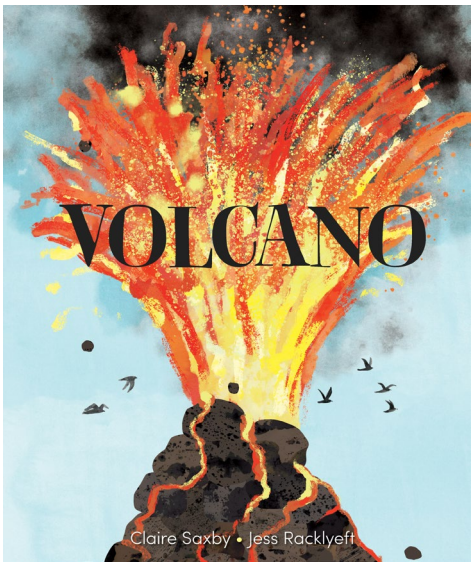

VOLCANO

by CLAIRE SAXBY & JESS RACKLYEFT

RECOMMENDED FOR: Ages 5–10 YEARS OLD (FOUNDATION – Year 4 PRIMARY). THESE TEACHER NOTES ARE AIMED AT YEARS 3-4.

GENRE: Literary Non-Fiction

THEMES: Volcanoes, the natural world, marine environments, hydrothermal vents, underwater, ecosystems

CURRICULUM LEARNING AREAS:

- English: Literature, literacy and language
- Science: Science Understanding - Biological sciences, Earth and space sciences, Physical sciences, Chemical sciences
- Visual Art

NOTES WRITTEN BY: Jennifer Asha

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INTRODUCTION

Through lyrical prose, *Volcano* explains the process of submarine volcanic activity and the impact this phenomena has on the surrounding marine life and environment.

Jess Racklyeft's illustrations use her characteristic vibrant watercolours to emulate the underwater environment. Her colour palette is symbolic of the fiery volcanic phenomenon and the colourful aquatic life. The use of angles and distances give the viewer close-ups of the process of an active volcano and show the details of the associated diverse marine animals. The vivid illustrations serve as a contrast to scientific diagrams about similar phenomena.

Claire Saxby's expressive sentences poetically describe the process of an underwater volcanic eruption through the use of figurative language, descriptive noun groups and sophisticated present tense verbs. This language results in conveying scientific information through an authorial, literary reader experience. The text serves as an excellent mentor text for teaching students about literary non-fiction and serves as a counterpoint for traditional explanation writing.

Just like *Iceberg* and *Tree,* Saxby and Racklyeft's partnership urges reader-viewers to be awed by the natural environment, to be curious and to care about our fascinating natural world. Exploration of this picture book stimulates Science and Visual Arts activities while also meeting English outcomes. These teachers' notes have been composed for middle primary grades and are accompanied by Year 3 & 4 curriculum outcomes. Careful teacher modelling and scaffolding could allow the English outcomes to be adapted for younger year levels. For older year levels, the Science activities could be augmented with the addition of experiments and research tasks.

PLOT SUMMARY

Deep in the ocean, far beyond the reach of even the brightest sun, the earth quakes. Hagfish scatter and snailfish flutter. Lava pillows flash and fade, rumpling the seabed as a new volcano births a mountain. Where hot meets cold, a chimney forms. Here begins a colony of unexpected creatures. Other chimneys grow and cool, grow and cool, while the mountain stretches ever upwards. A rumble becomes a roar and the sea boils. Lava fireworks the sky. A new island is born.

More volcanoes erupt under water than exist on land. In the vein of *Iceberg* and *Tree* – combining deep scientific research, lyrical language and stunning illustrations – *Volcano* is the next exploration of the natural world from the CBCA award-winning team of Claire Saxby and Jess Racklyeft.

Q&A WITH THE AUTHOR: CLAIRE SAXBY

Can you tell us about your inspiration/how you came to write this book?

