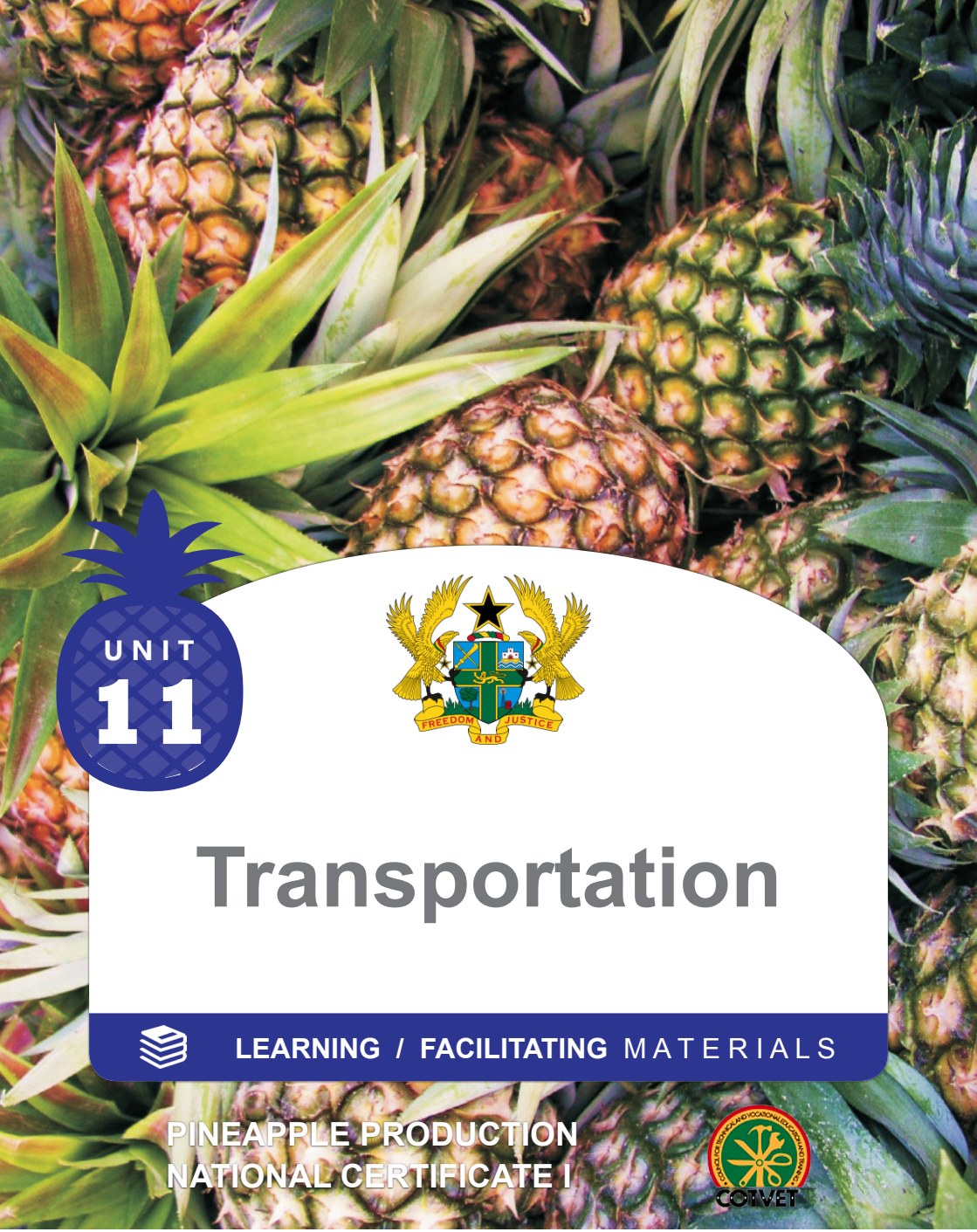

UNIT

11

Transportation

LEARNING / FACILITATING MATERIALS

PINEAPPLE PRODUCTION
NATIONAL CERTIFICATE I

COTVET

CAADP

NEPAD
TRANSFORMING AFRICA

german cooperation
DEUTSCHE ZUSAMMENARBEIT

Implemented by:
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Introduction

Welcome to the start of your career in transportation of pineapple.

