities, time frames, problems and new procedures.	1 2 3
CW 2.04*	Check and revise message for correct information, clarity, and organization in order to ensure that priorities, procedures and other information is conveyed accurately.	1 2 3
CT 1.01	Share speaking time with co-workers when discussing problems and possible solutions during CAP meetings to enable all team members to contribute ideas.	1 2 3
CT 1.03	Offer constructive feedback regarding work activities when training co-workers in order to improve work performance.	1 2 3
CT 2.01	Share the team goals and the mission of the company and the Formation Division in order to sustain and enhance a cooperative work atmosphere.	1 2 3
CT 2.03*	Participate in setting well-defined and realistic team goals based on company and customer expectations in order to determine how these expectations can best be met.	1 2 3
CT 2.04	Suggest creative and effective means to achieve team goals based on knowledge and experience in order to increase effectiveness, efficiency and product quality (e.g., creation of measuring tubes).	1 2 3
CT 3.08	Inspire mutual support of co-workers in the Formation Department and in other departments (e.g., Test, Assembly and Shipping) in order to work together to meet production goals.	1 2 3
CT 4.01	See another's point of view (perspective taking) during discussions and CAP meetings in order to better understand ideas and benefit from suggestions.	1 2 3
CT 4.04	Work effectively with diverse personalities at the company to strengthen individual efforts and those of the department.	1 2 3
TD 1.01*	Specify goals for new trainees and co-workers to maximize their understanding of work priorities and activities.	1 2 3

TP 1.04	Recognize patterns in problem situations such as repeated returns from the Test department for rework or similar errors by a trainee in order to prevent future occurrences.	1 2 3
TP 3.04	Inform others of the solution and, when appropriate, how the problem was resolved in order to allow Formation Department workers to benefit from the knowledge and experience of others and to take preventive action in similar situations.	1 2 3
TP 3.05*	Consider the knowledge and skills of the workforce and distribute work accordingly in order to best utilize the strengths of co-workers and trainees.	1 2 3

Majority of Job Activities: (A) mixing acid, forming batteries and preparing processing equipment for charging; (B) monitoring, testing and adjusting equipment and systems to ensure compliance to specifications; (C) recording data to complete formation, float and one - three step charts; (D) training new workers, participating in team meetings and directing the work of others on three shifts; and (E) maintaining the work area and equipment for safe operation.

Code[1]	Workplace Educational Competency Statement[2]	Job Activity[4]	Self/Needs Assessment[3]
CL 1.02*	Pay attention to and interpret verbal messages received from co-workers and supervisor in order to adjust schedules, equipment and systems.	A, B, D	1 2 3
CL 1.03*	Respond to verbal messages from co-workers on other shifts and in other departments in order to maintain the proper sequence of the battery charge operation.	A, B, D	1 2 3
CL 1.04	Comprehend terminology specific to the battery industry to ensure correct interpretation of verbal instructions and messages conveyed in training sessions.	A, B, D, E	1 2 3
CL 2.01	Detect sounds within the workplace from hand and battery-powered trucks and other indoor material handling equipment to avoid injury.	A, B, C, D, E	1 2 3
CL 2.02*	Receive non-verbal messages such as hand signals and motions from co-workers and supervisors due to loud work environment in order to know if assistance is needed and to identify other messages.	A, B, D, E	1 2 3
CL 2.03*	Pay attention to and interpret non-verbal messages such as hand signals and motions given due to the loud work environment in order to maintain effective operations.	A, B, D, E	1 2 3

CS 1.03	Select appropriate language for conveying a message based on the situation and the listener in order to choose a way of speaking (e.g., slang, standard, vernacular) that the listener will understand.	A, B, D	1 2 3
CS 2.01*	Speak clearly when communicating ideas or instructions to ensure correct delivery and interpretation of messages.	A, B, D	1 2 3
CS 2.02*	Select verbal and non-verbal language appropriate to the audience and to the occasion using correct terminology, eye contact and gestures to deliver clear and understandable messages to trainees and co-workers.	A, B, D	1 2 3
CS 2.03*	Ask and answer questions when needed in order to clarify work orders, establish priorities and provide information.	A, B, D	1 2 3
CS 2.04*	Participate in discussions and CAP meetings in order to contribute to a more efficient production process.	A, B, D	1 2 3

CS 2.05	Express ideas, opinions, facts and feelings using respectful language and complete thoughts in order to enhance team effectiveness.	A, B, D	1 2 3
CS 2.06	Adjust statements to increase comprehension by the listener when training or providing information to co-workers in order to maximize the impact of the message.	A, B, D	1 2 3
CS 2.07	Restate, clarify and paraphrase to convey main points when training or providing information in order to increase understanding by trainees.	A, B, D	1 2 3

