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APPENDICES

Appendix 1: Construction of Instruments for document analysis

Section A: Pool of questions designed by researcher and assessed by panel of experts

[Questions 1 to 4 were used to analyse the Life Sciences curriculum statement. Questions 5 to 9 were used to analyse the Life Sciences textbooks].

1. Which skills (competences) does the document encourage Grade 11 students to attain regarding HIV/AIDS?
 2. Which concepts does the curriculum foreground for Grade 11 students in relation to HIV/AIDS?
 3. What are the expected learning outcomes of Life Sciences in relation to HIV/AIDS?
 4. Which assessment strategy is the document endorsing?
 5. Which HIV/AIDS related concepts have the highest page volume in the textbooks?
 6. What is the textbooks' approach to HIV and AIDS related concepts?
 7. What is the frequency of appearance for HIV and AIDS related concepts?
 8. How does the document content relate to HIV/AIDS?
 9. What assumptions underlie the textual discourse?
-

Section B: Questionnaire used by experts to assess researcher-designed questions

I have generated nine questions that I intend to use to perform document analysis. The purpose of document analysis is to answer the following main question:

“How does the Life Sciences curriculum address HIV and AIDS for safe behavioural preferences among students?”

Study the nine questions and answer the following questionnaire, indicate your response by crossing the appropriate box and justifying your choice in the space provided. [All questions had the same “agree – disagree” option as in the example given below]

1. The question is relevant to answer the main question.

Agree	Disagree
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.....

2. The question is not repeated unnecessarily.
3. The question is operationalisable.
4. The question can be responded to through document analysis.
5. The question can be responded to through the analysis of the curriculum statements (or Life Sciences curriculum statement; or life sciences textbooks).
6. It is important to have this question in the instrument.
7. This question must be eliminated from the instrument.
8. This question must be rephrased.
9. Do you have any other comments on the questionnaire?

.....

Section C: Percentage agreements from experts

Researcher generated item	Questions from assessment questionnaire (Q1 to Q9) and proportion choosing the “agree” option (e.g. 5/6)							
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
1. Which skills (competences) does the document encourage Grade 11 students to attain regarding HIV/AIDS?	5/6	6/6	6/6	6/6	6/6	6/6	0/6	0/6
2. Which concepts does the curriculum foreground for Grade 11 students in relation to HIV/AIDS?	5/6	6/6	6/6	6/6	6/6	6/6	0/6	0/6
3. What are the expected learning outcomes of Life Sciences in relation to HIV/AIDS?	6/6	6/6	6/6	6/6	6/6	6/6	0/6	0/6
4. Which assessment strategy is the document endorsing?	4/6	6/6	6/6	6/6	6/6	6/6	0/6	0/6
5. Which HIV/AIDS related concepts have the highest page volume in the textbooks?	5/6	6/6	6/6	6/6	6/6	6/6	0/6	0/6
6. How does the document content relate to HIV/AIDS?	6/6	6/6	6/6	6/6	6/6	6/6	0/6	0/6
7. What is the textbooks’ approach to HIV and AIDS related concepts?	4/6	5/6	6/6	6/6	6/6	6/6	0/6	0/6
8. What is the frequency of appearance for HIV and AIDS related concepts?	5/6	5/6	6/6	6/6	6/6	6/6	0/6	0/6
9. What assumptions underlie the textual discourse	3/6	6/6	3/6	3/6	5/6	3/6	2/6	2/6

Appendix 2: Interview schedule with teachers for identifying textbooks

(The interview starts by requesting the respondents' consent for the interview and data collection. Details of such consent are explained to the interviewee).

1. Do you teach Life Sciences in Grade 11?
2. For how long have you been teaching Life Sciences in Grade 11?
3. How many textbooks do you use for your teaching?
4. Which textbook do you most rely on for selecting content knowledge to be taught? Explain.
5. Which textbook do you use for teaching HIV/AIDS related concepts?
6. Briefly describe the textbook you use for teaching HIV/AIDS related concepts, with respect to type of representations used.
7. Who recommended these textbooks to you?
8. Do students have textbooks?
9. Are these textbooks (which students use) recommended by you?

Appendix 3: Profile of students participating in the study

Student Profile				
School	Research ID No.	Age	Gender	Academic background
9	L001	15	Male	non-Life Sciences
9	L002	17	Male	non-Life Sciences
9	L003	16	Male	non-Life Sciences
9	L004	17	Male	Life Sciences
9	L005	17	Male	Life Sciences
9	L006	17	Male	Life Sciences
9	L007	17	Female	Life Sciences
9	L008	17	Male	Life Sciences
9	L009	16	Female	Life Sciences
9	L010	16	Female	Life Sciences
9	L011	17	Female	Life Sciences
9	L012	16	Female	Life Sciences
9	L013	16	Male	Life Sciences
9	L014	17	Female	Life Sciences
9	L015	17	Male	Life Sciences
9	L016	16	Female	Life Sciences
9	L017	17	Female	Life Sciences
9	L018	17	Female	Life Sciences
9	L019	17	Female	Life Sciences
9	L020	16	Male	Life Sciences
9	L021	17	Male	Life Sciences
9	L022	16	Female	Life Sciences
9	L023	17	Female	Life Sciences
9	L024	17	Male	Life Sciences
9	L025	17	Male	Life Sciences
9	L026	17	Male	Life Sciences
9	L027	17	Male	Life Sciences
9	L028	18	Male	Life Sciences
9	L029	17	Male	Life Sciences
9	L030	17	Female	Life Sciences
9	L031	16	Female	Life Sciences

