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## Appendices

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### Appendix 1.1: Computer studies Terminal Examination prepared by the school teacher

#### Terminal Examination [2003]

##### Form III

##### SECTION A

Answer all questions in this section, choose the most correct answer from the four alternatives given and write its corresponding letter in the box provided: 5-questions.

1. The binary code that is widely used with microcomputer is  
a) ASCII (b) EBCDIC (c) BCD (d) Unicode
2. Computer science emphasizes on  
a) Repairing Computers (b) Computer diagnosis (c) Designing and programming (d) Using applications
3. One Kilobyte is equivalent to  
(a) 1000 byte (b) 1024 bits (C) 1000bits (d) 1024 bytes

##### SECTION B

This section consists of Ten (10) questions: all questions carry equal marks, **attempt any five questions**

4. a) List down two disadvantages of machine language.  
b) Define the following terms
  - i) Low level language
  - ii) High level language
5. a) What are the advantages of high level languages.  
b) State five categories of use of the high level languages.
6. b) Give typical applications of the following languages.
  - i) FORTRAN
  - ii) BASIC
  - iii) COBAL
  - iv) PASCAL

**Source:** School Academic Office.

**Appendix 1.2** Computer studies National Examination, prepared by the National Examination Council of Tanzania (NECTA)

**THE UNITED REPUBLIC OF TANZANIA  
NATIONAL EXAMINATIONS COUNCIL.  
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION**

**036/1**                      **COMPUTER STUDIES 1**  
(For school candidates only)

**TIME:** 3 Hours

Tuesday November 18, 2003.

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**INSTRUCTIONS**

1. This paper consists of sections A, B, C, and D.
2. Answer ALL questions in sections A, B, and C, and FOUR (4) questions from section D.
3. Show all the steps in your working, giving answers at each stage.
4. Electronic calculators are not allowed in the examination.
5. Cellular phones are not allowed in the examination room.
6. Write your Examination number on every page of your answer booklet(s)

This paper contains of 6 printed pages. Candidate No:.....

**SECTION A**

1. For each of the items (i)-(x) choose the correct answer from among the given alternatives and write its letter beside the item number

- (i) The device that can eliminate the manual step of keying in the data is called a
- A. key-to-disk machine
  - B. optical scanner
  - C. keypunch machines
  - D. electronic register
  - E. mouse

- (ii) An impact printer gets its name by
  - A. having the same print quality as an electric typewriter
  - B. transferring a pattern of dots on paper
  - C. transferring a whole or partial character by striking the ribbon
  - D. using heat to transfer an image onto the paper
  - E. creating continuous character images using light
- (iii) The following is not the function of the control unit:
  - A. To co-ordinate transfer of data to and from primary storage
  - B. To change the sequence in which instructions are executed when directed to do so
  - C. To recognise data and to execute instructions
  - D. To perform arithmetic operations
  - E. To direct and to control input and output devices.
- (iv) An optical recogniser can read
  - A. Magnetically encoded numbers
  - B. Any combination of numbers and letters
  - C. Barcodes in supermarkets
  - D. Electronically encoded characters or patterns.
- (v) The following is a direct access storage device:
  - A. A tape
  - B. A card
  - C. A disk
  - D. A printer
  - E. A joystick.
- (vi) A programming language that uses normal sentences in English is called a
  - A. Machine language
  - B. First generation language
  - C. Procedure oriented language
  - D. Natural language
  - E. High level language.
- (vii) Fundamental steps in developing computer programs and application software include all of the following except
  - A. Maintenance
  - B. Language selection
  - C. Analysis and design
  - D. Supervisor approval
  - E. Implementation.
- (viii) The REM statement is used to:
  - A. Document a program
  - B. Reserve room in computer's memory for subscripted variables
  - C. Remember values that are assigned to LET statements
  - D. Permit the use of matrix operations
  - E. Skip one line before executing the next command.
- (ix) When used in a PRINT statement, the colon ( : ) will
  - A. cause an error message
  - B. resulting in printing expressions, numbers and messages closer together

- C. result in printing expressions, numbers, characters and messages in the next field
  - D. cause the computer to skip one line before printing
  - E. result in printing null characters on the screen.
- (x) Data can be entered directly into the computer system from a terminal when using the
- A. TERM statement
  - B. ENTER statement
  - C. READ statement
  - D. LET statement
  - E. INPUT statement.

### SECTION B (10 marks)

2. Match the items in the list A with the responses in list B by writing the letter of the corresponding response beside the item number.

#### List A

- (i) TAB
- (ii) LET
- (iii) Scripted variables
- (iv) Modem
- (v) Logical
- (vi) Structured design
- (vii) Problem definition
- (viii) Coding
- (ix) Coder
- (x) Technical design

#### List B

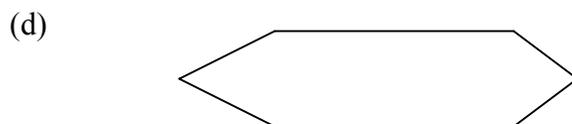
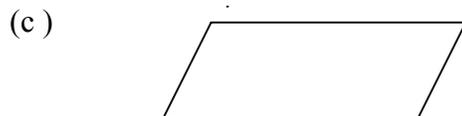
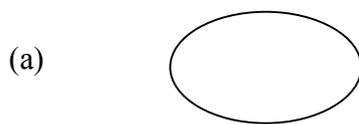
- A. Allow companies to electronically, store, rearrange and print key paragraphs
- B. Examples of first generation computer
- C. Possible carrier with computer manufacturer
- D. The use of a device to encode and transform data into digital codes
- E. Used in BASIC program to represent lists or table numbers
- F. Another name for a computer programmer
- G. An error that will not result in an error message
- H. A type of number that is only evenly divisible by itself
- I. A file organisation method that involves storing logical records in a given sequence, usually based on the key control field in the record
- J. Will cause the values of the variable to be stored in computer memory
- K. The activity of producing software in a formal project environment
- L. A hardware device that is used in data communication

- M. used to produce attractive output in a computer program
- N. a program that combines separate modules into a one executable program
- O. The overall purpose is to find the best possible way to develop software
- P. Procedures and rules used to develop data communication software
- Q. The step of application development where input requirements are determined
- R. Rules that are used with a particular programming language
- S. The process of writing the necessary instructions in a computer programming language
- T. A type of implementation procedure

### SECTION C (40 marks)

Answer **ALL** questions in this section.

3. What does each of the following flowchart symbols represent?



4. (a) What is the difference between an algorithm and a pseudo code?  
(b) When numbers are used in BASIC program, commas should not be included (e.g. 1000 should not be written as 1,000) Why?
5. (a) Distinguish between an assembler and an interpreter as used in programming languages.  
(b) Explain two circumstances under which you would format a floppy diskette.

6. (a) (i) What is a Binary Coded Decimal ( BCD )?  
(ii) Represent the decimal number 2003 as a BCD code.
- (b) (i) What is a hexadecimal number system?  
(ii) Convert the hexadecimal number EC to a decimal (base ten) number.
7. (a) Why can't we use zero (0) as a step value in the FOR and NEXT loops?  
(b) Correct errors in the following nested FOR/NEXT loop:
- ```
FOR I = 1 TO 5
    FOR J = Q TO R
        .
        .
        .
        .
    NEXT I
NEXT J
```
- (c) What rules should be remembered when using nested FOR/NEXT loops?
8. What are the qualities of a good algorithm?
9. (a) Write a BASIC statement that will join A\$ and B\$ and produce C\$. If A\$ = JOSEPH and B\$=MILENZO what will C\$ be equal to after this statement is executed?  
(b) What is a general format of the LET statement? Give one example.
10. (a) List down three program structures  
(b) What is data?
11. Write down the output of the following program
- ```
COUNT = 0
LIMIT = 3
ANAMES = "ABDALLAH HAMIS"
DO UNTILL COUNT = LIMIT

    COUNT = COUNT + 1
    PRINT ANAMES
    PRINT
    LOOP
    PRINT "THE END"
END
```
12. (a) What are the functions of the main memory?  
(b) Line numbers in a BASIC program serve two purposes. What are the operators at the same level operated?