CR 1.02	Discriminate among alphanumeric and color codes found on formation record logs, stationary process specifications and charts in order to properly match battery numbers, identify +/- battery cables, and record information.	A, B, C, E	1 2 3
CR 1.03	Interpret abbreviations and acronyms found on formation record logs, float test forms and other documents in order to effectively monitor equipment and procedures.	A, B, C, E	1 2 3
CR 1.04	Recognize terminology and vocabulary specific to the company in order to mix acid, form batteries, and monitor, test and adjust equipment and systems.	A, B, C, E	1 2 3
CR 2.01*	Comprehend terminology and vocabulary specific to the company as found in specifications, logbooks, and safety materials so that instructions can be followed, understood and explained.	A, B, C, D, E	1 2 3
CR 2.02*	Comprehend charts, graphs and symbols from temperature recording forms, formation charts, and symbols noting battery charge in order to complete logged information and arrange batteries in a safe, effective manner.	A, B, C, D, E	1 2 3
CR 2.04*	Read, comprehend and interpret stated information when using specifications, float test information, gel mix formulas and instructions in order to follow specified procedures.	A, B, C, D, E	1 2 3
CR 2.05*	Follow directions from stated information found in instructions, specifications and gel mix formulas in order to perform the outlined steps in sequence.	A, B, C, D, E	1 2 3
CR 2.07*	Identify relevant details found on schedules, specification sheets and instructions in order to respond to priorities and changes.	A, B, C, D, E	1 2 3
CR 3.02*	Locate written information using document number in specification books and prior entries in logs to find out corresponding procedures, safety information, etc.	A, B, C, D, E	1 2 3
CR 3.03*	Locate the meaning of unknown or unfamiliar words when used in order to ensure conformance with specifications, requested procedures or stated policies.	A, B, D, E	1 2 3
CR 3.04	Locate information in work aids such as temperature line graphs and formation record charts to ensure conformance with specifications and to provide answers regarding readings and trends.	A, B, D	1 2 3
CR 3.05	Obtain information from multiple sources such as specifications, machine read outs, and work order forms in order to set-up and monitor processes and take corrective action.	A, B, C	1 2 3

CT 2.05	Set individual goals and objectives consistent with group goals in order to work independently to meet product deadlines and quality standards set by the company and the customer.	A, B, C, D, E	1 2 3
CT 3.01*	Take an interest in what others say and do when interacting with co-workers in a work or break environment in order to show respect for all team members and strengthen group cohesiveness.	A, B, C, D, E	1 2 3
CT 3.02*	Share information and expertise to improve situations and to help others learn when providing training or offering assistance in order to minimize training time and maximize efficiency within the department.	A, B, C, D, E	1 2 3
CT 3.03	Recognize accomplishments, give credit and thanks for accomplishments to others when receiving assistance or when an innovative idea is given in order to reinforce positive efforts.	A, B, C, D, E	1 2 3
CT 3.05*	Contribute to group efforts with ideas and suggestions particularly in departmental meetings and training sessions to maximize product quality and safety.	A, B, C, D, E	1 2 3
CT 3.07*	Demonstrate understanding, friendliness, adaptability, empathy and politeness in group settings when making requests of material handlers, giving feedback to the Assembly department, and providing information to the Test department in order to effectively communicate and accomplish work priorities.	A, B, D	1 2 3
CT 4.05	Request expertise from Maintenance, Assembly, Test, and Shipping departments when needed to allow the battery process to flow smoothly from start to finish.	A, B, C, D, E	1 2 3
CT 4.07	Work independently (without close supervision) a majority of the time to accomplish individual responsibilities in accordance with departmental goals.	A, B, C, D, E	1 2 3

TC 1.01*	Imagine new possibilities to generate ideas and offer suggestions at departmental meetings and in informal discussions to improve productivity, effectiveness and safety.	A, B, C, D, E	1 2 3
TC 1.05*	Combine ideas and information in new ways when new tools or machines (such as celloggers) are installed in order to apply past knowledge and effectively adapt to different situations.	A, B, C, D, E	1 2 3

TD 1.02*	Identify and understand constraints given product deadlines, safety measures, and procedural requirements in order to schedule production efficiently and safely.	A, B, C, D, E	1 2 3
TD 1.03	Analyze situations and recognize that a decision needs to be made based on specifications and rectifier readouts when procedural steps have been completed, omitted or require adjustments.	A, B, C, D, E	1 2 3
TD 1.05	Distinguish major problems from minor ones based on the nature, severity and impact of the problem in order to decide when to stop a process and when to ask for advice or assistance.	A, B, C, D, E	1 2 3
TD 2.01*	Generate alternatives and implementation strategies when deciding an appropriate course of action such as what to do when the specific gravity is out of tolerance or when a deadline is in danger of being missed.	A, B, C, D, E	1 2 3
TD 2.02*	Consider risks and likely consequences associated with alternatives given past experience, knowledge, and specifications in order to choose the safest, most effective solution possible.	A, B, C, D, E	1 2 3
TD 3.01	Evaluate actual effects of decisions based on the results in order to determine if further action is needed.	A, B, D, E	1 2 3