9	L032	16	Female	Life Sciences
9	L033	16	Male	Life Sciences
9	L034	17	Female	Life Sciences
9	L035	17	Female	Life Sciences
9	L036	17	Male	Life Sciences
9	L037	17	Male	Life Sciences
9	L038	17	Female	Life Sciences
9	L039	17	Female	Life Sciences
9	L040	16	Male	non-Life Sciences
9	L041	16	Female	non-Life Sciences
9	L042	16	Male	non-Life Sciences
9	L043	16	Male	non-Life Sciences
9	L044	17	Male	non-Life Sciences
9	L045	15	Female	non-Life Sciences
9	L046	16	Male	non-Life Sciences
9	L047	17	Male	non-Life Sciences
9	L048	18	Female	non-Life Sciences
9	L049	17	Male	non-Life Sciences
9	L050	18	Male	non-Life Sciences
9	L051	17	Male	non-Life Sciences
9	L052	16	Female	non-Life Sciences
9	L053	16	Female	non-Life Sciences
9	L054	17	Male	non-Life Sciences
9	L055	18	Male	non-Life Sciences
9	L056	16	Male	non-Life Sciences
9	L057	17	Male	non-Life Sciences
9	L058	18	Male	non-Life Sciences
9	L059	17	Male	non-Life Sciences
9	L060	17	Male	non-Life Sciences
9	L061	16	Not known	Life Sciences
9	L062	18	Male	non-Life Sciences
9	L063	16	Female	non-Life Sciences
8	L064	17	Male	non-Life Sciences
8	L065	17	Female	non-Life Sciences
8	L066	18	Male	non-Life Sciences

8	L067	16	Female	non-Life Sciences
8	L068	17	Male	non-Life Sciences
8	L069	17	Female	non-Life Sciences
8	L070	17	Male	non-Life Sciences
8	L071	16	Male	non-Life Sciences
8	L072	16	Male	non-Life Sciences
8	L073	17	Male	non-Life Sciences
8	L074	17	Male	Life Sciences
8	L075	16	Female	Life Sciences
8	L076	Not known	Male	Life Sciences
8	L077	15	Male	Life Sciences
8	L078	16	Female	Life Sciences
8	L079	16	Female	Life Sciences
8	L080	16	Female	Life Sciences
8	L081	17	Female	Life Sciences
8	L082	16	Female	Life Sciences
8	L083	17	Female	Life Sciences
8	L084	Not known	Not known	Life Sciences
8	L085	16	Female	Life Sciences
8	L086	16	Female	Life Sciences
8	L087	16	Female	Life Sciences
8	L088	Not known	Female	Life Sciences
8	L089	17	Female	Life Sciences
8	L090	17	Female	Life Sciences
8	L091	17	Male	non-Life Sciences
8	L092	17	Male	Life Sciences
8	L093	16	Female	Life Sciences
8	L094	17	Male	Life Sciences
8	L095	18	Male	Life Sciences
8	L096	17	Male	Life Sciences
7	L097	17	Male	non-Life Sciences
7	L098	15	Male	non-Life Sciences
7	L099	17	Male	non-Life Sciences
7	L100	17	Male	non-Life Sciences
7	L101	16	Female	non-Life Sciences

7	L102	17	Male	non-Life Sciences
7	L103	16	Male	non-Life Sciences
7	L104	16	Female	non-Life Sciences
7	L105	17	Male	non-Life Sciences
7	L106	16	Male	non-Life Sciences
7	L107	16	Male	non-Life Sciences
7	L108	16	Male	non-Life Sciences
7	L109	17	Male	non-Life Sciences
7	L110	16	Female	non-Life Sciences
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1	L543	17	Female	non-Life Sciences

Appendix 4: Consent letters



FACULTY OF EDUCATION
DEPARTMENT OF SCIENCE, MATHEMATICS AND TECHNOLOGY EDUCATION
Groenkloof Campus
Pretoria 0002
Republic of South Africa
Tel: +27 12 420 -5572
Fax: +27 12 420-5621
[http:// www.up.ac.za](http://www.up.ac.za)

Dear Student,

I am inviting you to participate in a research project entitled “*exploring the effects of scientific knowledge on Grade 11 students’ behaviour towards HIV/AIDS in KwaZulu-Natal, South Africa.*” Accompanying this letter is a questionnaire that asks a variety of questions about your understanding of HIV/AIDS as well as your views on some behavioural patterns related to HIV/AIDS.

The study might be very sensitive and emotional especially if you are directly affected by HIV/AIDS. Because of this the study is treated with sensitivity as respondents will be expected to provide amongst other things, their opinion on sexual behaviour. As you respond to the questions, you might experience strong feelings.

I am asking you to look over the questionnaire and, if you choose to do so, complete it and give it back to me. It should take you about 30 minutes to complete.

The results of this project will be submitted as a report for my doctorate for which I am studying at the University of Pretoria. Through your participation I hope to understand the following:

- Grade 11 students’ level of understanding of prerequisite knowledge required for a successful understanding of HIV/AIDS,
- Grade 11 students’ understanding of HIV/AIDS, and
- Behavioural patterns of Grade 11 students related to HIV/AIDS.

The results of this study will be published in scientific journals and presented at conferences as well as on the internet.

Should you decide to participate, **the following terms will apply:**

1. You should not write your real name on the test and/or questionnaire as related to this research.
2. Real names will not be used in any report(s); instead, pseudonyms (unreal names and codes) will be used in all spoken and written records and reports.

3. Your responses will be treated in a confidential manner and will only be accessed by you (the respondent), the researcher (Mr Lindelani Mnguni) and the supervisor (Dr Mia Abrie).
4. Nothing that you say or write in relation to this study will be revealed to other persons in a manner that will reveal your identity.
5. Participation in this research is voluntary. You have the right to withdraw at any time for any reason, and without any prejudice, and the information collected and records and reports written will be discarded.
6. At your request, the summary of the findings will be made available to you.
7. No direct benefits will be given to you or your school.

If you have any questions or concerns about completing the test and the questionnaire or about being in this study, you may contact me at the given contact address. The Faculty of Education at the University of Pretoria has approved this study. We are also seeking permission from the Provincial Department of Education, the school and your parent/guardian. Only after all, including you yourself have given permission, will we proceed with the study.

