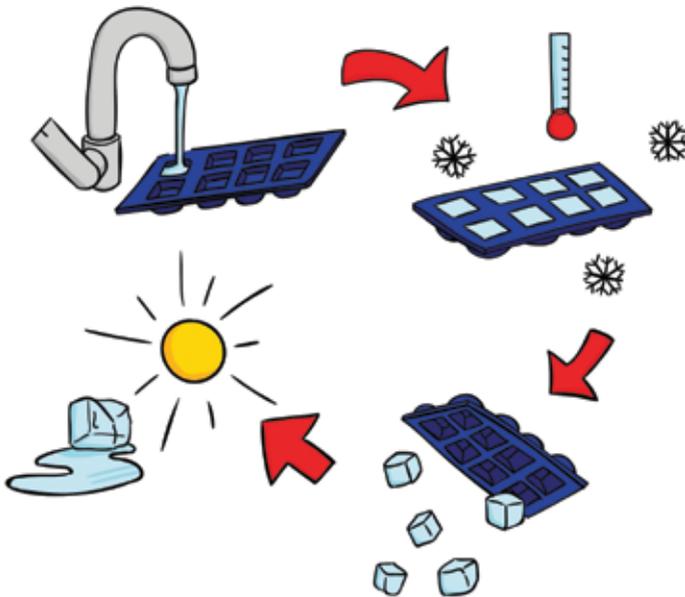




Melting and freezing

Chemical Sciences



Written for the Australian Curriculum: Science

Sienna Osborne | Randall Hall | Richard John

AUSTRALIAN CURRICULUM: SCIENCE

Strand:	Science Understanding
Sub-strand:	Chemical Sciences
Descriptor:	Everyday materials can be physically changed in a variety of ways

SCIENCE WORDS

Melt, melts, melting, freeze, freezes, freezing, heat, cool, liquid, solid, hard, soft, rigid

INFORMATION FOR PARENTS OR CAREGIVER

Helping your child learn to read is a rewarding and enjoyable experience for both you and your child. Here are some ways you can help your child with their reading.

BEFORE READING

- Introduce the book; read the title and look at the picture on the front cover. Ask what the book might be about. Look through the book and talk about the pictures.
- Ask your child if they know about physical changes or melting and freezing.
- Refer to the science words. Discuss each word and its meaning. These words will appear in the book.

DURING READING

- At this level, your child should attempt to read their home reader on their own. There may be words they are unsure of. Encourage them to break these words down into their individual sounds, blending them from left to right.
- Stop your child on the pages where Suzie the Scientist appears. Discuss the science vocabulary and interesting information presented.

SCIENCE CONCEPTS IN THIS BOOK

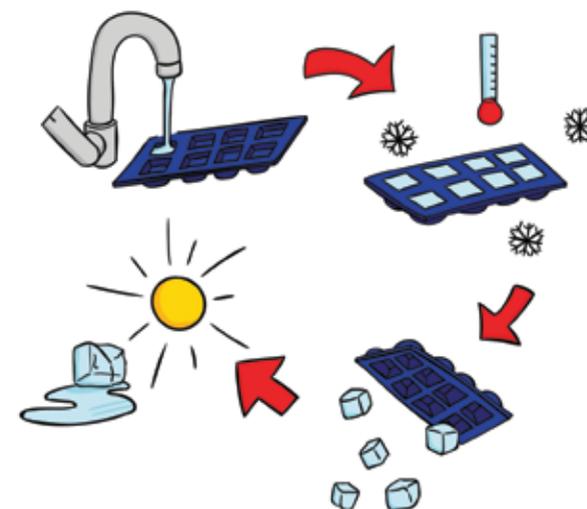
Materials (or matter) can be changed in two ways: via physical changes and/or via chemical changes. Chemical changes of matter (or chemical reactions) involve one or more types of matter being changed to different types of matter – *new substances are formed in chemical changes*. Examples include the burning of natural gas, the digestion of food, the rusting of steel and the growth of plants via photosynthesis.

Early in the *Australian Curriculum: Science* your child will learn about **physical changes** of matter. Cutting, bending or stretching materials to change their size or shape are examples of physical changes of matter – *no new substances are formed with physical changes of matter*.

One of the most important physical changes involves a **change in state**. When ice in the *solid* state melts to form water in the *liquid* state, this is a physical change – no new substances are formed. When water in the *liquid* state evaporates to form water vapour in the *gas* state, this is also a physical change. Ice, water and water vapour are the same material but in different states – i.e. the **solid**, **liquid** and **gas** states respectively.



Melting and freezing



Written for the Australian Curriculum: Science

Sienna Osborne | Randall Hall | Richard John

Yum! Luke loves to eat
ice-blocks.

He likes lemonade ice-blocks
the best.

