



EK BOOKS

TEACHER NOTES & RESOURCES

Title: Isaac Newton

Subtitle: Scientists Who Changed the World

Author: Anita Croy

Publisher: EK Books

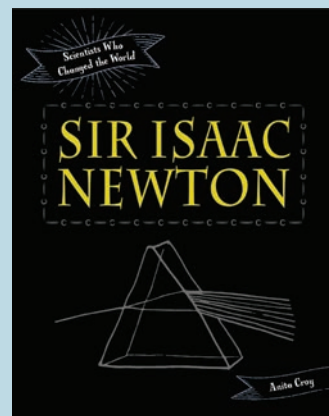
Price: ANZ \$24.99

ISBN: 9781925820713

Publication date: May 2020

Audience age: 8 - 13+ years

Key Curriculum Areas: Science, Social Science, English Literacy, The Arts, Writing



SYNOPSIS:

A guide to the life of well-known scientist Sir Isaac Newton. This book looks at Newton's biography, his reputation, the age of reason, experimental philosophy, the system of the universe, and Newton's lasting influence that changed the world.

KEY POINTS:

- Maths, physics, and perhaps even our understanding of gravity wouldn't be the same without the pioneering work of Sir Isaac Newton. Find out how his discoveries shaped our knowledge of the universe with this biography of his fascinating life.
- The captivating story of Sir Isaac Newton will enthrall any child with an interest in space, physics and maths, and may even inspire this interest in anyone who hasn't yet come to wonder at the invisible forces around us.
- An excellent way to introduce children to non-fiction, and to teach them about society in the past, present and future.
- Part of a wonderful series that looks at some of the world's greatest scientists and teaches young people about science and society.

SELLING POINTS:

Find out how Newton went from village boy to president of the Royal Society and one of the greatest thinkers since Galileo with this captivating biography of his life. With colourful illustrations, varied page layouts and quirky design, this book will enthrall any child with an interest in space and physics, and may even inspire this interest in those who haven't yet come to appreciate the wonders of the universe. Learn how Newton made his various discoveries, and about the success and legacy of his later life. Read accounts of his quarrels with other leading scientists of the time. Ultimately, find out what the life and work of this pioneering scientist can tell us about life and society, and how he has changed our understanding of the world around us. Part of a fascinating series that explains scientific discoveries that have changed our understanding of the world around us forever!



TEACHER ACTIVITIES/NOTES:

This book may be used in whole class, small group or independent learning activities in schools.

Please note, the following suggestions and activities are suited to a variety of year levels spanning from to Year 5 primary aged children up to Year 7 (13+). Where possible, Australian Curriculum goal codes have been included which address learning outcomes and apply directly to the targeted audience intended for this book.

Knowledge and Literal Understanding

Before Reading (Interpreting, analysing, evaluating)

Brainstorm as a class or in groups (only use prior knowledge, don't research):

- Who is Sir Isaac Newton?
- When and where was he born?
- What is he well known for?
- List any other information students know about him

Inferential and Critical Thinking

After Reading (Responding to text)

Ask the students:

- What are the students' impressions of Sir Isaac Newton's life?
- Did anything surprise or shock them?
- What would life be like if Newton had never researched and made his scientific discoveries?
- If you met Darwin, what questions would you ask him?

CROSS-CURRICULAR DISCUSSION AND IDEAS

ENGLISH LITERACY SKILLS

Vocabulary

Expressing and developing ideas

Understand the use of vocabulary to express greater precision of meaning, and know that words can have different meanings in different contexts

Look at the glossary.

- List the words and definitions of the words that you have learnt for the first time today. Include a small image or code to help you remember what the words mean.
- Choose 5-10 words and use a thesaurus or a thesaurus online to write 5 synonyms for each word.

Literature

Literature and context

Identify aspects of literary texts that convey details or information about particular social, cultural and historical contexts.

- Using the content in the book, create a timeline of Newton's life, including his key works.
- On page 30, four great thinkers of the age of reason are briefly mentioned. Choose one scientist and learn more about them, then display this information in any way you choose.

Examining literature

Recognise that ideas in literary texts can be conveyed from different viewpoints, which can lead to different kinds of interpretations and responses.

- Newton was known for his bad temper and easily held a grudge. Three quarrels are mentioned (page 48-51). What is your opinion of the three situations? Explain your reasoning.
- Research and find good examples of situations where scientists worked together to make key discoveries.
- Using the Venn diagram (attached), compare Newton and another scientist in the series. What were their differences and similarities?

SCIENCE

Science Understanding

Physical Sciences

Light from a source forms shadows and can be absorbed, reflected and refracted.

- Use the video 'Newton's Light Spectrum Experiment | Earth Lab' <https://www.youtube.com/watch?v=-b1F6jUx44> (2.47 minutes) and the content from the book to explain what Newton discovered about light. You can use text, images, a slideshow or animation.
- Use the video 'Sir Issac Newton's Life, Knowledge And His Discoveries | Vlog#32 by LAB 360' <https://www.youtube.com/watch?v=BWrLVEUfK1U> (6.09 minutes) and the content from the book to:
- Learn about Newton, his life, knowledge and discoveries, presenting the information in any way you like.
- Explain the 3 laws of motion. You can use text, images, a slideshow or animation.

Science as a Human Endeavour

Nature and development of science

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

- Explain the significance of Newton's laws of motion. You can use text, images, a slideshow or animation.



