



# LIGHTHOUSE



BY BCGIANS, FOR BCGIANS

## February: A Month of Inspiration, Reflection, and Focus

February is here, and it's packed with opportunities for growth, inspiration, and a little bit of pressure. From celebrating women in science to diving into exam prep, there's a lot to focus on in these 28 days.

International Day of Women and Girls in Science is a time to recognize the incredible women and girls who've made their mark in STEM. Women have always been pioneers in science whether it is Dr. Tessy Thomas, the first woman to lead a missile project in India, or Dr. Aditi Pant, the first Indian woman to visit Antarctica, contributing to significant oceanography and climate research. This day highlights their contributions, inspiring future generations to follow in their footsteps.

On National Science Day, we celebrate how far curiosity and innovation can take us. Whether you're a science enthusiast or just someone who appreciates learning, it's a great opportunity to reflect on the role science plays in our lives and reignite your curiosity.

February also signals the start of exam season. With deadlines approaching, it's natural to feel stressed, but exams aren't just about cramming—they're a chance to show how much you've grown and learned throughout the semester. Instead of focusing on the pressure, see exams as a chance to celebrate the knowledge you've gained. Set aside time to reflect on your progress, and engage in activities that support your growth like journaling, peer review of concepts, etc.

So, take a deep breath, stay focused, and make the most of this month!

By the Editorial Team



## DR. SHWETA RAGHAVAN: A SOURCE OF INSPIRATION

My favourite female scientist is Dr. Shweta Raghavan, whose work in molecular biology has greatly inspired me. Dr. Raghavan's research focuses on cell signalling, molecular interactions, and their role in diseases like cancer and neurodegeneration. Her innovative use of gene editing and protein interaction mapping to explore how genetic variations impact human health is significant. What inspires me most about Dr. Raghavan is her ability to connect basic research with clinical applications, working toward more effective treatments. As a woman in a field often dominated by men, she has shown incredible perseverance and passion for science, proving that dedication and curiosity can lead to impactful discoveries. Her success encourages me to pursue my scientific interests and believe in the power of research to change the world.

Submitted by **Ashlesha Mane**  
Grade 6, DSRISM



## IF I WERE A SCIENTIST

If I were a scientist, I would dedicate my life to uncovering the mysteries of the world and finding solutions to improve lives. I would choose a field like environmental science or medicine, where my research could address pressing global issues such as climate change or diseases. My days would be filled with experiments, data analysis, and brainstorming new ideas, all driven by a passion for discovery and innovation. I would also work to inspire young minds, showing them how science can make the impossible possible.

As a scientist, I would embrace curiosity, persistence, and creativity. Challenges would motivate me to think outside the box and keep learning from failures. I would strive to make meaningful contributions, whether by creating sustainable technologies, discovering new treatments, or advancing our understanding of the universe. Being a scientist would not only fulfill my desire to explore but also allow me to make a lasting difference in the world.

**Submitted by Jaanvi Shetty**  
**Std. 6, BCSE**



## THE COOLEST INVENTION EVER

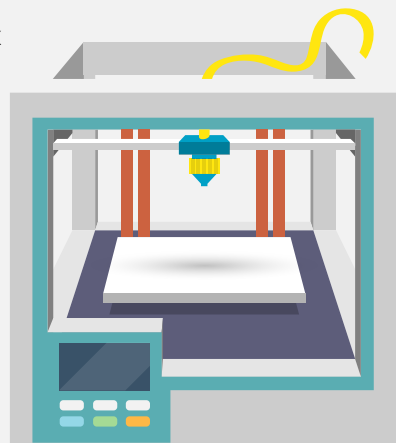
In my opinion, the coolest invention ever is the 3D printer. It creates three-dimensional objects by printing layer by layer using advanced technology.

3D printers are incredibly useful for architects, engineers, and designers, allowing them to create and refine models. They also enable the production of complex structures that traditional manufacturing cannot achieve. Beyond that, they are revolutionizing medicine by helping create dental implants, prosthetics, and even human organs using special filaments!

Surprisingly, 3D printers can also construct houses! Tvasta Manufacturing Solutions, founded by IIT Madras alumni, built a 600-square-foot home in just five days using this technology.

