



Instructor Guide

Warehouse Simulation



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Overview

This guide provides information regarding the objectives, procedures and requirements to successfully lead participants through a simulation that consists of a series of practice exercises and a team progress.

In the simulation, the participants will work in teams and may use any material that has been provided to them throughout the Certified Warehousing Distribution Specialist course, including Participant Guide handouts, and class notes.

Objectives

The Simulation:

- Reinforces instructional information by encouraging use of the training material and class notes
- Requires participants to synthesize the information in all modules to develop solutions to problems representing both warehousing and personal performance issues
- Provides a structure in which participants use information from the behavioral lessons such as interviewing, teamwork, and work ethics.



Simulation Practice Exercise Instructions

Roles

The Administration Guide contains handouts explaining the operation of the fictitious company, Bird in Hand, and a layout of its facility. The Guide also contains instructions for conducting the team exercises simulating a series of business decisions and issues in the operation of Bird-in-Hand.

Instructor Roles

1. **Create teams.**
 - Break participants into teams of four participants each. There must be a minimum of two teams, a maximum of four.
 - Assign participants to teams so as to balance team strength and manage the perception that one team may be stronger than another. Take these factors into consideration when making team assignments:
 - 1) Potential to structure and make presentations to the class.
 - 2) Demonstrated leadership in class.
 - 3) Ability to work effectively as a member of a team.
 - 4) Use your best judgement to ensure teams are balanced and to avoid a clash of personalities as the team begins to function in the simulation and have a chance to work together.
 - 5) Once created, teams should work together for the duration of the practice exercises. An exception might be when there are interpersonal conflicts within the team.



2. **Monitor** work of each team to ensure they are:
 - Working together as a team.
 - On task.
 - Making best use of resources.
 - Following instructions for each practice exercise.
3. **Act as timekeeper.**
 - Give teams a five-minute warning before time expires for analyzing each business decision.
 - Time presentations.
4. **Give feedback** at the end of each presentation.
 - Make notes during each presentation.
 - Give feedback on each presentation based on:
 - 1) Information contained in the Instructor Guide for each practice exercise.
 - 2) Information from any of the applicable lessons in the course.
 - 3) Ability to work well as a team based on the lesson “Working Together.”
 - 4) Degree to which the team followed instructions given in the practice exercise.
 - 5) Ensure teams understand instructions and requirements of each practice exercise.



Participant Roles

- Work as member of a team.
- Use all available information while working through a practice exercise.
- Make at least one presentation during the simulation.

Time Frames

The time limits for each practice exercise are indicated in the handout. The overall time for the Simulation should not exceed 16 hours. The Simulation can be administered in short sessions, but two is the minimum number of practice exercises per session.

Preparing for the Practice Exercises



DISTRIBUTE the following materials located in the **Appendix**:

Bird in Hand, Inc.

Bird in Hand Layout

Practice Exercise Guidelines Participant Handout

READ ALOUD the “Bird in Hand Background.”

Using the Bird in Hand Layout explain the areas in the warehouse as well as the product flow within the warehouse. Ask participants to mark their copy of the layout with you.

EXPLAIN the guidelines of the practice exercises to the participants.

ENCOURAGE discussion and answer questions from the participants for clarification. Document the clarifications so that they can be referred to during the practice exercises.



Conducting the Practice Exercises

SEPARATE the participants into teams of four or five members and instruct the teams to move to different areas of the classroom.

DISTRIBUTE the same practice exercise to each of the team; read aloud the situation and answer questions from the participants for clarification. Document the clarifications so that they can be referred to during the exercises.

Each practice exercise is written to test for the ability to recall and use key concepts in the course.

The Instructor will announce the time limits and instruct the teams to begin their discussions.

While the teams are deliberating, move from team to team to answer questions, give advice, stimulate thinking and ensure participation by all members.

When the time has expired, the Instructor monitors the presentations and the question and answer period.

After all teams have presented their best solutions, conduct a class discussion. The Instructor will stimulate discussion by asking:

- Which solution was the best?
- Were any alternative solutions considered but not presented?
- Can a better solution be developed from the ideas heard during the presentations?
- Which presentation was the most organized?



The practice exercises and background information for Bird in Hand contain more information than may be needed to arrive at a solution to the problems. As is the case in real life, the challenge is to sift through all available information and decided what is relevant.

At the Instructor's discretion, it may be appropriate for teams to make assumptions about facts or future actions in a practice exercise so long as the team can explain in their presentation the basis for these assumptions.



Bird in Hand, Inc.

Background

The Company

Bird in Hand, Inc. assembles and sells a limited line of bird feeders for sale in small Bird in Hand shops located in larger shopping malls in the Southeast. In addition to outdoor bird feeders, the shops sell related products such as bird food and specialty seeds for wild birds, books on different types of birds, bird prints, CD's, and 7 foot feeder poles to which a customer can attach a Bird in Hand Feeder.

Bird in Hand's operation includes a small facility for assembling Bird in Hand feeder and a warehouse and distribution operation. The warehouse supports the assembly operation and has some capacity to store a limited number of high turnover items sold in Bird in Hand shops; they also provide storage prior to the Christmas and spring sale seasons. The distribution operation receives and distributes merchandise to Bird in Hand stores.

The Product

The small Bird in Hand feeder and sales kit are assembled as follows:

1. One (1) 8 inch clear, Lucite tube,
2. One green verdigris resin cap with holes in each side and in the shape of a specific song bird,
3. One metal wire hanger that is inserted in holes on either side of the cap,
4. One green verdigris feeding tray,
5. One white plastic fitment screwed into the bottom of the tray and into which can be fitted a pole,
6. One brochure containing feeder care instructions and company contact information,



7. One small packet of songbird seed, and
8. One color lithographed box.

The large Bird in Hand feeder has a 12-inch tube and is otherwise identical to the small feeder.

The top of the feeder is removed to allow filling the Lucite tube with seeds. Food is dispensed by gravity as birds eat seed through four holes at the bottom of the tube. The tray has drainage holes to prevent collection of rain that would otherwise contaminate the seed.

Customers can choose a feeder having one of four caps: oriole, cardinal, chickadee, or finch.

Bird in Hand has patented the verdigris cap and feeder tray finish and for this reason, the resin caps and trays are delivered in an untreated condition. Caps and trays are treated with a solvent to clean and prepare the surface. The verdigris finish is then applied by using an air spray process.

Both the solvent and verdigris finish material are flammable and generate toxic fumes if spilled or not properly handled. The solvent and finishing stain are delivered in plastic, 5-gallon cans.

The Lucite tubes are ordered in six-foot lengths and are cut in the assembly area to the desired length by high-speed band saw.



Accessories

Accessories are sold in the shops to make maximum use of available sales space. The line of accessories includes:

1. A series of 6 books on different types of song birds,
2. Two-pound bags of seed for small song birds,
3. Two-pound bags of seed for large birds,
4. A series of bird prints in sizes: 12"x10", 16"x13", 38"x26",
5. CD's of bird calls and songs, and popular music having birds as a theme,
6. A line of wrought iron hangers for bird feeders,
7. Squirrel deflectors,
8. Seven-foot steel poles to which a Bird in Hand feeder may be attached,
9. A line of birdseed imbedded in beef fat for winter-feeding.
(Note: The seed has a shelf life of 2 months and is only sold from November through March.)

Warehousing and Distribution

Most of the store floor space is dedicated to merchandise display. Each shop has a small storage room that measures approximately 10 feet by 13 feet. Boxes are stored in standard steel shelves 18 inches high and 14 inches deep. The stores' stocking plan requires they maintain a five-day inventory at all times.

The lack of storage space requires an efficient distribution system to insure arrival of merchandise from the distribution center within 2 working days of an order being placed by the store manager or by the automated inventory system. Small orders are shipped by UPS or FedEx. Larger orders are shipped with the stores' routine shipment; such orders are expensive to ship and used only for emergencies. Special procedures are in place to handle distribution of Christmas and sale merchandise.



The warehouse primarily supports the assembly operation by warehousing parts and the solvents and stains needed to stain the bird feeders. The warehouse part of the facility has a limited amount of space to store low volume stock items sold in the stores.

The warehouse/distribution centers in Region 1 operates 2 shifts 6 days a week; the Region 2 center operates 2 shifts 5 days a week, which is expanded to 6 days beginning each August to support the Christmas rush.

The Region 1 warehouse and distribution area is 80,000 square feet; Region 2 is 45, 000 square feet.

Purchasing

A purchasing manager generates purchase orders for materials used in the assembly process and for accessories sold in Bird in Hand shops. Purchase orders can be generated by requests from the assembly manager, from store managers, or when inventory levels in a store reach a four-day supply level in high turnover merchandise. Advanced Shipping Orders are generated from purchase orders.

