Grade 11 Computer Studies

Term 2 - 52 complete lesson plans

Ready to teach, in the KICD lesson-plan format | 40-minute lessons | PDF and editable Word

ABOUT THIS PACK

52 complete, ready-to-teach Grade 11 Computer Studies lesson plans for Term 2, covering network security, object oriented programming (OOP) concepts and object oriented programming implementation.

TOPICS IN THIS PACK

Topic	Name	Lessons
2.2	Network Security	12
3.1	Object Oriented Programming (OOP) Concepts	12
3.2	Object Oriented Programming Implementation	28

INSIDE EVERY LESSON PLAN

- The specific learning outcomes, key inquiry question, core competencies, values and PCIs, and the resources needed.
- A timed lesson flow: what the teacher does and what the learners do, from introduction to summary.
- The key content (a worked example, notes or a practical with its expected results), then four practice questions with the answers for the teacher.
- The common mistake to watch for, and ideas for learners who need support and for those ready for more.
- A four-level CBC assessment rubric (EE, ME, AE, BE), homework, and a blank reflection space to fill in after teaching.

A TASTE OF LESSON 1

Network security and the CIA triad

By the end of the lesson, the learner should be able to: a) define network security; b) describe confidentiality, integrity and availability

> **The CIA triad**
> NETWORK SECURITY is the protection of a network and its data from unauthorised access, change, damage or disruption.
> CONFIDENTIALITY: only authorised people can read the data. Example: a patient's records are private.

You also receive this pack as an editable Word file, so you can change any lesson to suit your class before you print it. Lessons follow the order of the KICD curriculum design.

CONTENTS

No.	Lesson	Topic	Page
1	Network security and the CIA triad	2.2 Network Security	5
2	Importance of network security principles	2.2 Network Security	8
3	Passive network threats	2.2 Network Security	11
4	Active network threats	2.2 Network Security	14
5	Human behaviour and social engineering	2.2 Network Security	17
6	How threats occur and their impact on network services	2.2 Network Security	20
7	Firewalls and intrusion detection systems	2.2 Network Security	23
8	Access control systems and strong authentication	2.2 Network Security	26
9	Practical: encryption with simple algorithms	2.2 Network Security	29
10	Anti-malware, audits and matching threats to controls	2.2 Network Security	32
11	Applying control measures and balancing security with access	2.2 Network Security	35
12	Sensitising the community; review of network security	2.2 Network Security	38
13	The OOP paradigm	3.1 Object Oriented Programming (OOP) Concepts	41
14	Conventional programming compared with OOP	3.1 Object Oriented Programming (OOP) Concepts	44
15	OOP languages and selecting a language	3.1 Object Oriented Programming (OOP) Concepts	47
16	Importance of OOP in software development	3.1 Object Oriented Programming (OOP) Concepts	50
17	Classes and objects	3.1 Object Oriented Programming (OOP) Concepts	53
18	Structure of a class: name, attributes and methods	3.1 Object Oriented Programming (OOP) Concepts	56
19	An object as an instance of a class	3.1 Object Oriented Programming (OOP) Concepts	59
20	Principles of OOP: encapsulation and abstraction	3.1 Object Oriented Programming (OOP) Concepts	62
21	Principles of OOP: inheritance and polymorphism	3.1 Object Oriented Programming (OOP) Concepts	65
22	UML notation of a class	3.1 Object Oriented Programming (OOP) Concepts	68
23	Using UML to represent classes and objects	3.1 Object Oriented Programming (OOP) Concepts	71
24	Sensitising the community; review of OOP concepts	3.1 Object Oriented Programming (OOP) Concepts	74