If you agree to participate in the study under the above stated terms, please fill in the details below and return separately, NOT with the test and questionnaire.

Date of birth (DD/MM/YY): _____

Place of birth: _____

Signature: _____

Date: _____

Witness: _____

Date: _____

Any questions regarding this consent letter and the research can be directed to me at the following address:

Mr Lindelani E Mnguni
School of SMTE
University of Pretoria
Groenkloof Campus
Pretoria
Tel: 084837 4423
Email address: lindelani@up.ac.za

Yours truly,
Lindelani E Mnguni

.....
Signature

.....
Date



100
1908 - 2008



**UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA**

**FACULTY OF EDUCATION
DEPARTMENT OF SCIENCE, MATHEMATICS AND TECHNOLOGY EDUCATION**

**Groenkloof Campus
Pretoria 0002
Republic of South Africa
Tel: +27 12 420 -5572
Fax: +27 12 420-5621
[http:// www.up.ac.za](http://www.up.ac.za)**

Dear Sir/Madam,

I hereby request your child to participate in my research. This is part of my PhD project entitled “*exploring the effects of scientific knowledge on Grade 11 students’ behaviour towards HIV/AIDS in KwaZulu-Natal, South Africa.*” I am doing this research at the University of Pretoria. Participating students will respond to an HIV/AIDS knowledge questionnaire (see attached) that asks a number of questions about students’ understanding of HIV/AIDS as well as their behavioural patterns related to HIV/AIDS.

The study is very sensitive and emotional and is being treated with sensitivity. In addition the questions in the questionnaire will ask students to give information about their understanding of HIV/AIDS and how they behave in this regard. As they respond to the questions, they might experience strong feelings.

Willing students will be requested to look over the questionnaire and, if they choose to do so, complete documents and send or give them back to me. It should take students about 30 minutes to complete.

Through the students’ participation I hope to understand the following:

- Grade 11 students’ level of understanding of prerequisite knowledge required for a successful understanding of HIV/AIDS,
- Grade 11 students’ understanding of HIV/AIDS, and
- Behavioural patterns of Grade 11 students related to HIV/AIDS.

I hope that the results of the study will be useful for the development of informed response strategies against HIV/AIDS. The results of this study will be published in scientific journals and presented at conferences as well as on the internet.

Student participation will be governed by the following terms:

1. Students do not need to write real names in the test and/or questionnaire as related to this research.
2. School names, from which participating students enrol, will be treated in a confidential manner.
3. Real names will not be used in any report(s); instead, pseudonyms (unreal names and codes) will be used in all verbal and written records and reports.
4. Responses will be treated in a confidential manner and will only be accessed by the participating student (the respondent), the researcher (Mr Lindelani Mnguni) and the supervisor (Dr Mia Abrie).

5. Participation in this research is voluntary. Students have the right to withdraw at any time for any reason, and without any prejudice, and the information collected and records and reports written will be discarded.
6. At the respondents', schools' and government's request, the summary of the findings will be made available accordingly.
7. No direct benefits will be given to students or schools.

Should you have any questions or concerns about the study, you may contact me at the address given in this letter. The Faculty of Education at the University of Pretoria and the KZN Department of Education have approved this study.

If you approve of your child's participation in the study under the above stated terms, please fill in the details below and return the form to the school.

Parent/legal guardian's Signature: _____

Date: _____

Any questions regarding this consent letter and the research can be directed to me at the following details:

Mr Lindelani E Mnguni
School of SMTE
University of Pretoria
Groenkloof Campus
Pretoria
Tel: 084837 4423
Email address: lindelani@up.ac.za

Yours sincerely,
Lindelani E Mnguni

.....
Signature

.....
Date



100
1908 - 2008



**UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
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**FACULTY OF EDUCATION
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Fax: +27 12 420-5621
[http:// www.up.ac.za](http://www.up.ac.za)**

Dear Sir/Madam,

I hereby request your permission to collect data at your school. This is part of my PhD project entitled “*exploring the effects of scientific knowledge on Grade 11 students’ behaviour towards HIV/AIDS in KwaZulu-Natal, South Africa.*” I am undertaking this research at the University of Pretoria. Participating students will respond to an HIV/AIDS knowledge questionnaire (see attached) that asks a number of questions about students’ understanding of HIV/AIDS as well as their behavioural patterns related to HIV/AIDS.

The study is very sensitive and emotional and is treated with sensitivity as respondents will be expected to provide amongst other things, their sexual behaviour details. In addition, the questions in the questionnaire will ask students to give information about their understanding of HIV/AIDS. As they respond to the questions, they might go experience strong feelings.

I will only be working with Grade 11 students. Willing students will be requested to look over the tests and questionnaire and, if they choose to do so, complete documents and send or give them back to me. It should take students about 30 minutes to complete.

Through the students’ participation I hope to understand the following:

- Grade 11 students’ level of understanding of prerequisite knowledge required for a successful understanding of HIV/AIDS,
- Grade 11 students’ understanding of HIV/AIDS, and
- Behavioural patterns of Grade 11 students related to HIV/AIDS.

I hope that the results of the study will be useful for the development of informed response strategies against HIV/AIDS. The results of this study will be published in scientific journals and presented at conferences as well as on the internet.

Student participation will be governed by the following terms:

1. Students do not need to write real names in the test and/or questionnaire as related to this research.
2. School names, from which participating students enrol, will be treated in a confidential manner.

3. Real names will not be used in any report(s); instead, pseudonyms (unreal names and codes) will be used in all verbal and written records and reports.
4. Responses will be treated in a confidential manner and will only be accessed by the participating student (the respondent), the researcher (Mr Lindelani Mnguni) and the supervisor (Dr Mia Abrie).
5. Participation in this research is voluntary. Students have the right to withdraw at any time for any reason, and without any prejudice, and the information collected and records and reports written will be discarded.
6. At the respondents', schools' and government's request, the summary of the findings will be made available accordingly.
7. No direct benefits will be given to students or schools.