TD 3.02	Evaluate new situations as they arise based on knowledge and experience to determine if past actions would be effective or if new actions are needed.	A, B, C, D, E	1 2 3

TP 1.01*	Recognize that a problem exists using personal judgment and knowledge of quality standards or input from qualified co-workers in order to begin the troubleshooting process.	A, B, C, D, E	1 2 3
TP 2.01*	Identify possible reasons or causes for a problem using measurement instruments, recorded data, digital readouts, and past experience in order to effectively analyze the problem.	A, B, C	1 2 3
TP 3.01	Generate possible alternative solutions to a problem based on experience, troubleshooting specifications, and input of others in order to choose the most effective solution.	A, B, D	1 2 3
TP 3.02	Prioritize job tasks for effectiveness and efficiency based on charge and float times, order size, and deadlines in order to alternate procedures to make each shift as productive as possible.	A, B, C, D, E	1 2 3
TP 3.03	Notify and consult others based on the nature and severity of the problem in order to effectively use the skills and training of others (e.g., maintenance staff and supervisors) to maximize production time.	A, B, C, D, E	1 2 3

TK 1.04	Memorize facts and other frequently used information such as steps used in formation procedures and in mixing various types of acid to function most efficiently.	A, B, C, D, E	1 2 3
TK 1.05	Estimate the time required to perform activities based on specifications, job priorities, and the sequencing of procedures in order to meet deadlines and instruct co-workers on various shifts how to most efficiently proceed with each process.	A, B, D	1 2 3
TK 1.06	Perform multiple tasks simultaneously based on past experience and with the aid of mental and written notes in order to perform job activities in a safe and effective manner (e.g., keeping 18 tanks operating at various stages in the formation process).	A, B, C, D, E	1 2 3
TK 1.11*	Attend to details relative to mixing acid, recordkeeping, setting rectifier and monitoring test results to ensure accuracy.	A, B, C	1 2 3
TK 1.12*	Maintain a high level of concentration given the inherent dangers of working with electricity and acid in order to maintain a safe work environment.	A, B, E	1 2 3
TK 1.14	Reflect on the product at various stages and on the completed product for correctness based on specifications in order to meet quality standards and to correct any errors as soon as possible.	A, B, C	1 2 3

MA 1.01	Read, match, count and compare whole numbers using order forms to match battery types with specific processing activities (e.g., matching tank and rectifier numbers).	A, B, C	1 2 3
MA 1.03	Read, match, compare and sequence decimals found on specification and float test sheets in order to locate appropriate settings in specification book and perform float tests.	A, B, C	1 2 3
MA 1.04	Add, subtract and multiply decimals found on specification sheets in order to determine if specific gravity is within tolerance and to estimate settings for rectifier.	A, B, C	1 2 3
MA 1.20	Check work for accuracy and reasonableness when completing records, taking measurements and completing other tasks in order to minimize errors.	A, B, C	1 2 3

[1] Each workplace educational competency is identified by an alpha-numeric code. The first letter of the alpha code represents the educational domain and the second letter identifies the dimension. The first number indicates a new dimension or subskill, if provided. Then each workplace educational competency is numbered sequentially as specified by the numbers to the right of the decimal. Lastly, an asterisk follows the three-digit number, if it was adapted from the skills and competencies included in the Secretary's Commission on Achieving Necessary Skills (A SCANS Report for America 2000) which was published by the U.S. Department of Labor, 1992.

[2] Each workplace educational competency statement identifies an academic skill required to perform a job or cluster of jobs; indicates the context in which the academic skill is used (e.g., identifies tools or equipment used); and details how or for what purpose the skill is applied on the job (i.e., in order to accomplish what purpose).

[3] The rating scale recommended for self-assessment (learner assessment) is: 1 - No Training Wanted; 2 - Some Training Wanted; and 3 - Extensive Training Wanted. The rating scale suggested for conducting training needs assessments within departments or organizations is: 1 - No Training Needed; 2 - Some Training Needed; and 3 - Extensive Training Needed.

[4] If a workplace educational competency statement applies to three or more primary job activities, it is listed in the section titled "Majority of Job Activities" rather than repeating the statement under each job activity. To clarify the job activities to which these statements apply, the alpha code assigned to the corresponding job activity is listed in this column.

SECTION 2 -- OTHER SKILL-RELATED, TRAINING OR CAREER-PATHING INFORMATION

This is an advanced position for production personnel (class range 35-37). Openings are filled on a seniority basis, with a qualifying period required. Incentive pay rates do not apply. On-the-job training and cross-training for other formation department positions is provided.