TEACHER NOTES: Isaac Newton

- Explain the significance of Newton's understanding of gravity. You can use text, images, a slideshow or animation.

Scientific knowledge has changed peoples' understanding of the world and is refined as new evidence becomes available.

- Newton said, "To explain ALL of NATURE was too difficult a task for any ONE MAN and even for any ONE AGE". What does he mean by this statement?
- Newton said, "My discoveries were only possible because I stood on the shoulders of giants". What does he mean by this statement?

Science Inquiry Skills

Evaluating

Use scientific knowledge and findings from investigations to evaluate claims based on evidence.

- What scientific findings did Newton discover in his research?

MORE ACTIVITIES BELOW...

Name: _____

Isaac Newton

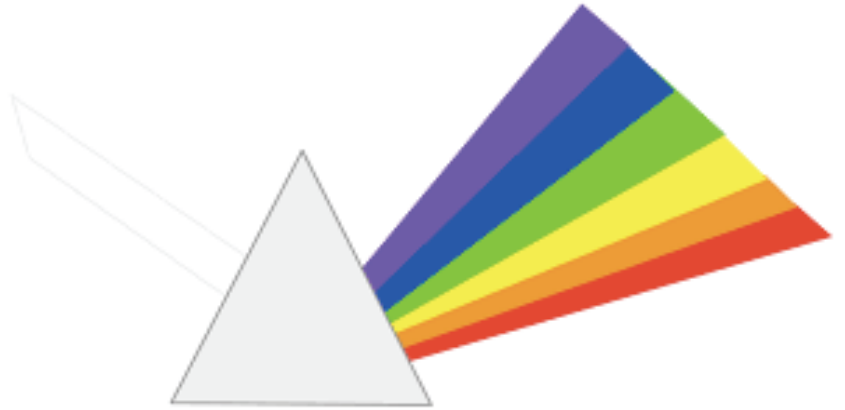


Born: _____

Died: _____

- Our modern understanding of _____ and _____ begins with _____.
- He was the first to understand the _____. He refracted _____ with a prism resolving it into its component colors:

R _____
O _____
Y _____
G _____
B _____
V _____



- People used to think color was a mixture of light and _____, and that _____ colored light.
- Newton set up a prism near his _____, and projected a beautiful _____ onto the wall.

Name: _____

Sir Isaac Newton

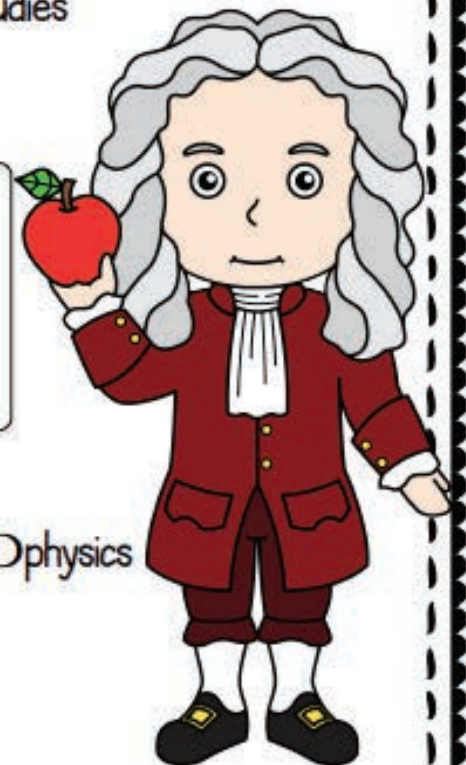
Sir Isaac Newton was born on January 4th, 1643 in Woolsthorpe, England. He was a pretty good student in school and he loved to learn. Newton attended college at Cambridge University and eventually became a professor there. From 1665 to 1667 Newton had to leave Cambridge because of the Great Plague. He spent these two years studying at his home in Woolsthorpe. It was then that Newton started developing his theories on calculus, gravity, and the laws of motion. In 1668 Isaac Newton invented the reflecting telescope. He is known as one of the most influential scientists of all time.

1. Which of the following was most likely Newton's favorite subject in school?

- math science reading social studies

2. Fill in the missing information

CAUSE	The Great Plague hit Cambridge in 1665.	EFFECT	_____ _____ _____
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3. Which two theories did Newton develop?

- laws of motion geometry gravity physics

4. What did Newton invent in 1668?

Name: _____ Answer Key _____

Sir Isaac Newton

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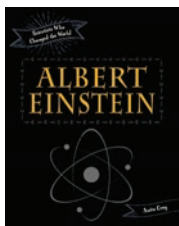
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4. What did Newton invent in 1668?

_____ reflecting telescope _____

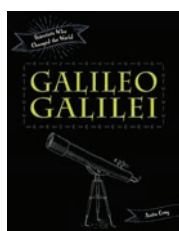


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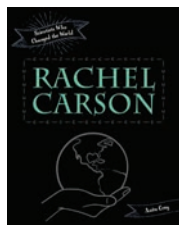
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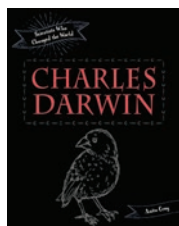
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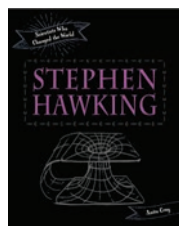
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