Delivery and Processing

Materials and accessories are delivered to the Warehousing and Distribution Center, where they are processed and distributed either to the assembly facility, to the warehouse for storage, or directly to shop managers.

Current practice now is for the distribution center to label merchandise for each store as it passes through the center. Bird in Hand is working with vendors to have them label merchandise for store before it is shipped to the Bird in Hand warehouse. The goal is to have all merchandise labeled by the vendor within three years.



Stores receive a truck delivery every 5 days. Half a truck of merchandise for a store is considered a full load. A truck will typically carry orders for three stores on each run.

Assembly:

These materials are entered as inventory, warehoused and disbursed as orders are received from the assembly supervisor.

Sales:

Merchandise is received, processed, and sent out to shops as indicated by their sales volume and stocking plan. The goal is to time receiving of merchandise so it comes in on a truck, processed through the distribution center, and leaves on an outbound truck to a store on the same day.

Special Handling and Problems

The 7-foot poles and large bird prints require special handling because of their size.

The solvent and verdigris finishing solution used in assembly are hazardous materials; leakage can cause serious health risks and are fire hazards.

Opened or damaged cartons and damaged goods are returned to the vendor.

Occasionally, Bird in Hand receives unordered merchandise, which must be returned to the vendor.



Equipment

The distribution facility has a simple conveyor system that moves materials from the receiving dock to loading. Forklifts and walkie-riders convey bulky and odd size materials from the receiving area to loading or to the warehouse. An order picker stores and retrieves materials from racks in the warehouse area.

The warehouse has a depalletizer that is used to break down large boxes of seed into smaller units and feed these units into the conveyor system. The depalletizer has been in operation two years without significant problems.

Geographic Area

Bird in Hand's sales territories are divided into 2 regions. Region 1 has an assembly facility and warehousing/distribution center in Georgia; the center serves shops in Florida, Georgia, South Carolina, North Carolina, and Virginia. The warehouse facility is 45,000 square feet and operates in 2 shifts, 6 days a week.

Region 2 has fewer retail locations served by a second warehouse in Tennessee that serves Tennessee, West Virginia, Pennsylvania, and Ohio. This warehouse was acquired when the company bought Nightingale Shops several years ago.

The Georgia assembly facility makes bird feeders for all Bird in Hand operations.



Company Statistics

Stores by State	
Region 1	Stores
Florida (Jacksonville, Gainesville, Orlando, Tampa, Daytona)	5
Georgia (Atlanta 2, Savannah 1, Augusta 1, Columbus 1)	6
South Carolina (Greenville, Charleston, Columbia, Spartanburg)	4
North Carolina (Raleigh, Durham, Greensboro, Charlotte, Asheville)	5
Virginia (Washington, DC, Richmond 2, Norfolk , Vienna, Williamsburg, Fairfax, Port Royal)	8
Region 2	
Tennessee (Gatlinburg, Knoxville, Chattanooga, Nashville)	4
West Virginia (Charlestown, Bluefield)	2
Pennsylvania (Harrisburg, Reading, Pittsburgh, Allentown, King of Prussia)	5
Ohio (Columbus, Dayton)	2



Staffing: Warehousing and Distribution	
Region 1	Employees
Operations Manager	1
Purchasing Manager	1
Order Processing Supervisor	1
Floor Supervisors (1 each shift)	2
Primary Receivers 1 st Shift	8
Primary Receivers 2 nd Shift	3
Breakout/Consolidate Operator	2
Picker/Locators 1 st Shift	6
Picker/Locators 2 nd Shift	3
Loader (1 st Shift)	11
Loader (2 nd Shift)	5
Runner (1 st Shift)	5
Runner (2 nd Shift)	3
Expeditor (1 st Shift)	4
Expeditor (2 nd Shift)	2
Region 2	
Operation Manager	1
Purchasing Manager	1
Order Processing Supervisor	1
Floor Supervisors (1 each shift)	2
Primary Receivers 1 st Shift	5



Primary Receivers 2 nd Shift	2
Breakout/Consolidate Operator	1
Picker/Locators 1 st Shift	2
Picker/Locators 2 nd Shift	1
Loader (1 st Shift)	7
Loader (2 nd Shift)	3
Runner (1 st Shift)	3
Runner (2 nd Shift)	2
Expeditor (1 st Shift)	2
Expeditor (2 nd Shift)	2

Notes on Staffing Levels

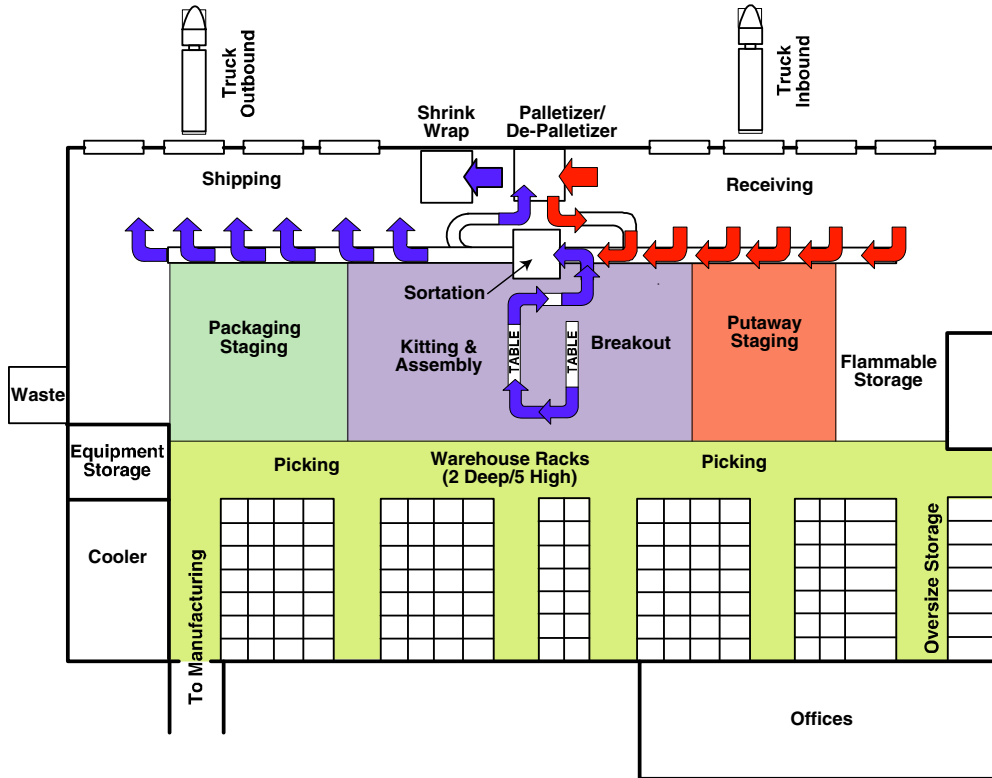
The number of employees assigned to each job function is determined by the workload, how well trained the employees are, and the overall efficiency of the facility. The number of employees in any given job changes over time to reflect these factors.

Experienced employees have been cross-trained in other jobs and can be reassigned as needed to take care of special situations.

It takes an average of 5 weeks to train an employee so they are considered fully productive.



Bird in Hand Layout



Building 300'x150'=45,000 sqft

Receiving:	3650•	sqft	Aisle Widths = 16'
Putaway Staging:	5400•	sqft	
Breakout Area:	1700•	sqft	
Storage Area:	17750•	sqft	
Flammable Storage:	650•	sqft	
Cooler:	1550•	sqft	
Equipment Storage:	650•	sqft	
Kitting/Assembly:	3650•	sqft	
Packing Staging:	3650•	sqft	
Packing & Shipping:	3650•	sqft	
Sortation:	3650•	sqft	
Total:	2700•	sqft	
	45000	sqft	



Practice Exercise Guidelines

GOAL: Working as a team, to develop the best solution using the information, methods and ideas presented throughout the CWDS course. Participants should focus on the cost of the solution, its effect on the quality of service and speed of operation. The impact of the solution on employees and shareholders should also be considerations.

1. All team members must participate.
2. Instructor will distribute a written situation pertaining to the operation of Bird in Hand.
3. All teams will be working on the same situation.
4. Instructor will read the situation aloud.
5. Team members may ask the Instructor for clarification of the situation. Instructor will document any clarifications (flip chart, white board, etc.) so that all teams receive the same information.
6. Each team will select a spokesperson.
7. Teams will be separated so that other teams cannot hear their discussions.
8. This is an open-book exercise. Team members may refer to their course material, handouts or notes throughout the exercise.
9. Each team will document their ideas (flip chart, white board, etc.).
10. Each team will select their best solution. There are no right or wrong solutions.
11. Team spokesperson will present their best solution to the entire class.
12. The time limit available for each portion of the exercise:
 - a. 15 minutes for teams to work through the situation.
 - b. 5 minutes for each team to present their best solution.