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25	Writing the first class and object	3.2 Object Oriented Programming Implementation	77
26	Attributes and methods with calculations	3.2 Object Oriented Programming Implementation	81
27	Creating many objects	3.2 Object Oriented Programming Implementation	85
28	Instance variables	3.2 Object Oriented Programming Implementation	89
29	Static (class) variables	3.2 Object Oriented Programming Implementation	93
30	Constructors and default values	3.2 Object Oriented Programming Implementation	97
31	Methods that work with other objects	3.2 Object Oriented Programming Implementation	101
32	Visibility specifiers: public, protected and private	3.2 Object Oriented Programming Implementation	105
33	Getters and setters	3.2 Object Oriented Programming Implementation	109
34	Project step: a complete BankAccount class	3.2 Object Oriented Programming Implementation	113
35	Class relationships: association	3.2 Object Oriented Programming Implementation	117
36	Class relationships: aggregation	3.2 Object Oriented Programming Implementation	121
37	Class relationships: composition	3.2 Object Oriented Programming Implementation	125
38	Project step: a library program using class relationships	3.2 Object Oriented Programming Implementation	129
39	Implementing encapsulation	3.2 Object Oriented Programming Implementation	134
40	Implementing inheritance	3.2 Object Oriented Programming Implementation	138
41	Method overriding and levels of inheritance	3.2 Object Oriented Programming Implementation	142
42	Implementing polymorphism	3.2 Object Oriented Programming Implementation	146
43	More polymorphism: special methods	3.2 Object Oriented Programming Implementation	150
44	Implementing abstraction	3.2 Object Oriented Programming Implementation	154
45	Project step: a payroll using all four principles	3.2 Object Oriented Programming Implementation	158

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46	Finding and fixing errors in OOP programs	3.2 Object Oriented Programming Implementation	163
47	Handling errors inside classes	3.2 Object Oriented Programming Implementation	167
48	Breaking down a problem with OOP	3.2 Object Oriented Programming Implementation	171
49	Project step: building the school fees system	3.2 Object Oriented Programming Implementation	174
50	Limitations of OOP in large scale software	3.2 Object Oriented Programming Implementation	179
51	Debate: the use of OOP in problem solving	3.2 Object Oriented Programming Implementation	182
52	Review of OOP implementation	3.2 Object Oriented Programming Implementation	185

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Network security and the CIA triad

Strand 2.0 Computer Networking > Sub-strand 2.2 Network Security | Lesson 1 of 12 | 40 minutes

SCHOOL	TEACHER	DATE
CLASS / STREAM	TIME	ROLL (B / G)

SPECIFIC LEARNING OUTCOME(S)

By the end of the lesson, the learner should be able to: a) define network security; b) describe confidentiality, integrity and availability

KEY INQUIRY QUESTION(S)

- How can human behavior impact the security of a network?
- How do organisations balance the need for network security with accessibility?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Creativity and imagination**	Learners make up their own examples, patterns or ways of showing the idea.
COMPETENCY	**Communication and collaboration**	Learners explain their thinking to a partner and report their findings to the group.
VALUE	**Integrity**	Learners record their own honest results and mark work truthfully.
VALUE	**Respect**	Learners listen while others explain and accept correction politely.
PCI	**Safety and security**	Learners follow safety rules when using materials and moving about.

LEARNING RESOURCES

Charts of the CIA triad and threat-control tables | Videos on network threats | Case studies of security incidents | Notebooks and pencils

ORGANISATION OF LEARNING

Groups of four for case studies and matching tasks; pairs at computers. Class rule: test only your own accounts and files; trying to get into another person's account or network is an offence under the Computer Misuse and Cybercrimes Act, 2018.

