

Aussie
STEM Stars

AJAY RANE

Global Crusader for Women's health

Written by Deb Fitzpatrick

Teacher Notes

written by

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PUBLISHED BY



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ABOUT THE SERIES

Aussie STEM Stars is a fresh and unique series for children and young teens aged 9–13 years that focuses on our Australian STEM heroes. Each book is written by an award-winning children’s author and follows the real-life stories of Australia’s top scientists and inventors, chosen on the basis of their pioneering work. Themes explored in the series include childhood, school, family and formative experiences, what inspired them to pursue their chosen path, how they persevered in the face of challenges and what they have contributed to science in Australia.

Reason for studying this book

Wild Dingo Press publisher Catherine Lewis is excited about their publication. “These disciplines are more important than ever as we look to our inventors and innovators to solve contemporary problems facing humanity and the planet. Our **Aussie STEM Stars** series uses narrative non-fiction as a tool for educating children – making it as fun and interesting as fiction books. Our writers are passionate about doing justice to their chosen subjects – and their lives – providing teachers, parents and librarians a wonderful series aimed at encouraging children to develop an interest in STEM at a young age.”

About the author

Deb Fitzpatrick writes for adults, young adults and children. Her novels have been named Notable Books by the Children’s Book Council of Australia, shortlisted in the West Australian Young Readers Book Awards, published in the US, and optioned for film. Deb lived in a shack in Costa Rica for four years where she became accustomed – well, almost – to orange-kneed tarantulas walking through her house, and sloths and spider-monkeys in the trees outside. Deb loves using stories from real life in her novels and regularly teaches creative writing to all ages. She has a Master of Arts from the University of Western Australia, and shares her life with a lovely family and their kelpie, who is absolutely not a failed sheep dog.

About our STEM Star: Prof. Ajay Rane

Ajay's story starts with his grandparents who were poor Indian cotton farmers from the lowest caste. They persuaded their village to send one child to high school. Ajay's father was selected, and went on to become a surgeon, returning to his village where he built and ran a hospital.

Inspired by his father's selfless work, Ajay became a doctor, specialising in women's health where he saw the worst kind of neglect. He is dedicated to improving women's health through training and educating medical staff, especially in the poorest regions. Professor Ajay Rane OAM, has received the highest accolades and holds senior positions at James Cook University and Townsville University Hospital

OUTCOMES

Australian Curriculum

KEY FOCUS AREAS

Literacy Stage 3–4

Science Stages 3–4

OUTCOMES

NSW Curriculum

KEY FOCUS AREAS

Literacy Stages 3–4

Science Stages 3–4

BEFORE YOU BEGIN READING THIS BOOK

Front cover

- What do you know about Ajay Rane?
- What do you know about India?
- What do you know about doctors and the types of doctors there are?

Back Cover

- Read the blurb. What can you gather about this book from the blurb?
- Why do we need blurbs for all types of books?

Before you start reading

- Highlight quote on **page v** in the book:

Give 'til it hurts, then you are really giving.

— Dr Paula Rane

Write this quote on a poster as a class or small group. Ask students to write ideas around the quote as to what it might mean to them. Add to this poster as the book is studied.

- Look at the family tree and discuss why it might be included in the book. Ensure that you revisit this family tree throughout the novel to make connections and work out why it needed to be included.
- Outline the glossary at the back and how to use it.
- Who is the author of this book? Explore other books and pieces of writing Deb Fitzpatrick has written and discuss why she may have been asked to write this book.
- What is the difference between a biography and an autobiography? Explore what this book is and why it is a biography and not an autobiography. Discuss the importance of the STEM Stars series.
- What do we mean by 'narrative nonfiction'? Could this book fit into that genre as well?

KEY PROJECTS

Key project 1

- **Deconstruct** why you feel a certain way towards a topic in this story (fistulas, orphanages, discrimination against women, the caste system).
- Write down reasons for the emotions you have and links between these emotions. Use the book as well as further research to back up your emotions.

Key project 2

We learn that there are many diseases in developing countries that rarely occur in developed countries.

