Teaching Notes & Resources

Key Stage 2-3

Themes: The Timeline of Our Solar System | The Formation of the Sun | Gravity| Planet Orbits

Purchase

INTRODUCING THE TOPIC!

Discover the cosmic ingredients of stars, planets, moons and more!

For space lovers of all ages, get to know our solar system in a fun and memorable way! It's an 'astronomy cook book' with ingredients that include stardust and solar winds! Professor Raman Prinja, a true expert when it comes to cosmic ingredients, breaks down the steps that formed our little corner of the Universe.

Answer the following questions in preparation for learning about the themes and ideas introduced in the book: *Recipe for a Solar System.*

- Our solar system is made up of different objects: the Sun, planets, moons, asteroids, comets, and dwarf planets. Can you name some or all the planets in our solar system?
- What type of object is the Sun?
- What is the largest thing in our solar system?
- What is the force that keeps everything in circle-shaped orbits around the Sun?

KEY TERMS AND THEIR DEFINITIONS

Before you read Recipe for a Solar System, create a glossary of key vocabulary and important scientific terms. Find a starter list below; add more words to your glossary as you read.

Atmosphere; Comet; Cosmic body; Dwarf planet; Gravity; Mass; Matter; Nebula; Nuclear fusion; Orbit; Solar System; Star; Supernova; Tectonic plate; Universe.

CHALLENGE!

Use the introductory text on pages 4–5 of the book to create an illustrated timeline of amazing events showing the formation of our solar system. Complete the sentences below:

The Sun was formed ……. billion years ago.
The ‘giant planets’ ……., …….. and …….. were formed first.
A …….. collided with Earth 4,500 million years ago to create the Moon.

PEEK INSIDE: CASE STUDY – THE FORMATION OF OUR SUN

Read pages 10–11 in which we learn more about the birthplace of the Sun and planets. Introducing the solar-nebula cooking pot…

DISCUSSION QUESTIONS:

1. What is a nebula? How big was the nebula from which our Sun was formed?
2. What was required to make the matter inside the nebula ‘come together’?
3. What is a ‘supernova explosion’?
4. Which force helps to ‘squeeze’ and ‘spin’ the cloud of gas?
5. How is the pancake shaped formed? What is this ‘flat gas structure’ known as?
6. How long did the process take?

CHALLENGE!

In the book there are lots of different ‘recipes’ to explain different scientific processes – from creating the ‘layers’ of different planets (pages 26–27), making a ‘big batch’ of moons (pages 34–35) and ‘icing’ the rings of Jupiter, Saturn, Uranus and Neptune (pages 36–37). Which recipe is your favourite? Carry out a classroom ‘Masterchef’ competition in which you present your chosen recipe to the judges (your teachers or fellow classmates). Who can present their recipe most clearly so that everyone correctly understands the ingredients and process?

REFLECTION ACTIVITIES

- ·Reflect on the recipe-style of the book. Did it help you to understand the complicated scientific processes a little bit better? Why or why not?

- Try out the real-life recipes for ‘Iced Planet Biscuits’ and ‘Moon Rock Munchies’ on pages 44–47. Can you come up with your own space-themed recipe? [Design – option to link to these downloads?

- Create an A3-sized drawing or infographic to summarise what you have learned about our solar system after reading the book. Try to include some of the objects you perhaps didn’t know much about before: asteroids, moons, comets, and dwarf planets. Label and define these different objects.

- Spend some time looking up at the night sky. You might want to keep a Night Sky Diary to sketch and record what you see.

- Read pages 16–17 to learn more about the different orbits of the ‘inner planets’ in our solar system: Earth, Venus, Mars, and Mercury (these are the four planets closest to the sun). Create a model or representation to show how these planets are spinning on their axis, as well as orbiting the Sun. Perhaps you could work with a group to create a dance? Perhaps you could make a 2D model using card and split pins? Or maybe you could create a 3D model using plasticine? It’s up to you!

- Once you have created a model for the inner planets, you can then use pages 18–19 to add the outer planets: Jupiter, Saturn, Uranus and Neptune. What are some of the differences between the inner and outer planets? Which planet has the longest orbit around the Sun? Why?

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SHAPES for schools