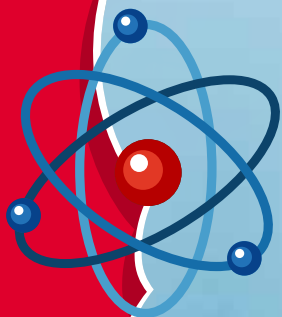# Mini Science Newsletter

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POWERED BY **SPRINGER NATURE**

IN ASSOCIATION WITH **INDIAN INSTITUTES OF TECHNOLOGY**

Hello young scientists!

Welcome to the first MINI Science Newsletter!

Here, you'll find exciting discoveries happening right now in India's science. Think of this as a fun way to go beyond your school science books, which do a great job of teaching you the fundamentals.

But science is all around you, every day!

This newsletter will help you discover how Indian scientists are making new inventions, solving big problems, and exploring the world in ways that can change our future.

In this first issue, we have 'superstars' being born in space, mosquitoes outsmarting bacteria and a water-repellent fabric that keeps you dry no matter what.

How do **mosquitoes** stay safe while spreading infection?

Mosquitoes love to snack on your blood (ouch!). They carry microbes in their gut that can make you sick. But wait! If mosquitoes are chauffeuring these bacteria and viruses why don't they get sick? Scientists have found that certain proteins in the cells of their gut equip them with immunity against these microbes. Now that scientists know this, they could potentially stop them from spreading diseases like dengue and zika.

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How a mosquito evades bacterial infections

2

How are stars made?

9,523 light years away from Earth are cold regions made of gas and dust that are creating massive stars, even bigger than the Sun. Scientists say these giant stars make heavy elements like carbon and neon that help form galaxies, planets, and life.

CLICK TO READ MORE

How massive stars form

3

Denizens of freshwater need your help!!!

You have probably seen dragonflies, right? The tiny flying acrobats with big, shiny eyes that catch bugs in midair. Did you know that these dragonflies, and other freshwater species like fish, crabs, and shrimps are in trouble?

Many of them are at risk of disappearing. Freshwater animals keep rivers and lakes clean, help control floods, and even help fight climate change. Without them, our world would be very different.

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A quarter of freshwater species risk extinction

4

Microbes that thrive in boiling water

Imagine living in boiling water. Sounds impossible? A microorganism called Sulfolobus acidocaldarius does just that. It thrives in hot springs, where temperatures can reach up to 113°C. Scientists are looking at how these bacteria survived on early Earth when conditions were almost uninhabitable.

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How microbes thrived in Earth's harsh beginnings

5 Cotton that repels water

Now you can play football even in muddy monsoons without turning into a soggy sponge, thanks to scientists who have created a water-repellent fabric. The fabric can keep you dry and comfy. Perhaps you will see this new material on sportswear shelves once the scientists figure out a way to market it.

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New wearable cotton textile repels water

6

Good bacteria in your gut are working hard to keep you strong

Antibiotics guard you against harmful microbes. But sometimes, they can also harm good bacteria in your gut that help you digest food and stay healthy.

Scientists have found that there are some good bacteria in our gut that can not only withstand antibiotics but also help bring back the balance of other good bacteria after we use them.

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A friendly gut bacterium resists anti-TB drugs

7

Burning trash?
Think twice.

Did you know that burning trash pollutes the air even more than burning coal? Scientists have found that when we burn garbage, it sends particles into the air that are so tiny they can sneak into our lungs, making it harder to breathe and causing heart problems.
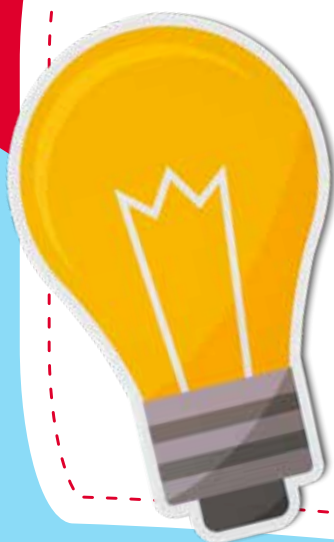
CLICK TO READ MORE

Waste burning near Tamil Nadu power plant pollutes more than coal

Fun Fact

Did you know that there are about 100 trillion bacteria living inside your gut? These are way more than the stars in the Milky Way.

Know a fun fact or working on a cool science project?

Write to us at

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We want to hear from you!

Want to learn more?

If there is something you are curious about, ping us at

https://macmillaneducation.in/

We will try to include it in the next issue!

For more science news, views, opinions, research highlights and podcasts, head to Nature India www.nature.com/natindia