Should you have any questions or concerns about the study, you may contact me at the given address. The Faculty of Education at the University of Pretoria and the KZN Department of Education has approved this study.

If you agree to participate in the study under the above stated terms, please fill in the details below and return separately, NOT with the test and questionnaire.

Date of birth (DD/MM/YY): _____

Position at school: _____

Place of birth: _____

Signature: _____

Date: _____

Witness: _____

Date: _____

Mr Lindelani E Mnguni
School of SMTE
University of Pretoria
Groenkloof Campus
Pretoria
Tel: 084837 4423
Email address: lindelani@up.ac.za

Yours sincerely,
Lindelani E Mnguni

.....
Signature

.....
Date

Appendix 5: Questionnaire given to panel of experts for validation

Instructions

- *Answer as many questions as possible.*
 - *Do not rewrite the questions.*
 - *Where necessary, number the answers exactly as the questions are numbered.*
 - *Write neatly and legibly.*
-

SECTION 1: Life Sciences Knowledge

For each of the following questions, select only one correct answer.

1. The smallest unit of life is a (an)
 - a) Atom
 - b) Protein
 - c) Single cell
 - d) Compound

2. Human bodies have
 - a) Billions of cells
 - b) Only five cells
 - c) No cells
 - d) One thousand cells

3. A typical body cell size is
 - a) 10 cm
 - b) 10 m
 - c) 10 mm
 - d) 10 μm

4. Eukaryotic cells are generally
 - a) Same size as prokaryotic cells
 - b) Larger than prokaryotic cells
 - c) Smaller than prokaryotic cells
 - d) None of the above

5. The nucleus has
 - a) A double membrane of the nuclear envelope

- b) A single layer of nuclear membrane
 - c) No membrane
 - d) All of the above
6. In human cells, genetic material (DNA) is found in the
- a) Nucleus
 - b) Chloroplast
 - c) Plasma membrane
 - d) Endoplasmic reticulum
7. The plasma membrane system of a cell consists of the
- a) Endoplasmic reticulum
 - b) Golgi complex
 - c) Vesicles
 - d) All of the above
8. All Eukaryotic cells contain mitochondria, organelles that use...
- a) Nitrogen
 - b) Phosphorus
 - c) Oxygen
 - d) Calcium
9. The plasma membrane isolates the cytoplasm from the
- a) Cell
 - b) External environment
 - c) Water
 - d) Nucleus
10. The plasma membrane regulates the flow of materials into and out of the
- a) Vacuole
 - b) Nucleus
 - c) Cell
 - d) All of the above
11. The plasma membrane consists of a bilayer of
- a) Phospholipids only
 - b) Proteins only
 - c) Cellulose
 - d) Phospholipids and proteins
12. In human cells, the.... blocks most molecules from passing through
- a) Phospholipid bilayer
 - b) Glycoproteins
 - c) Receptors
 - d) Cellulose
13. Larger molecules can cross the membrane only with the help of
- a) Water only
 - b) Lipids only

- c) None of the above
 - d) Glycoproteins
- 14.** Recognition proteins serve as identification
- a) Binding sites
 - b) Blocking sites
 - c) “Tags and attachment sites”
 - d) All of the above
- 15.** Diffusion is the movement of particles from regions of
- a) Higher concentration to regions of lower concentration
 - b) Lower concentration to regions of higher concentration
 - c) Higher concentration to regions of higher concentration
 - d) Lower concentration to regions of lower concentration
- 16.** Osmosis is the diffusion of water across a selectively permeable membrane and
- a) Down its concentration gradient
 - b) Up its concentration gradient
 - c) a) and b) above
 - d) none of the above
- 17.** The circulatory system transports blood rich in
- a) Dissolved nutrients and oxygen
 - b) Microbes and wastes
 - c) Hormones
 - d) All of the above
- 18.** White blood cells or leukocytes
- a) Fight infection
 - b) Are important for blood clotting
 - c) Carry haemoglobin
 - d) Have no function
- 19.** Blood leaving the heart travels (in sequence) through
- a) Arteries, arterioles, capillaries, venules, veins, and then back to the heart
 - b) Arterioles, arteries, capillaries, venules, veins, and then back to the heart
 - c) Capillaries, venules, veins, and then back to the heart arterioles, arteries,
 - d) Veins, venules, capillaries, arteries, arterioles, and then back to the heart
- 20.** The human lymphatic system consists of
- a) Lymphatic vessels only
 - b) Lymphatic vessels, lymph nodes, and the thymus and spleen
 - c) Lymphatic vessels, lymph nodes, and without thymus or spleen
 - d) Arteries, arterioles, capillaries, venules, veins, and then back to the heart
- 21.** The thymus which is most active in young children produces
- a) Red blood cells
 - b) Platelets
 - c) Erythrocytes

- d) White blood cells that function in immunity
- 22.** The spleen filters blood past white blood cells, which remove
- Bacteria and damaged blood cells
 - Viruses
 - Germs
 - Salts and urea
- 23.** The human body has three lines of defense against invasion by microbes:
- The barriers of skin and mucous membranes
 - Nonspecific internal defenses, including phagocytosis, killing by natural killer cells, inflammation and fever
 - The immune response
 - All of the above
- 24.** If microbes do enter the body, white blood cells travel to the site of entry and
- Engulf the invading cells
 - Produce more microbes
 - Nourish microbes
 - None of the above
- 25.** Natural killer cells secrete proteins that kill
- Bacteria
 - Infected or cancerous cell
 - Viruses
 - Fungi
- 26.** Injuries stimulate the inflammatory response, which
- Attracts phagocytic white blood cells
 - Increases blood flow
 - Makes capillaries leaky
 - All of the above
- 27.** High temperature from a fever inhibits bacterial growth and
- Slows immune response
 - Accelerates the immune response
 - Stops immune response
 - None of the above
- 28.** The following are cells of the immune system
- Somatic cells
 - Gametes
 - B cells and T cells
 - Brain cells
- 29.** Immune response has three steps
- Recognition, attack and memory
 - Recognition, attack and digest
 - Recognition, reproduce and memory
 - None of the above