A career in transportation of pineapple fruits has never been as popular as it is now; competition is strong and the standards are getting high. So you must aim higher, particularly, if you see it as opportunity to build up your lifelong career.

There have been significant changes in the pineapple industry over the years which have brought new standards, techniques, products and opportunities. Many career options are also available within the transportation of pineapple fruits.

While training, you should make an effort on improving your personal habits, skill and knowledge to get along well with the new development in the pineapple industry.

Congratulations for making the decision to study transportation of pineapple fruits. You have taken the first step towards a very interesting and satisfying career.

This learning material covers all the learning outcomes for transportation of pineapple fruits for the Certificate I programme.

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Demonstrate understanding of fruits transportation

On completion of this LO, the learner will be able to:

a) Identify appropriate methods of transportation
b) Demonstrate the appropriate procedures of loading fruits.
c) Demonstrate the appropriate procedures of off-loading fruits
d) Explain and apply the appropriate standards for transportation

PC (a) Identify appropriate methods of transportation

Harvested pineapple fruits may be transported within cities, towns and between countries. There are several means by which this can be done, for example; by air, sea and land (rail, truck).

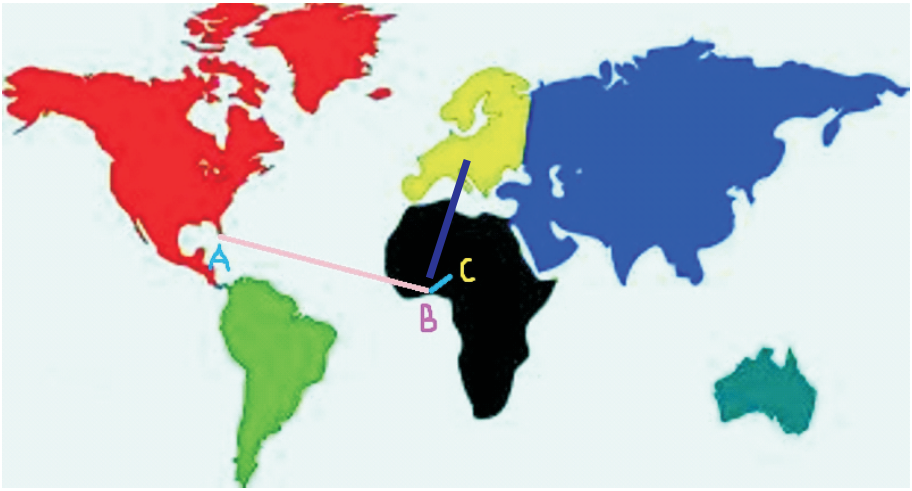

Fig 1: Route of transportation

PC (b) & (C) Demonstrate the appropriate procedure of loading and off-loading pineappleFruits

Pineapple fruits are mainly loaded in cartons and plastic boxes. In some cases, they are loaded into a loose truck and then transported to a nearby local market.

In order to avoid mechanical damage to fruits, containers that provide adequate protection to the fruit must be used and well stacked while fruits are transported. The loading of pineapple fruits into containers can be done manually or mechanically (the use of machines).

Picture 1: Manual loading

Picture 2: Mechanical loading

During loading, pulp temperature measurements must be performed continually. The pulp temperature must be around 8 °C. Storage life and appearance are impaired outside this temperature. Fruits must be transported in the morning and late evening. Fruits punctured for pulp temperature measurement must be discarded as they would rapidly spoil and infect the other fruits.

Note: Pineapple fruits must not be packed to the brim of the box, so that the next box will not have direct contact with fruits beneath.

Demonstrate appropriate procedure of loading pineapple fruits

Procedure for loading pineapple fruits from the farm:

a) Identify suitable vehicle
b) Discuss terms and timing with vehicle/transport owners
c) Gather harvested pineapple fruits in appropriate boxes under shade.

Load filled boxes into vehicle and send to pack house.

Procedure for loading pineapple fruits from the pack house

a) Identify type of vehicle (container) preferably one with closed/constant internal temperature, e.g. refrigerated container.
b) Clean and disinfect container (vehicle)

c) Decide on method of packing depending on size of container
d) Pack/arrange boxes gently ensuring they do not topple off during transportation.
e) Decide on transportation and take off time from pack house to destination.

