

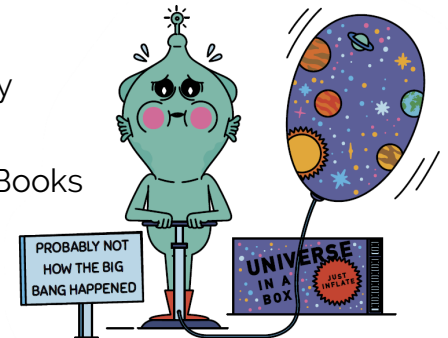
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Educator's Guide: **A Quick History of the Universe: From the Big Bang to Just Now**

With Curriculum Connections, Discussion Questions and Activities
By Clive Gifford, illustrated by Rob Flowers

Curriculum Connections, Grades 3-7
English Language Arts, Science/History

Guide created by We Love Children's Books



Objective

Students will read the book independently; participate in a class discussion; and complete independent activities using the book as a springboard.

About the Book

What was the universe like when it was a few seconds old? How had it changed by its millionth birthday? And when did time even start, for that matter?! The story of the last 13.8 billion years in one handy volume, you can read about the start of stars, the growth of galaxies and the production of planets. Packed with facts and fun cartoons, **A Quick History of the Universe** tackles the biggest topic in the universe – literally – in chronological order.

About the Author

Clive Gifford has traveled to more than 70 countries, climbed rocket launch towers, ridden on robots, and flown gliders. He's had more than 200 books published and has received nominations for or won Royal Society, School Library Association, Smithsonian, and TES awards. He won the Blue Peter Book Award for Best Book with Facts 2019 for his title The Colors of History. Clive lives in Manchester, UK.

About the Illustrator

Rob Flowers channels his love for ghoulish characters, psychedelic colors, and anthropomorphic food into his bright and brilliant work. To the backdrop of a hoard of vintage action figures and Happy Meal toys, he creates his illustrations that embody this obvious love for humor and characters. He is the illustrator of A Quick History of Money for Wide Eyed Editions.



Post-reading discussion questions

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1. How long ago do scientists think the Universe began? How did it begin? Why is this event called the Big Bang?
2. Just how short was the Planck Era? Who was it named after? What came after the Planck Era? What made up the "cosmic soup"? What are quarks? What are the six types of quarks?
3. What are the tiny building blocks that make up every physical thing in the Universe? What does an atom contain? How do atoms create matter? How many dimensions does matter have? What are they? And how many dimensions does time have?
4. How many different chemical elements are there? Can you name some examples? What is the most abundant element in the Universe?
5. What are the "fab four" fundamental forces that emerged after the Big Bang? Which one holds the Universe together? What is gravity? Who was the first scientist to study and understand it?
6. What is the name of our galaxy? What is the oldest galaxy astronomers have discovered and how old is it? How are super galaxies formed? About how many galaxies are there? How do astronomers group galaxies together? Can you name a few superclusters?
7. How are star systems different from single stars? How many stars are in our galaxy? What are some of the different ways that astronomers group stars together? Why do stars eventually die? How many years of life does our star (the Sun) have left?
8. What are brown dwarf stars? How many are there in our galaxy? What are red dwarfs and how long do they live? What do they transform into? How are white dwarf stars formed?
9. How are black holes formed? What is a supermassive black hole? What is spaghettification? If you are being pulled into a black hole, what is the name for your point-of-no-return?
10. How were the planets in our solar system formed? How many are there? Which planet was demoted to a dwarf planet? How are the inner planets and outer planets different? Where does the word planet come from?

11. Which moon did Galileo Galilei discover? How many moons have been discovered in our galaxy? Which two are the biggest? What are the names of some of the other moons? How are moons formed? What does it mean that moons are tidally locked?

12. How small—and large—can asteroids be? How many are found in the asteroid belt? How were asteroids involved with the death of the dinosaurs? How are meteors different from asteroids? What's the difference between meteors, meteoroids, and meteorites? What is a meteor shower? How many meteorites land on Earth each year? What is the biggest ever discovered?

13. What is Earth's mantle and how thick is it? How was it formed? What are the tectonic plates that sit on top of it? What happens when these plates grind together? What are Gondwanaland and Laurasia?

14. How long ago did life begin on Earth? Who were the first inhabitants? What is photosynthesis and how did it enable more life to evolve? When did Earth's early life come out of the oceans onto land? What kind of life emerged? How long did dinosaurs live on the Earth, and how long ago did they die out?

15. When did Homo Sapiens appear? What is the Universe-in-a-year caper called? Who made it popular?

16. What are exoplanets and how many have been found? What properties would an exoplanet have to have, to sustain life? What are some of the ways scientists reach out to find possible alien life?

17. What are some of the theories about how the Universe may eventually end? What is the difference between the Big Rip and the Big Crunch?

18. How do scientists measure space's vast differences? What is the speed of light?

19. What country made the first rockets? Who flew the first rocket that used liquid fuel? Which country launched the first artificial satellite? What was it called? What year was it launched? Who was the first man to fly in space? The first woman? Who were the first astronauts to land on the moon? What year?

English Language Arts

Choose one of the books suggested in the “To Infinity...and Beyond” section, read it, and write a book report about it.

Ancient cultures made up stories and myths to explain astronomical phenomenon. Write your own story to explain why stars, planets, galaxies or comets exist.

Research modern-day careers involving astronomy or space travel, and write an essay explaining the pros and cons of each one.

Imagine that you are a journalist who has been asked to write an article about Namibia as a tourist destination. Write the article, focusing on the Hoba Meteorite—when and how it arrived, what scientists have learned about it and how visitors can see it.

Are we alone in the universe? Write a story imagining our “first contact” with alien life.

History/Science

Complete the cosmic quiz given in the book—and after you're done, look at the answers to see how you did!

Choose one of these subjects, conduct research, and write a report:

- The Periodic Table
- Atoms, protons, electrons, neutrons
- The electromagnetic spectrum
- Cosmic Microwave Background
- Edwin Hubble
- Galileo Galilei
- Sir Isaac Newton
- Carl Sagan
- Moon landings



More in the Quick Histories series



A Quick History of Money (9780711262751)

A Quick History of Politics (9780711262744)

A Quick History of Math (9780711249035)