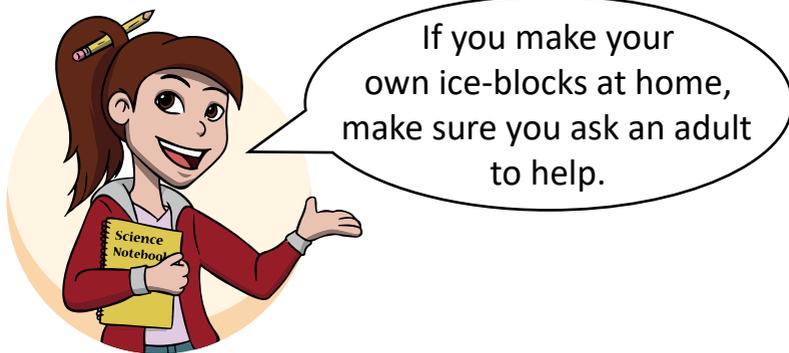
Luke wants to make his
own ice-blocks so he can
eat them all the time.



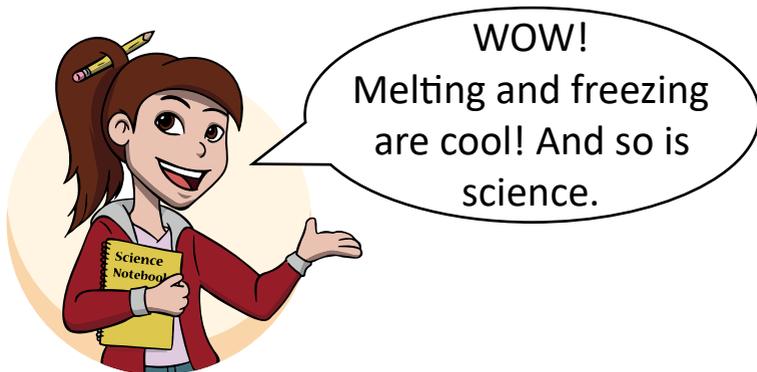
He asked Suzie the Scientist for help.

“Suzie, how can I make my own ice-blocks?” he asked.

“We need to go to the kitchen,” said Suzie.



“I am going to eat this all up before it melts,” said Luke.



AFTER READING

Ask your child what the book was about and encourage them to re-tell it in the order in which it appeared.

Discuss the following with your child to assist in understanding the content of the book:

- When your ice-block drips while you are eating it, is that melting or freezing?
- What causes freezing? How would you melt something?
- Can you describe how solids and liquids are different?
- Do you like solids, liquids or gases the best? Why?

First published in Australia in 2017
Publicious Pty Ltd

Copyright © Sienna Osborne, Randall Hall , Richard John 2017

Reproduction and communication

Apart from any fair dealing for the purposes of private study, research, criticism or review, as permitted under the Act no part of the this book may be reproduced, stored in a retrieval system, communicated or transmitted in any form or by any means without prior written permission. Inquiries should be addressed to the publisher

National Library of Australia Cataloguing-in-Publication data:

Osborne, Sienna; Hall, Randall; John, Richard

Melting and freezing

ISBN: 978-0-6481832-9-7

Printed in Australia

Acknowledgements

Series Illustrators: Gemma Duffill, Sam Dunn, Carissa Harris, James Elms

Series Graphic Artist: Sam Dunn

Series Consultants: Samantha Hutchinson, Gayle Brent

Images: Shutterstock

Community Partners

The authors gratefully acknowledge the support of the following people and organisations for their assistance in the production and distribution of this series:

Jock and Beverly McIlwain, Mermaid Waters, Queensland, Australia
Griffith University, Queensland, Australia
Rotary International, Australia, District 9640
P&Cs Queensland



Melting and freezing

Chemical Sciences

In this book Suzie the Scientist helps us learn about physical changes and in particular about melting and freezing. We learn that when we heat materials we can cause them to melt; we also learn that when we cool materials we can cause them to freeze. Suzie also teaches us the difference between solids and liquids.

Australian Curriculum: All books in the 'Suzie the Scientist' series are written for the *Australian Curriculum: Science* and align directly to what children learn in the classroom. This book addresses the learning outcome "Everyday materials can be *physically* changed in a variety of ways" from the Chemical Sciences sub-strand.



WOW! Melting and freezing are cool! And so is science.

PARENTS, READ ALONG WITH SUZIE!

Throughout this book *Suzie the Scientist* tells us interesting scientific facts. Use these pages to encourage further interest and discussion about **melting and freezing** with your child.

Suggested Reading Level:



PM 10-14, Fountas & Pinnell F-H

 **Griffith**
UNIVERSITY


Rotary
District 9640


P&C QLD
Supporting State Schools

ISBN 978-0-6481832-9-7



9 780648 183297 >

Publicious Pty Ltd | Gold Coast, Australia
www.suziethescientist.com.au