Activity

The learner will be put in an environment where he/she will demonstrate procedures for loading pineapple fruits.

Demonstrate the appropriate procedure for off-loading pineapple fruits

a) Examine the off-loading space
b) Clean and disinfect off-loading point
c) Direct vehicle to off-loading point
d) Off-load fruits onto conveyor belt or through manual means

Activity

The learner will be put in an environment where she/he will demonstrate procedure for off-loading pineapple fruits.

PC (d) Explain and apply the appropriate standards for transportation

Appropriate standards for transporting pineapple fruits

- Pineapple fruits are mostly packed in cartons which are palletized at production point and transported long distances to port by means of road or rail.
- Pack/arrange boxes gently ensuring they do not sit or topple on fruits during transportation.
- Stacked crates should not exceed 1.8m during road transportation. In ships, pineapple are stacked in cartons to a height not exceeding 2.1m due to the height limitations.
- Pineapple pulp temperature must be around 8°C.

During transportation between pack house and cold store the load is subjected to immense shifting and forward pressure when hard breaking is applied. This creates an environment for the load to become unstable and shift on the load bed. In some cases the load collapses resulting in irreparable damage to the product.

Activity

The learner will put in an environment where she/he will apply standards in transportation.

Self-assessment

1 State three (3) methods of transporting pineapple fruits.

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2 State two (2) periods during which it is good to transport pineapple fruits.

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3 List two (2) methods for loading pineapple fruits.

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4 List two (2) materials for loading pineapple fruits.

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LEARNING OUTCOME **2**

Demonstrate knowledge of container management

On completion of this LO, the learner will be able to

a) Explain the importance of container management.
b) Inspect, clean and disinfect the container.
c) Explain the importance of tracking and regulating temperature.

PC (a) Importance of container management

Management of container in transporting pineapples involves controlled atmosphere technologies which allow operators to monitor and regulate the:

- Respiratory rate,
- Oxygen,Carbon dioxide
- Nitrogen levels to prolong the shelf life of the produce

Importance:

Container management is necessary due to the following reasons;

- It slows ripening of transported pineapple fruits
- It retards discoloration of transported pineapple fruits.
- It maintains freshness of pineapple fruit

PC (b) Inspect, Clean and disinfect the container

The steps involved in container hygiene are:

- Clean and remove previous debris of fruits
- Check for unusual cracks in the container
- Disinfect the container to prevent disease causing organisms

Activity

Learner will be given a container and the required resources to inspect, clean and disinfect.

PC (c) Importance of tracking and regulating temperature

The importance of tracking and regulating temperature ensures the following:

- Delays maturity and decay,
- Lowers water and weight loss
- Fruits can be shipped with a higher degree of quality
- Increase sales whiles preserving taste, nutritional value and appearance
- More attractive price.

Self-assessment

1 List three (3) importance for ensuring proper container management.

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2 State two (2) hygienic methods to be undertaken in container management.

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3 State three (3) reasons for tracking and regulating container temperature during transportation.

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Demonstrate understanding of conveying harvested fruits to the port or market centre.

In this LO, you will learn to:

a) Explain the importance of the correct timing of transportation.
b) Explain the proper procedure for loading, packing and stacking the boxes in pallet.
c) Identify types of containers for land, sea and air travel.
d) Determine the right arrangement of pallet in container.
e) Prepare invoices and waybills.
f) Explain the importance of maintaining the cold chain.