'Volcanoes are astonishing, so intense and magnificent. Their eruptions are spectacular. They create new landscapes, new land. I started to think about the volcanoes that begin deep in the ocean and how they are like land-volcanoes, and how they are different. We know more about space than we do about the deep ocean, although more is being discovered each day. I love the idea that understanding the ocean, its landscape (seascape) and occupants is helping us to understand our very existence! But volcanoes. There are much greater pressures deep in the ocean, so lava doesn't spurt, it oozes, and the very cold temperatures mean that lava is very quickly cooled and rendered solid. And then I started thinking about where these deep sea volcanoes occur and why. Next stop was looking at continents and their drift, their pushing against each other (often it's one pushing, one resisting) that opens the opportunity for a volcano to be born. And oh, my!

'It took a long time for me to gain enough of an understanding of this world to begin drafting this story. I always imagine that everyone else knows as much about the worlds I write about as I do, but particularly for this book, I needed to provide enough information so that others working to bring this book to publication didn't have to do the same research I did. Unlike *Tree*, which happens in a familiar world, *Volcano* introduces a world largely unknown to most people. I handed over a portfolio of wonders to both the editorial team and to Jess. This is not to tell any other part of the book team what to do, but to give them access to the best knowledge I'd collected.'

Q&A WITH THE ILLUSTRATOR: JESS RACKLYEFT

Can you tell us about your inspiration/how you came to illustrate this book? Who is it written for?

'This book was REALLY HARD TO ILLUSTRATE! Deep sea darkness and sparseness is not particularly visually exciting – so my challenge was to try to focus on tiny details like the fallen particles of organic matter. Then weaving in the new forms of the volcano – flashes of light, and a new world forming around the volcano – was tricky because reference images and videos are few and far between (not that many deep-sea explorer vehicles have been able to capture the birth of a new volcano!). Luckily, once again I could lean on Claire's detailed research, as well as the incredible images that have been captured, even though there aren't many.'

CLASSROOM DISCUSSION AND ACTIVITIES

ENGLISH

LITERATURE

BEFORE READING

- **Watch:** 'Lava' music video https://www.youtube.com/watch?v=uh4dTLJ9q9o
- **Focus on Vocabulary:**
    - Brainstorm words associated with volcanoes. Include words such as crater, eruption, lava, gas, crust, ash, mountain, conical, magma, vent, earthquake, tectonic plate, etc. Create a chart to refer back to during later activities.
    - Investigate the origins of the word 'volcano' and its derivatives such as 'vulcan'. https://www.etymonline.com/
    - Conduct word studies to investigate the formation of words, their plurals and adjectival form, such as 'volcano', 'volcanoes', 'volcanic'; 'erupt', 'erupted', 'eruption'.
- **Research:** Map the places around the world that have active volcanoes. Make note of which of these are under water volcanoes and which are on land. https://www.britannica.com/topic/worlds-major-volcanoes-2226816
- **Text purpose and Genre:** Discuss the idea of text purpose with students. Consider the informative purpose of a range of factual texts such as *Volcanoes* & *Earthquakes* published by CSIRO and compare to other literary non-fiction texts created by Saxby and Racklyeft in the context of how these texts meet their purpose for their intended audience. Use the following table to assist with your discussion of some characteristics of traditional non-fiction versus literary non-fiction.

Literary texts	Non-fiction texts
Illustrations that use a wide range of media in an artistic way to visually engage the viewer.	Illustrations include accurate details or use elements of scientific diagrams such as cross-sections or network diagrams to visually inform the viewer.
Figurative and descriptive language that allows the reader to build vivid mental images of character, setting and plot and use their senses to experience the setting.	Language that makes use of technical, field specific or scientific vocabulary or names of real people and places to make the information accurate and authoritative.
Includes participants/characters' thoughts, feelings and reactions to position the reader to empathise with or understand the characters.	Retells true events or processes in the order they occur/ed to correctly inform the reader.