### SECTION D (40 Marks)

Answer FOUR (4) questions from this section.

13. (a) Write down the order in which arithmetic operators are evaluated. How are the operators at the same level operated?  
 (b) Evaluate the expression  $\{4*A / (22/7)\}^{1/2}$  where  $A=154$ .  
 (c) List down the three types of information processing systems.
14. (a) Dry run the following nested FOR/NEXT loop and write down the output:
- ```

10   FOR   i   =   1   to   (3 * 4) STEP -4
20       FOR   j= 1 To 2   STEP   - 1
30           PRINT   i, j
40       NEXT   j
50   NEXT   i

```
- (b) (i) What is a variable?  
 (ii) Differentiate a numerical variable from a string variable.
15. (a) What steps are followed in setting up a counter for loop control?  
 (b) What input statements are available in BASIC? Explain the use of each statement  
 (c) What is the need of using RESTORE STATEMENT?
16. (a) What is the advantages of using arrays?  
 (b) Write a BASIC program which prints the large number in an array of ten numbers.
17. (a) Development of a program can be broken down into six phases. State them.  
 (b) Differentiate library functions from one user defined function
18. (a) Explain three types of errors which a programmer may encounter when preparing a BASIC program.  
 (b) (i) What is an email?  
 (ii) List two and two advantages and two disadvantages of the mail

**THE END.**

**Source:** The National Examination Council of Tanzania, From II Computer Studies Examinations – 2003.

### Appendix 3.1: Multiple intelligence survey test questionnaire

**University of Pretoria**  
**Faculty of Education**  
**Multiple Intelligence Survey**

**Part 1:**

Complete each section by putting a tick (✓) next to each statement you feel accurately describes you. If you do not identify any statement, leave the space provided blank. Then total the column in each section.

**Section 1:**

- \_\_\_\_\_ I enjoy categorizing things by common features
- \_\_\_\_\_ Environmental issues are important to me
- \_\_\_\_\_ I like swimming and diving because they are enjoyable activities
- \_\_\_\_\_ I enjoy working on a garden
- \_\_\_\_\_ I believe preserving our National Parks is important
- \_\_\_\_\_ I like arranging things in categories as it makes sense to me
- \_\_\_\_\_ I like animals and they are important in my life e.g. a dog, cat.
- \_\_\_\_\_ In my home we sometimes reuse some of the items.
- \_\_\_\_\_ I enjoy studying biology - botany and or zoology
- \_\_\_\_\_ I spend a great deal of time outdoors looking at plants, insects, animals, and the landscape.

\_\_\_\_\_ Total for section 1.

**Section 2:**

- \_\_\_\_\_ I easily pick up on patterns, styles and order.
- \_\_\_\_\_ I like to focus on specific noise and sounds
- \_\_\_\_\_ moving to a beat and rhythm is easy for me
- \_\_\_\_\_ I have always been interested in playing a musical instrument e.g. a guitar, drum, trumpet, key board or piano
- \_\_\_\_\_ The writing of poems is my favourite
- \_\_\_\_\_ I remember things by putting them in a particular writing style.
- \_\_\_\_\_ I have little concentration while listening to a radio or television
- \_\_\_\_\_ I enjoy many kinds of music
- \_\_\_\_\_ Playing music is more interesting than drama plays
- \_\_\_\_\_ Remembering song lyrics (words) is easy for me.

\_\_\_\_\_ Total for section 2.

**Section 3:**

- \_\_\_\_\_ I keep my things in a neat and orderly fashion
- \_\_\_\_\_ I like to do things in a step by step directions, it is always a big help for me.
- \_\_\_\_\_ Solving problems comes easily to me – calculations, algebra, and measurements
- \_\_\_\_\_ I get easily frustrated with disorganized people
- \_\_\_\_\_ I can complete calculations quickly in my head
- \_\_\_\_\_ Puzzles that are challenging are fun for me
- \_\_\_\_\_ I can not begin an assignment until all my questions are answered
- \_\_\_\_\_ A structure (drawing, diagram) helps me to be successful
- \_\_\_\_\_ I find working on a computer spreadsheet or database rewarding
- \_\_\_\_\_ Things have to make sense to me or I am not happy at all.

\_\_\_\_\_ Total for section 3.

**Section 4:**

- \_\_\_\_\_ It is important to see my role in the “big picture” of things
- \_\_\_\_\_ I enjoy discussing questions about life, why humans exist
- \_\_\_\_\_ Religion is important to me
- \_\_\_\_\_ I enjoy viewing art pictures and carvings.
- \_\_\_\_\_ Relaxation and deep thinking exercises are important for me
- \_\_\_\_\_ I like visiting exciting sites in nature, like waterfalls.
- \_\_\_\_\_ I enjoy reading ancient and modern philosophers
- \_\_\_\_\_ Learning new things is easier when I understand their value
- \_\_\_\_\_ I wonder if there are other forms of intelligent life in the universe
- \_\_\_\_\_ Studying history and ancient culture helps give me perspective.

\_\_\_\_\_ Total for section 4.

**Section 5:**

- \_\_\_\_\_ I learn best while working with others and team work
- \_\_\_\_\_ The more people are around the happier I become
- \_\_\_\_\_ Study groups are very productive for me
- \_\_\_\_\_ I have many friends
- \_\_\_\_\_ Participating in debates is important to me
- \_\_\_\_\_ I like television and radio talk shows
- \_\_\_\_\_ I have an ability to organize, communicate and sometimes manipulate others
- \_\_\_\_\_ I do not like working alone, I have a lot of feelings for others
- \_\_\_\_\_ Clubs and after class activities for example games are fun to me
- \_\_\_\_\_ I like to socialize a lot at school, work or home

\_\_\_\_\_ Total for section 5.

**Section 6:**

- \_\_\_\_\_ I learn best by moving around, touching things with my hands or acting things out
- \_\_\_\_\_ Sitting still for a long period is difficult for me
- \_\_\_\_\_ I enjoy outdoor games and sports
- \_\_\_\_\_ I value non-verbal communication such as sign language
- \_\_\_\_\_ skilled at handcrafts –woodwork, sewing, sculpture etc.
- \_\_\_\_\_ Arts and crafts are enjoyable pastimes
- \_\_\_\_\_ Expression through dance and touch is beautiful
- \_\_\_\_\_ I like working with tools for manipulation and other hands on learning
- \_\_\_\_\_ I live an active lifestyle
- \_\_\_\_\_ I learn by doing and perform fine and gross motor skills effectively

\_\_\_\_\_ Total for section 6

**Section 7:**

- \_\_\_\_\_ I enjoy reading all kinds of materials
- \_\_\_\_\_ Taking notes helps me remember and understand
- \_\_\_\_\_ I faithfully contact friends through letters and or emails
- \_\_\_\_\_ It is easy for me to explain my ideas to others
- \_\_\_\_\_ I spell words accurately and easily
- \_\_\_\_\_ Word puzzles like crosswords and jumbles are fun
- \_\_\_\_\_ I write for pleasure
- \_\_\_\_\_ I like to write, read and listen
- \_\_\_\_\_ I like to tell jokes and stories
- \_\_\_\_\_ I have a good memory for names, places, dates, jokes, and stories
- \_\_\_\_\_ Debates and public speaking are activities I like to participate in.

\_\_\_\_\_ Total for section 7.

**Section 8:**

- \_\_\_\_\_ I am keenly aware of the moral beliefs
- \_\_\_\_\_ I learn best when I have an emotional attachment to the subject
- \_\_\_\_\_ Fairness is important to me
- \_\_\_\_\_ My attitude effects how I learn
- \_\_\_\_\_ Social justice issues concern me
- \_\_\_\_\_ Working alone can be just as productive as working in a group
- \_\_\_\_\_ I need to know why I should do something before I agree to do it
- \_\_\_\_\_ I like to be involved in causes that help others
- \_\_\_\_\_ When I believe in something I will give 100% effort in it
- \_\_\_\_\_ I am willing to protest or sign a petition to the right or wrong

\_\_\_\_\_ Total for section 8.