- 30.** The following are responsible for recognizing antigens and triggering the immune system
- Antibodies on B cells only
 - T-cell receptors on T cells only
 - Antibodies on B cells and T-cell receptors on T cells
 - All of the above
- 31.** Antibodies
- Detect and actively destroy antigens
 - Destroy body cells
 - Cause sickness
 - None of the above
- 32.** Antibodies are
- Specific and selective
 - Non-specific
 - a) and b) above
 - None of the above
- 33.** The following region of the invaders binds to and activates only those B and T cells with the complementary antibodies or T-cell receptors
- Antigens
 - Antibodies
 - Plasma membranes
 - Carbohydrates
- 34.** Antibodies circulating in the blood destroy antigens and antigen-bearing microbes by
- Coating them,
 - Causing them to clump together
 - Promoting phagocytosis by white blood cells
 - All of the above
- 35.** Cytotoxic T cells bind to
- Antigens
 - Microbes
 - Infected and cancerous cells
 - All of the above
- 36.** Helper T cells stimulate both the
- B cell and cytotoxic T cell responses
 - Somatic cells and B cells
 - Gametes and cytotoxic T cells
 - Helper B cells and Helper T cells
- 37.** The following cells are responsible for destroying antigens that reappear
- B cells
 - T cells
 - Memory cells
 - Cytotoxic cells
- 38.** The following are responsible for killing cellular microbes or slow down their production, thus allowing the immune system more time to respond and exterminate the invaders

- a) Antibiotics
 - b) Tablets
 - c) Pills
 - d) Antigens
- 39.** Autoimmune diseases arise when
- a) The immune system destroys some of the body's own cells
 - b) Immune system is automatic
 - c) Diseases are not curable
 - d) A person is HIV positive
- 40.** Immune deficiency diseases occur when
- c) The immune system destroys some of the body's own cells
 - d) Immune system is automatic
 - e) Disease are not curable
 - a) The immune system cannot respond strongly enough to ward off normally minor disease
- 40.** Non-cellular organisms that are infectious and can cause many human diseases are called
- a) Viruses
 - b) Bacteria
 - c) Germs
 - d) Amoebas
- 41.** Most viruses are about
- a) 200 nanometres in diameter
 - b) 200 millimetres in diameter
 - c) 200 centimetres in diameter
 - d) 200 micrometres in diameter
- 42.** The structure of a virus is composed of
- a) An outer capsid
 - b) An inner core with nucleic acids
 - c) a) and b) above
 - d) None of the above
- 43.** The following are examples of receptors on which viruses may bind before they enter host cells
- a) Glycoproteins
 - b) CD 4
 - c) CCR5
 - d) All of the above

SECTION 2: HIV and aids knowledge

1. Answer the following questions, by crossing either TRUE, FALSE, SOMETIMES or DON'T KNOW in the correct box

1. HIV and AIDS are the same.	True	False	Sometimes	Don't Know
2. HIV can be transmitted from one person to another.	True	False	Sometimes	Don't Know
3. HIV can spread all over the body.	True	False	Sometimes	Don't Know
4. HIV can reproduce.	True	False	Sometimes	Don't Know
5. The body organs are equally susceptible to HIV infection.	True	False	Sometimes	Don't Know
6. HIV is visible to the naked eye.	True	False	Sometimes	Don't Know
7. HIV is a disease.	True	False	Sometimes	Don't Know
8. HIV is a bacterium.	True	False	Sometimes	Don't Know
9. HIV is a virus.	True	False	Sometimes	Don't Know
10. A virus is the same as a bacterium.	True	False	Sometimes	Don't Know
11. A person can do something to protect him/herself from getting HIV.	True	False	Sometimes	Don't Know
12. You can get HIV by eating food prepared by someone with HIV.	True	False	Sometimes	Don't Know
13. You can get HIV by being coughed or sneezed at by someone who has HIV.	True	False	Sometimes	Don't Know
14. People can get HIV because of witchcraft.	True	False	Sometimes	Don't Know
15. There are different types of HIV.	True	False	Sometimes	Don't Know
16. AIDS can be transmitted from one person to another.	True	False	Sometimes	Don't Know
17. A person can be infected by HIV more than once.	True	False	Sometimes	Don't Know
18. A person can do something to protect him/herself from getting AIDS.	True	False	Sometimes	Don't Know
19. You can get AIDS by eating food prepared by someone with AIDS.	True	False	Sometimes	Don't Know
20. You can get AIDS by being coughed or sneezed on by someone who has AIDS.	True	False	Sometimes	Don't Know

				Know
21. People can get AIDS because of witchcraft.	True	False	Sometimes	Don't Know

2. Answer the following questions by writing the correct answer in the spaces provided.

2.1. Where did you learn about HIV and AIDS?

2.2. What does HIV stand for?

2.3. What is HIV?

2.4. Where does HIV come from?

2.5. What is the difference/ similarity between HIV and AIDS

2.6. In which way(s) can HIV be transmitted from one person to another?

2.7. What does HIV do to body cells?

2.8. HIV infects which cells in the body?

2.9. Where does HIV stay?

2.10. How does HIV get spread in the body?

2.11. How does HIV reproduce?

2.12. How can you tell if you have HIV in your body?

2.13. How big or small is HIV?

2.14. How can people protect themselves from getting infected with HIV?

2.15. Would you rather not touch someone with HIV because you are scared of infection?

2.16. Which types of HIV do you know?

2.17. How many AIDS viruses can cause sickness?

- 2.18. When does HIV cause AIDS?
- 2.19. For how long can a person live with HIV?
- 2.20. What does AIDS stand for?
- 2.21. What is AIDS?
- 2.22. What causes AIDS?
- 2.23. What can a person do to protect him/herself from getting AIDS?
- 2.24. Would you rather not touch someone with AIDS because you are scared of infection?
- 2.25. Why does it usually take a long period for a person to die of AIDS?
- 2.26. What kills people with AIDS?
- 2.27. Why is AIDS associated with other diseases such as TB?
- 2.28. What can an HIV positive person do, to counteract the effects of HIV in his/her body?