- Explore and then research some of these diseases, what causes them and the changes that need to happen if fewer people are to become ill or even die from these.

Key project 3

Females have been discriminated against in most countries throughout history. In this story we learn of the discrimination that occurs in India. Choose **two** other countries and find out:

- What sort of discrimination occurs against women (don't assume it's only a problem in poorer or developing countries)?
- What programs or policies do they have in each country to reduce or eradicate discrimination against women and girls?
- List some of the beliefs and attitudes that this are hurdles preventing equal treatment or opportunities for females.

Key project 4

Ajay and his father, Murli, both loved science at school.

- What do you like or dislike about science at school?
- Create a new curriculum for your stage (e.g. Stage 3 is Years 5 & 6) so that more students would enjoy science, learn interesting topics and make links to the real world so they can make a difference just like the Aussie STEM stars!
- Present this new curriculum to your teachers and school principal to see if you can influence some change.

Key project 5: Reflection on literature

Students can fill in this table as they read to record their ideas and feelings:

Chapter	
In one sentence, explain what this chapter was about?	
What did Ajay Rane or one of his family members do and say in this chapter? How did he/they feel?	
What real life events occurred? Link some dates and extra details to this event.	
New language used	
How has the author made you feel? Think of the language used to create tension, happiness, wonder, anxiety.	

Reflect on this table after the book has been read

- How did your knowledge change throughout the book?
- How did your feelings change? Why?
- Did how you see the characters change as you learnt more about them? Which events caused change in their characteristics?
- What new vocabulary have you learned?

TEACHING AND LEARNING ACTIVITIES

Chapter 1

- Draw an image of what life looks like for Murli in the village as he wakes in the morning and gets ready for work.
- How is Murli's childhood different from yours?
- Use a map to find out where Murli lives, Bhalod in the state of Maharashtra, India. How is this place different from where you live? Are there similarities?
- What is mango pickle? Find a recipe to learn how this can be made at home.
- The children have to walk six kilometres to school. Conduct a survey to find out how your classmates get to school. Does anyone walk this far? Is it possible that Australian students today would do this?
- This chapter is set in 1943 and for children of a lower caste, school was not compulsory. Why do you think this was the case? Does this still happen today in India or in other countries?
- Write a description of the type of person Murli is. Can you think of anyone you know who has similar qualities?

Chapter 2

- What does 'reluctantly obey' mean?
- Why are pesticides used on fruits and vegetables?
- What is a seizure?
- What do you think about Banabai and Soma's idea? Do you think it could work? What could be the problems with this idea?
- Why have women's status in history and in most societies tended to be lower than men's? Where does this continue today? Can you think of any other Aussie STEM stars books where this issue is raised?
- What does 'rubbernecking' mean?
- Imagine you are Murli: write a diary entry about the evening you found out you were the one out of the entire village who is chosen to go to high school.
- What do you think his friend, Appa, means when he said: '*This is it. This is your chance – fly!*' And what does it say about Appa's character?

Chapter 3

- What does it mean: ‘... *thoughts about how unfair it is that only one child can go wormed their way around his mind like maggots in guava.*’
- Murli’s brother puts him at ease when he is worried about going to school. How would you feel with this responsibility of having to pass on your daily knowledge to your family and friends?
- The word ‘caste’ is mentioned a few times in this chapter. What does it mean? How does it affect Murli at school and once he is a doctor? Do other countries have a similar way of structuring their society?
- Murli loves science. What do you like about learning science? What areas of science would you like to learn more about?
- How do we know Murli’s parents are proud of him in this chapter and in previous chapters? Find some quotes or single words that display this.
- Where is Elphistone College? How many kilometres will Murli be from home?
- Murli is very successful in his medical studies, gaining a place in England to work and study to become a surgeon. What other successes does he experience during these years? Is there anything that he might consider as him not being successful?
- What do you think Murli means when he says he wants to give back? How do you think Lata feels about this conversation? Explain your thinking.