**Section 9:**

- \_\_\_\_\_ I can think in images and pictures
- \_\_\_\_\_ Re-arranging a room is fun for me
- \_\_\_\_\_ I like to draw, paint, sculpt and participate in art activities
- \_\_\_\_\_ I remember well using graphic organizers
- \_\_\_\_\_ Performance art can be very rewarding for me
- \_\_\_\_\_ Spreadsheets are great for making charts, graphs and tables
- \_\_\_\_\_ Three-dimensional puzzles bring me much enjoyment
- \_\_\_\_\_ I like to see movies, video, slides, photos, paintings
- \_\_\_\_\_ I can recall things in mental pictures
- \_\_\_\_\_ I am good at reading maps, charts, and diagrams

\_\_\_\_\_ Total for section 9.

Appendix 3.2: Open-ended digital learning tasks used in the study

## Open-ended Digital Task 1

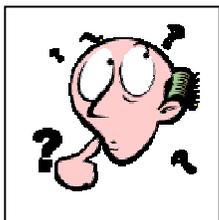
**Don't Drink The Water!!!**



Is it Cholera or Typhoid fever?

Prepared by:  
Ms. Eugenia Kafanabo  
Year 2003.

## Introduction:



### **A big problem; Don't Drink The Water! But why? What should be done?**

Hundreds of people in your community have already become ill and some of them have died from consuming microbe-infested water unknowingly. Now you are among those responsible for educating your community about the organisms and the disease they can cause, and how the sickness can be prevented from becoming an epidemic. **It is a big challenge to you!!** However, you have accepted the responsibility of educating the people in your community. Now all of them know you can make it, for the sake of the community's health and well-being.

## What is to be done?



As this is a big task, you will have to work with your friends as a team. You and your co-investigator have to decide who will do what, so that at the end of the day, you will have your task done.

Now, you and your co-investigator need to select one of the diseases to deal with that is either **Cholera or Typhoid Fever**. The microorganisms of these diseases have contaminated your community's drinking water supply. You will need to design a simple and efficient strategy to educate your community for this problematic situation. Your community anxiously awaits your successful solution!

## Task:

**Here you come, please save the day!! Work hard to get the required answers.**



As a team, using computers, search for information that will help you solve the problem in your community. You are allowed to use other resources e.g. books, newspapers, and medical doctors. Make sure you get all the information needed e.g. what is the name of the microorganism that causes cholera or typhoid fever? How is the microorganism spread? What are the symptoms of the disease it causes? What is the cure? How can it be prevented?

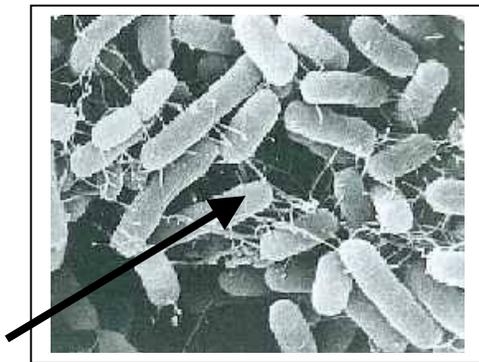
When you all get the information needed, you have to come up with a simple and efficient strategy to educate your community. The design you suggest, must be supported by relevant data; for example, how many people have been infected so far, how many have died, what are the other economic problems that have been caused by the disease. If you do not have any supportive information, the local government will not accept your suggestion (in spite of the fact that their members are suffering from pain, and others are dying).

When all is done and your findings are accepted, your people in the community will be educated, and will not suffer anymore from the disease. Then you might have saved many lives and become hometown heroes, to be celebrated by your local television personalities. 😊

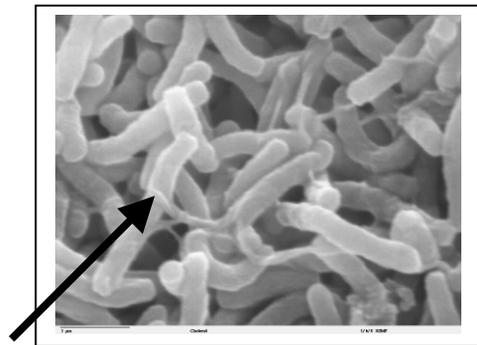
## Process:

### Step one:

The biggest problem of your community distress: is a cholera and typhoid fever disease.



*Salmonella typhi* causes Typhoid fever.

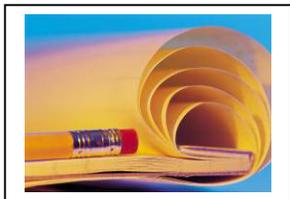


*Vibrio cholerae* causes cholera.

- Choose one case, either **Cholera or Typhoid fever**, read about it and then summarize the information about the microorganism that causes the disease, the name of the microorganisms, symptoms from which the victims are suffering (either cholera or typhoid fever), how the microorganism is spread, what can be the possible cure, how the disease can be prevented from spreading more and more. Then relate it to the problem in your community e.g. do you have good sanitation (toilets with water).
- To get the information you need, use computers and CD's provided, books, newspapers, or you're nearest medical doctor can explain clearly about the microorganism.

### Step two:

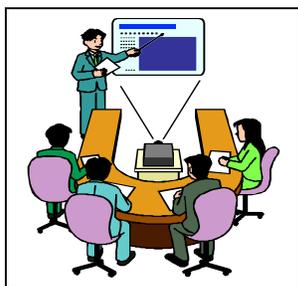
Design your educational strategy:



- By using a flyer (vipeperushi), poem, radio/ or TV program propose a very simple and easy way on how to educate your people in your community on how they can eradicate the disease-causing microbe, (in order words prepare an educational program for your community). Use the information you have gathered from the resources in the computer, books or newspapers to design your educational strategy.
- In the flyer, poem, radio/ TV program, you should include the name of the microorganism, what are the causes of the microorganisms in the water, symptoms of the disease, how the disease is spread, and how it affects people's daily lives e.g. how many people have been infected to date, how many people have died from the disease. Moreover, include information of what has to be done to control and prevent the microorganism in future.

### Step three:

You will have to present your strategy to your community and its leaders (that is oral presentation will be done to the researcher and your peers in class):



- Use a power point presentation program and include the reasons for selecting the desired disease, the strategy selected (flyer, radio/ TV program, and poem). Also, give your reasons why this strategy will be effective to the selected community.
- Recommend your plan of action.

### Resources:

You can use any other resource you are comfortable with for your study, however, you are supposed to use the resources provided to you on a CD first. Importantly, the information provided on the CD is well selected for the best use of the study.

## **Evaluation:**

The health of your friends and neighbours is not enough; the researcher will also grade you on the following criteria:

- Did you identify the correct disease and the type of microbe?
- Did you complete the design of the strategy selected as indicated in step two, and is complete for implementation?
- Did you make a reasonable case to convince your local lawmakers that your strategy is the best for your community?
- Did you write using Microsoft word about the selected disease, the identified microbe, transmission, symptoms, treatment, prevention and control of the disease? Mention the proposed strategy?
- Presentation is done on PowerPoint, well elaborated for other to understand?

**All the best - 😊**

## Open-ended Digital Task 2

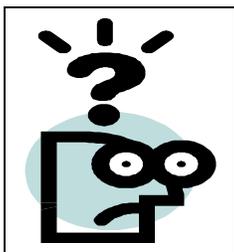
### Land fills problems!!!



### Air Pollution and Health Hazards!

Prepared by:  
Ms. Eugenia Kafanabo  
Year 2003.

## Introduction:



**A big issue; Landfill problem! But why?  
Air and water are polluted, causing a lot  
of health hazards, what should be done?**

The proper disposal of solid waste is a big concern in Dar es Salaam and Tanzania as a whole. Efforts have been made world wide to encourage everyone to reduce, reuse, recycle and rethink about the products they are consuming. In addition, every year the world celebrates Earth Day in recognition of these efforts.

In the city of Dar Es salaam alone, a lot of solid wastes are produced and the rates at which landfills are filling up are making disposing process a problem. Already the selection of new landfill sites has brought a lot of concern to the surrounding communities for example in Vingunguti area. You are now living within a community that has part of its area selected as a landfill for the disposal of the city's solid waste. Members of your community fear for their health. This landfill issue has divided your community and it is causing great stress among your community leaders.