- c. 5 minutes for each team to respond to questions from the other teams and from the Instructor. Any team member may ask a question. The team spokesperson may respond to the question or defer to another team member.

- 13. After all teams have presented their best solutions, a classroom discussion will follow.

Note: *Depending upon the complexity of the given situation, the Instructor may modify the time limits.*



Practice Exercises

Practice Exercise #1 Shipping Cartons Participant Handout

Situation:

The Shipping team is constantly running out of cartons. What makes it more frustrating is that the carton vendor is just down the street. You are asked to investigate to find out why we can't seem to keep cartons in stock.

Problem:

You talk to all concerned and here's what they had to say:

Lead Packaging Operator, "I request more boxes from stock as soon as I realize that I'm running low."

Stockroom Clerk, "We don't carry cartons in stock. They take up too much room. I immediately forward the request to the shipping supervisor to write a purchase order. When the cartons arrive from the vendor, I verify the delivery and issue it to the shipping dock."

Shipping Supervisor, "As soon as I get the request for the purchase order, I sign it and send it to my boss for approval."

Shipping Manager, "Whenever I see a request for cartons in my in-basket, I always sign it and forward it to the accounting department for approval."

Accounting Manager, "I know that the shipping department needs these cartons so I sign it and immediately fax it to the Vendor. I even skip my normal review process to speed things up."

Vendor, "Because you are such a good customer, we keep a supply of Bird in Hand cartons in a small warehouse that we have rented for just your product. As soon as I get the order, I send a driver to the rented warehouse, he loads the cartons that you requested and delivers them to your warehouse clerk."



Considering everyone's comments, what would you recommend?

As a team:

Using the flip chart, identify as many possible ideas to improve the availability of cartons. Select one idea and explain why your team feels it is the best solution.



Practice Exercise #1 Shipping Cartons Instructor Guide

The participants should realize that the ordering process is too complex and needs to be simplified.

The participants should work together to develop ideas such as:

- *Develop a Kanban process for ordering cartons.*
- *Eliminate the requirement for so many signatures/approvals of the purchase order.*
- *Issue a blanket purchase order to the vendor and authorize the Lead Packaging Operator to request cartons directly from the vendor.*
- *Have the vendor manage the inventory on-site (eliminating the need for the vendor's rented warehouse).*



Practice Exercise #2 Gift Packs (#1)

Participant Handout

Situation:

As one of the Picker/Locators you have been told that Bird in Hand will be providing additional services to its stores. Marketing has determined that combining some of our products into one saleable unit will increase sales. One compact disk of birdcalls, one companion book about birds and one small bag of wild birdseed will be combined into a gift-wrapped pack. The warehouse will be responsible for kitting and gift wrapping each of the packages. The additional service exceeds the capacity of the current assembly/kitting line and will require six additional employees. You are asked to review the layout of the warehouse and determine where this additional service can be accomplished. You are also asked to determine what each of the additional people will do.

Problem #1:

There is limited space in the warehouse. It will be difficult to squeeze an additional assembly line into the facility. Where in the warehouse can we locate this service with minimal disruption to the routine process?

As a team:

Review the layout of the warehouse. Using the flip chart, identify as many possible areas where this service could be located. Select one area and explain why your team believes it is the best solution and what effect it will have on the process flow/productivity of other areas of the warehouse.

Problem #2:

The gift pack assembly includes picking the items (CD, book, seed), assemble the box, place the merchandise in the box, add dunnage, seal and gift wrap the box, place an identification/UPC label on the wrapped gift pack, and finally, stack the gift packs in a larger box for shipment.

As a team:

Referring to the Floor Plan of the warehouse, the Job Descriptions and the module “Problem Solving”, use the flip chart to develop a flow chart depicting the process steps. Decide whom you recommend to perform those tasks. Explain each person’s job responsibilities and why your team believes it is the best solution.



Practice Exercise #2 Gift Packs (#1)

Instructor Guide

Problem #1: Participants should work together to develop ideas such as:

- *Using the Packaging Staging Area.*
- *Rearranging the current Assembly/Kitting Area.*
- *Using the Picking Area.*
- *Thought should be given to using second shift to minimize the space needed.*

Note: Consideration should be given to balancing the time it takes for each step so we can maintain a continuous flow of product. It should be noted that wrapping gifts is the longest step and is the bottleneck in the process.

Problem #2: Participants should work together to develop ideas such as:

- **Picking:** *One Picker*
- **Assembling boxes:** *One Breakout Operator*
- **Kitting:** *One Breakout Operator*
- **Adding dunnage:** *One Loader*
- **Wrapping:** *Two Breakout Operators*

Or,

- **Picking:** *One Picker*
- **Assembling boxes:** *One Breakout Operator*
- **Kitting and adding dunnage:** *One Loader*
- **Wrapping:** *Three Breakout Operators*

Note: Any reasonable combination is acceptable as long as the Participants can justify their choices.

If it has not been presented as a solution, the Instructor should take the opportunity to ask “Has any thought been given to splitting the process into two three-person shifts.” This would minimize the space requirements and disrupt the effected areas the least.



Practice Exercise #3 Gift Packs (#2)

Participant Handout

Situation:

Management has reviewed its budget and has determined that it would not be cost effective to hire additional warehouse staff to provide the Christmas gift wrapping service. Instead, they have decided that the additional service can be accomplished during overtime using the current staff of the Order Processing Department.

The Locators and Pickers will be required to work two extra hours each day until the Christmas season is over. Their workday will begin one hour earlier than usual and end one hour later. In addition to overtime pay (time-and-a-half), management has agreed to increase their hourly wage by \$.50 during this period as an incentive.

Employees who cannot or do not wish to work the extra hours will be transferred to other departments according to business needs. Although each department has slightly different schedules, the transferred employees will not be given a choice of departments or a choice of schedules.

Problem:

Because of your excellent reputation with both management and workers, you have been asked to join a blue-ribbon committee. The committee's mission is threefold:

1. Help the workers see this major change as a positive event.
2. Help management anticipate negative feedback from the workers.
3. Prepare a brief presentation to be given to the employees explaining the reasons for the change and their options.

As a team, using the flip chart:

1. List all of the reasons management has made this change.
2. List all of the reasons that the employees might voice against the change.
3. Prepare a brief presentation that will quell employee concerns, help them see this as a positive event and encourage them to accept this change.



Practice Exercise #3 Gift Packs (#2)

Instructor Guide

Information in “Managing Change” should give participants guidelines on how to predict the reaction of the employees, particularly when employees feel overwhelmed and resist change. The illustration “The Change Process” is a useful tool.

While presentations will differ, the central themes should be:

- *Helping employees see the positive side of this change.*
(Ex: Increased pay, learning new job skills, possible advancement, a chance to contribute to the team effort.)
- *Suggesting actions that employees can take to deal with this change.* (Ex: Modifying day care arrangements or car pools. Anything that shows positive action toward accepting the change.)
- *Suggesting actions that supervisors will be looking for in their employees that show commitment to the change.*
(Ex: Being on time, improved productivity)



Practice Exercise #4 The Interview

Participant Handout

Situation:

An applicant for the Primary Receiver position is scheduled to arrive in 30 minutes for an interview. You know that your manager is looking for an experienced individual who is reliable and a self-starter. Your supervisor hopes that they can find a candidate with good interpersonal skills who can eventually become a team leader.

Problem:

Both your supervisor and manager have unexpectedly been delayed in a meeting. The Human Resources Manager has asked you to give the applicant a tour of the warehouse and find out if this applicant “really knows warehousing.” You meet with your team members and develop a series of questions to ask the applicant.

Instructions:

Part One:

Each team will develop ten questions to ask the applicant that will provide the applicant with an opportunity to demonstrate his/her knowledge of warehousing/ distribution. The questions must be based on material from the modules in this course. The questions should be open-ended (i.e. requiring more than a one- or two-word answer).

Part Two:

Each team will select one member to act as the applicant for one of the other teams. Each team will select a spokesperson to will act as the interviewer. The interviewer’s team members will critique the applicant based on his/her knowledge and recommend whether or not to hire the applicant.



Practice Exercise #4 The Interview

Instructor Guide

Note: The Instructor will assist each team in developing open-ended questions. The Instructor will match each “applicant” to one of the other teams. The Instructor will act as arbitrator should any doubt arise concerning the accuracy of any of the answers. The team that developed the question should be able to provide a reference for the correct answer.



