Body Investigators: The Process Pathway

(Year 5 - Ages 10-11):

Lesson 3 of 9

Lesson Overview

Lesson Title:	Body Investigators: The Process Pathway
Year Level:	Year 5 (Ages 10-11)
Lesson Duration:	60 minutes
Key Focus Areas:	Scientific literacy, systems thinking, sequencing, and the basic process of transplantation.
Curriculum Links:	Australian Curriculum - Health and Physical Education (Foundation)

- AC9S5H02: Investigate how scientific knowledge is used to solve problems and address opportunities... and the new possibilities created through advances in science.
- AC9HP6P01: Describe how body systems work together to support health and wellbeing.
- AC9TDE5P04: Sequence and document steps in a design process...
- AC9HS5K07: The roles of groups and individuals in communities and how they contribute to community life and cohesion.

Learning Intentions

- Understand that transplantation is a safe, careful, and organised scientific process.
- Investigate the basic sequence of steps for an organ transplant.
- Investigate the basic sequence of steps for a tissue transplant.
- Identify the key difference between the two pathways (i.e., urgency vs. storage).

Success Criteria

- Correctly sequence the (simplified) steps for an organ transplant.
- Correctly sequence the (simplified) steps for a tissue (e.g., cornea) transplant.
- Explain the key difference between the two processes (e.g., "Organs have to be fast, but tissues can be stored").
- Complete a "Process Pathway" flowchart for both an organ and a tissue.

Teaching Sequence

Work through this lesson in the following sequence:

Duration	Part	Focus
10 minutes	Part A. The Mapper's Mission	Introduction, Review L1 & L2, The "Pathway" Hook
20 minutes	Part B. Case File: The "Organ Pathway"	Group Sequencing Challenge (Organs = Machines)
15 minutes	Part C. Case File: The "Tissue Pathway"	Group Sequencing Challenge (Tissues = Materials)
15 minutes	Part D. The Investigator's Debrief	Comparing Pathways, Big Idea, & Reflection

Part A. The Mapper's Mission (10 minutes)

Step 1. Review and Introduction

- Gather students. Say: "Okay, Investigators. In our last two case files, we've investigated the 'why' (altruism) and the 'what' (organs vs. tissues). What was the key difference we discovered?" (Organs = "Machines," Tissues = "Materials").
- Say: "Today, we open Case File 003: The 'How.' Our mission is to become 'Scientific Mappers.' We are going to map the exact 'Process Pathway' a life-saving gift takes from a 'Helping Hero' to a recipient."

Step 2. The "Two Pathways" Hook

- Say: "This is the most important part of our investigation today. Because an organ is a 'machine' and a tissue is a 'material,' they are donated in two completely different ways. The 'machine' pathway is all about speed. The 'material' pathway is all about careful storage."

Part B. Case File: The "Organ Pathway" (20 minutes)

Step 1. The "Organ Relay" Challenge

- Say: "Let's investigate Pathway A: The Organ ('Machine') Pathway. This is a high-speed relay race against time. A 'machine' like a heart or a lung must be transplanted very quickly to keep working."
- Divide students into "Investigative Teams" (their groups from Lesson 2).
- Give each team one set of the "Organ Pathway Cards" (scrambled) and the "Process Pathway" worksheet.

Step 2. Group Sequencing Activity

- Instruct: "Your team's job is to put these steps in the correct, logical order. Talk about what has to happen first, second, third. Once you agree, write or draw the steps into the 'Organ Pathway' flowchart on your worksheet."
- (Teacher guidance/answer): The steps should be:
  - A "Helping Hero" passes away (in a specific way, in an ICU on a ventilator) to keep the "machines" healthy.
  - The "Hero's Echo" is confirmed: The family bravely says "yes" to donation, honouring their loved one's wish.
  - The "Team Managers" (coordinators) find a perfect "match" on the waiting list.
  - The "Super-Mechanics" (doctors) respectfully collect the "machine" and perform the life-saving transplant. It's a race!

Part C. Case File: The "Tissue Pathway" (15 minutes)

Step 1. The "Tissue Bank" Challenge

- Say: "Great work, mappers. Now for Pathway B: The Tissue ('Material') Pathway. This one is not a race. This is where we learn about a new, amazing scientific idea: the 'Tissue Bank.'"
- Give each team one set of the "Tissue Pathway Cards" (scrambled).

Step 2. Group Sequencing Activity

- Instruct: "This pathway is different. Put these new steps in order and fill in the 'Tissue Pathway' flowchart on your worksheet."
- (Teacher guidance/answer): The steps should be:
  - A "Helping Hero" passes away (this can be at home or in the hospital).
  - The "Hero's Echo" is confirmed: The family bravely says "yes" to donation.
  - The "materials" (e.g., corneas, skin, bone) are respectfully collected (this can be up to 24 hours later).
  - The "Tissue Bank": The "materials" are taken to a safe, scientific "library" where they are checked and stored.
  - (Weeks or months later) A doctor orders the "material" from the "Bank" to help a patient (e.g., restore sight, heal a burn).

Part D. The Investigator's Debrief (15 minutes)

Step 1. Sharing Our Maps

- Ask 1-2 groups to share their flowcharts.
- Ask the whole class: "What was the biggest difference you discovered between the two pathways? What was the 'magic step' in the tissue pathway?" (The "Tissue Bank" / Storage / Not a race).

Step 2. Connecting to the Big Idea

- Say: "Your investigation is complete! You've discovered the two amazing, scientific ways a hero can help."

- Consolidate: "A person can be an organ donor (giving 'machines' in a high-speed relay to save up to 7 lives) AND they can also be a tissue donor (giving 'materials' that are stored in a 'Tissue Bank' to help many, many other people see again, walk again, or heal)."

Step 3. Final Reflection (Worksheet)

- Instruct: "Complete the final 'Investigator's Debrief' question on your worksheet: What is the biggest difference you discovered?"

Differentiated Learning

- Extension:
  - Challenge students to research why an organ can't be stored like a tissue (e.g., it's a complex, living system that needs a constant blood supply).
- Learning Support:
  - For the "Organ Pathway," pre-fill steps 1 and 4, and have students only sequence steps 2 and 3.
  - For the "Tissue Pathway," write the steps on the board in a jumbled order for students to copy from.

Teacher Reflection

- Did the "Scientific Mapper" metaphor work to explain the "basic transplant process"?
- Were students ableto identify the key difference: urgency (organs) vs. storage (tissues)?
- Did the concept of the "Tissue Bank" make sense as the key differentiator?
- How can I use this "process" knowledge in Lesson 7 when we read a real story (e.g., a cornea transplant story, which is a tissue pathway story)?

Assessment

- Worksheet (Flowcharts): Assess the "Process Pathway" flowcharts. Are the steps in a logical, correct sequence for both organs and tissues?
- Class Discussion: Can students verbally articulate the key difference (urgency vs. storage / the "Tissue Bank")?
- Worksheet (Debrief): Assess the final written answer. Does it correctly identify the main difference between the two processes?

Additional Notes:

This is a process and logic lesson, not a medical one. The Safety and Sensitivity guidelines in the "Teacher Content" document are paramount. The focus must be on the flowchart and the system, not the surgical act. Use respectful, scientific language ("respectfully collected," "carefully transported"). This lesson is essential for fulfilling the Year 5/6 scaffolding, as it provides the how that students at this age are ready for.