As an educated person, you wish to help your community and your leaders about the landfill issue, its problems and effective ways of doing it. Your community is ready to hear what are your plans to save them from any health hazards that may result if the landfill will be established in your neighbourhood.

## What is to be done?



As this task needs thinking and persuasion, you will have to work with your friend as a team. You and your co-investigator have to decide who will do what, so that at the end of the day, you will have your task done.

Now, you and your co-investigator need to identify what are the major problems when a landfill is established, what are the major health hazards caused by a landfill, what are the environmental problems of a landfill? You all need to come up with a good strategy about what should be done, as waste products continue to be produced and have to be disposed. Your community members and leaders are anxiously waiting for your successful solution!

## Task:

Here you come to save the day!! Work hard to suggest for the best ways.



As a team, using computers and CD's provided, search for information that will help you identify the problem in your community. You are allowed to use any other resources e.g. books, newspapers, and medical doctors. Make sure you get all the information needed e.g. what are the possible diseases that can be caused by the presence of the landfill? What are the symptoms of the diseases? What will be the environmental problems? What is to be done?

When you all get the information needed, you have to come up with an efficient strategy to educate your community. As part of the campaign against the start of a new landfill in your community; what you have to design and suggest, must be supported by relevant data; for example how many people have already been affected with the same problem? How many have died, what is the other economical problem to be caused by the diseases? If you do not have any supportive information, your leaders in the local government, city council and representative from the health department will not accept your suggestions (in spite the fact that the consequences of the landfill near residential areas is known, and members in the community will suffer from pain, and maybe others will die).

Upon completion of your successful campaigns, and your findings are accepted, the people in the community will be educated, and maybe there will be relocation of the landfill to other places. Then you might have saved many lives and become hometown heroes, to be celebrated by your community, leaders and the city council. 😊

## Process:

### Step one:

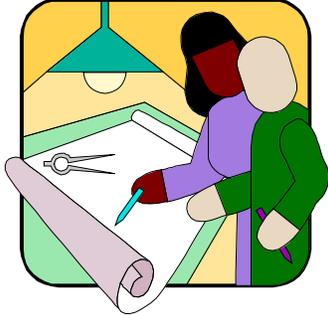
Explain on the possible diseases that you fear will affect members of your community if the landfill will be started:



- Read all the resources you have been provided on the CD, and you are free to use any other references, which you feel to be comfortable with, for example books, newspapers and medical doctors. Summarize all the information about the possible diseases and environmental problems that can affect your community, and what should be done.
- You can visit the National Environment Management office for further information.

### Step two:

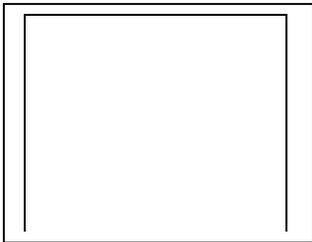
Propose a campaign strategy to debate your side of the landfill issue (use posters, letters to all leaders, and rally or radio program).



- Search for simple available information to be used in your campaign strategy (use of posters, letters to all leaders, rally or radio program).
- Arrange according to the economic importance (advantages and disadvantages) to be caused if the landfill will be started.
- Select the strongest reasons for your campaign against the start of the new landfill and the biggest problem facing solid waste disposal today and in the future (environmentally).

### Step three:

Present your campaign program planned for your community and the leaders (oral presentation to be done to the researcher and peers in class).



- Use a power point presentation and include the reason for selecting the desired campaign strategy, and your reasons why this strategy will be important to the community leaders.
- Recommend your plan of action.

### Resources:

You can use any other resource you are comfortable with for your study; however, you are supposed to use the resources provided to you on a CD first. Importantly, the information provided on the CD is well selected for the best use of the study.

### Evaluation:

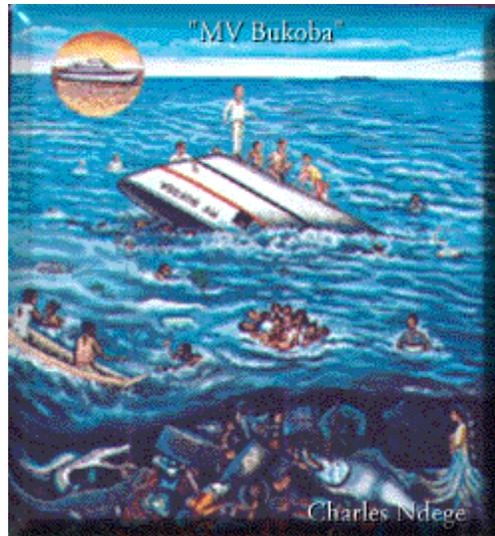
The health of your community members is not enough; the researcher will also grade you on the following criteria:

- Did you suggest the possible diseases to be caused in the presence of a landfill?
- Did you complete the design of the strategy selected as indicated in step two, and is complete for implementation?
- Did you make a reasonable case to convince your local lawmakers that your strategy is the best for protecting your community?
- Did you write using Microsoft word about the selected campaign strategy, the identified diseases, proposed strategy?
- Presentation prepared on PowerPoint?

**All the best - 😊**

## Open-ended Digital Task 3

### MV Bukoba Tragedy!



What can Numbers Tell Us About Her Fatal Voyage?

Prepared by:  
Ms. Eugenia Kafanabo  
Year 2003

## Introduction:



### **A big problem; MV Bukoba Tragedy! What happened? But why? What should be done?**

MV Bukoba disaster occurred in 1997, and took the hottest topics in many disasters that Tanzania as a country had ever faced. The disaster claimed about a thousand people, whom many were presently the working potential of the country and also the future potential of the country. The government of Tanzania made a big loss both economically and socially!

From the provided data (in the CD) about the people who died in the MV Bukoba, what can you tell us about the disaster? This is a project you are supposed to establish an important topic of your choice to explain to us in the form of short story how this disaster has brought an impact to its people and the government of Tanzania economically and socially.

## What is to be done?



As this is a big task and needs many inputs, you will have to work with your friends as a team. You and your co-investigators have to decide who will do what, so that at the end of the day, you will have your task done.

Now, you and your co-investigators have to identify interesting information in the resources provided so that you can write a good and educative story. The story has included most of the information that will be used to educate the government on how to overcome such tragedies in future. Your community anxiously waits for your successful suggestions!

## Task:

**Here you come to save the community!! Work hard to get possible suggestions.**

As a team, using computers, search for information that tells us how did the tragedy occur. How many people died in the MV Bukoba Ship? What was the main problem? You are allowed to use other resources e.g. books and newspapers. Make sure you get all the information needed e.g. How many people were onboard MV Bukoba? How many women, men, children died? Which region suffered most from the people who died? How many tonnes of goods were lost? Give examples of the goods.



This study you are assigned to work with a partner. Both of you will have to get informed with the circumstances of the MV Bukoba disaster, you and your partner will use the information available on the CD provided, or newspapers in the library archives. You are supposed to write a story but supported by data shown on spreadsheet tables with appropriate graphics, to illustrate specific statistical conclusions as well as statistics related to the story.

The story to be created is very important to get your views on what is to be done by the government as part of its measures on transport system in Tanzania.

## **Process:**

### **Step one:**



Critically study the resources you have been provided with and make sure that you use the information to write a good and educative story.

- Review some of the background information on the MV Bukoba, its voyage, its passengers and its crew. This will help to give life to the statistical research you will do in the study.

## Open-ended Digital Task 4

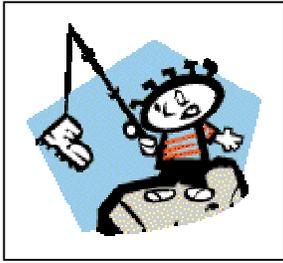
**The health of our ocean is being threatened!**



**Are organisms safe in the sea!!!**

Prepared by:  
Ms. Eugenia Kafanabo  
Year 2003.

## Introduction:



**See what you have fished out?? Why is the ocean used as a dumping site? There is a big problem to the health of the oceans!!**

Pollution, habitat destruction and over fishing take a serious toll on the destruction of the health of the oceans. There is need to preserve and restore the rich diversity of the ocean life and the quality of the ocean waters. For example, all the trash, oil spill, and raw sewage that are thrown into the ocean have brought many problems to living organisms in the oceans. Our trash kills - particularly plastics that end up in the sea, they pose hazards to marine life. Marine animals are drowned or strangled and get killed in many of the discarded items e.g. lost fishing gear. Other organisms suffer and even die from eating plastics and other garbage.