Practice Exercise #5 New Compact Discs Participant Handout

Situation:

As an Order Picker you notice that the Pick Accuracy is very poor. The problem seems to have gotten worse since Bird in Hand added nine new compact discs to its popular “Bird Calls of America” CD. The stores have begun to complain that they are always getting the wrong CD’s. Your manager asks for your input and provides you with the following information:

CD Title	SKU#	Slot#	% Mispicks
Bird Calls of America	34410	02-04-A	3
Bird Calls of the Northeast	56441	07-01-A	19
Bird Calls of the Northwest	56342	07-01-B	23
Bird Calls of the Southeast	56433	07-02-A	26
Bird Calls of the Southwest	56434	07-02-B	27
Bird Calls of the Midwest	56435	07-03-A	31
Bird Calls of Canada	56436	07-03-B	32
Bird Calls of the World	56437	07-04-A	24
Bird Songs of America	56438	07-04-B	22
Bird Songs of the World	56439	07-05-A	17

Problem:

The CD’s each have a different colored label but are very similar in appearance. You are directed to find a solution to reduce the errors without increasing cost.



Practice Exercise #5 New Compact Discs Instructor Guide

The participants should notice that the older CD (Birdcalls of America) has few mispicks. If not, the Instructor should take the opportunity to ask, “Why do you think that the mispicks are so low for the first CD?” They should realize that the older CD is not located near the others and has a non-sequential SKU number.

Participants should work together to develop ideas such as:

- *Change the SKU# to non-sequential numbers.*
- *Change the location of CD's so they are not near each other.*

Note: Ideas such as changing the labels, increasing training, or punishing order pickers should be discussed but eliminated because they do not address the root cause of the problem.



Practice Exercise #6 Warehouse Space Participant Handout

Situation:

Bird in Hand business has increased and the warehouse is running out of space. Pallets of merchandise are sitting in aisles and other walkways. Mispicks are on the increase and productivity is lagging. The area is not only cluttered but it is becoming unsafe. You talk to your manager and she asks you for some ideas on how to increase storage space in the warehouse.

Problem #1:

Your manager informs you that she may be able to allocate some money to the project but not much. How can you improve storage space with limited funds?

As a team:

Review the layout of the warehouse. Using the flip chart, identify as many possible areas where you can improve storage space. Select one idea and explain why it is the best solution and what additional equipment will be needed. In addition, explain what effect your solution will have on the process flow/productivity of other areas of the warehouse.

Problem #2:

Your manager likes your ideas and has received approval for additional funding. With more money to spend, how would you further improve storage space?

As a team:

Review the layout of the warehouse. Using the flip chart, identify as many possible areas where you can improve storage space. Select one idea and explain why it is the best solution and what additional equipment will be needed.



Practice Exercise #6 Warehouse Space Instructor Guide

Problem #1:

Participants should work together and develop ideas such as:

- *Add racks over aisles.*
- *Add racks over dock doors.*
- *Add racks in other areas of warehouse (packaging or staging areas).*
- *Designate areas as storage areas (outline with yellow tape).*
- *Determine what items can be pallet stacked.*

Problem #2:

Participants should work together and develop ideas such as:

- *Very Narrow Aisles (relocate racking, purchase more racking, purchase VNA forklifts).*
- *Carousel (Vertical Lift Module) for smaller items.*



Practice Exercise #7 Work Schedule Participant Handout

Situation:

As a Primary Receiver, you notice that dozens of delivery trucks are lined up every morning when first shift starts its eight-hour shift at 7:00 AM. For the first hour or so the Receivers are extremely busy processing these deliveries while the Putaway and Shipping personnel have little to do. Each day your team processes all the trucks by 2:30 PM. Towards the end of the shift, the Putaway Team is very busy storing the goods and the Shipping Team is rushing to package and load the outgoing trucks by 3:30 PM. Often both the Putaway and Shipping teams have to work overtime to finish the day's work. Your manager asked you to make recommendations to balance the workload without increasing costs.

Problem:

Your team members are complaining that they don't share in the overtime. Your manager wants to reduce overtime. What can we do to balance the workload?

As a team:

Using the flip chart, identify as many possible ideas to balance the workload. Select one and explain why your team feels it is the best solution. In addition, explain how your solution will impact the employees.



Practice Exercise #7 Work Schedule Instructor Guide

Participants should work together to develop ideas such as:

- *Shifting the work hours so the Receiving team comes in earlier*
- *Shifting the work hours so the Putaway and Shipping teams come in later.*
- *Cross-train all employees to assist in other areas.*

Note: Ideas such as initiating a second/third shift or allowing the Receiving team to work overtime would increase costs and are not acceptable.



Practice Exercise #8 Safety Committee Participant Guide

Situation:

As a member of the company's Safety Committee you review every accident report for your warehouse. Today you read the report of an injury involving a forklift accident. According to the report, the forklift operator was travelling across the pop-up dock plates when one of the plates collapsed. The forklift dropped several inches and the forks struck the inside wall. The forklift stopped instantly causing the operator to impact the windshield. The operator was transported to the nearest hospital where she was treated for a broken nose. In accordance with company policy, she was screened for the present of drugs or alcohol. The urinalysis was negative. The operator insists that she was not speeding.

Problem:

You and the members of the committee must develop measures to prevent similar accidents in the future.

As a team:

Using the flip chart, identify as many possible ideas to prevent accidents of this type. Select one and explain why you feel that it is the most effective. In addition, explain how your solution will impact the forklift operators.



Practice Exercise #8 Safety Committee Instructor Guide

Team members should work together to develop workable solutions such as:

- *Periodic inspections of all pop-up dock plates.*
- *Forbidding forklift operators from driving across pop-up dock plates.*
- *Installing obstacles to prevent forklift operators from driving across pop-up dock plates.*
- *Increased training for all operators.*
- *Have any operator who is involved in an accident/incident instruct a training session for all operators. The training session should include the operator's ideas on how to prevent a similar accident.*

Note: Suggestions such as stricter enforcement of speed limits and harsher punishments for violators should be discussed but eliminated since neither speed nor policy violations were not factors in this accident.



Simulation Team Progress Check Instructions

Roles

The Administration Guide comes with a deck of cards. Each card contains a question relating to material from previous lessons. The Guide also contains instructions for conducting the team progress check during which participants will randomly select cards to ask their fellow participants. The team progress check is scored to encourage competition and stimulate participant involvement. Answers to the questions are located at the end of these instructions.

Instructor Roles

1. Create teams.
 - Break participants into teams of four participants each. There must be a minimum of two teams, a maximum of four.
 - Assign participants to teams so as to balance team strength and manage the perception that one team may be stronger than another. Take these factors into consideration when making team assignments:
 - 1) Potential to structure and make presentations to the class.
 - 2) Demonstrated leadership in class.
 - 3) Ability to work effectively as a member of a team.
 - 4) Use your best judgement to ensure teams are balanced and to avoid a clash of personalities as the team begins to function in the simulation and have a chance to work together.
 - 5) Once created, teams should work together for the duration of the practice exercises. An exception might be when there are interpersonal conflicts within the team.



2. Monitor work of each team to ensure they are:
 - Working together as a team
 - On task
 - Making best use of resources
 - Following instructions for each practice exercise
3. Select a card and ask the first question to demonstrate how the scoring system works.
4. Act as timekeeper.
5. Act as arbitrator when difference of opinions arise concerning accuracy of answers.
6. Keep score by filling the appropriate blanks on the scoreboard.

Participants' Roles

- Work as a member of the team.
- Use all available information while researching the answers.

Time Frames

Two minutes per question.



Scoring the Team Progress Check

As teams correctly answer questions, they earn points. The idea of “clocking in, earning hours and clocking out” is simply a tool to relate the scoring to a work environment. In reality, the first team to correctly answer ten questions wins the simulation.

The Instructor should draw a “scoreboard” on the flip chart and fill in a square for each correct answer given.

Team	Clock	Hours								Clock
	In	1	2	3	4	5	6	7	8	Out
A										
B										
C										
D										

Conducting the Team Progress Check

Separate the participants into three or four members and instruct the teams to move to different areas of the classroom.

Place the Bird in Hand Layout where all participants can see it.

Place the cards in an area accessible to all teams.

Distribute the Team Progress Check Guidelines

Explain the guidelines of the team progress check and answer any questions about the rules.

Assign each team a letter (i.e. A, B, C, etc.)



Draw the scoreboard on the flip chart.

When the teams are ready, randomly select a card and read the question to team A.

Continue to follow the Team Progress Check Guidelines until there is a winner.