SECTION 3: BEHAVIOURAL PREFERENCES

For each of the following statements, fill in the questionnaire by indicating your choice by means of crossing (X) the appropriate box. Give reasons for your choice in the space provided after each statement.

1.1. It is acceptable for a student of my age to have sexual intercourse.

Agree	Neutral	Disagree
<p>.....</p>		

1.2. As a Grade 11 student, I would voluntarily have sexual intercourse.

Agree	Neutral	Disagree
.....		

1.3. I would have sexual intercourse with someone whose sexual activities I do not really know.

Agree	Neutral	Disagree
.....		

1.4. I would have unprotected sexual intercourse.

Agree	Neutral	Disagree
.....		

1.5. If I had sexual intercourse, I would never use condoms.

Agree	Neutral	Disagree
.....		

1.6. I would have sexual intercourse with someone I do not really know.

Agree	Neutral	Disagree
.....		

1.7. I would have sexual intercourse with someone I just met.

Agree	Neutral	Disagree
.....		

1.8. I would have sexual intercourse with someone who is not my boy/girlfriend.

Agree	Neutral	Disagree
.....		

1.9. If I must use a needle to inject myself, I would use a needle that has been used by someone else.

Agree	Neutral	Disagree
.....		

.....

1.10. I would sterilize the needle before using it.

Agree	Neutral	Disagree
.....		

1.11. If I must use a razor blade to cut myself, I would use a blade that has been used by someone else.

Agree	Neutral	Disagree
.....		

1.12. I would sterilize the blade before using it.

Agree	Neutral	Disagree
.....		

1.13. If I had more than one boy/girlfriend, I would have sexual intercourse with each one of them.

Agree	Neutral	Disagree
.....		

1.14. I think HIV really exists.

Agree	Neutral	Disagree
.....		

1.15. I protect myself from HIV.

Agree	Neutral	Disagree
.....		

1.16. If I found out that one of my friends is HIV positive, I would still be friends with them.

Agree	Neutral	Disagree
.....		

1.17. If a family member became infected with HIV, I would prefer that he/she did not remain in the same house with me.

Agree	Neutral	Disagree
.....		

1.18. I think an HIV positive student should be allowed to attend school.

Agree	Neutral	Disagree
.....		

1.19. I would use the same cups, dishes etc., an HIV infected friend.

Agree	Neutral	Disagree
.....		

1.20. Most students in Grade 11 have had sexual intercourse before.

Agree	Neutral	Disagree
.....		

1.21. I am not scared of HIV/AIDS.

Agree	Neutral	Disagree
.....		

1.22. I would use a condom only to prevent pregnancy.

Agree	Neutral	Disagree
.....		

1.23. I would use a condom only with someone who is not my boy/girlfriend.

Agree	Neutral	Disagree
.....		

1.24. In the past twelve months, I have had more than one boy/girlfriends

Agree	Neutral	Disagree



.....

1.25. I use different ways to protect myself from HIV/AIDS.

Agree	Neutral	Disagree
.....		

Appendix 6: Questionnaire used by experts to validate the questionnaire given to students

Study the questionnaire and **respond to the following evaluation questionnaire. After reading each statement indicate your response by crossing the appropriate box.**

1. The terminology used in the questionnaire is grammatically correct.

Strongly agree	Agree	Disagree	Strongly disagree
.....			

2. Some statements in the questionnaire are ambiguous.

Strongly agree	Agree	Disagree	Strongly disagree
.....			

3. The terminology used in the questionnaire is similar to that used in the Life Sciences (Life Sciences).

Strongly agree	Agree	Disagree	Strongly disagree
.....			

4. The questionnaire is easy to understand.

Strongly agree	Agree	Disagree	Strongly disagree
.....			

5. The questionnaire is appropriate for Grade 11 Life Sciences students.

Strongly agree	Agree	Disagree	Strongly disagree
.....			

6. There are special skills required to interpret the questionnaire.

Strongly agree	Agree	Disagree	Strongly disagree
.....			

7. The questionnaire is too long.

Strongly agree	Agree	Disagree	Strongly disagree
.....			

8. Section A of the questionnaire covers general Life Sciences knowledge

Strongly agree	Agree	Disagree	Strongly disagree
.....			

9. Section B of the questionnaire covers HIV/AIDS knowledge

Strongly agree	Agree	Disagree	Strongly disagree
.....			

10. Section C of the questionnaire covers attitudes towards HIV/AIDS related behaviour

Strongly agree	Agree	Disagree	Strongly disagree
.....			

11. Section D of the questionnaire covers application of knowledge

Strongly agree	Agree	Disagree	Strongly disagree
.....			

Do you have any other comments on the questionnaire?

.....

.....