We need to think towards preserving the ocean and its organisms. It is a big challenge to all of us. What are the immediate solutions to these problems? How will it be done?

Now, you have entered a competition in your school, you have to prepare an exhibition about the ocean, marine organisms, and effects of ocean pollution, fishing, and tourism to marine organisms. Show how people will protect the ocean from further destruction. The interest of the exhibitors is to get more information on different strategies you will give on how to conserve/ protect the oceans. Go ahead, read the information provided and prepare an exhibition on how you will convince the world that you care about the environment.

## What is to be done?



As this is an interesting topic, what you will have to do is to study the resources properly so that you can suggest a better way of conserving the health of the ocean. You have to decide what you want to do, and how it will be done.

Now you and your friend have to select three major problems that seem to be a big threat to the health of the ocean in your country. These three problems have to be very important factors that affect the ocean and its organisms. Judges who will attend the exhibition will come from the Ministry of Education and Culture, University of Dar es Salaam and 2 neighboring schools. You are supposed to show what is in the oceans, what are the major problems and tell them how important it is to conserve the ocean now! Moreover, you will be competing with other learners' from other countries who are facing a similar problem. You **need to win** in this exhibition, so think of the best way to do it!

## Task:

**Go Go Go, you need to win this exhibition!!!**



As a team, using computers, search for information that will help you get all the information you need for the competition. You are allowed to use other resources e.g. books, and newspapers. Make sure you get all the information needed e.g. what are the major problems of the health of the ocean, which organisms are killed most and why, what human activities can be controlled and how?

When you all get the information needed, both of you have to come up with good ideas of how you are going to prepare the exhibition. You both need to remember that in your exhibition the following information is needed:

- How is the ocean important to human beings?
- What are the three major problems that have affected the health of the ocean in your country? Provide supporting and relevant data; for example, what type of waste and how many tonnes of waste is disposed off into the ocean?
- Which organisms are more threatened?
- How you will conserve the health of the ocean in you country?
- What are the other economic problems caused by these problems?
- What are your suggestions to the government?

When all is done, the exhibition will be judged accordingly. The suggestions you will give might help in the development of different strategies to help protect the ocean and its organisms. Your school will be proud of you if you win.

## Process:

### Step one:

The biggest problem in your country now is the people do not see the reason for protecting the ocean, marine organisms, and the beaches.

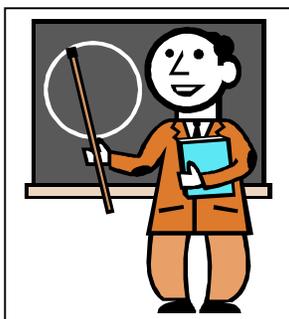
- Choose three major problems, which you think, are the major problems to the ocean in your country. As you will be competing with other learners' all over the world, the problems you select have to be well supported with data that will convince the judges and other scientists that these are the major problems in your country and they need to be addressed.
- To get the information you need, use computers and CD's provided, books, newspapers, or any other source of information, so that you can explain clearly about these problems.

### Step two:



Prepare your exhibition using posters that will be taken to the competition. These posters have all the evidence of how the health of the ocean is threatened, what are the human activities that causes all these problems, what organisms are killed most, what is to be done.

You will have to present your strategies to your peers and teachers for suggestions and improvement before the final day of the competition (oral presentation will be done).



- In your power point presentation, you will have to say why you selected the three major problems facing the health of the ocean and its organisms. Also, explain your strategies and how they will be effective to protect the ocean and its organisms in future.
- Recommend your plan of action.

## Resources:

You can use any other resources you think you are comfortable with for your study, however, you are supposed to use the resources provided to you on a CD first. Importantly, the information provided on the CD is well selected for the best use of the study.

## **Evaluation:**

The posters for the exhibition are not enough; the researcher and your peers will also grade you on the following criteria:

- Did you identify the three major problems threatening the health of the ocean and its organisms?
- Did you provide enough evidence to convince the judges and scientists that your strategies are the best way forward for the conservation of the ocean and marine organisms as suggested in step two?
- Are the strategies feasible in your country?
- Did you write using Microsoft word about the major problems of the ocean, and suggestions for conserving the ocean?
- Is the poster neat and colourful with good relevant pictures?
- Presentation was done on PowerPoint.

**All the best - 😊**

### Appendix 3.3: Observation checklist for interpersonal intelligence

| As an individual, and in the team /groups:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Low (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Medium (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | High (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p><i>Is not talking to anybody</i> in the team or with other members in other groups.<br/>Is not easy to ask him/her for help (has no helping hand for others)</p> <p>Is not working in a team and does not help in compiling teamwork e.g. typing, drawing and writing<br/>Is not teaching or sharing ideas with others where there is need and <i>is not</i> ready to help or share skills with others<br/>Leader- Not able to initiate or organize activities in the team.</p> <p><b><i>Friends</i></b> - does not seem to have a lot of friends dislikes working with peers.</p> | <p><i>Rarely talks to somebody</i> in the team or with other members in other groups.<br/>Is ready to help others when in need (has a helping hand).</p> <p>Once in a while works in a team and help in compiling team work e.g. typing, drawing, and writing.<br/>Can teach or share ideas with others where there is need and is ready to help or share skills when asked</p> <p>Hesitates in initiating and organizing activities in the team, waits to be asked.</p> <p><i>Have few friends, can work with peers</i> with a bit of persuasion.</p> | <p><i>Is talking to other members in the team</i>, and also other members in other groups.<br/>Is open and ready to help others when in need, others ask him/her for help (easy to provide help).</p> <p>Happy working in team and help in compiling team work e.g. typing, drawing, and writing.<br/>Teaches, share ideas or directs others where there is need and <i>willingly</i> ready to help and share skills with others.<br/>Facilitate team work, can organize colleagues in his/her group (e.g. leadership abilities).</p> <p><i>Have a lot of friends</i>, shows understanding and closely work with peers.</p> |

**Appendix 3.4:** Learner interview schedule

**Department of Curriculum and Instruction**

**Faculty of Education**  
Year 2003



**Students interview schedule**

1. What did you like about in doing this project?
2. What did you like most, and why?
3. What was your contribution to the team?
4. How did you like working in the team?
5. What did you like least, and why?
6. What did you do first and why?
7. Did you ask for help? Who helped you?
8. Whom did you come into conflict with most? and why?
9. Why did you decide to start working by reading or drawing or asking for assistance?
10. Do you always ask for assistance from your other teachers? Are they cooperative and ready to help when you ask for assistance?
11. Do your teachers give you any feedback? For example, correct you where you have gone wrong, or praise you when you have done a good job or tell the rest of the class of what you have done as an example to others?

**Appendix 3.5:** Teacher interview protocol

## **Department of Curriculum and Instruction**

### **Faculty of Education** Year 2003



### **Teachers interview schedule**

1. What performance differences did you observe from the learners?
2. What did the learners like doing best?
3. How best can you describe your learners now in terms of their performance in computer application skills, cooperation with each other, and their presentations? E.g. what is the learner good at?
4. Was team activity of any good to the learners?
5. What do you always tell your learners if you want to encourage them on what he /she is doing discourage him/her and tell him/her what you want?
6. If it has to be taking a decision for what your learner is doing now, what best would you like?
7. What is your decision for your learner based on? E.g. future possibility of the learners going for further studies, and getting a good job or something else? Please explain?
8. What are the characteristics of a clever person?

Appendix 3.6: Teacher biographical questionnaire schedule

## Department of Curriculum and Instruction

### Faculty of Education

Year 2003



### Teacher's questionnaire schedule

Dear teacher, you are invited to complete this questionnaire about your personal biography as a requirement for this research done in your school. The information you will provide will be useful in the completion of the research. I assure you that the information provided will remain confidential and used only for the research purpose, not otherwise stated. Your cooperation is highly appreciated. Thank you very much for your time.