Team Progress Check Guidelines

GOAL: Working as a team, to “clock in”, earn eight “hours” of work and to “clock out” by giving more correct answers to questions than the other teams. The first team to “clock out” wins the team progress check.

General Rules

1. All team members must participate.
2. Instructor will provide a layout of the Bird-in-Hand facility to aid the participants.
3. Each team will select a spokesperson.
4. The Instructor will provide cards that contain questions.
5. Teams advance by correctly responding to a question within the time limit.
6. Team members may ask the instructor for clarification of the questions. The questions may be read as many times as the responding team requests.
7. This is an open-book exercise. Team members may refer to their course material, handouts or notes throughout the exercise.
8. The team will discuss the question and formulate a response.
9. Teams will have two minutes to respond.
10. Time begins immediately after the question is first read.
11. Only the response from the spokesperson will be considered.
12. The Instructor will determine if the response is correct.
13. Questioning continues until one team successfully “clocks out.”



To “Clock In”:

1. The Instructor will randomly select a card and read the question to the first team. (Ex: Team A)
2. If a correct response is given:
 - a. The responding team “clocks in”. (Ex: Team A)
 - b. Instructor fills in the appropriate block on the scoreboard.
3. If time expires or an incorrect response is given, the next team (Ex: Team B) is given the opportunity to respond with the correct answer and “clock in”.
4. If the second team (Ex: Team B) does not give an immediate answer (After all, two minutes have already passed) or gives an incorrect response, the next team (Ex: Team C) is asked the question. This continues until a correct response is given or all teams have had the opportunity to respond.
5. After ONE team has “clocked in”, the teams will respond to questions selected and read by the other teams (See: To earn “hours” and “clock out”).



To earn “Hours” and “Clock Out”:

1. The first team to “clock in” will randomly select a card and read the question to the next team (alphabetically) (Ex: If Team A was the first to “clock in”, they will pick a card and read the question to Team B.)
2. If a correct response is given:
 - a.. The responding team “clocks in”. (Ex: Team B)
 - b. Instructor fills in the appropriate block on the scoreboard.
3. If time expires or an incorrect response is given, the team asking the question (Ex: Team A) may “steal” the point by correctly responding to the question.
4. If the asking team (Team A) correctly answers the question, they earn an “hour” of work and the Instructor fills in the appropriate block.
5. If the asking team (Ex: Team A) fails to quickly respond or gives an incorrect response, the Instructor will give one of the other teams an opportunity to respond and steal the point.
6. Once a point has been scored, the questioning rotates alphabetically to the next team (Ex: Team B) who picks a card and reads the question to the next team (Ex: Team C).



Team Progress Check Questions

1. What is Raw Material?

Items purchased from suppliers to be input to a production process and modified into finished goods.

2. What is Work in Process?

The total amount of work in processing between production stages or subject to waiting time.

3. What are Finished Goods?

Complete products that are ready to be shipped to distribution centers.

4. What is Distribution Inventory?

Inventory that is ready for delivery to the customer and is held at a location as close to the customer as possible.

5. What is Cycle Stock?

Active parts that are being used everyday.

6. What is Safety Stock?

Inventory that is used to guard against fluctuations in supply and demand.

7. What is Anticipation Stock?

Inventory that is built up in anticipation of a scheduled event.

8. What work is done in the warehouse Sortation Area?

The process of moving items into different areas according to what they are or where they are going.

9. What is the purpose of the warehouse Staging Area?

A zone for the temporary placement of goods awaiting movement to some other area in the warehouse.

10. What is the purpose of the warehouse Picking Area?

Taking requested items out of their location.

11. What four documents are always checked during the receiving process?

Packing List, Bill of Lading, Advanced Shipping Notice.



12. Name one item that is checked when we verify the goods during the receiving process?

The merchandise is matched against the packing list and purchasing documentation. Vendor part numbers, SKU numbers, descriptions and quantities are checked.

13. What one thing do you always do to a trailer to make it safe to enter?

Wheels must be chocked.

14. What should be done with damaged goods found during the receiving process?

They should be documented and segregated.

15. Where are goods labeled “Putaway” going?

Into temporary storage in the warehouse.

16. What is an Advanced Shipping Notice?

Notification of product due prior to receipt.

17. What is an Electronic Data Interchange?

The computer to computer transmission of business information using a public standard format.

18. Explain Crossdocking.

A strategy in which product is received from the supplier into a warehouse, moves across the dock directly to outbound loading for transportation to the customer or outlet.

19. Explain Flow-through.

An operation in which product is received from the supplier, but before leaving the warehouse, has value-added service, such as labeling or pricing.

20. Explain the Traditional Picking Method.

Goods are delivered to the receiving dock and staged for movement to storage racks. The goods are later placed into reserve or pick slot storage. Upon receipt of an order for the material, the product is removed from its storage location and staged for loading onto outbound trailers.



21. Explain the Reverse Picking Method.

A picking process where the store pallets are in fixed locations. When product arrives, the incoming pallet is routed past the store pallet. Product is picked off the incoming pallet and placed on the store pallet.

22. Explain a Fixed Location System.

SKUs are assigned permanent locations.

23. Explain a Floating Location System.

SKUs are stored in a random fashion based upon space availability.

24. What are the three things that must be considered when determining where to place an item in the warehouse?

Temperature, chemical and security.

25. Explain the purpose of Order Completion Zones.

Areas where items are grouped so that, when placed together, will fill a large percentage of orders.

26. Explain the purpose of Golden Zones.

A practice of assigning the items with the highest pick volume to the most accessible locations.

27. Describe Flow Racks.

A racking system where the loads are deposited on one side and flow gently to the other.

28. What does FIFO stand for?

First-in/First-out

29. What is First-in/First-out?

A practice of picking the oldest product first.

30. What does FILO stand for?

First-in/Last-out

31. What is First-in/Last Out?

A practice of picking the newest product first.

32. Describe the Discrete Picking method.

One picker per order.



33. **Describe the Batch Picking method.**
One picker per group of orders.
34. **Describe the Zone Picking method.**
One picker per zone selecting one type of product who then passes the order to someone in the next zone.
35. **Describe the Wave Picking method.**
A picking method that groups orders by characteristics (i.e. all orders being sent via UPS).
36. **What is Dunnage?**
Loose material laid beneath or wedged among objects carried by rail or truck to prevent damage from movement.
37. **What is the advantage of floor-loading a trailer?**
Utilizes space most efficiently.
38. **What is the advantage of pallet-loading a trailer?**
Speeds the loading/unloading process.
39. **Name two examples of Value-added Services that can be offered by warehouses?**
Any two of the following: Labeling, repackaging, kitting, postponement, vendor-managed inventory.
40. **What is Kitting?**
The process of consolidating goods into one saleable unit.
41. **What is a Bill of Lading?**
A legal document generated by a shipper to consign a load to a carrier. It includes such information as number of cartons, weight, carrier, etc.
42. **What is a Packing List?**
An itemized list of merchandise in a shipment created by a vendor.
43. **What is a Pick List?**
A listing of items to be removed (picked) from storage to fulfill a customer order.
44. **Explain lead time.**
The time needed for the raw-material-to-market cycle.



45. What do the letters “OSHA” stand for?
Occupational and Safety Health Administration.
46. What does SKU stand for?
Stock Keeping Unit.
47. Explain Benchmarking.
The practice of measuring our company against other companies that perform similar functions as we do.
48. Name two advantages of benchmarking?
It gives us the opportunity to witness how others have solved problems we face. It is especially helpful when a “breakthrough” approach is needed.
49. Why do we track Orders Picked?
A gauge of how busy our warehouse is and how strong our business is.
50. Why do we track Items Picked?
It is a truer measurement of warehouse productivity.
51. What is a Man-hour?
The ideal amount of work an employee can accomplished in one hour.
52. Why do we measure Line Picked Per Hour?
It measures productivity of the warehouse.
53. Why do we measure Average Order Completion Time?
The measure the time it takes an order to be processed.
54. What does OS & D stand for?
Overages, Shortages and Damages.
55. Explain what Overages, Shortages and Damages mean?
Too much merchandise, too little merchandise and broken merchandise.
56. Why do we measure Pick Accuracy Rate?
To measure the amount of errors and misspicks so we can work on improving them.
57. Why do we measure Inventory Turns?
It gives managers visibility to the levels of inventory and how fast it is moving.



58. What does “Inventory Turn” mean?

A concept of how fast the inventory “turns over” completely, on average, for a given period (normally a year).

59. What are the two types of Inventory Control Systems?

Push System and Pull System.

60. Describe a “Push” System.

A system where orders are issued for completion by specified due dates, based on estimated lead times and forecast.