Chapter 4

- How do the family members’ emotions conflict as they travel to India on the passenger ship?
- How does the weather in England compare with the weather on their arrival in India? What makes the climate so different? Explore the temperature, humidity and rainfall to learn more about why Lata says ‘*The heat ... I’d forgotten.*’
- Ajay and his brother have to get used to the toilets in the village. Why do you think they don’t have flush toilets there, and what are the advantages of the ones they have instead? Have you found places in Australia where there are alternatives to a flush toilet?
- Write a description of what Ajay and Abhay see as they catch their school bus each day.
- How is Diwali celebrated in the country you live in?
- What are the dishes eaten at Diwali as mentioned on page 54? Find an image or a recipe for these dishes to try and create them yourself.

Chapter 5

- Kamala tells Ajay tales that include divine feats, tyranny, treachery, bravery and sacrifice. What might happen in these stories? Find some stories about Hindu gods and goddesses that include some of these interesting parts of the story.
- Once the family moves into the new house Murli turns to Lata and says, '*This couldn't have happened without you Lata, thank you*'. What do you think made him say this?
- Why do you think the author dedicated 4 pages to describing how a surgeon needs to wash their hands?
- What does a retractor look like?
- What does it mean 'Ajay focusses his mind to a pinpoint'?

Chapter 6

- Ajay loves science. Who else, in this story, loved science at school?
- Ajay discovers what 'touched by a crow' means and immediately sees that it discriminates against females. What are some of the ways it negatively impacts on females? Are there other cultures that have similar beliefs and practices around menstruating females?
- What is a 'ripple effect'?
- What is a blood transfusion? What do people need them for? Where does the blood for transfusions come from in Australia?
- Why is Murli '*washing feverishly*' after he hears Ajay's story of having to donate his own blood?

Chapter 7

- Imagine yourself in Ajay's shoes as he arrives in England and write a diary entry to describe those first days. Think of what he sees, smells, hears and feels as you write this description.
- Why do you think women are more likely to have injuries during childbirth in developing countries than in developed countries?
- The author writes in an Irish accent. Read this passage out loud, trying on your own Irish accent. How do you think your accent would be written in conversation? Record your own voice and see how you pronounce different words.
- What is a 'flotilla' of ambulances?
- How is Ajay feeling after the bomb goes off? Explore the change in his emotions from the bomb going off to talking to Paula. Plot this on a line to show how his emotions change.

- Why is the relationship between Ajay and Paula ‘nuts’?
- Where is Eire?
- What difficulties does Ajay have with Paula’s parents?

Chapter 8

- Why couldn’t someone like Paula get a job in Ireland?
- What is a ‘hand of ablution’?
- Paula notices cows sauntering unhurriedly through the city. If you haven’t lived or travelled in India, how would you feel seeing this? Why do you think cows can do this in India and not in Australia?
- What causes Ajay to be unhappy?
- What makes Paula suggest the Ajay needs a change in his life?
- What state of Australia is Townsville in? How long would the flight have been from London for the Ranes?
- Do you think it is fair that different countries do not recognise qualifications? Why wouldn’t they?
- What does ‘never one to fritter away time’ mean?
- Why does Ajay feel terrible shame after the woman in pain talks to him in English?
- Why are the ‘*labyrinthine slums*’ impossible to navigate?
- Why does feeling ‘supremely useful’ make Ajay feel alive? Do you think this is the case for most people? Why?

Chapter 9

- What percentage of the population in Chennai live in slum accommodation? Describe what those dwellings look like and what work the families do.
- What do people mean when they say that India is ‘a country of paradoxes’?
- Read the passage that describes the Kasturba Gandhi hospital. How do you think patients feel coming here?
- Why are Ajay’s words music to Raji’s ears? What else can be ‘music to your ears’?
- Why do you think they called the ward after Paula Rane and not Ajay?
- Why is a wicker basket left outside the orphanage at night?
- What does the word ‘emanate’ mean?
- How will dental kits and laptops support these girls? Think carefully about why dental kits are needed.