Appendix 7: Pilot Questionnaire

SECTION A

Answer the following questions, by crossing either **TRUE**, **FALSE**, **SOMETIMES** or **DON'T KNOW** in the correct box

1. HIV and AIDS are the same thing.	True	False	Sometimes	Don't Know
2. HIV can be transmitted from one person to another.	True	False	Sometimes	Don't Know
3. HIV can spread all over the body.	True	False	Sometimes	Don't Know
4. HIV can reproduce.	True	False	Sometimes	Don't Know
5. The body organs are equally susceptible to HIV infection.	True	False	Sometimes	Don't Know
6. HIV is visible with a naked eye.	True	False	Sometimes	Don't Know
7. HIV is a disease.	True	False	Sometimes	Don't Know
8. HIV is a bacterium.	True	False	Sometimes	Don't Know
9. HIV is a virus.	True	False	Sometimes	Don't Know
10. A virus is the same as a bacterium.	True	False	Sometimes	Don't Know
11. A person can do something to protect him/herself from getting HIV.	True	False	Sometimes	Don't Know
12. You can get HIV by eating food prepared by someone with HIV.	True	False	Sometimes	Don't Know
13. You cannot get HIV by being coughed or sneezed on by someone who has HIV.	True	False	Sometimes	Don't Know
14. People can get HIV because of witchcraft.	True	False	Sometimes	Don't Know
15. There are different types of HIV.	True	False	Sometimes	Don't Know

16. AIDS can be transmitted from one person to another.	True	False	Sometimes	Don't Know
17. A person can be infected by HIV more than once.	True	False	Sometimes	Don't Know
18. A person can do something to protect him/herself from getting AIDS.	True	False	Sometimes	Don't Know
19. You can get AIDS by eating food prepared by someone with AIDS.	True	False	Sometimes	Don't Know
20. You can get AIDS by being coughed or sneezed at by someone who has AIDS.	True	False	Sometimes	Don't Know
21. People can get AIDS because of witchcraft.	True	False	Sometimes	Don't Know

SECTION B

Answer the following questions by writing the correct answer in the spaces provided.

1. What does HIV stand for?
2. What is HIV?
3. What is the difference/ similarity between HIV and AIDS
4. In which way(s) can HIV be transmitted from one person to another?
5. What does HIV do to body cells?
6. HIV infects which cells in the body?
7. How does HIV reproduce?
8. How can you tell if you have HIV in your body?
9. How big or small is HIV?
10. How can people protect themselves from getting infected with HIV?
11. Would you rather not touch someone with HIV because you are scared of infection?
12. Which types of HIV do you know?
13. When does HIV cause AIDS?
14. What does AIDS stand for?
15. What is AIDS?

16. What causes AIDS?
17. What can a person do to protect him/herself from getting AIDS?
18. Would you rather not touch someone with AIDS because you are scared of infection?
19. Why does it usually take a long period for a person to die of AIDS?
20. What kills people with AIDS?
21. Why is AIDS associated with other diseases such as TB?
22. What can an HIV positive person do to prolong the effects of HIV in his/her body?

SECTION C

1. Have you ever had sexual intercourse?

If you answered YES in question 3.1 above, please continue to answer questions 3.1.1 and onwards. If you answered NO in question 3.1 above, skip questions 3.1.1 to 3.1.13

- 1.1 When was the last time you had sexual intercourse?
- 1.2 In the past twelve months, how many people have you had sex with?
- 1.3 Do you never, sometimes, most of the time, or always use condoms for sex?
- 1.4 In what situations do you use condoms?
- 1.5 With whom do you use condoms?
- 1.6 What do you do to protect yourself during sexual intercourse?
- 1.7 When was the last time you had unprotected sexual intercourse?
- 1.8 Have you ever had sexual intercourse with someone you did not know?
- 1.9 Have you ever had sexual intercourse with someone you just met?
- 1.10 Have you ever had sexual intercourse with someone who is not your boy/girlfriend?
- 1.11 Do you use needles to inject yourself with drugs?
 - 1.11.1 If yes, are the needles you use, used by someone else?

- 1.11.2 Do you sterilize the needles before using them?
- 1.12 Do you use razor blades to cut yourself?
- 1.12.1 If yes, are the blades you use, used by someone else?
- 1.12.2 Do you sterilize the blades before using them?
- 1.13 In the past twelve months, how many boy/girlfriends have you had?
- 1.14 Do you protect yourself from HIV?
- 1.15 How do you protect yourself from HIV?
- 1.16 If you find out that one of your friends is HIV positive, would you still be friends with them? Explain.
- 1.17 If a family member became infected with HIV would you prefer that they did not remain in the same house as you? Explain.
- 1.18 Do you think a school pupil with HIV should be allowed to attend school? Explain.
- 1.19 Would you drink from the same bottle of water as an HIV infected friend? Explain.

Appendix 8: Questionnaire given to students for data collection

Section A: Questions

Answer the following question by writing or crossing (X) in the correct box.

A What is your age, as at your last birthday?

--

A1	
----	--

B What is your gender?

a) Male

1

B1	
----	--

b) Female

2

C In the following list, mark all the subjects that you are currently taking.

a) Accounting	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">1</td></tr></table>	1	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">C1</td><td style="width: 40px; height: 20px;"></td></tr></table>	C1	
1					
C1					
b) Business Economics	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">2</td></tr></table>	2	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">C2</td><td style="width: 40px; height: 20px;"></td></tr></table>	C2	
2					
C2					
c) Economics	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">3</td></tr></table>	3	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">C3</td><td style="width: 40px; height: 20px;"></td></tr></table>	C3	
3					
C3					
d) Geography	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">4</td></tr></table>	4	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">C4</td><td style="width: 40px; height: 20px;"></td></tr></table>	C4	
4					
C4					
e) History	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">5</td></tr></table>	5	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">C5</td><td style="width: 40px; height: 20px;"></td></tr></table>	C5	
5					
C5					
f) Life Orientation	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">6</td></tr></table>	6	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">C6</td><td style="width: 40px; height: 20px;"></td></tr></table>	C6	
6					
C6					
g) Life Sciences	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">7</td></tr></table>	7	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">C7</td><td style="width: 40px; height: 20px;"></td></tr></table>	C7	
7					
C7					
h) Mathematics	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">8</td></tr></table>	8	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">C8</td><td style="width: 40px; height: 20px;"></td></tr></table>	C8	
8					
C8					
i) Physics	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">9</td></tr></table>	9	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">C9</td><td style="width: 40px; height: 20px;"></td></tr></table>	C9	
9					
C9					
j) Other	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">10</td></tr></table>	10	<table border="1" style="width: 40px; height: 20px;"><tr><td style="text-align: center;">C10</td><td style="width: 40px; height: 20px;"></td></tr></table>	C10	
10					
C10					