61. Describe a “Pull” System.

A system where orders for an end item are pulled through the facility to satisfy demand for the end item.

62. What are the advantages of a “Push” System?

Manufacturers can utilize “Economies of Scale”, that is, save money due to many factors relating to its size of operation.

63. What are the disadvantages of a “Push” System?

The forecast could be incorrect.

64. What does MRP stand for?

Material Requirement Planning.

65. What is Material Requirement Planning?

A system that supports manufacturing organizations by controlling the release of production and purchase orders.

66. What is a product Bill of Material?

A listing of components, parts, or other items needed to manufacture a product.

67. Explain the Just-in-Time Philosophy?

An inventory control philosophy which views production as a system in which all operations, including the delivery of materials needed for production, occur just at the time they are needed.



68. What are two of the goals of the Just-in-Time Philosophy?

Any two of the following: Eliminate all unnecessary lead times, reduce set-up costs, optimize material flow, ensure high quality from suppliers, ensure dependable just-in-time deliveries from suppliers, implement a strong quality control program, minimize safety stocks.

69. Describe a Fixed Quantity re-ordering system.

Whenever an inventory item falls below a predetermined level, a replenishment order is initiated.

70. Describe a Fixed Time re-ordering system.

Some low value, low bulk items are estimated and ordered on a routine order cycle. This may be annually, monthly or weekly.

71. What is Kanban?

A simple inventory control system developed by Toyota Corporation for coordinating the movement of material to feed the production line. The method uses standard containers or lot sizes with a single card attached to each. It is a “pull” system in which work centers signal with a card that they wish to withdraw parts from suppliers.

72. Is Kanban a “push” or a “pull” system?

Pull.

73. Name two of the advantages of Kanban.

Any two of the following: It is a simple, understandable process, it provides quick response to changes, it avoids over production, it minimizes waste, it is low cost and easy to maintain, and it delegates responsibility to the line workers.

74. What does RF stand for?

Radio Frequency.

75. What does BOL stand for?

Bill of Lading.

76. What happens when you scan a bar code?

The information on the bar code goes to inventory control.



77. How do you get information to inventory control if there is no bar code to be scanned?

You key in the data on the keypad.

78. What happens if you look into the laser beam on a scanner?

You may be blinded.

79. What is a “reversal”?

Un-doing a previous transaction.

80. What is a bar code?

A series of thick and thin lines that translate into data.



Appendix

Bird in Hand, Inc.

The Company

Bird in Hand, Inc. assembles and sells a limited line of bird feeders for sale in small Bird in Hand shops located in larger shopping malls in the Southeast. In addition to outdoor bird feeders, the shops sell related products such as bird food and specialty seeds for wild birds, books on different types of birds, bird prints, CD's, and 7 foot feeder poles to which a customer can attach a Bird in Hand Feeder.

Bird in Hand's operation includes a small facility for assembling Bird in Hand feeder and a warehouse and distribution operation. The warehouse supports the assembly operation and has some capacity to store a limited number of high turnover items sold in Bird in Hand shops; they also provide storage prior to the Christmas and spring sale seasons. The distribution operation receives and distributes merchandise to Bird in Hand stores.

The Product

The small Bird in Hand feeder and sales kit are assembled as follows:

1. One (1) 8 inch clear, Lucite tube,
2. One green verdigris resin cap with holes in each side and in the shape of a specific song bird,
3. One metal wire hanger that is inserted in holes on either side of the cap,
4. One green verdigris feeding tray,
5. One white plastic fitment screwed into the bottom of the tray and into which can be fitted a pole,
6. One brochure containing feeder care instructions and company contact information,
7. One small packet of songbird seed, and
8. One color lithographed box.

The large Bird in Hand feeder has a 12-inch tube and is otherwise identical to the small feeder.

The top of the feeder is removed to allow filling the Lucite tube with seeds. Food is dispensed by gravity as birds eat seed through four holes at the bottom of the tube. The tray has drainage holes to prevent collection of rain that would otherwise contaminate the seed.

Customers can choose a feeder having one of four caps: oriole, cardinal, chickadee, or finch.

Bird in Hand has patented the verdigris cap and feeder tray finish and for this reason, the resin caps and trays are delivered in an untreated condition. Caps and trays are treated with a solvent to clean and prepare the surface. The verdigris finish is then applied by using an air spray process.

Both the solvent and verdigris finish material are flammable and generate toxic fumes if spilled or not properly handled. The solvent and finishing stain are delivered in plastic, 5-gallon cans.

The Lucite tubes are ordered in six-foot lengths and are cut in the assembly area to the desired length by high-speed band saw.

Accessories

Accessories are sold in the shops to make maximum use of available sales space. The line of accessories includes:

1. A series of 6 books on different types of song birds,
2. Two-pound bags of seed for small song birds,
3. Two-pound bags of seed for large birds,
4. A series of bird prints in sizes: 12"x10", 16"x13", 38"x26",
5. CD's of bird calls and songs, and popular music having birds as a theme,
6. A line of wrought iron hangers for bird feeders,
7. Squirrel deflectors,
8. Seven-foot steel poles to which a Bird in Hand feeder may be attached,
9. A line of birdseed imbedded in beef fat for winter-feeding. (Note: The seed has a shelf life of 2 months and is only sold from November through March.)

Warehousing and Distribution

Most of the store floor space is dedicated to merchandise display. Each shop has a small storage room that measures approximately 10 feet by 13 feet. Boxes are stored in standard steel shelves 18 inches high and 14 inches deep. The stores' stocking plan requires they maintain a five-day inventory at all times.

The lack of storage space requires an efficient distribution system to insure arrival of merchandise from the distribution center within 2 working days of an order being placed by the store manager or by the automated inventory system. Small orders are shipped by UPS or FedEx. Larger orders are shipped with the stores' routine shipment; such orders are expensive to ship and used only for emergencies. Special procedures are in place to handle distribution of Christmas and sale merchandise.

The warehouse primarily supports the assembly operation by warehousing parts and the solvents and stains needed to stain the bird feeders. The warehouse part of the facility has a limited amount of space to store low volume stock items sold in the stores.

The warehouse/distribution centers in Region 1 operates 2 shifts 6 days a week; the Region 2 center operates 2 shifts 5 days a week, which is expanded to 6 days beginning each August to support the Christmas rush.

The Region 1 warehouse and distribution area is 80,000 square feet; Region 2 is 45, 000 square feet.

Purchasing

A purchasing manager generates purchase orders for materials used in the assembly process and for accessories sold in Bird in Hand shops. Purchase orders can be generated by requests from the assembly manager, from store managers, or when inventory levels in a store reach a four-day supply level in high turnover merchandise. Advanced Shipping Orders are generated from purchase orders.

Delivery and Processing

Materials and accessories are delivered to the Warehousing and Distribution Center, where they are processed and distributed either to the assembly facility, to the warehouse for storage, or directly to shop managers.

Current practice now is for the distribution center to label merchandise for each store as it passes through the center. Bird in Hand is working with vendors to have them label merchandise for store before it is shipped to the Bird in Hand warehouse. The goal is to have all merchandise labeled by the vendor within three years.

Stores receive a truck delivery every 5 days. Half a truck of merchandise for a store is considered a full load. A truck will typically carry orders for three stores on each run.

Assembly:

These materials are entered as inventory, warehoused and disbursed as orders are received from the assembly supervisor.

Sales:

Merchandise is received, processed, and sent out to shops as indicated by their sales volume and stocking plan. The goal is to time receiving of merchandise so it comes in on a truck, processed through the distribution center, and leaves on an outbound truck to a store on the same day.

Special Handling and Problems

The 7-foot poles and large bird prints require special handling because of their size.

The solvent and verdigris finishing solution used in assembly are hazardous materials; leakage can cause serious health risks and are fire hazards.

Opened or damaged cartons and damaged goods are returned to the vendor.

Occasionally, Bird in Hand receives unordered merchandise, which must be returned to the vendor.

Equipment

The distribution facility has a simple conveyor system that moves materials from the receiving dock to loading. Forklifts and walkie-riders convey bulky and odd size materials from the receiving area to loading or to the warehouse. An order picker stores and retrieves materials from racks in the warehouse area.

The warehouse has a depalletizer that is used to break down large boxes of seed into smaller units and feed these units into the conveyor system. The depalletizer has been in operation two years without significant problems.

Geographic Area

Bird in Hand's sales territories are divided into 2 regions. Region 1 has an assembly facility and warehousing/distribution center in Georgia; the center serves shops in Florida, Georgia, South Carolina, North Carolina, and Virginia. The warehouse facility is 45,000 square feet and operates in 2 shifts, 6 days a week.

