Lesson Plan (9INFO1)

Class/Grade/Stage: Year 9 (9INFO1)	Date : 19/06/2023	Time: Start: 10:55am Finish: 12:35pm	
Key Learning Area(s): Information and Software Technology	Lesson Topic: Networking Systems and the Components of a Network		
NESA Australian Professional Standards for Teachers	1.5 Differentiate teaching to meet the specific learning needs of students across the full range of abilities.		
	2.1 Content and teaching strategies of the teaching area		
	2.6 Information and Communication Technology (ICT)		
	3.3 Use teaching strategies		
	3.4 Select and use resources		
	4.2 Manage classroom activities		
	4.5 Use ICT safely, responsibly and ethically		

Recent Prior Experience: Stage 4: Digital Technology- from this prior course, students should have an understanding of how a computer works and basic terminology eg. Wireless and wired.

This is a new topic to the students and therefore they are not expected to have a vast amount of background knowledge.

Syllabus/Syllabi Outcome(s):

- **5.2.1** Describes and applies problem-solving processes when creating solutions.
- **5.2.2** Designs, produces and evaluates appropriate solutions to a range of challenging problems.
- **5.2.3** Critically analyses decision-making processes in a range of information and software solutions.

Indicators of Learning for this lesson- learning intentions and success criteria:

Learning Intention:

Students will develop the ability to identify what a network is and be able to comprehend the various components that make up a network system. Students will also be able to recognise the functions and roles of different network components, enabling them to effectively design their own home network.

Success criteria:

- Students will be able to identify a network and multiple components within a network system.
- Students can conduct individual research and summarise findings.
- Students understand the purpose and significance of a network.
- Students are able to effectively design and produce their own solution, applying problem-solving processes.
- Students utilise decision-making skills to determine the most reliable solution.

Assessment:

Brainstorm at the beginning of the class: Assessment of students prior knowledge.

This will be answering the questions "what is a network?" and "what is the significance of a network within computer systems?"

Worksheet: Worksheet will be submitted through Google Classroom and marked upon completion to assess students understanding of the topic.

Formative Assessment: Students are provided with a scenario where they are required to create their own network to suit the brief.

Any safety issues to be considered (APST 4.4.1):

Consideration that students are using ICT software appropriately (APST 4.5).

Resources:

Worksheets:

Describing a range of network components (sourced from St. Andrews College) Extension Worksheet: A computer network (sourced from St. Andrews College)

Related to Final Activity:

Activity: Printed images of network components
Printed images of each network component (created by Sophie Voll)
Two colours of yarn
Tape

Videos:

Computer Applications Technology. (2020, April 15). Level 1 Networks Lesson 2:

Components of a Network. YouTube. https://www.youtube.com/watch?v=Itwk3BJ4GPY

Network Direction. (2018, April 19). *Introduction to Networking | Network Fundamentals Part 1*.

YouTube. https://www.youtube.com/watch?v=cNwEVYkx2Kk

Note: Printed resources are attached at the end

LESSON SEQUENCE

Lesson Content / Indicators of Learning/ Teaching Strategies (<i>What</i> is Taught):	Timing (mins)	Learning Experiences: (How it is taught)	Resources and Organisation:		
INTRODUCTION					
Commencing a new unit: Networking Students appreciate and understand the learning intentions and success criteria.	5mins	Students will be introduced to the new unit as their digital media unit has been finalised. The lesson will be introduced as the teacher will state the learning intentions and success criteria for the lesson.	Laptop and projector screen: This will enable the learning intentions and success criteria to be displayed.		
Group Discussion Acknowledgement of any prior knowledge. Link to Success Criteria: Students will be able to identify a network and multiple components within a network system. Key Questions: What do we think a network is? What makes up a network? Note: Checklist has been developed for child with ADHD. This allows him to complete tasks and also outlines when he is able to have 5 minute drawing breaks. Code: Highlighted times represent his drawing breaks.	15mins 5mins	Students will be prompted in a group discussion surrounding the following question: "What do you think of when you hear the work network?" The students responses will be recorded on the board and discussed as a class. Following this discussion, the teacher will explain that a network is a collection of interconnected devices which communicate and share information.	White board/marker		
DEVELOPMENT					
The Role of a Network: Group Discussion	5mins	Students will recognise the role of a network by brainstorming the importance of them in various scenarios. For example: At home, in an office building, at school, a bank (ATM machines), companies with international offices, the internet.			
Videos: (APST 2.6) 1. Introduction to Networking 2. Components of a Network Link to Success Criteria: Students will be able to identify a network and multiple components within a network system.	15mins 5mins	Students will watch two videos. The first video will provide a brief introduction to networking and the second will extend on from this, describing the components of a network. Note: Student with drawing breaks may draw during the videos provided that he does not wear headphones.	Laptop and projector screen		

Components of a Network Independent research: Consider APST 4.5 (use ICT safely).	20mins 5mins	Students will complete independent research on a given list of network components. The teacher will model research on the first component in order to show them how they should respond and research correctly. This sets the expectations of their responses. This list will be available to the students on Google Classroom and outlines a number of common components within a network. Their research can be constructed in dot points to outline what each component is and what role it has. At the end, the class will come together again and asked (with hands up) "what did you find out about?"	Students require: Laptop with access to the internet and Google Classroom			
Building a Network Group work: Students will work together in table groups (important that groups are not chosen due to students with diversity needs). Note: Student receiving drawing breaks will be provided a break 20mins (halfway) into this activity.	40mins 5mins	Students will be provided with the following scenario: Your ISP (Internet Service Provider) supplied router is continually dropping out and crashing. Mum and dad have asked you to investigate and build a new network that can be used in your large house to fix these problems with multiple devices that need a variety of connections. Each group will receive a bundle of images representing different components within a network (students may not need all of the images). Students will use yarn to connect the hypothetical network together as one coloured yarn acts as the "cables" and another acts as the wireless connection between each component. The students must work as a team to create a network map which best meets the needs of the scenario.	 The building a network activity will require: Images of multiple network components. Two colours of wool (to represent both wired and wireless). Tape to connect the wool to the images. ICT (laptops) so that students can refer back to the components list. 			
CLOSURE						
Group Discussion Discussion of each table groups solution to the problem	10mins	Each table group will have the opportunity to present and discuss their solution to the scenario.				
EXTENSION TASK (ONLY IF STUDENTS ARE AHEAD)						
Extension Task: Students will complete this if there is remaining time/they are ahead of task.	20mins	Students who have completed the work will be provided with an extension task.	Printed copy of worksheet			
Note: If they are interested they may also complete this within their own time.						

Building a Network Activity- Sample Response:

Your ISP (Internet Service Provider) supplied router is continually dropping out and crashing. Mum and dad have asked you to investigate and build a new network that can be used in your large house to fix these problems with multiple devices that need a variety of connections.

Key:

Red = wired Blue = Wireless

Note: There are multiple solutions to this activity. Students **do not** need to use each card provided