**Name of School:**.....

**Name of Teacher:**.....

**Teaching Subject (s):**.....

**Education qualifications:** .....

.....

.....

.....

**Teaching experience (in years):**.....

**Gender:**

Select (✓) the correct box below:

Male:

Female:

Appendix 3.7: Parents interview schedule

## Department of Curriculum and Instruction

### Faculty of Education Year 2003



### Parents Interview schedule.

1. Can you describe your child's typical weekday schedule from the time she/he gets up in the morning to the time she/ he goes to bed at night?
2. How best can you describe your child? E.g., what is he/ she good at?
3. If it has to be taking decisions for what your child is doing or going to do, what best would you like for his/ her future?
4. What is your decision for your child based on? E.g., future possibility of him/her is getting a good job or something else.
5. What exactly do you do to help your child in his/ her development intelligently e.g. groom the child to be good in academics – in sciences, mathematics, music etc, or be good socially or be good both socially and academically.
6. In your culture (name it here) what is it that is very important to be achieved?
7. Do you ever suggest to your child what the community is like and what you think will suit him/her?
8. Do you ever talk with your child about what you want him/ her to be (culturally)?
9. What do you tell him/ her e.g. encourages him/her on what he /she is doing, discourage him/her and tell him/her what you want?
10. What are the characteristics of a clever person?

**Appendix 3.8: Parent biographical questionnaire schedule**

**Department of Curriculum and Instruction**

**Faculty of Education**  
Year 2003



**Parents Questionnaire Schedule.**

Dear parent/ guardian, you are invited to complete this questionnaire about your personal information as a requirement for this study. The information you will provide will be useful in the completion of the research, and I assure you that the information provided will remain confidential and used only for the research purpose not otherwise stated. Your cooperation is highly appreciated. Thank you very much for your time and valuable inputs.

**Residence:**.....

**Name of parent/guardian:**.....  
.....

**Parents/ guardian education qualifications:** .....  
.....  
.....

**Work experience in years:**.....

**Gender:**  
Select (✓) the correct box:

**Male:**            **Female:**

### Appendix 3.9: Scoring rubric to assess learner’s performance in different tasks according to the different intelligences

| Below average                                                                                                                                                                | Average                                                                                                                                                | Above average                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Task 1: Cholera or Typhoid fever - using the following strategies: - flyer, poem, radio and a TV programme.</b>                                                           |                                                                                                                                                        |                                                                                                                                                                                       |
| <b>Logic mathematical Intelligence:</b>                                                                                                                                      |                                                                                                                                                        |                                                                                                                                                                                       |
| <i>Does not provide number of people who have been infected and died from the diseases locally or internationally.</i>                                                       | <i>Provides number of people who have been infected and died of the diseases in local context.</i>                                                     | <i>Provides number of people who have been infected and died of the diseases in local and international context.</i>                                                                  |
| <i>Does not mention the economic importance (in monetary terms) of the diseases to the country.</i>                                                                          | <i>Mentions the economic importance (in monetary terms) of the diseases to the country.</i>                                                            | <i>Mentions the economic importance (in monetary terms) of the diseases to the country and examples of other countries.</i>                                                           |
| <b>Verbal linguistic intelligence:</b>                                                                                                                                       |                                                                                                                                                        |                                                                                                                                                                                       |
| <i>A poem/song is not included in the text.</i>                                                                                                                              | <i>A poem/song is included in the text.</i>                                                                                                            | <i>A meaningful poem/song is included in the text.</i>                                                                                                                                |
| <i>Writing skills - sentences are in point form, less connection to make a coherent text.</i>                                                                                | <i>Writing skills – sentences are connected to make a coherent text.</i>                                                                               | <i>Writing skills – sentences are well connected to make a coherent text.</i>                                                                                                         |
| <i>No example is included to enrich the concepts apart from the examples given.</i>                                                                                          | <i>One example is included to enrich the concepts apart from the examples given.</i>                                                                   | <i>Several examples are included to enrich the concepts apart from the examples given.</i>                                                                                            |
| <i>No organization of the ideas in the text.</i>                                                                                                                             | <i>There is organization of ideas in the text.</i>                                                                                                     | <i>The ideas are well organized in the text.</i>                                                                                                                                      |
| <b>Interpersonal intelligence:</b>                                                                                                                                           |                                                                                                                                                        |                                                                                                                                                                                       |
| <i>Very little discussion with team mate.</i>                                                                                                                                | <i>Works well with teammate, less discussion and communication between groups.</i>                                                                     | <i>Works well with teammate, allows discussion and communication between groups.</i>                                                                                                  |
| <i>Does not contribute to the discussions in the presentation session</i>                                                                                                    | <i>Very little contribution is done to the discussion in the presentation session.</i>                                                                 | <i>Highly contributes to the discussion during the presentation session.</i>                                                                                                          |
| <b>Visual spatial intelligence:</b>                                                                                                                                          |                                                                                                                                                        |                                                                                                                                                                                       |
| <i>Pictures or photographs are not included in the text or presentation slides</i>                                                                                           | <i>A single picture or photograph is included in the text or presentation slides.</i>                                                                  | <i>Pictures and photographs are included in the text and presentation slides</i>                                                                                                      |
| <i>Does not use word art or pictures from clip art.</i>                                                                                                                      | <i>Uses either word art or pictures from clip art.</i>                                                                                                 | <i>Uses word art and pictures from clip art, and manila sheet.</i>                                                                                                                    |
| <i>Does not use a flyer as an educational strategy to educate people about the diseases.</i>                                                                                 | <i>Selects a flyer as an educational strategy, have a general layout, pictures or photographs not included, uses normal fonts.</i>                     | <i>Selects a flyer as an educational strategy, have a good layout of the flyer with pictures and/or photographs, uses different fonts.</i>                                            |
| <b>Task 2: Landfills and effects to the environment - using the following strategies - campaign using posters, letters to the village leaders, rally or radio programme.</b> |                                                                                                                                                        |                                                                                                                                                                                       |
| <b>Logic mathematical Intelligence:</b>                                                                                                                                      |                                                                                                                                                        |                                                                                                                                                                                       |
| <i>Does not mention the approximate amount of garbage produced per day in the big cities of Tanzania.</i>                                                                    | <i>Mentions approximate amount of garbage produced per day in the big cities of Tanzania.</i>                                                          | <i>Mentions approximate amount of garbage produced per day in the big cities of Tanzania and compares with other countries.</i>                                                       |
| <i>Does not give approximate number of people who have been affected with air or water pollution as a result of landfills.</i>                                               | <i>Gives approximate number of people who have been affected with air or water pollution as a result of landfills.</i>                                 | <i>Gives approximate number of people who have been affected with air or water pollution as a result of landfills, with supporting examples from other countries.</i>                 |
| <i>Does not mention the approximate amount of money used and needed by the governments to keep the cities clean from waste products.</i>                                     | <i>Mentions the approximate amount of money used and needed by the governments to keep the cities clean from waste products in Dar es Salaam only.</i> | <i>Mentions the approximate amount of money used and needed by the governments to keep the cities clean from waste products in Dar es Salaam and an example of any other country.</i> |

