The Ripple Effect: Modeling Impact

(Year 8 - Ages 13-14)

Lesson 2 of 9

Lesson Overview

Lesson Title:	The Ripple Effect: Modeling Impact
Year Level:	Year 8 (Ages 13-14)
Lesson Duration:	60 minutes
Key Focus Areas:	Systems Thinking, Social Networks, Impact Analysis, Numeracy.
Curriculum Links:	Australian Curriculum - Health and Physical Education (Foundation)

- AC9M8P01: Analyze relationships... and model situations involving probability. (Focus on the probability/impact of donation scaling)
- AC9HP8P02: Investigate the benefits of relationships that value diversity... and how these influence wellbeing. (Community networks)
- AC9HS8K04: The freedoms and responsibilities of citizens... (The responsibility to contribute to the social network)

Learning Intentions

- Understand the concept of a Social Network and how actions (like donation) ripple through it.
- Investigate the "Multiplier Effect" of organ and tissue donation (1 donor = 7 lives saved + many restored).
- Analyze how different community groups (e.g., families, cultural groups) influence the spread of information and values.
- Recognize that empathy is the "connector" that allows these networks to function positively.

Success Criteria

- Draw a basic "Impact Network" showing how one donor connects to multiple recipients and their families.
- Explain why the impact of donation is "exponential" rather than linear.
- Identify two "Barriers" (e.g., lack of information, fear) that might stop the ripple effect.
- Suggest one strategy to help the "ripple" travel further (e.g., education, conversation).

Teaching Sequence

Work through this lesson in the following sequence:

Duration	Part	Focus
10 minutes	Part A: The Web Hook	Video/Concept: What is a Network? (Nodes & Links).
20 minutes	Part B: The Human Web	Kinetic Activity: Creating the string web in class.
15 minutes	Part C: Mapping the Data	Worksheet: Drawing the map and calculating impact.
15 minutes	Part D: The Broken Link	Critical Thinking: What stops the flow? (Consent).

Part A: The Web Hook (10 minutes)

Step 1. Introduction

- Visual: * Say: "Society is a network. We are all dots (Nodes) connected by lines (Relationships). Some events are small ripples. Today we map a 'Super-Event'—Donation."

Step 2. The Math

- Fact: "1 Donor = 7 Lives. But is it really just 7? Let's model it."

Part B: The Human Web (20 minutes)

Step 1. The String Game

- Setup: Arrange 10 students. 1 Donor. 3 Recipients. 2 Family members for each recipient.
- Action: Donor holds the string. "I donate a kidney." Toss to Recipient 1.
  - Recipient 1: "I am saved. Now I can play with my brother." Toss to Sibling node.
  - Sibling: "I have my brother back."
- Repeat: Continue until a web is formed.
- Visual: "Look at the web. All of this strength came from one starting point."

Part C: Mapping the Data (15 minutes)

Step 1. The Worksheet (Part 1 & 2)

- Task: Students sit and complete the "Hub and Spoke" drawing.
- Maths Focus: Have them calculate the numbers.
- 1 Donor.
- 7 Lives.
- 7 x 4 Family members = 28.
- Total = 35 people impacted immediately.

Step 2. The Ripple

- Activity: Students complete the "Before/After" table for Recipient #4. Discuss the "Economic" impact (parents going back to work).

Part D: The Broken Link (15 minutes)

Step 1. The Cut

- Scenario: "Imagine the Donor wanted to give, but never told their family. The family says No."
- Action: (If using string) "Drop the string at the Donor end."
- Observation: "What happens to the rest of the web?" (It falls/disappears).
- Concept: "The Conversation is the Anchor. Without it, the web collapses."

Step 2. Conclusion

- Say: "You are the Architects. You build the web by talking about it."

Links for Video Hook:

- NETWORK VISUALISATION VIDEOS
  - 1. Beautiful Network Visualisation (Nodes & Lines Animation)
    - https://www.youtube.com/watch?v=LMBKVOZkYZQ
    - ("Network Visualization" — animated nodes connecting and expanding)
  - 2. How Connected Systems Spread (Network Science Model)
    - https://www.youtube.com/watch?v=2FvGQJk4Kek
    - (Short, visual explanation of connections forming a network)
  - 3. Force-Directed Graph Animation (Simple & Clear)
    - https://www.youtube.com/watch?v=Y4KPwZQY-PE
    - (Moving nodes and edges — shows dynamic relationships)
- DOMINO CHAIN REACTION VIDEOS
  - 1. Amazing Domino Chain Reaction
    - https://www.youtube.com/watch?v=ARM42-eorzE
    - (Classic chain reaction — clean, colourful, high engagement)
  - 2. Small Domino Can Knock Over Big Domino (Exponential Effect)
    - https://www.youtube.com/watch?v=4PgA5vxMKgI
    - (Perfect metaphor for "small choice → big outcome")
  - 3. Giant Domino Chain Reaction (Complex System Visualisation)
    - https://www.youtube.com/watch?v=V6ZpM-sn5Yw
    - (Longer, high-energy compilation — great for inspiration)
  - 4. Rube Goldberg–Style Domino Machine
    - https://www.youtube.com/watch?v=qybUFnY7Y8w
    - (OK Go – "This Too Shall Pass" — famously intricate chain reaction)

Differentiated Learning

- Extension:
  - Students calculate the impact over Time. If Recipient #1 lives for 40 years and has 2 children, how many nodes are added to the graph?
- Learning Support:
  - Provide a pre-drawn "Hub" (Donor) on the worksheet so students only need to draw the "Spokes" (Recipients).

Teacher Reflection

- Did the "String Game" effectively visualize the concept for visual learners?
- Did the students grasp the difference between "Primary" (Medical) and "Secondary" (Social) impact?
- Was the math element integrated smoothly?

Assessment

- Worksheet (Part 1): Check the network drawing for logical connections (Donor -> Recipient -> Family).
- Worksheet (Part 3): Assess understanding of the "Broken Link" concept (Consent).

Additional Notes:

This lesson is visually strong. It makes the abstract statistics (1 saves 7) concrete. It is a great lesson for visual and kinaesthetic learners. Ensure you emphasize that the "Broken Link" isn't a failure of the family, but a failure of the process(lack of communication), reinforcing the need for Lesson 5 (The Conversation).