Region 2 has fewer retail locations served by a second warehouse in Tennessee that serves Tennessee, West Virginia, Pennsylvania, and Ohio. This warehouse was acquired when the company bought Nightingale Shops several years ago.

The Georgia assembly facility makes bird feeders for all Bird in Hand operations.

Company Statistics

Stores by State	Stores
Region 1	
Florida (Jacksonville, Gainesville, Orlando, Tampa, Daytona)	5
Georgia (Atlanta 2, Savannah 1, Augusta 1, Columbus 1)	6
South Carolina (Greenville, Charleston, Columbia, Spartanburg)	4
North Carolina (Raleigh, Durham, Greensboro, Charlotte, Asheville)	5
Virginia (Washington, DC, Richmond 2, Norfolk , Vienna, Williamsburg, Fairfax, Port Royal)	8
Region 2	
Tennessee (Gatlinburg, Knoxville, Chattanooga, Nashville)	4
West Virginia (Charlestown, Bluefield)	2
Pennsylvania (Harrisburg, Reading, Pittsburgh, Allentown, King of Prussia)	5
Ohio (Columbus, Dayton)	2

Staffing: Warehousing and Distribution

Position	Employees
Region 1	
Operations Manager	1
Purchasing Manager	1
Order Processing Supervisor	1
Floor Supervisors (1 each shift)	2
Primary Receivers 1 st Shift	8
Primary Receivers 2 nd Shift	3
Breakout/Consolidate Operator	2
Picker/Locators 1 st Shift	6
Picker/Locators 2 nd Shift	3
Loader (1 st Shift)	11
Loader (2 nd Shift)	5
Runner (1 st Shift)	5
Runner (2 nd Shift)	3
Expeditor (1 st Shift)	4
Expeditor (2 nd Shift)	2

Region 2	
Operation Manager	1
Purchasing Manager	1
Order Processing Supervisor	1
Floor Supervisors (1 each shift)	2
Primary Receivers 1 st Shift	5
Primary Receivers 2 nd Shift	2
Breakout/Consolidate Operator	1
Picker/Locators 1 st Shift	2
Picker/Locators 2 nd Shift	1
Loader (1 st Shift)	7
Loader (2 nd Shift)	3
Runner (1 st Shift)	3
Runner (2 nd Shift)	2
Expeditor (1 st Shift)	2
Expeditor (2 nd Shift)	2

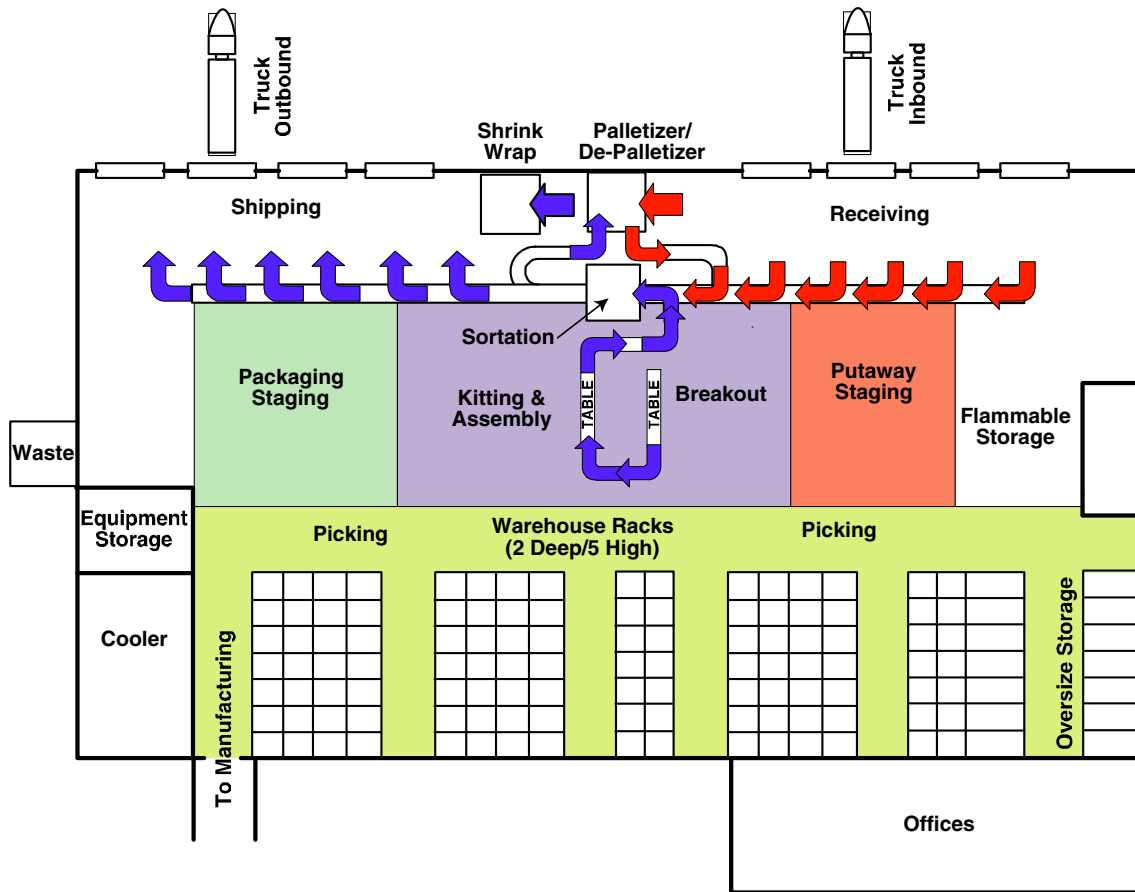
Notes on Staffing Levels

The number of employees assigned to each job function is determined by the workload, how well trained the employees are, and the overall efficiency of the facility. The number of employees in any given job changes over time to reflect these factors.

Experienced employees have been cross-trained in other jobs and can be reassigned as needed to take care of special situations.

It takes an average of 5 weeks to train an employee so they are considered fully productive.

Bird in Hand Layout



Building 300'x150'=45,000 sqft

Receiving:	3650•	sqft
Putaway Staging:	5400•	sqft
Breakout Area:	1700•	sqft
Storage Area:	17750•	sqft
Flammable Storage:	650•	sqft
Cooler:	1550•	sqft
Equipment Storage:	650•	sqft
Kitting/Assembly:	3650•	sqft
Packing Staging:	3650•	sqft
Packing & Shipping:	3650•	sqft
Sortation:	3650•	sqft
Total:	2700•	sqft
	45000	sqft

Aisle Widths = 16'

Practice Exercise Guidelines

GOAL: Working as a team, to develop the best solution using the information, methods and ideas presented throughout the CWDS course. Participants should focus on the cost of the solution, its effect on the quality of service and speed of operation. The impact of the solution on employees and shareholders should also be considerations.

1. All team members must participate.
2. Instructor will distribute a written situation pertaining to the operation of Bird in Hand.
3. All teams will be working on the same situation.
4. Instructor will read the situation aloud.
5. Team members may ask the Instructor for clarification of the situation. Instructor will document any clarifications (flip chart, white board, etc.) so that all teams receive the same information.
6. Each team will select a spokesperson.
7. Teams will be separated so that other teams cannot hear their discussions.
8. This is an open-book exercise. Team members may refer to their course material, handouts or notes throughout the exercise.
9. Each team will document their ideas (flip chart, white board, etc.).
10. Each team will select their best solution. There are no right or wrong solutions.
11. Team spokesperson will present their best solution to the entire class.
12. The time limit available for each portion of the exercise:
 - a. 15 minutes for teams to work through the situation.
 - b. 5 minutes for each team to present their best solution.
 - c. 5 minutes for each team to respond to questions from the other teams and from the Instructor. Any team member may ask a question. The team spokesperson may respond to the question or defer to another team member.
13. After all teams have presented their best solutions, a classroom discussion will follow.

Note: Depending upon the complexity of the given situation, the Instructor may modify the time limits.

Practice Exercise #1 Shipping Cartons

Situation

The Shipping team is constantly running out of cartons. What makes it more frustrating is that the carton vendor is just down the street. You are asked to investigate to find out why we can't seem to keep cartons in stock.

Problem

You talk to all concerned and here's what they had to say:

Lead Packaging Operator, "I request more boxes from stock as soon as I realize that I'm running low."

Stockroom Clerk, "We don't carry cartons in stock. They take up too much room. I immediately forward the request to the shipping supervisor to write a purchase order. When the cartons arrive from the vendor, I verify the delivery and issue it to the shipping dock."

Shipping Supervisor, "As soon as I get the request for the purchase order, I sign it and send it to my boss for approval."