AFTER READING

- **Authoritative versus authorial language:**
    - After a shared reading of the picture book, conduct a close re-reading that focuses on the vocabulary choices made by Saxby. Consider the way different types of sophisticated vocabulary gives *Volcano* a sense of Scientific authority that meets its informative purpose as well as a literary quality that engages the audience. Investigate the technical words included in the text, such as 'hagfish', 'seamount' and compare to the authorial vocabulary such as 'fractious', 'scuttle', 'rumple'. After modelling some examples of both authoritative sophisticated vocabulary and authorial literary vocabulary, ask small groups of students to search the text for further examples.
    - Ask students to write their own sentences that demonstrate an understanding of these two different types of vocabulary.
      AC9E3LA10
- **Metaphor:** Another literary feature of *Volcano* is Saxby's use of figurative language, namely metaphor, that serves to engage the reader and help them to create a mental image of the volcano. Use the metaphor on the first page spread to demonstrate and explain this literary feature, '...as a new volcano births a new mountain.' Explain that including such metaphors in literary non-fiction texts help to convey information in a vivid way. Search the remainder of the text for other examples of metaphors and talk about the mental image the literary features conjure in students' minds, e.g. On the second page spread: 'Needles of scorching water pierce the ocean floor.' Eighth page spread: 'Lava fireworks the sky'. Twelfth page spread: 'Pillows of lava ooze.' Encourage students to visually represent the mental image conjured for them by these metaphors.
  AC9E3LA03 AC9E4LE04

- **Verb tense:** Notice the wide range of sophisticated verbs used throughout the text. For example, 'scatter', 'flutter', 'rumple', 'seeps', 'roils', 'pierce', 'anchor', 'scuttle', 'nibble'. Draw students' attention to the present tense of these verbs and discuss how this is a characteristic of factual texts that explain phenomena using timeless present tense. Compare the present tense in *Volcano* to that in other non-fiction books explaining similar phenomena. Create lists of these verbs and include definitions, synonyms and antonyms. Ask pairs of students to act out the verbs, use them to orally describe the illustrations of *Volcano* and include them in student writing exercises.
  AC9E3LA08 AC9E4LA11 AC9E4LA09
- **Noun groups:** Saxby uses noun groups that include adjectives to classify nouns to convey factual information and to create mental images for readers. Use examples such as the following from the second and third page spread to define and demonstrate two of the different uses of adjectives in noun groups that inform and engage.

Classifying adjectives – *What type of [noun]?*	Describing adjectives – *what does the [noun] look like, feel like?*
Cold sea water	*Cold sea water*
Ocean floor	*Scorching water*
Tube worm larvae	*Red feather gills*
	Pale-shell shrimp

Ask pairs of students to search the rest of the picture book for further examples of classifying and describing adjectives. Use the prompting questions in the table above to support students in deciding whether or not the adjectives are classifying or describing the noun; *What type of noun? What does the noun look or feel like?*
AC9E4LA02 AC9E3LA03 AC9E4LA03

ENGLISH AND SCIENCE

- **Language of explanation:**

  Use the following link to compare the way *Volcano* is written to the First Nations' story of Budj Bim: https://www.earthdate.org/episodes/the-oldest-story-ever-told

  - Discuss the use of cause and effect language that is seen across sentences using the subordinating conjunctions that convey time and causality in *Volcano* to demonstrate. For example, 'as', 'that', 'until', 'eventually'.
  - As a class and in small groups, have students rewrite sentences explaining elements of the process outlined in *Volcano*, such as the change of state of sea water when the heat of lava is added.

  AC9E3LE01 AC9E4LE01 AC9E4LA06 AC9S3U04 AC9S3U03 AC9S3H02 AC9S4H02
- **Experiment with change of state:** Build in further Scientific investigation by demonstrating the change of state of water from ice to liquid to steam. Provide experiments for students that allow the exploration of change of state in a safe way,

such as melting chocolate through body heat. Based on the information provided in *Volcano*, make predictions about the changes of state prior to watching or conducting the experiments.

AC9S3U04 AC9S3U03 AC9S3I01 AC9S4I01

- **Food chains:** Use the illustrations as stimulus for conducting research into marine animals that live near submarine volcanoes. https://ocean.si.edu/ocean-life/invertebrates/hydrothermal-vent-creatures

  Create visual and verbal food chain diagrams to illustrate information reports about these creatures. Draw on research to include labels that explain the roles and interactions of consumers, producers and decomposers.