KEY WORDS

confidentiality | integrity | availability | threat | passive attack | active attack | malware | phishing | firewall | intrusion detection system | encryption | decryption | key | access control | audit | authentication

THE LESSON AT A GLANCE

Introduction	Teacher models	Guided practice	On their own	Wrap-up
6 min	9 min	10 min	9 min	6 min

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LESSON FLOW

Stage	Minutes	The teacher	The learners
Introduction	6	Greet the class and ask: "What would happen if the marks in the school system could be read or changed by anyone?" Take two or three answers, link them to earlier work, then state today's outcome.	Answer the starter question, recall what they already know and read the outcome aloud.
Step 1: Teacher models	9	Take learners through "The CIA triad" (key ideas on the next page), explaining as you go. Use charts of the CIA triad and threat-control tables, videos on network threats, case studies of security incidents. Ask learners to predict what comes next before you show it.	Watch, predict the next step, ask questions and note the key steps in their exercise books.
Step 2: Guided practice	10	Give questions 1 and 2. Move round the groups, ask "How do you know?" and correct errors kindly on the spot.	Work in pairs or small groups, explain each step to a partner and check one another's answers.
Step 3: Independent practice	9	Set questions 3 and 4 for individual work. Mark as you walk round and note who needs help in the next lesson.	Work on their own, then swap books with a partner to check.
Summary and conclusion	6	Ask two or three learners to state the key idea in their own words. Give this exit question and check the answers: "Someone reads another person's private messages. Which principle is broken?"	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

The CIA triad

NETWORK SECURITY is the protection of a network and its data from unauthorised access, change, damage or disruption.

CONFIDENTIALITY: only authorised people can read the data. Example: a patient's records are private.

INTEGRITY: data stays accurate and is not changed without permission. Example: an exam mark stays as it was entered.

AVAILABILITY: systems and data can be used when needed. Example: M-Pesa works at any time of the day.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	What does CIA stand for in network security?	**Confidentiality, integrity and availability.**
2	A hacker changes a bank balance. Which principle is broken?	**Integrity.**
3	A website is down for a whole day. Which principle is affected?	**Availability.**
4	Someone reads another person's private messages. Which principle is broken?	**Confidentiality.**

WATCH OUT FOR

Learners confuse CIA with the American intelligence agency. Here it is a security model.

ASSESSMENT RUBRIC - THE FOUR CBC LEVELS

Level	What the learner can do
Exceeds expectations (EE)	Can define network security confidently and accurately, explain the method used, and apply the idea to new or unfamiliar problems.
Meets expectations (ME)	Can define network security accurately in familiar situations; notices and corrects slips without help.
Approaches expectations (AE)	Can partly define network security, or does so with prompts from the teacher or a partner; makes some errors.
Below expectations (BE)	Cannot yet define network security without direct help; needs the idea taught again with concrete objects.

SUPPORT AND EXTENSION

Learners who need support	Give a triangle chart with an example at each corner.
Learners ready for more	Which principle matters most for a hospital during an emergency? Why? (Answer: Availability and integrity: staff need correct records at once)
Inclusion	Seat learners with low vision near the board and read aloud whatever you write; use large, clear, tactile materials; allow extra time; pair with a patient partner; use gestures or Kenyan Sign Language for the key words.

HOMEWORK AND FOLLOW-UP

Redo questions 3 and 4 neatly in the exercise book. Then tell someone at home what you learned about "network security and the CIA triad" and bring one question of your own to ask next lesson.

TEACHER SELF-CHECK

- Did every learner get a turn to handle materials or explain their thinking?
- Did most learners meet the outcome? Write down the names of those who did not.
- Was the pace right — did any step take too long or too short a time?
- Which competency and value did I see learners showing?
- What will I change the next time I teach this lesson?

REFLECTION ON THE LESSON / SELF-REMARKS

Write this after teaching - what worked, what to change, which learners need follow-up.

Importance of network security principles

Strand 2.0 Computer Networking > Sub-strand 2.2 Network Security | Lesson 2 of 12 | 40 minutes

SCHOOL	TEACHER	DATE
CLASS / STREAM	TIME	ROLL (B / G)

SPECIFIC LEARNING OUTCOME(S)

By the end of the lesson, the learner should be able to: a) explain the importance of the security principles; b) relate them to real organisations

KEY INQUIRY QUESTION(S)

- How can human behavior impact the security of a network?
- How do organisations balance the need for network security with accessibility?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

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