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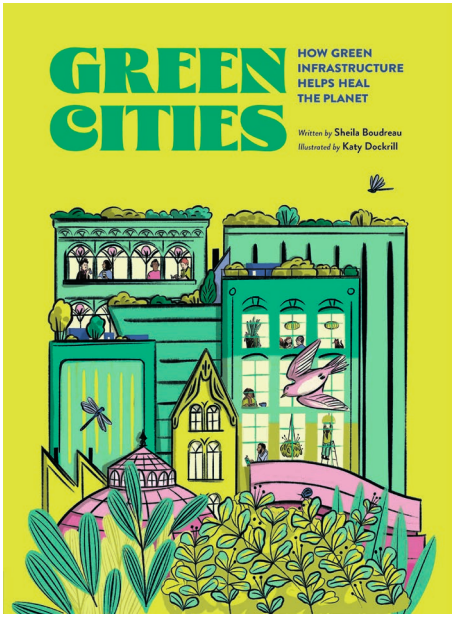
GREEN CITIES:

How green infrastructure helps heal the planet

Sheila Boudreau & Katy Dockrill



Teachers' Notes

Prepared by Christina Wheeler, who is a practising teacher librarian with a background in the Australian curriculum (English)

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SYNOPSIS

Green Cities is an informative, hope-filled and future-facing text that invites readers to think positively and proactively about the future of our cities and planet. Drawing from a range of reputable sources, including Indigenous Knowledges, environmental organisations and innovative case studies from around the world, it introduces green infrastructure and sustainable urban planning to the next generation of decision-makers, problem solvers and creative thinkers.

THEMES

- Green infrastructure
- Sustainability
- Environment
- Urban planning
- Biodiversity
- Innovation
- Creative thinking
- Problem solving
- Water
- Soil

WRITING STYLE

Structured through well-designed and engaging chapters, *Green Cities* not only promotes the concepts of biodiversity and action but clearly explains the practical steps that can help reinvigorate our cities and climate. Informative, clearly written and attractively presented, it also includes a comprehensive contents page, index, glossary and reference list, making it an excellent resource for the development of research and note-taking skills. In addition, its content is accessible to a range of readers, and the inclusion of call out boxes, sub-headings and influential quotes throughout appeals to different learning styles. Addressing a range of relevant content areas such as needs and wants, design principles, sustainability, Indigenous Knowledges, the water cycle and ecosystems, it has several connections to the Australian Curriculum. It is suited to audiences aged 9+.

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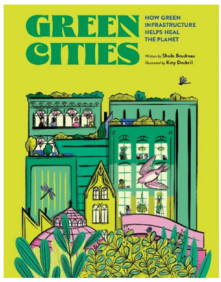
STUDY NOTES

Before reading

- On A3 paper, sketch your idea of a typical city. Label your city's key features. What do you think are the most important features of cities? What do they need to function well? What problems are associated with cities? What impact do cities have on the natural environment? Share your ideas with a partner before having a whole class discussion. To extend this task, complete a Y-Chart about cities, noting what you would see, hear and feel in this built environment.
- Examine the cover of *Green Cities*. What do you think a 'green' city might be? How might it be different from other cities? What are you wondering?
- As a provocation, read Jeannie Baker's wordless picture book *Window* (Walker Books). Discuss the impact of urbanisation on the natural environment as well as the human need for towns and cities. As a class, complete a PMI Chart (see below) on the concept of cities. Return to this chart after reading *Green Cities*. How have your thoughts changed? Add new ideas you have learnt about.



Brainstorm the pluses, minuses and interesting ideas about cities and the way they are planned.

P	M	I

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Introduction – A Green Way

- In your own words, explain the meaning of ‘green infrastructure’. How is it different from ‘grey infrastructure’? List examples of each type. Why do cities need both?

Chapter 1 – Cities: A Great Invention that Could Be Even Better

- As a class, create an annotated timeline that traces the evolution of towns and cities throughout history. Illustrate some of the key developments that helped improve living conditions.
- What needs should be considered when planning cities (such as shelter, education, health, commerce and industry)? Create a table that shows how these needs are met (for example, housing, schools, hospitals, shops, restaurants and factories). What else do cities need to function well (for example, transport, recreational facilities, utilities, communication)? Add to this list as you learn more about infrastructure, urban planning and the needs and wants of the population.
- What is meant by the term ‘city planning’? Why is this level of planning necessary? What would happen if cities were unplanned?
- In pairs, plan and deliver a 30-second elevator pitch for the *15-Minute City* concept (see p. 9).
- Find out more about the International Union for Conservation of Nature (https://iucn.org/). Spend time exploring the various links and projects on this website. What are some of your favourite takeaways from this site? Why? Share in a reflection.
- What is the connection between cities and climate change (see pp. 10–11)? Draw a diagram or flowchart to explain your thinking.
- What is ‘urban agriculture’? How does it help improve sustainability?
- Complete a Cause and Effect graphic organiser (see below) that shows the connection between climate change and loss of biodiversity (see pp. 12–13). How do green infrastructure and urban agriculture help mitigate some of these issues?