PC (a) The importance of correct timing during transportation

Correct timing will ensure:

- Reduced decay of pineapple fruits
- Meet market demands
- Increased shelf life of transported pineapples
- Preserved fruit quality

PC (b) Proper procedure for loading, packing and stacking boxes in pallets

The choice of packing method is dependent on product characteristics, and protection requirements, transportation mode and structural conditions on supplies site. Materials used for packaging should be environmentally friendly and non-corrosive. Some of the procedures include:

- Ensuring suitable spaces between each packaging material loaded.
- Ensuring produce are not overloaded in each box
- Ensuring proper procedure for loading fruits from the farm
- Identify suitable vehicle
- Discussing terms and timing with vehicle/transport owner.
- Gathering harvested pineapple fruits in appropriate boxes to the roadside
- Determining appropriate time of loading

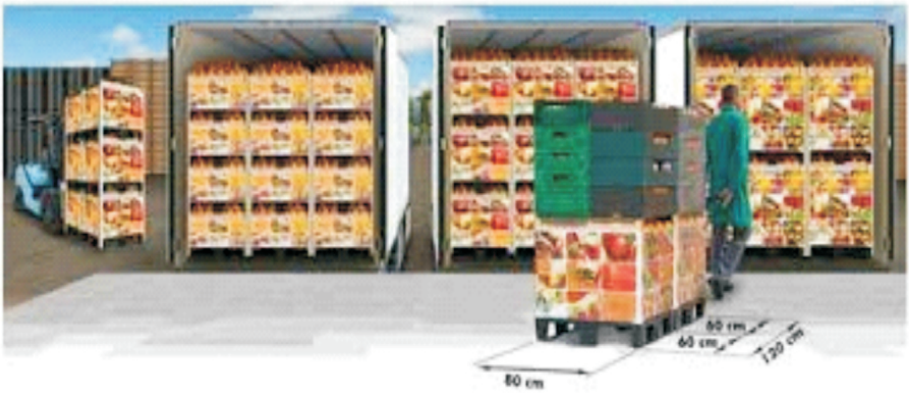
PC (c) Types of containers for land, sea and air travel

- Sea travel: Plastic and wooden containers
- Air travel: Aluminium foils and card boxes
- Land travel: Plastic, wooden and metals containers

PC (d) Right arrangement of pallet in containers

Spaces between stacks or crates or pallets must be filled to prevent tipping or slippage.

Minimum order size is usually 20 metric tons packed in 13 kg gross weight size where Big translate to five to six pieces per box net weight of 12kg: Small translate seven to eight pieces per box net weight of 12kg. I500 boxes per container and shipped inside refrigerated reefer containers.



Picture 4: Right arrangement of pallet in containers

PC (e) Prepare invoices and waybills.

Preparation of invoice and waybill

An invoice is a bill sent by a provider of a product or service to the purchaser. Invoice is an essential legal document prepared by a vendor or service provider and given to the customer or client to serve as a record of goods or services sold to the customer or client. The vendor or service provider needs to retain a copy as a record of their sales. The customer or client needs to retain a copy as a record of their purchase or expense.

The essential features of an invoice include:

- Date
- Invoice number
- Name and address (customer and supplier)
- Consignee (name and address)
- Description of items purchased (weight, quantity)
- Terms of payment.
- Signature (customer and supplier)
- Vehicle number/ drivers name

How to write an invoice and what to include on it

Basically, an invoice can be divided into 3 main parts: The Header, Body and Footer.

1. Invoice Header

- **Letter head:** business name, address, telephone & email and web address (if available). In some countries, the invoice must also include business registration number, Tax Identification Number (TIN) and Value Added Tax (VAT).
- The word "**Invoice**" clearly written towards the top of the page.
- **An invoice number.** This running serial number that must be maintained. Each invoice should have a unique identification number.
- **An invoice date (date of purchase or sale of produce)**
- **Payment terms (payment on or before delivery or after delivery)**
  "**Our Ref**" or "**Our Reference**". Enter quotation number if issued with one prior to the invoice.
- "**Your Ref**" or "Customer Ref" (Purchase order or Work Order by customer)