Installation of major equipment (celloggers) is expected to occur in June. (Celloggers are designed to record cell voltage measurements, improving accuracy and simplifying record keeping.) Celloggers will require operators to distinguish six digit numbers, decimal placement and measurements to an 1/8 of an inch. On-the-job training will be provided.

Continued cross-training is also expected for this position which will require accessing information on computer screens and entering data on a computer keyboard.

SECTION 3 -- VOCABULARY AND TECHNICAL TERMINOLOGY

Term	Definition*
Acid	
Amperes	
Bag	
Balance	
"Blood"	
Cables	
Contaminated Sample	
"Cook"	
Decals	
Drops	
Float Machine	
Float Tests (Monocell, Two Cell, and Three Cell)	
Formation	
Gallon	
Gel	
Hydrometer	
ISO 9000	
"Juice"	
Kilogram (Kg)	
On Charge Voltage	
Plugs	
Pound	
Processing Room	
Recharge	
Rectifier	
Silicone	
Specific Gravity (s.g.)	
Specifications	
Tanks	
Test Solution	
Tolerance	
Volt	
Water	

* *The critical vocabulary and technical terminology relevant to this job or jobs is identified during the workplace educational skills analyses process. Definitions are typically provided by the workplace education instructor in conjunction with learners, peer advisors, program steering committee members or others.*

SECTION 4 -- TOOLS, EQUIPMENT AND WORK AIDS

Tools, Equipment and Work Aids	Use(s)*
Acid Hoses	
Amp Meter	
Apron	
Cables	
Calculator	
Cellogger	
Dial Meter	
Digital Counter	
Dummy Battery	
Eye Wash Station	
Face Shield	
Float Machine	
Gel Acid	
Hammer	
Hydrometer	
Labels	
Ratchet Wrench	
Rectifier	
Rubber Gloves	
Rubber Boots	
Rustoleum	
Safety Glasses	
Scraper	
Screwdriver	
Silicone	
Tanks	
Thermometer	
Vacuum Pump	
Voltmeter	
Water Hoses	
Withdrawl Tube	
1/2" Wrench	

* *The tools, equipment and work aids used to perform this job or jobs are identified during the workplace educational skills analysis process. The use(s) for these materials are typically added by the workplace education instructor in conjunction with learners, peer advisors, program steering committee members or others.*

Please complete and return the business reply card below to provide feedback on the *Workplace Educational Skills Analysis Training Guide Supplement* and to receive information on other workplace education resources available through the Center on Education and Work, University of Wisconsin - Madison. Your comments regarding the *Training Guide Supplement* will be extremely helpful in guiding the development of future publications.

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- ☑ Order forms for additional copies of the *Workplace Educational Skills Analysis Training Guide Supplement*. (Substantial discounts are available on orders of 25 or more.)
- ☑ The *Workplace Education Resources Brochure* which describes other new and recently released materials including those listed below.
  - *Workplace Educational Skills Analysis Training Guide*
  - *Workplace Education Design Checklist: A Tool for Program Planning*
  - *Workplace Education Evaluation Checklist: A Tool for Assessing and Improving Performance*
  - *Curriculum Materials: A Review for Workplace Education Programs*
- ☑ Additional information or answers to specific questions.

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- ☐ Enhance the process I have used to conduct workplace educational skills analyses
- ☐ Help develop curricula, learner assessments and training plans
- ☐ As a personal reference
- ☐ Other: _____

How useful was this publication to you?

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"I have found the WESAs enabled me to more efficiently and effectively design relevant and readily applicable instructional materials. I also feel I have a more thorough understanding of the job classifications because I have the WESAs for reference."

Sherry Noe
Waukesha County Technical College
Workplace Education Instructor
Navistar Education Center

"We have used the Workplace Educational Skills Analysis (WESA) model for a long time as the basis of our project. It is very adaptable. We have customized it as we've partnered with the workers. It is an excellent starting point and a real anchor to our analysis of jobs."

Margaret Hemstead
Executive Director
Central New York Staff Development Consortium
Syracuse, New York

"The WESA process has provided specific information on what skills and knowledge are necessary to be a successful SFI partner today and in the future. Through the on-going support of the on-site Learning Center, operated in partnership with NWTC, SFI partners can successfully enhance their own job security through further development of the WESA-identified skills."

Nancy Armbrust
Vice President of Education
Schreiber Foods, Inc.

Implementing ISO 9000 is a complicated and time consuming process for most companies. In order to document work procedures, we must first identify the skills and knowledge required in each position. The WESA process assisted us in developing a specific form and procedure to document this information which can now be used throughout the company. We will also be able to utilize this information in determining the training and development we will need to provide to our human resources.

Pat Whitmore
Human Resources Manager
HUFCOR, Inc.

Quote Pending

Geoff Upperton
Projects Coordinator
Wisconsin State AFL-CIO