  AC9E3LY06 AC9E4LY06 AC9E3LY05 AC9E4LY05 AC9S4U01 AC9S3I04 AC9S4I04

- **Angle and distance:** Racklyeft uses angle and distance to both inform and engage the reader-viewer. Conduct a close viewing of the illustrations to investigate how Scientific information is conveyed via the illustrations.
  - Compare the illustrations of *Volcano* to diagrams of volcanoes such as those found on these sites: https://www.bgs.ac.uk/discovering-geology/earth-hazards/volcanoes/how-volcanoes-form/ , https://www.internetgeography.net/interactive-geography-diagrams/volcano-interactive-diagram/#google_vignette
  - Highlight the close-up and eye-level illustrations from the picture book compared to the long-shot, shot from above angles and distance demonstrated in the diagrams.
  - Use the diagrams to explain 'cross-section' for students and demonstrate how to create a diagram with this feature.
  - Jointly construct new diagrams of underwater volcanoes with the class, using Jess Racklyeft's illustrations as inspiration.

  AC9E3LY06 AC9E4LY06 AC9S3I04 AC9S4I04

ENGLISH AND VISUAL ARTS

- **Colour choice:** Colour is used in *Volcano* to create a visually appealing set of illustrations and to accurately represent volcanoes.
  - Compare the colour palette used in *Volcano* to that used in *Tree.* Use the colour wheel to help classify the colours used in each of the books as warm or cool colours. Discuss Jess Racklyeft's choice of warm tones in *Volcano.* Give students opportunities to experiment with primary and secondary coloured paints to reproduce illustrations from *Volcano* or innovations on these visual texts.
  - Review the colour choice of scientific diagrams of volcanoes and discuss the use of symbolism. Consider how the use of colour helps to convey scientific facts visually.
  - Investigate how artists of the past represented the subject of volcanoes. https://www.tomcoxstudio.com/artists-notes-1/volcanoes-in-art

Compare the colour choice and mediums used to represent the colour and light of volcanoes.

AC9E3LE01 AC9E3LA09 AC9E4LA10 AC9E3LE03 AC9AVA4C01 AC9AVA4D01

- **Vectors:** Racklyeft uses line to create vectors that represent the movement of lava during eruptions. Compare works such as Turners' 1821 *Eruption of the Soufriere* to investigate the way Racklyeft uses vectors to depict the eruption on the cover of *Volcano*. https://artuk.org/discover/stories/j-m-w-turners-the-eruption-of-the-soufriere-mountains-in-the-island-of-st-vincent-30-april-1812
AC9E3LA09 AC9E4LA10 AC9E3LE03 AC9AVA4C01 AC9AVA4D01

ASSESSMENT IDEAS

Comprehension questions

Literal:

- What causes a volcano to erupt?
- What are the differences between a volcano that forms under water versus one that forms on land?
- What are some of the marine animals included in the book?

Inferential:

- How do the colours of the illustrations convey meaning to the viewer?
- How are the angles and distance in the illustrations of *Volcano* different to those in a traditional non-fiction text?

Interpretive:

- What do you think Claire Saxby and Jess Racklyeft want readers to take away from reading this book? *(Possible answer: They want readers to be curious about the natural environment and interested in learning about and caring for the natural world.)*
- What does *Volcano* have in common with *Tree* and *Iceberg*? *(Possible answer: All three books are literary non-fiction, they aim to both inform and engage the reader-viewer.)*
- Why do the author and illustrator use language and illustrative style that is usually found in stories rather than non-fiction in *Volcano*? *(Literary non-fiction texts like* Volcano *aim to inform an audience who might not normally be interested in reading more scientific texts. The choice of language and illustration helps to engage a younger audience or an audience who don't consider themselves readers of non-fiction.)*

Descriptive writing

- Use the picture book's illustrations and webcams to stimulate further descriptive writing that innovates on *Volcano*. Write Dylan Thomas Portrait poems that capture the sight, sounds and smells of a volcano using noun and verb pairings. This creative writing idea is an opportunity to assess students' understanding of the process of

volcano formation as well as their understanding of present tense verbs and sophisticated vocabulary.

For example:

Have you ever seen a volcano?

Lava flashing

Gas seeping

Steam scorching

Seabed cracking

Eruption

Chimneys growing

Bacteria floating

Tube worm larvae waving

Shrimp scuttling

Colonisation

AC9E3LE05 AC9E4LE05

- Collect students' poems and assess them for the use of language learned during the activities. Use or adapt the following rubric to assist with the assessment of writing.