Cause	Eg	Effect
Destruction of ecosystems		
Urban Agriculture		
Urban Water		
Green infrastructure		

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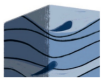
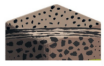
Chapter 2 – Nature First: Creating Greener Cities

- How have 'green cities' such as Paris introduced strategies to help solve climate change issues?
- How do 'sponge cities' work (see p. 14)?
- What is a 'sustainable city'? How sustainable is your town or city? Invite local government members to speak with the class about initiatives to improve sustainability in your area.
- Find out more about how Aboriginal and Torres Strait Islander Peoples care for Country. Create an infographic that shares Indigenous Knowledges about nature and sustainability, including the 'important interconnections between all living things' (p. 17). Consult texts such as *Caring for Country: First Knowledges for younger readers* by Bruce Pascoe and Bill Gammage (Thames & Hudson) and *Come Together* by Isaiah Firebrace (Hardie Grant Publishing).
- Using the information about water, soil, plants and creatures on pp. 20–23, summarise the text on the Note Taking template below to further build your understanding.

Notes	Word Wall
Water 	
Soil 	
Plants 	
Creatures 	

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Chapter 3 – Going Green: Green Infrastructure in Action

- Using the jigsaw strategy (see below), assign groups of 2–3 students to each of the following types of green infrastructure technology discussed on pp. 24–29:
    - street trees
    - urban forests
    - rain gardens and bioswales
    - green roofs
    - green walls
    - stormwater ponds
    - permeable pavement
    - urban agriculture

  Have each group prepare and share a short summary of their topic with the class, thereby constructing a collective understanding of this section of the text. As an extension, have each group provide bullet points of their section on the puzzle pieces. Display this puzzle on a classroom wall or window.

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- After reading the *Imagine If* case studies (pp. 30–47):
    - Write a six-word summary for each case study.
    - In small groups, create a model of one of these projects using recyclable materials.
    - Create a poster or brochure that shares the project's details.
    - Find out more about these projects by conducting online searches:
        - Brooklyn Grange (urban farm)
        - The Meadoway (wildlife corridor)
        - Bosco Verticale (vertical forest)
        - Pymmes Brook (wetland)
        - Seoullo 7017 Skygarden (skygarden)
        - Bo01 (carbon-neutral neighbourhood)
        - Karura Forest Reserve (nature reserve)
        - Amman Mini-Forest (mini-forest)
        - Reforesting of India (reforestation)
    - With a partner, ideate and design your own *Imagine If* scenario. Share with another pair.
- Discuss the role of innovation and creative thinking in managing climate change and creating greener cities.
- Write a paragraph that explains the importance of biodiversity in helping address climate change.

Conclusion – Making Our Future Even Greener

- Which of the green infrastructure professions most appeals to you (see p. 48)? Why? Create a Wanted Poster for one of these jobs.
- Consider becoming involved in one of these actions:
    - Join or create an Ecoteam or Environmental Club at your school. Create maps showing where big trees and green spaces are in your school grounds. Identify areas where new green infrastructure could be added. Prepare a persuasive campaign to present to your principal or Parents and Friends Association.
    - Take photos or draw pictures of examples of green infrastructure around your city or local area. Share these with your school community to help promote the concept of green cities.
    - Find out more about environmental programs in your local council area. Consider volunteering for one of these projects.
    - Find out more about:
        - The World Wildlife Fund's 'B' Generation: Schools for Biodiversity https://www.innovatetoregenerate.wwf.org.au/project/the-b-generation-schools-for-biodiversity

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    - The Global Youth Biodiversity Network https://www.gybn.org/
- Choose one of the quotes that features throughout *Green Cities*. Write a reflection to share how this quote has impacted your thinking about the future of our cities.
- Visit the following websites that share more about green urban planning:
    - Global Designing Cities Initiative https://globaldesigningcities.org/publication/global-street-design-guide/utilities-and-infrastructure/green-infrastructure-stormwater-management/benefits-green-infrastructure/
    - United States Environmental Protection Agency https://www.epa.gov/green-infrastructure/benefits-green-infrastructure

  With a partner, design and plan a new green city that provides for the needs of the community, economy and environment. As a class, invite your local representatives and other members of the school community to view your plans and listen to your ideas.
- After reading *Green Cities*, read Jeannie Baker's *Belonging* (Walker Books), the sequel to *Window*. Draw connections between this text and *Green Cities*. Time permitting, also read *Uno's Garden* by Graeme Base (Penguin). How do they share messages of hope and repair?
- Find out more about Goal 11 of the United Nations Sustainable Development Goals (https://sdgs.un.org/goals/goal11). How do the ideas in *Green Cities* work towards achieving this goal?
- Consult the glossary at the end of *Green Cities* to further develop your understanding of key terms. Create a classroom display of this vocabulary.

AUTHOR MOTIVATION

Nature in cities is incredibly important, helps us all in so many ways, and needs to be respected and loved! Deeply held connections to Land and Water are common to Indigenous Peoples across Mother Earth, and it's critical to value those voices and knowledges in this journey wherever you are. I also enjoy making the most essential information about city building with green infrastructure accessible so that it can be understood and appreciated by people of all ages who may not have any technical knowledge. And I wanted to share inspiring stories about examples of great work around the world, and how youth can start to envision themselves as being part of this journey now and into the future. I worry a lot about our world and the impacts of climate change,

and believe strongly in the power of change once people are educated about these things.

ABOUT THE AUTHOR

Sheila Boudreau is Principal at a landscape architecture and planning firm called SpruceLab Inc. and previously taught about planning and design for green infrastructure at universities. She lives with her family in Toronto, Ontario.

ABOUT THE ILLUSTRATOR

Katy Dockrill finds inspiration for her work in her family, friends, and the city-within-a-city neighbourhood where she lives. When she isn't drawing, she loves to find and fix things, drink coffee, and take walks. She lives in Toronto, Ontario.