Lesson Plan

Topic: Year 7 Digital Technologies
Class: 7DT2 (17 students)
Date: 23/05/18 (Wed W4, Term 2)
Venue/Time: Room 1 (10:45-11:45)

Lesson overview

Lesson Topic: Router Role-play

Relevant AC content:

- Different types of networks, including wired, wireless and mobile networks (ACTDIK023)
- Hardware components of a network (ACTDIK023)

Students' prior knowledge:

Students are assumed to be able to:

- Know that computers use IP address to locate another computers or servers
- Recognise that routers play an important role in a computer network
- Recall that LAN and WAN are two different types of a computer network

Lesson Outcomes:

All students will be able to:

- Recall that nodes and routers exchange packets to send and receive information
- Know the IP addresses are used to exchange packets

Most students will be able to:

- Explain the differences between LAN and WAN IP
- Describe how routers use a routing table to route the packets appropriately

Resources and Materials:

2x routing table worksheet
1x node name card sheet (cut to individual cards), 6x packet card sheets (cut to individual cards)
PPT for the demonstration

Lesson Details

Time	Procedures
10:45(5)	**Preparation**
	Wait for students to arrive – no typing.com today! Record attendance
10:55(40)	**Main activity**
10:55(10)	**Introduction** Tell the lesson outcomes Revision questions • What does the IP address stand for? What is it for? • What is LAN? What is WAN? Which is bigger? How big? • Can you name the different devices that make up a computer network? Divide students into three groups • Two students to represent the connection between the routers (include [student name]?) • Two groups of "nodes" – students to choose one router per group ("group leader")
11:05(15)	**Teacher-guided initiation** Students to decide their LAN and WAN IPs – two-digit numbers so that they are easier to read Complete the "node name cards" Routers also need to complete the routing table. Demonstration on how to write a packet • do not include their names directly, but only the IP addresses • too long messages are to be divided into multiple packets
11:15(15)	**Role-play** The students exchange packets to send and receive messages Walk around the classroom to check whether the students are struggling and help them
11:30(5)	**Wrapping and cleaning** Students to clean the area Throw away the cards and return to their seats
11:35(10)	**Conclusion**
	Review the lesson • How did you feel about packet exchanging? • Can you explain how one computer send information to another? • Why is the router important? Why is the routing table important?

Commented [DN1]: I wanted to make sure that all students have some understanding of packet-exchanging. This is the primary goal of this lesson – to demonstrate a visual metaphor of the actual process. The "all-students" outcomes require low-level skills such as memorising, and they can be directly linked from the role-play. For the students to achieve the more difficult outcomes they must be able to draw coherent connections between the play and the real routing processes (**Descriptors 1.5, 3.1 and 3.3**).

Commented [DN2]: This section shows how I design a guided activity. The lesson was originally more independent and student-centred. However, since I found the concept was more difficult for students to understand than I thought, I modified the first half of the activity to be a guided instruction, to ensure that students do not get lost during the actual play (**Descriptors 3.2 and 3.6**).

Commented [DN3]: Usually a lesson includes a typing session in the beginning. However, because the main lesson is expected to be longer than usual, we skipped the typing session. This was informed in the previous lesson so that the students are aware of the changes in the routine (**Descriptor 4.2**).

Commented [DN4]: I prepared a list of questions for students to recall the previous lesson, which are directly related to the prior knowledge statements (**Descriptors 3.5, 4.2**).

Commented [DN5]: I and the teaching assistant both agreed that the student of our concern would love the play but might find it difficult to accurately follow the instructions. We suggested him to take a less-stressful role and pair him with another student so that they can assist him (**Descriptor 1.6**).

Commented [DN6]: These two are the most important concepts of the topic, so I made sure I include these in my demonstration.

Commented [DN7]: I prepared a list of questions to summarise the lesson, which are directly related to the lesson outcomes (**Descriptors 3.5, 4.2**).

Evaluation

- Were students engaged during the class?
- Were the instructions clear?
  - How did the students respond to my instructions?
  - Were there any misunderstandings? How did I try to correct it?
- Were there any inappropriate messages exchanged during the play? What did I do?
- Did the students meet the outcomes of the lesson? How can I test this?
  - Were the responses for the reviewing questions good?
  - What can I do to reintroduce the topic further in the next lesson?

Commented [DN8]: Reflection: the students' responses on the overall experience were very positive. However, since one of the groups ran out of packets during the play, they could only receive information and not send it, so they complained a little. I elaborated this further and help students discuss its real-world representation – the upload and download quotas (**Descriptors 3.6**).

Commented [DN9]: Despite my emphasis on the use of the IP address, some students still included the student names in their packet cards. I reminded them not to use the names but refer to the routing table. They eventually started to use the numeric addresses. During the conclusion stage, I asked one of them why we use the IP addresses and they could answer (**Descriptor 3.5**).

Commented [DN10]: There was one inappropriate message found by one of the students. I could identify the sender because the packet card included space for the sender's IP address. I did not call out the behaviour immediately; however, I asked the messenger students to read all messages and secretly pass me any inappropriate messages. Luckily, there were no other offensive messages.
After the activity, I described this incident to the class. We elaborated this into packet analysis and censorship, and how illegal contents in the internet can be traced and the offenders can be found (**Descriptors 4.1, 4.3 and 4.5**).