FEATURE	WORKING TOWARDS	ACHIEVING	WORKING BEYOND
SCIENTIFIC INFORMATION	A few facts included, some opinions or incorrect information included	Facts from the picture book included in the poem	Facts sourced from further research included in the poem
VERBS	A few interesting verbs included. Mostly present tense verbs.	All verbs included sophisticated/authorial, some replicated from the picture book. All present tense.	All verbs included are sophisticated/authorial. Some from outside the picture book/evidence of research. All present tense
NOUNS	A few appropriate nouns, mostly related to volcanoes	All nouns are scientifically accurate/authoritative, some replicated from the picture book.	All nouns scientifically accurate/ authoritative. Some from outside the picture book/evidence of research.

Scientific illustration

Ask students to draw a diagram to accompany their poem. Use or adapt the following rubric to assess student composition and some of the visual features taught through the activities.

FEATURE	WORKING TOWARDS	ACHIEVING	WORKING BEYOND
SCIENTIFIC INFORMATION	Illustrations mostly include the marine life mentioned in the poem	Illustrations include the marine life mentioned in the poem, from the picture book.	Illustrations include the marine life mentioned in the poem with evidence of research
DISTANCE	Illustration is shown from a close-up to show some detail of featured marine life	Illustration is shown from a close-up to show detail of featured marine life & volcanoes and includes a cross section to visually inform	Diagram shows a cross section to show detail of volcano in a close-up
ANGLE	Illustration is show from an indistinguishable angle or a combination of angles	Illustration is shown from eye level to better inform visually	Diagram is shown from eye level to inform scientific information visually

ABOUT THE AUTHOR

CLAIRE SAXBY was born in Melbourne, moved to Newcastle as a toddler and to Bougainville Island in PNG when she was ten. She attended many schools around Australia before studying in Melbourne to become a podiatrist. For several years Claire worked in community health while simultaneously writing for children. Her books fall into three main categories: our wonderful world, history and humour. Claire's work has won several awards including CBCA Picture Book of the Year, CBCA Honour Book, a NSW Premier's Literary Award, a SCBWI Crystal Kite Award, an Environment Award for Children's Literature, an Educational Publishing Award and the Whitley Award multiple times. She is widely curious about just about everything and passionate about encouraging curiosity and wonder. www.clairesaxby

ABOUT THE ILLUSTRATOR

JESS RACKLYEFT is an illustrator and sometimes author of over 40 picture books. She often combines collage – either on paper or digitally assembled – with experimentation and lots of watercolour. Jess worked in publishing sales for almost a decade before making the leap to full-time illustration, and since then has won several illustration accolades including CBCA Picture Book of the Year for *Iceberg* (written by Claire Saxby). Her work can now be found in bookshops and libraries across Australia, and her days are happily spent in a messy studio or on school visits. www.jessesmess.com

ABOUT THE WRITER OF THE NOTES

JENNIFER ASHA is a lover of children's literature. Picture books are her absolute favourite. When she is not immersed in a good book, Jennifer is an academic at the Australian Catholic University where she enjoys sharing her passion for literature, language and literacy with her Initial Teacher Education students. Jennifer is also an experienced primary school teacher who has taught in the classroom and in the library, across all grades. Jennifer has worked with teachers in schools to improve their practice for teaching literacy, conducted classroom-based research, and published articles and books that encourage teachers to teach literacy and language using rich literature resources. Her areas of special interest include the teaching of grammar, multimodal texts and visual literacy.

CORRESPONDING LITERATURE

(In alphabetical order of authors)

The Roman Mysterious: The Secrets of Vesuvius (Book 2) by Caroline Larence (Hachette)

Volcanoes & Earthquakes by Chiara Maria Petrone, Roberto Scandone and Alex Whittaker (CSIRO Publishing)

I Survived the Eruption of Mount St. Helens, 1980 (I Survived #14) by Lauren Tarshis (Scholastic)

ONLINE LINKS IN FULL

National Geographic: Volcanoes, explained:
https://www.nationalgeographic.com/environment/article/volcanoes

U.S. Geological Survey (USGS): Webcams show current conditions on Kīlauea Volcano:
https://www.usgs.gov/volcanoes/kilauea/webcams

Australian Curriculum Lessons: What are solids and liquids? A Lesson for Years 3/4:
https://www.australiancurriculumlessons.com.au/2017/04/08/solids-liquids-lesson-years-34/