Chapter 10

- When you read the title to this chapter, what did you think?
- What is Ajay's 'poovolution'?
- Would you consider using the 'Duneze'?
- What are the differences between a Bollywood film and a Hollywood film?
How many Bollywood films made each year compared to Hollywood?
- What is Ajay's Bollywood film about?
- Can you find any information about this film to watch or learn more about it?
- Why is winning a prize at the Cannes film festival important for this film?
- What are accolades?
- How do the final few sentences of this biography make you feel? '*And the poo pep-talks. And the chillies. And the joy.*'
- Watch Ajay's TEDx Talk about toilets here: <https://www.youtube.com/watch?v=8mBtVYtT6bM>

Postscript

- What is the reason for writing postscripts?
- Why do you think the author, Deb Fitzpatrick, decided to write postscripts to this story instead of putting that content within the chapters?
- Explore more about the Rane hospital and how they continue to help the people of India today.
- When Ajay helped the nurse, he changed her life. She wasn't able to pay him for what he did, but maybe she has. Do you agree? Why?

EXTENSION QUESTIONS FOR FURTHER THINKING

What are some words or terms specific to a surgeon who works in Obstetrics & Gynaecology?

What are the ongoing factors that influence how traditions work in various countries? Relate this to the discrimination against girls in India and China. Think about any traditions in your country that cause harm.

How has time – through this book - shown change in various areas? Think of some key topics discussed in this book and how they have changed from Ajay's grandparents as young parents to himself as a parent now.

Life without soap – discuss.

What if Murli's parents hadn't come up with the idea of collecting coins, or another child had been chosen to go to school? How might life be different for Ajay and why? Consider some other turning points in the book that have changed Ajay's life forever.

ELABORATION OF OUTCOMES TO THE AUSTRALIAN CURRICULUM

Literacy

STAGE 3

Make connections between students' own experiences and those of characters and events represented in texts drawn from different historical, social and cultural contexts (ACELT1613).

Analyse and evaluate similarities and differences in texts on similar topics, themes or plots (ACELT1614).

Identify, describe, and discuss similarities and differences between texts, including those by the same author or illustrator, and evaluate characteristics that define an author's individual style (ACELT1616).

Clarify understanding of content as it unfolds in formal and informal situations, connecting ideas to students' own experiences and present and justify a point of view (ACELY1699).

Plan, rehearse and deliver presentations for defined audiences and purposes incorporating accurate and sequenced content and multimodal elements (ACELY1700).

Navigate and read texts for specific purposes applying appropriate text processing strategies, for example predicting and confirming, monitoring meaning, skimming and scanning (ACELY1702).

Plan, rehearse and deliver presentations, selecting and sequencing appropriate content and multimodal elements for defined audiences and purposes, making appropriate choices for modality and emphasis (ACELY1710).

Analyse how text structures and language features work together to meet the purpose of a text (ACELY1711).

Use comprehension strategies to interpret and analyse information and ideas, comparing content from a variety of textual sources including media and digital texts (ACELY1713).

STAGE 4

Identify and explore ideas and viewpoints about events, issues and characters represented in texts drawn from different historical, social and cultural contexts (ACELT1619).

Reflect on ideas and opinions about characters, settings and events in literary texts, identifying areas of agreement and difference with others and justifying a point of view (ACELT1620).

Compare the ways that language and images are used to create character, and to influence emotions and opinions in different types of texts (ACELT1621).

Recognise and analyse the ways that characterisation, events and settings are combined in narratives, and discuss the purposes and appeal of different approaches (ACELT1622).

Recognise, explain and analyse the ways literary texts draw on readers' knowledge of other texts and enable new understanding and appreciation of aesthetic qualities (ACELT1629).

Science

STAGE 3

Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE083, ACSHE100).

Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks (ACSIS086, ACSIS103).

Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions (ACSHE098).

STAGE 4

Scientific knowledge has changed peoples' understanding of the world and is refined as new evidence becomes available (ACSHE119, ACSHE134)

People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity (ACSHE121, ACSHE136).

Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge (ACSIS124, ACSIS139).

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed (ACSIS125, ACSIS140).

Science knowledge can develop through collaboration across the disciplines of science and the contributions of people from a range of cultures (ACSHE223, ACSHE226).