|                                                                                                                                              |                                                                                                                                      |                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>Verbal linguistic intelligence:</b><br><i>Does not mention an educational strategy and no supporting reasons.</i>                         | <i>Selected an educational strategy but with no supporting reasons</i>                                                               | <i>Selected an educational strategy with good supporting reasons</i>                                                                  |
| Writing skills - <i>sentences are in point form</i> , less connection to make a good rally or radio programme.                               | Writing skills – <i>sentences are connected</i> to make a good rally or radio programme.                                             | Writing skills – <i>sentences are well connected</i> to make a good rally or radio programme.                                         |
| A letter to the village leaders <i>does not contain the main ideas</i> of the educational strategy about effects of landfills.               | A letter to the village leaders <i>contains the main ideas</i> of the educational strategy about the effects of landfills.           | A letter to the village leaders <i>contains the best ideas</i> of the educational strategy about the effects of landfills.            |
| <b>Interpersonal intelligence:</b><br><i>Very little discussion</i> with teammate.                                                           | Works well with teammate, <i>less discussion and communication</i> between groups.                                                   | Works well with teammate, <i>allows discussion and communication</i> between groups.                                                  |
| <i>Does not contribute</i> to the discussions in the presentation session                                                                    | <i>Very little contribution</i> is done to the discussion in the presentation session.                                               | <i>Highly contributes</i> to the discussion during the presentation session.                                                          |
| <b>Visual spatial intelligence:</b><br><i>Does not use</i> manila sheet as posters to show the effects of landfills.                         | <i>Uses a manila sheet</i> as a poster to show the effects of landfills, <i>pictures not well elaborated</i> .                       | <i>Uses a manila sheet</i> as a poster to show the effects of landfills with <i>well-elaborated pictures</i> .                        |
| <i>Does not use pictures or photographs</i> to explain about simple recycling process of waste products in a locality in power point slides. | <i>Uses pictures or photographs</i> to explain about simple recycling process of waste products in a locality in power point slides. | <i>Uses pictures and photographs</i> to explain about simple recycling process of waste products in a locality in power point slides. |
| <b>Task 3: MV Bukoba tragedy - using the following strategies - a story.</b>                                                                 |                                                                                                                                      |                                                                                                                                       |
| <b>Logic mathematical Intelligence:</b>                                                                                                      |                                                                                                                                      |                                                                                                                                       |
| <i>Does not mention</i> the dates and number of people who died in the tragedy.                                                              | <i>Mentions the dates and number of people</i> who have died in the tragedy.                                                         | <i>Mentions the date, number of people</i> who died in the tragedy. <i>Mentions the distance</i> from Mwanza town.                    |
| <i>Does not mention the number of people</i> who survived the tragedy.                                                                       | <i>Mentions the number of people</i> who survived the tragedy.                                                                       | <i>Mentions the number of people</i> who survived the tragedy.                                                                        |
| Does not give any example of ship tragedies in other countries and the number of people who have died.                                       | Gives an example of one country and the number of people who have died.                                                              | Give several examples of ship tragedy in different countries and the number of people who have died in each country.                  |
| <i>Did not use</i> tables, graphs where possible                                                                                             | <i>Uses either a table or graph</i> where possible.                                                                                  | <i>Uses both tables, and graphs</i> where possible.                                                                                   |
| <b>Verbal linguistic intelligence:</b>                                                                                                       |                                                                                                                                      |                                                                                                                                       |
| <i>Did not use words like</i> “Once upon a time”, “On this specific day”, “on this day”..                                                    | <i>Uses words like</i> “Once upon a time”, “On this specific day”, “on this day”..                                                   | <i>Uses language effectively by using words like</i> “Once upon a time”, “On this specific day”, “on this day”..                      |
| Writing skills - <i>sentences are in point form</i> , less connection to make a story.                                                       | Writing skills – <i>sentences are connected</i> to make a story.                                                                     | Writing skills – <i>sentences are well connected</i> to make a story.                                                                 |
| <i>No extra example is included</i> to enrich the story apart from the examples given in the resources.                                      | <i>One example is included</i> to enrich the story apart from the examples given in the resources.                                   | <i>Several examples are included</i> to enrich the story apart from the examples given in the resources.                              |
| <i>No organization of ideas</i> in the story.                                                                                                | <i>There is organization of ideas</i> in the story.                                                                                  | <i>The ideas are well organized</i> in the story.                                                                                     |
| <b>Interpersonal intelligence:</b>                                                                                                           |                                                                                                                                      |                                                                                                                                       |
| <i>Very little discussion</i> with teammate.                                                                                                 | Works well with teammate, <i>less discussion and communication</i> between groups.                                                   | Works well with teammate, <i>allows discussion and communication</i> between groups.                                                  |
| <i>Does not contribute</i> to the discussions in the presentation session                                                                    | <i>Very little contribution</i> is done to the discussion in the presentation session.                                               | <i>Highly contributes</i> to the discussion during the presentation session.                                                          |
| <b>Visual spatial intelligence:</b>                                                                                                          |                                                                                                                                      |                                                                                                                                       |
| <i>Pictures or photographs are not included</i> in the text or presentation slides                                                           | <i>A picture or photograph is included</i> in the text or presentation slides.                                                       | <i>Pictures and photographs are included</i> in the text and presentation slides                                                      |

### Appendix 3.9b: Scoring rubric for performance abilities in computer application skills

| <b>Intelligence<br/>Logic<br/>mathematical</b>                                                                                                                                 | <b>Below average (1)</b><br>Did not use tables or graphs to show ability to record and organize number information.<br><br>Did not use logic sequence to categorize events – did not use subtitle, and paragraphs.<br>Did not make use of numbers in text to emphasize a point.                                                                                                                                                        | <b>Average (2)</b><br>Used a table or graph to show ability to record and organize number information<br><br>Used logic sequence to categorize events - used paragraphs only.<br>Used numbers in text to emphasize a point.                                                                                                                                                                                    | <b>Above average (3)</b><br>Used both tables and graphs to show ability in recording and organizing number information.<br>Used logic sequence to categorize events –used subtitles and paragraphs.<br>Frequent use of numbers in the text to emphasize a point.                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Visual spatial</b><br>(Excel programme)<br><br>(Clip art)<br><br>(word art/ auto shapes)<br><br>(Colours)<br><br>(Animations – power point)<br><br>(Lines/ bolding & fonts) | Did not make use of charts and tables from excel program and MS Word.<br>Did not use pictures from clip art or pictures from reading resources (copy and paste).<br>Did not use other decorating features from word art, or auto shapes to decorate the text.<br>Did not use colours in typed text to emphasize a point.<br>Did not use animations in presentation slides.<br>Did not use bold/different fonts/ underline in the text. | Used chart or tables from excel or MS Word.<br><br>Used one picture from clip art or pictures from reading resources (copy and paste).<br>Used only one feature from word art, or auto shapes to decorate the text.<br>Used colours for typed text to emphasize a point.<br>Used animations in presentation slides (simple animations).<br>Used bold and or different fonts – comic sans, underlined headings. | Good use of both charts and tables from excel and MS Word.<br>Used more than one picture from clip art and from reading resources (copy and paste).<br>Good use of other decorating features from word art, or auto shapes to decorate the text.<br>Proper use of colours in typed text to emphasize a point.<br>Used animations in presentation slides (good, not distractive).<br>Good use of bold, different fonts did not underline headings. |
| <b>Verbal linguistic</b><br><br>(Used bullets)<br><br>(Spell-check)<br><br>(Paragraphs)<br><br>(Word document)                                                                 | Unable to put story in a narrative form, assembled points as selected from the readings and used bullets.<br>A lot of spelling mistakes in the sentences less accurate use of words.<br><br>No thematic coherence to describe a procedure in their text, less use of paragraphs.<br><br>Did not use language to invent rhymes to describe a point in the task.                                                                         | Was able to put a story into narratives and mixed with assembled points from the readings.<br>Few spelling mistakes in the sentences (used spell check) and accurate use of selected words.<br>Mixed themes in the paragraph used to describe a procedure in the text.<br><br>Tried to use language to invent rhymes to describe a point in the task.                                                          | Used a story into narratives and created a coherent document.<br><br>Very few spelling mistakes in the sentences (used spell check) and accurate use of words – specific word choice.<br>Good thematic coherence e.g. describes a procedure and even added information not in the readings in paragraphs.<br>Used language to invent rhymes to describe a point in the task.                                                                      |

**Appendix 3.10:** Application letters for research clearance  
**Faculty of Natural and Agricultural Sciences**  
**Faculty of Education**

Centre for Science Education  
Sentrum vir Wetenskaponderwys  
Igatja lezefundo nolwazi  
Lekala la thutamahlale

Tel: (012) 420 3088  
Fax: (012) 420 4210  
E-mail [jrogan@postino.up.ac.za](mailto:jrogan@postino.up.ac.za)  
Pretoria

University of

Pretoria 0002  
9<sup>th</sup> October, 2003.

u.f.s  
The Vice Chancellor,  
University of Dar Es Salaam.

u.f.s  
Dean  
Faculty of Education.

Head of Department  
Curriculum and Teaching.