From healthcare to construction, 3D printers are transforming industries. Don't you think they're the coolest invention ever?

**Submitted by Aditya Naik**  
**Grade 7, DSRISB**

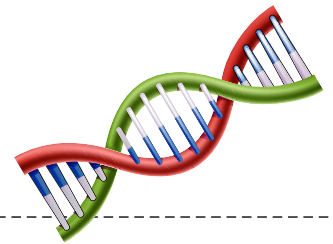


## THE SCIENCE OF DNA AND CLONING: A LOOK AT POSSIBILITIES

DNA, the very essence of life, provides the foundation for cloning – the creation of a genetically identical copy of an organism. The scientific community continues to explore the potential of cloning, though the ethical implications of human cloning remain a significant point of discussion.

Imagine the knowledge to be gained from a clone of Leonardo da Vinci. His diverse talents in art, science, and engineering could offer unparalleled insights into the workings of human brilliance. It would be great if the clone of Leonardo da Vinci could give his input to the young artists of the world. It would inspire millions of people. We will be indeed blessed to get an artist from the medieval world amongst us today.

**Submitted by Sejal Gupta**  
**Std. 8, VBSV**



## AN AREA I WOULD LIKE TO RESEARCH - UNLOCKING THE POWER OF RENEWABLE ENERGY

In an era defined by environmental challenges, the area of research I aspire to explore is renewable energy. With global concerns about climate change and dwindling fossil fuel reserves, the need for clean, sustainable energy sources has never been more critical.

Renewable energy, such as solar, wind, and hydroelectric power, holds immense potential to revolutionize how we meet our energy demands. My interest lies in investigating innovative technologies that enhance efficiency and affordability, making renewable energy accessible to all. For instance, advancements in solar panel efficiency and energy storage systems could significantly reduce our dependence on non-renewable resources creating a world that we have always imagined.

The reason I am drawn to this field is its transformative impact on both the environment and society, especially learning about it in an enlightening Physics lecture. Transitioning to renewable energy not only reduces carbon emissions but also promotes energy independence and creates job opportunities. By contributing to this area of research, I can play a role in addressing one of humanity's most urgent challenges of achieving a sustainable future.

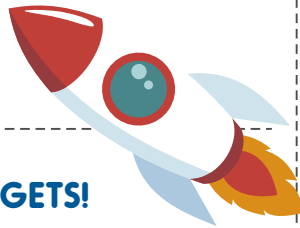
**Submitted by Aamina Batliwala**  
**Grade 9, BCISW**



## MY FIRST STEP INTO THE WORLD OF SCIENCE

My first science experiment was exploring invisible ink, mixing baking soda with water to write secret messages on paper. The real magic happened when a weak acid revealed the hidden writing. This simple experiment introduced me to acids and alkalis, sparking my curiosity. While others played outside, I was absorbed in the process, as though the book had captured me, each page revealing new chemical wonders. As a child who always asked "why?", this experiment didn't just answer a question—it opened a door to endless possibilities. It felt like the start of a lifelong adventure, where every discovery unlocked a new key to the vast, mysterious world of science.

**Submitted by Twisha Gosar**  
**Grade 6, DSRISM**



## LIFE WITHOUT GADGETS!

A world without gadgets or the internet might seem unimaginable today, but it would offer a unique opportunity to reconnect with the simpler joys of life. Without constant notifications or screens, people would focus on meaningful face-to-face interactions, fostering stronger relationships and deeper connections. Communities would thrive as individuals spend more time engaging in outdoor activities, shared hobbies, and local events. Creativity and imagination would flourish as people would rely on books, nature, and personal experiences for entertainment and learning. Children would play freely, discovering the wonders of their surroundings rather than being tied to devices. This slower-paced life would encourage mindfulness, reduce stress, and promote a sense of balance. In this unplugged world, humanity would rediscover the true essence of living.

**Submitted by Maisha Bhavsar**  
**Std. 7, DSRVB**



## IF I WERE A SCIENTIST

Oceans and seas have always captured my interest; the ocean currents, life underwater, aquatic plants, and so on. Sadly, our oceans are now under threat due to various human activities and their ill effects on marine life.