Shipping Manager, "Whenever I see a request for cartons in my in-basket, I always sign it and forward it to the accounting department for approval."

Accounting Manager, "I know that the shipping department needs these cartons so I sign it and immediately fax it to the Vendor. I even skip my normal review process to speed things up."

Vendor, "Because you are such a good customer, we keep a supply of Bird in Hand cartons in a small warehouse that we have rented for just your product. As soon as I get the order, I send a driver to the rented warehouse, he loads the cartons that you requested and delivers them to your warehouse clerk."

Considering everyone's comments, what would you recommend?

As a team

Using the flip chart, identify as many possible ideas to improve the availability of cartons. Select one idea and explain why your team feels it is the best solution.

Practice Exercise #2 Gift Packs (#1)

Situation

As one of the Picker/Locators you have been told that Bird in Hand will be providing additional services to its stores. Marketing has determined that combining some of our products into one saleable unit will increase sales. One compact disk of birdcalls, one companion book about birds and one small bag of wild birdseed will be combined into a gift-wrapped pack. The warehouse will be responsible for kitting and gift wrapping each of the packages. The additional service exceeds the capacity of the current assembly/kitting line and will require six additional employees. You are asked to review the layout of the warehouse and determine where this additional service can be accomplished. You are also asked to determine what each of the additional people will do.

Problem #1

There is limited space in the warehouse. It will be difficult to squeeze an additional assembly line into the facility. Where in the warehouse can we locate this service with minimal disruption to the routine process?

As a team

Review the layout of the warehouse. Using the flip chart, identify as many possible areas where this service could be located. Select one area and explain why your team believes it is the best solution and what effect it will have on the process flow/productivity of other areas of the warehouse.

Problem #2

The gift pack assembly includes picking the items (CD, book, seed), assemble the box, place the merchandise in the box, add dunnage, seal and gift wrap the box, place an identification/UPC label on the wrapped gift pack, and finally, stack the gift packs in a larger box for shipment.

As a team

Referring to the Floor Plan of the warehouse, the Job Descriptions and the module “Tools for Excellence”, use the flip chart to develop a flow chart depicting the process steps. Decide whom you recommend to perform those tasks. Explain each person’s job responsibilities and why your team believes it is the best solution.

Practice Exercise #3 Gift Packs (#2)

Situation

Management has reviewed its budget and has determined that it would not be cost effective to hire additional warehouse staff to provide the Christmas gift wrapping service. Instead, they have decided that the additional service can be accomplished during overtime using the current staff of the Order Processing Department.

The Locators and Pickers will be required to work two extra hours each day until the Christmas season is over. Their workday will begin one hour earlier than usual and end one hour later. In addition to overtime pay (time-and-a-half), management has agreed to increase their hourly wage by \$.50 during this period as an incentive.

Employees who cannot or do not wish to work the extra hours will be transferred to other departments according to business needs. Although each department has slightly different schedules, the transferred employees will not be given a choice of departments or a choice of schedules.

Problem

Because of your excellent reputation with both management and workers, you have been asked to join a blue-ribbon committee. The committee's mission is threefold:

1. Help the workers see this major change as a positive event.
2. Help management anticipate negative feedback from the workers.
3. Prepare a brief presentation to be given to the employees explaining the reasons for the change and their options.

As a team, using the flip chart:

1. List all of the reasons management has made this change.
2. List all of the reasons that the employees might voice against the change.
3. Prepare a brief presentation that will quell employee concerns, help them see this as a positive event and encourage them to accept this change.

Practice Exercise #4 The Interview

Situation

An applicant for the Primary Receiver position is scheduled to arrive in 30 minutes for an interview. You know that your manager is looking for an experienced individual who is reliable and a self-starter. Your supervisor hopes that they can find a candidate with good interpersonal skills who can eventually become a team leader.

Problem

Both your supervisor and manager have unexpectedly been delayed in a meeting. The Human Resources Manager has asked you to give the applicant a tour of the warehouse and find out if this applicant “really knows warehousing.” You meet with your team members and develop a series of questions to ask the applicant.

Instructions

Part One

Each team will develop ten questions to ask the applicant that will provide the applicant with an opportunity to demonstrate his/her knowledge of warehousing/ distribution. The questions must be based on material from the modules in this course. The questions should be open-ended (i.e. requiring more than a one- or two-word answer).

Part Two

Each team will select one member to act as the applicant for one of the other teams. Each team will select a spokesperson to will act as the interviewer. The interviewer’s team members will critique the applicant based on his/her knowledge and recommend whether or not to hire the applicant.

Practice Exercise #5 New Compact Discs

Situation

As an Order Picker you notice that the Pick Accuracy is very poor. The problem seems to have gotten worse since Bird in Hand added nine new compact discs to its popular “Bird Calls of America” CD. The stores have begun to complain that they are always getting the wrong CD’s. Your manager asks for your input and provides you with the following information:

CD Title	SKU#	Slot#	% Mispicks
Bird Calls of America	34410	02-04-A	3
Bird Calls of the Northeast	56441	07-01-A	19
Bird Calls of the Northwest	56342	07-01-B	23
Bird Calls of the Southeast	56433	07-02-A	26
Bird Calls of the Southwest	56434	07-02-B	27
Bird Calls of the Midwest	56435	07-03-A	31
Bird Calls of Canada	56436	07-03-B	32
Bird Calls of the World	56437	07-04-A	24
Bird Songs of America	56438	07-04-B	22
Bird Songs of the World	56439	07-05-A	17

Problem

The CD’s each have a different colored label but are very similar in appearance. You are directed to find a solution to reduce the errors without increasing cost.

Practice Exercise #6 Warehouse Space

Situation

Bird in Hand business has increased and the warehouse is running out of space. Pallets of merchandise are sitting in aisles and other walkways. Misspicks are on the increase and productivity is lagging. The area is not only cluttered but it is becoming unsafe. You talk to your manager and she asks you for some ideas on how to increase storage space in the warehouse.

Problem #1

Your manager informs you that she may be able to allocate some money to the project but not much. How can you improve storage space with limited funds?

As a team

Review the layout of the warehouse. Using the flip chart, identify as many possible areas where you can improve storage space. Select one idea and explain why it is the best solution and what additional equipment will be needed. In addition, explain what effect your solution will have on the process flow/productivity of other areas of the warehouse.

Problem #2

Your manager likes your ideas and has received approval for additional funding. With more money to spend, how would you further improve storage space?

As a team

Review the layout of the warehouse. Using the flip chart, identify as many possible areas where you can improve storage space. Select one idea and explain why it is the best solution and what additional equipment will be needed.

Practice Exercise #7 Work Schedule

Situation

As a Primary Receiver, you notice that dozens of delivery trucks are lined up every morning when first shift starts its eight-hour shift at 7:00 AM. For the first hour or so the Receivers are extremely busy processing these deliveries while the Putaway and Shipping personnel have little to do. Each day your team processes all the trucks by 2:30 PM. Towards the end of the shift, the Putaway Team is very busy storing the goods and the Shipping Team is rushing to package and load the outgoing trucks by 3:30 PM. Often both the Putaway and Shipping teams have to work overtime to finish the day's work. Your manager asked you to make recommendations to balance the workload without increasing costs.

Problem

Your team members are complaining that they don't share in the overtime. Your manager wants to reduce overtime. What can we do to balance the workload?

As a team

Using the flip chart, identify as many possible ideas to balance the workload. Select one and explain why your team feels it is the best solution. In addition, explain how your solution will impact the employees.

Practice Exercise #8 Safety Committee

Situation

As a member of the company's Safety Committee you review every accident report for your warehouse. Today you read the report of an injury involving a lift truck accident. According to the report, the lift truck operator was travelling across the pop-up dock plates when one of the plates collapsed. The lift truck dropped several inches and the forks struck the inside wall. The lift truck stopped instantly causing the operator to impact the windshield. The operator was transported to the nearest hospital where she was treated for a broken nose. In accordance with company policy, she was screened for the present of drugs or alcohol. The urinalysis was negative. The operator insists that she was not speeding.

Problem

You and the members of the committee must develop measures to prevent similar accidents in the future.

As a team

Using the flip chart, identify as many possible ideas to prevent accidents of this type. Select one and explain why you feel that it is the most effective. In addition, explain how your solution will impact the forklift operators.

- On task
 - Making best use of resources
 - Following instructions for each practice exercise
1. Select a card and ask the first question to demonstrate how the scoring system works.
 2. Act as timekeeper.
 3. Act as arbitrator when difference of opinions arise concerning accuracy of answers.
 4. Keep score by filling the appropriate blanks on the scoreboard.