Dear Sir,

**Re: Request for Research Clearance**

The above heading is concerned. I am a member of staff in the Faculty of Education, Department of Curriculum and Teaching. I am currently a PhD student at the University of Pretoria, South Africa, and registered in the Faculty of Education, Department of Curriculum and Instruction – Groenkloof Campus.

For the requirements of my study, I wish to conduct a study in four secondary schools in Tanzania about multiple intelligences and computer integration. At present my research topic is “An investigation into the interaction between multiple intelligences and the performance of learners in open-ended digital learning tasks”.

I am requesting for a Research Clearance to be able to conduct my research study in four secondary schools, three of the schools are in Dar Es Salaam Region and one in Iringa Region. These secondary schools are purposefully selected for the study, because they have a computer laboratory, which is a prerequisite for the study. The intended study is planned to be conducted from January 5, 2004 to April 30, 2004. Hope my request would receive your consideration.

Thanking you in advance, I remain, sincerely.

Ms. Eugenia Kafanabo,

University of Pretoria, PhD Student.

**Appendix 3.11:** Letter for participant's participation in the study

## Department of Curriculum and Instruction

### Faculty of Education



November, 2003

Dear participant,

You are invited to participate in a research study aimed at investigating the interaction between multiple intelligences and performance of the learners in open-ended digital learning tasks.

Your participation in this research project is voluntary and confidential. You will not be asked to reveal any information that will allow your identity to be established, unless you are willing to be contacted for individual follow up interviews. Should you declare yourself willing to participate in an individual or group interview, open-ended digital tasks, filling in of questionnaires and observations, confidentiality will be guaranteed and you may decide to withdraw at any stage should you wish not to continue with the research study.

Accompanying this letter is a document explaining how you will participate in the study.

The results from this study will be used as a requirement to write a thesis of my study, as a PhD student from University of Pretoria, South Africa.

If you are willing to participate in this study, please sign this letter as a declaration for your consent i.e. that you participate in the study willingly and that you may withdraw from the research willingly and that you understand that you may withdraw from the study at any time. Participation in this phase of the study does not obligate you to participate in follow up individual interviews, however, should you decide to participate in follow-up interviews your participation is still voluntary and you may withdraw at anytime. Under no circumstances will the identity of interview participants be made known to (any parties /organizations that may be involved in the research process and/or which has some form of power over the participants).

Participants signature.....: Date: .....

Researchers signature.....: Date: .....

Yours Sincerely

*Ms. Eugenia Kafanabo*

PhD. Student, University of Pretoria – RSA.

**Appendix 3.12:** Consent letter for parents/ guardians

## **Department of Curriculum and Instruction**

### **Faculty of Education**



November, 2003

Dear Parent/ Guardian,

\_\_\_\_\_ Secondary School has been chosen to participate in a research study about multiple intelligences and computer integration in schools. The school has been selected out of the entire schools in the Region of Dar es Salaam and Iringa as a result of their outstanding use of computers in their school activities. Students in Form two and Form three, doing science subjects that is Biology, Physics, Chemistry and Mathematics, and computer studies will participate in the study.

This study will take place in Dar es Salaam and Iringa Regions, at \_\_\_\_\_ Secondary School. The study is expected to last for three weeks in each school that will participate. I, Ms. Eugenia Kafanabo will conduct the study; as a PhD Student from University of Pretoria, South Africa, and an experienced teacher in the field of science, with specialization in Biology. During my PhD studies, I have gained interest in computers in education, teaching and learning sciences using computers.

The results of this study I hope will help curriculum developers, policy makers and teachers in discovering and understanding how computers can be used as a tool in the teaching and learning process of science subjects, while allowing learners to work on their different performance abilities. This knowledge will also enable teachers and schools to provide special instructional materials that might improve learners' performance abilities. Moreover, the results of the study might provide valuable information for the future development of effective computer related activities by the teachers.

In this study, I feel that it is worthy to work with the learners' in the selected schools. Please review the information on the following page in order to make a decision concerning parental consent for your child to participate in the study.

Sincerely,

*Ms. Eugenia Kafanabo*

PhD. Student, University of Pretoria – RSA.

## PARENT/ GUARDIAN CONSENT FORM

The information provided in this form and the accompanying covering letter is presented to you in order to fulfill legal and ethical requirements for The University of Pretoria (institution supervising this doctoral dissertation study) and The University of Dar Es Salaam as regulations for the involvement in ethical considerations when working with human participants in the study.

The dissertation committee at University of Pretoria, South Africa, and University of Dar Es Salaam, Tanzania has both given approval to conduct this research study. The purpose of this study is to investigate the interaction between multiple intelligences and performance of learners in open-ended digital learning tasks, in 4 intelligences (i.e. verbal linguistic, logic mathematical, visual spatial and interpersonal intelligences). Form two and form three students doing science subjects and computer studies will participate in the research study.

Your child will be involved in this study in the following ways:

- Filling in questionnaires for the identification of the intelligence profiles
- Participating in three open-ended digital learning tasks using computers
- Presentation and discussion of the tasks in class using computers
- Focus group interviews that will be conducted by the researcher

Each learning task will take one week to completion. Each day, the learners will participate in all the activities presented to them by the researcher, upon which they will have to work for two to three hours per day, for 5 working days of the week. There are no foreseeable risks to the learners' involved. Specific information about individual learners will be kept **strictly confidential** and will be obtainable from the Head Mistress/ Head Master of the school if desired. The results that will be published publicly will not reference any individual learner's original identity, as the study also intends to analyze the relationships between learners.

The purpose of this form is to ask for permission if your child can participate in the study, and to allow the researcher to use the information already available at the school or information obtained from the actual study to be used for publication. Parent consent for this research study is voluntary. Please sign on the space below for your consent. The parent's signature below also assumes that the child understands and agrees to participate cooperatively in the study.

If you have additional questions regarding the study, the rights of participants or potential problems, please call the head of school, \_\_\_\_\_  
Or the researcher, Ms. Eugenia Kafanabo (PhD. Student – University of Pretoria), cell phone number 0744 464853 in Tanzania.

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Student's name.

---

Signature of Parent/Guardian.

Date

Appendix 3.13: Certificate of attendance for learners

# Research on Open-Ended Digital Learning Tasks



## *Certificate of Attendance*

This is to certify that

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Participated in the research study conducted by the Researcher from the University of Pretoria in collaboration with the University of Dar es Salaam in Tanzanian Secondary Schools from January 2<sup>nd</sup> to March 30<sup>th</sup> 2004.

*E.J. Kafanabo*  
Researcher & PhD Student  
University of Pretoria, RSA.

**Appendix 4.1:** Poem prepared by learners for their educational strategy

**Poem about Typhoid fever**

I can design my education strategy by using poem which we think is a very simple and easy way to educate people.

This disease caused, by the typhoid bacillus,  
And the name of microbe, is called Salmonella typhi,  
This disease is bad, because it kills many people,  
What is that disease, the disease is typhoid fever.

Symptoms of the disease, there are so many  
Variety of symptoms, it occur to the person  
That has contracted with Salmonella typhi,  
What is that disease, the disease is typhoid fever

The spread of microorganism, they spread through human,  
You can get the disease, if you drink or eat food or beverages,  
That has been handled, by the people carrying the bacteria,  
What is that disease, the disease is typhoid fever.

Treatment of water, is by boiling the water,  
Treatment of food, is by washing it,  
It is the most reliable method, to make food and water safe,  
What is that disease, the disease is typhoid fever.

Prevention of the disease, is by protect the public water supplies,  
Educate the public, about prevention of typhoid fever,  
Cleanliness in food, preparation and handling,  
What is that disease, the disease is typhoid fever.

The problem facing community, is the dirty of environment,  
They do not have good sanitation, they drink dirty water,  
And they do not wash hands, and have no enough toilets,  
What is that disease, the disease is typhoid fever.

Typhoid fever effect, 17millionn people,  
In the word wide, every year,  
With approximately 600,000 deaths,  
What is that disease, the disease is typhoid fever.

I am at the end, and I want to give you some advice,  
Do not drink dirty water; wash your hands after eating,  
You should have good sanitation, and clean the environment,  
What is that disease, the disease is typhoid fever.