Hence, if I were a scientist, I would choose to investigate and learn more about oceans. Due to climate change and global warming, the ocean water is becoming warmer and acidic making it difficult for marine life to adapt and survive. I would work with organizations to protect ocean life and restore the coral reefs by finding possible solutions for effective treatment of ocean waste, preventing overfishing, reducing the effects of oil spillage, etc.

## THE INVENTION OF THE RADIO

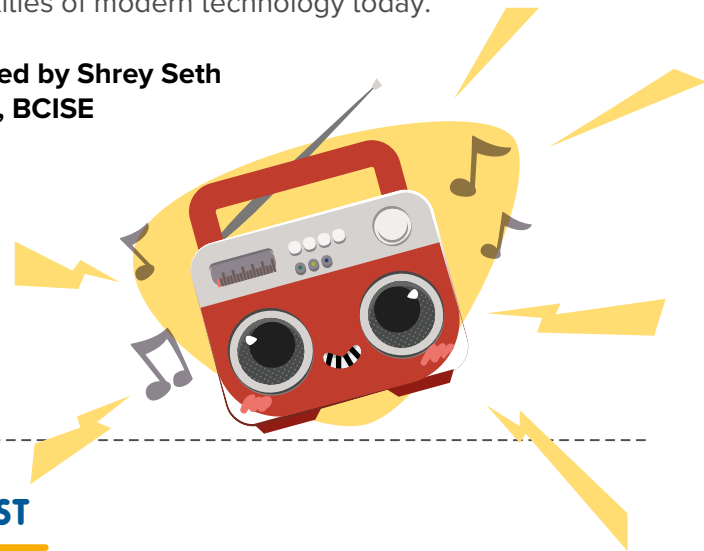
The advent of gadgets has brought numerous benefits making them subtle yet powerful tools. However, they can have downsides and limitations such as harming our sight, posture and memory. When asked about my opinion, I highly recommend the "RADIO" which is the oldest form of gadgets.

In the realm of technological innovations, few gadgets have left an indelible mark on human history like the radio. The invention of the radio was undoubtedly one of the most significant breakthroughs of its time. It opened the floodgates of information and transformed global communication in an era when access to mass information was scarce. Therefore, I consider the radio to be the coolest gadget of its time.

It was a device that was used by our grandparents but still, it is popular in today's day. One can enjoy listening to educational audios, general knowledge, and music! Nowadays, the radios are used in cars and airplanes for communication and music.

To conclude, the radio was truly a game changer and a pioneering device that continues to inspire new generations of inventors, engineers, and communicators. While it is easy to view the radio as a mere relic and overlook its humble beginnings, this groundbreaking instrument laid the foundation for a communication revolution. Its legacy continues to influence the complexities of modern technology today.

**Submitted by Shrey Seth**  
**Grade 7, BCISE**



It would be worthwhile to make a positive difference to the seas and oceans while discovering its amazing mysteries.

**Submitted by Keith Fernandes**  
**Grade 6, DSRISM**



## HOW INCULCATING A SCIENTIFIC TEMPERAMENT WILL SHAPE MY FUTURE

Inculcating a scientific temperament is not just about excelling academically; it's about embracing a mindset that values inquiry, evidence, and critical thinking. This outlook has the potential to shape my future in profound ways, equipping me to adapt to challenges and seize opportunities in an ever-developing world.

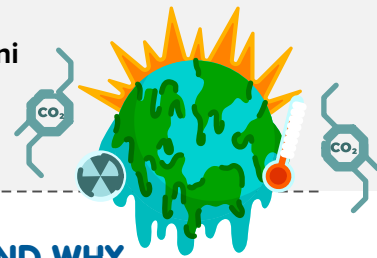
When I embrace scientific thinking, I begin to question the "why" and "how" of things instead of accepting them at face value. This habit not only sharpens my analytical skills but also fuels my curiosity. Whether it's understanding how technology works, finding innovative solutions to problems, or analyzing situations logically, this approach empowers me to think critically and act wisely in all aspects of life.

What's more, it teaches resilience. In science, failures are not the end—they're steps toward discovery. Adopting this attitude helps me view setbacks as opportunities to learn

and improve. This ability to persevere and grow through challenges will keep me motivated and focused, even in the face of adversity.