2. Invoice Body

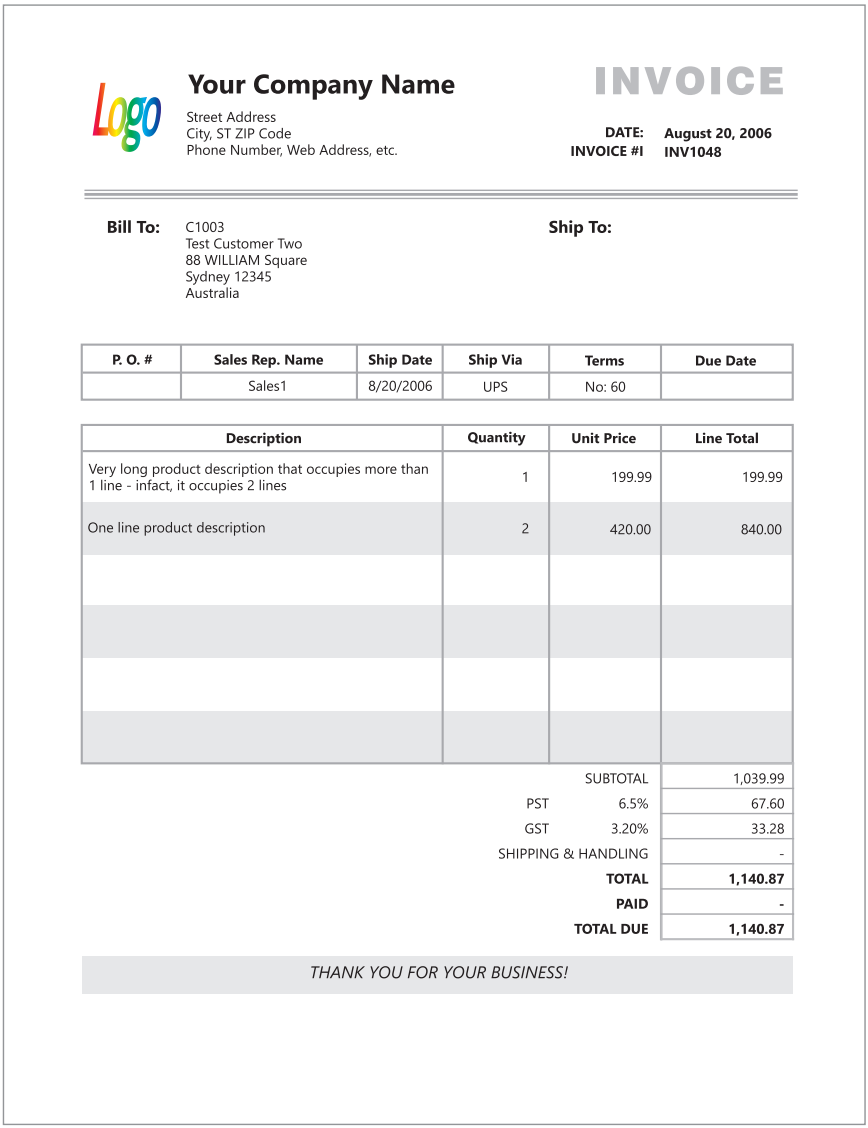
- **A description of the goods** being supplied, quantity, unit of measure, price per unit and total amount for individual items. In the case of services, **a brief scope of work** and amount for individual items will be required.

3. Invoice Footer

- Total Amount of all individual items.
- If applicable, **a tax amount and total after tax.**

- **Payment instructions** if necessary. Tell recipients how to make out their cheque payment. If you expect payments by wire transfer, you should provide your bank account number and details here. Confirm if part payment is acceptable and validity of the offer.
- **Other comments** (delivery instructions, goods return policy, overdue payment policy etc.)

Sample of an invoice



Your Company Name

Street Address
City, ST ZIP Code
Phone Number, Web Address, etc.

INVOICE

DATE: August 20, 2006
INVOICE #I INV1048

Bill To: C1003
Test Customer Two
88 WILLIAM Square
Sydney 12345
Australia

Ship To:

P. O. #	Sales Rep. Name	Ship Date	Ship Via	Terms	Due Date
	Sales1	8/20/2006	UPS	No: 60	

Description	Quantity	Unit Price	Line Total
Very long product description that occupies more than 1 line - infact, it occupies 2 lines	1	199.99	199.99
One line product description	2	420.00	840.00

SUBTOTAL		1,039.99
PST	6.5%	67.60
GST	3.20%	33.28
SHIPPING & HANDLING		-
TOTAL		**1,140.87**
PAID		**-**
TOTAL DUE		**1,140.87**

THANK YOU FOR YOUR BUSINESS!