D In the following list, mark all the channels through which you learn about HIV/AIDS.

a) Billboards and notice boards

1

D1	
----	--

b) Church

2

D2	
----	--

c) Friends

3

D3	
----	--



- d) Hospitals/doctors/nurses
- e) Newspapers/magazines
- f) Parents/family
- g) Radio
- h) School books
- i) Teachers
- j) TV
- k) Internet
- l) Other (*specify*)

4
5
6
7
8
9
10
11
12.....

D4	
D5	
D6	
D7	
D8	
D9	
D10	
D11	
D12	



In the following questions write your responses by crossing (X) in the correct box, next to your answer. Choose only one answer.

1 A virus is a...

V1	
----	--

a) Non-cellular parasitic agent;

1

b) Unicellular organism called Bacteria;

2

c) Prokaryote;

3

d) Eukaryote.

4

2 The structure of viruses is composed of ...

V2	
----	--

a) Mitochondria;

1

b) An outer capsid and an inner core;

2

c) Chloroplast;

3

d) A little organism called HIV.

4

3 Bacteria are...

V3	
----	--

a) Viruses;

1

b) Not at all linked to AIDS;

2

c) The source of HIV and AIDS;

3

d) Unicellular organisms that may cause human diseases.

4

4 The following are examples of opportunistic infections caused by harmful bacteria,

V4	
----	--

a) Tuberculosis (TB);

1

b) Pneumonia;

2

c) a) and b) above;

3

d) None of the above.

4

5 Contaminated blood is the blood that contains...

V5	
----	--

a) Bacteria and viruses;

1

b) White blood cells;

2



- c) Red blood cells;

3

- d) Antibodies.

4

6 Cells of the immune system such as CD 4 cells are found in...

V6	
----	--

- a) Condoms;

1

- b) Blood;

2

- c) Lungs;

3

- d) Antibiotics.

4

7 The following are responsible for recognizing antigens and triggering the immune system,

V7	
----	--

- a) Antibodies only;

1

- b) T-cells receptors only;

2

- c) Antibodies and T-cell receptors;

3

- d) None of the above.

4

8 The human body has the following line(s) of defence against invasion by microbes,

V8	
----	--

- a) Natural killer cells;

1

- b) Mucous;

2

- c) The skin;

3

- d) All of the above.

4

9 Immune deficiency diseases occur when

V9	
----	--

- a) The immune system destroys some of the body's own cells;

1

- b) The immune system is automatic;

2

- c) A person has lost too much weight;

3

- d) Diseases are not curable.

4

10 Which of the following slow down the metabolism of microbes thus allowing the immune system more time to respond and exterminate these microbes?

V10	
-----	--

a) Antibiotics;

1

b) Bacteria;

2

c) HIV;

3

d) Sleeping.

4

State whether the following statements are true or false. Indicate your choice by means of crossing (X) the appropriate box.

		True (1)	False (2)
11	AIDS is caused by HIV.		
12	There are different strains (types) of HIV.		
13	HIV cannot be transmitted through exchange of bodily fluid e.g. blood, between an infected person and another person.		
14	People with AIDS cannot be infected with HIV.		
15	People who have been infected with HIV do not show signs of infections immediately after infection.		
16	HIV disrupts the immune system leading to immune deficiency.		
17	People living with AIDS are highly vulnerable to many opportunistic infections that are easily cured in HIV negative people.		
18	There is a vaccine that can stop people from getting HIV.		
19	AIDS can be cured with antiretroviral drugs.		
20	HIV can be eliminated from the body.		

V11	
V12	
V13	
V14	
V15	
V16	
V17	
V18	
V19	
V20	

For each of the following statements, fill in the questionnaire by indicating your choice by means of crossing (X) the appropriate box.

		Agree (1)	Disagree (2)	For office use only	
21	In your opinion, is it okay for unmarried people to have unprotected sexual intercourse?			V2	
				1	
22	In your opinion, is it okay for people to have many sexual partners?			V2	
				2	
23	In your opinion, is it okay to use sterilized needles for injections?			V2	
				3	
24	In your opinion is it okay to share one razor blade without sterilizing it before use?			V2	
				4	
25	In your community is it okay for people to have multiple sexual partners?			V2	
				5	
26	Do most students dislike condoms?			V2	
				6	
27	Do young people in your community protect themselves from HIV infection?			V2	
				7	
28	Would you have sexual intercourse with someone whose sexual activities you do not really know?			V2	
				8	
29	Would you have unprotected sexual intercourse, e.g. without a condom with your boy/girlfriend?			V2	
				9	
30	Are you at risk of getting HIV?			V3	
				0	

THANK YOU FOR YOUR PARTICIPATION

Section B: Correct answers developed by researcher

Question	Answer
Item V1	a
Item V2	b
Item V3	d
Item V4	c
Item V5	a
Item V6	b
Item V7	c
Item V8	d
Item V9	d
Item V10	a
Item V11	True
Item V12	True
Item V13	False
Item V14	False
Item V15	True
Item V16	True
Item V17	True
Item V18	False
Item V19	False
Item V20	False
Item V21	Disagree
Item V22	Disagree
Item V23	Agree
Item V24	Disagree
Item V25	Disagree
Item V26	Disagree
Item V27	Agree
Item V28	Disagree
Item V29	Disagree
Item V30	Agree