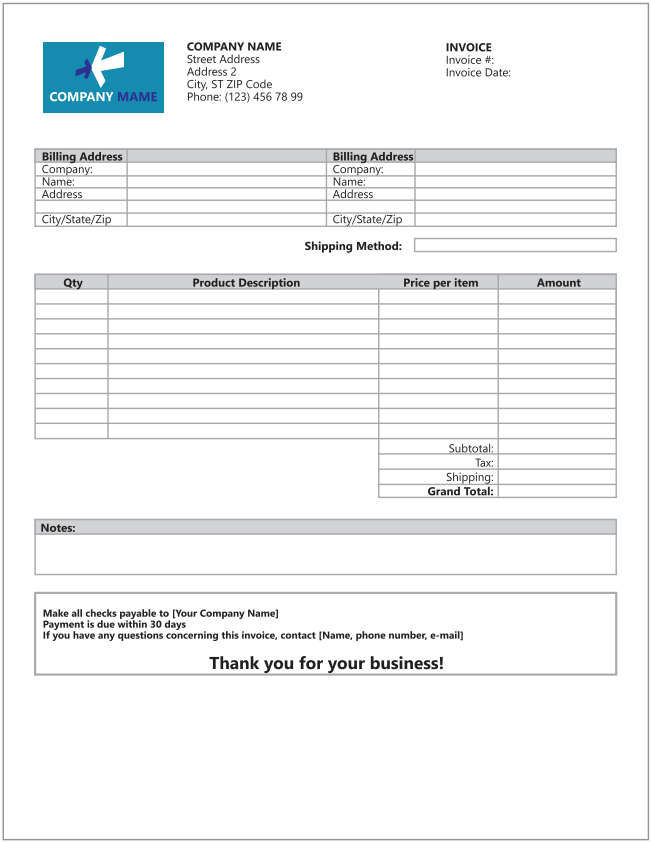
A waybill is sometimes referred to as a bill of lading. Such a document is commonly used in the shipping industry. Its primary purpose is to provide information about a shipment. It may also act as a receipt for the payment or rendering of shipping services.

It is a receipt given by the carrier to the shipper acknowledging receipt of the goods being shipped and specifying the terms of delivery.

The type of information requested on a waybill can vary depending on the shipping company and the means of shipment. There is some information however that is standard.

To begin with, details about the shipper are usually requested. These may include name, address, and telephone number. The shipper may have the option of choosing from several shipping methods. For example, a company may offer choices between standard and expedited services.

Sample of waybill



COMPANY MAME

COMPANY NAME
Street Address
Address 2
City, ST ZIP Code
Phone: (123) 456 78 99

INVOICE
Invoice #:
Invoice Date:

Billing Address		**Billing Address**	
Company:		Company:	
Name:		Name:	
Address		Address	
City/State/Zip		City/State/Zip	

Shipping Method:

Qty	Product Description	Price per item	Amount
		Subtotal:	
		Tax:	
		Shipping:	
		Grand Total:	

Notes:

Make all checks payable to [Your Company Name]
Payment is due within 30 days
If you have any questions concerning this invoice, contact [Name, phone number, e-mail]

Thank you for your business!

Activity

The learner will be given a blank invoice and waybill each and data of items to be supplied to complete.

PC (f) Importance of maintaining the cold chain

The cold chain encompasses several critical steps that products must undergo in order to maintain quality.

Importance of the cold chain includes:

- It maintains vitamin levels and nutritional value
- It slows the rate of produce spoilage
- It slows the inevitable ripening decaying process
- Produce will not degrade quickly

Self-assessment

1 With reference to Figure 1, identify the means of transporting pineapple fruits from point "A" to "B" and then "B" to point "C".

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2 Identify the appropriate means of transporting pineapple fruits to the following destinations, using Key A below. Write the corresponding method in the space provided.

Destination	Appropriate Means Of Transport
Central region to Ashanti region	
Ghana to USA	
Ghana to Borkina Faso	

KEY **A**

SEA

AIR

LAND

3. State three (3) importance of container management in pineapple transportation.

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4. State the two (2) procedures of loading and transporting pineapple fruits from farm to pack house and pack house to the factory/market.

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5. State three (3) activities involved in container hygiene.

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6. State three (3) importance of tracking and regulating temperature in transporting pineapple.

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