Additionally, fostering a scientific mindset encourages creativity and innovation. Applying logic and reasoning better equips me to tackle global issues such as climate change, technological development, and sustainable living. My contributions can not only benefit me personally, but also positively impact society by solving complex problems. In conclusion, inculcating a scientific temperament is more than a skill; it's a way of life. It will empower me to grow, persevere, and create a future brimming with possibilities, opportunities, and meaningful achievements.

**Submitted by Mohammed Dadani  
Grade 9, BCISW**



## ONE EXTINCT ANIMAL FROM HISTORY I WOULD LIKE TO CLONE AND WHY

In recent years, the idea of cloning animals—whether extinct or endangered—has become less of a fantasy and more of a scientific possibility. If I was ever allowed to clone an extinct species, I would choose the Tasmanian Tiger also known as Thylacine. This unique marsupial, which vanished in the 1980's played a crucial role as an apex predator in Tasmania's ecosystem.

As the creature was at the top of its food chain, its extinction left a notable gap, allowing certain prey species which consists of birds and other marsupials like bandicoots, sugar gliders, and wallabies which are abundant in

Tasmania to overpopulate. Reintroducing such a predator could help restore the balance in ecosystems that may have been disrupted by its extinction. The cloning of the Thylacine could also help in spreading awareness about endangered species, especially in today's time where more than 40,000 species are currently on the brink of extinction. Its reintroduction could also spark awareness about biodiversity loss and the importance of conservation efforts.

**Submitted by Myra Dcunha  
Std. 8, VBSV**



## A GADGET-FREE WORLD!!!

A gadget-free world would drastically change our daily lives. Without phones, laptops, or TVs, communicating with relatives in emergencies would be a nightmare—messages would take days to reach through traditional mail. Entertainment options would be limited to activities like dancing and singing, leaving little variety for fun. Even tasks like printing documents would be a challenge; imagine needing to hand-copy hundreds of posters! More intensely, think of nights without lights or summers without fans or A.C. People would likely sleep earlier and possibly even sleep outdoors under the stars. While a gadget-free world might feel peaceful, it would also be challenging.

Would we miss the convenience and connection that gadgets bring, or would we find new, simpler ways to live?

**Submitted by Samanyu Mehatkar  
Grade 7, DSRISB**



## INTERESTING READ

### The ozone layer is healing—a rare environmental success story!

Thanks to the 1987 Montreal Protocol, which banned harmful CFCs, the ozone hole is slowly shrinking. Scientists predict full recovery by 2066 over Antarctica. Volcanic eruptions and climate change can slow progress, but recent studies show unexpected ozone increases in some areas. Excitingly, artificial ozone-repair technologies are being explored. The ozone layer's recovery proves that global efforts can fix environmental damage, offering hope for tackling climate change and other ecological challenges. Once dangerously thinned by chemicals like CFCs, it faced a crisis that could have led to more skin cancers, crop damage, and climate shifts. But in 1987, the world took action with the Montreal Protocol, banning ozone-depleting substances. The result? A slow but steady recovery.

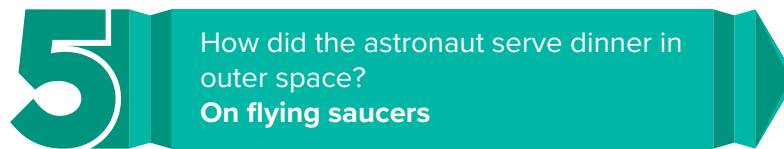
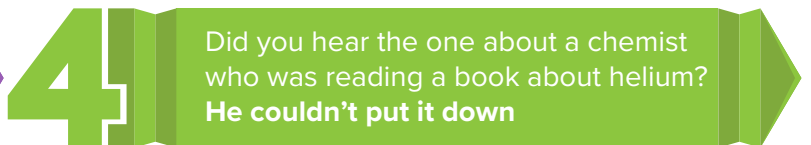
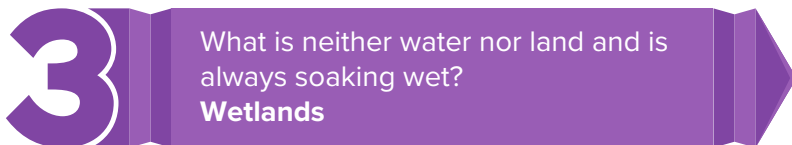
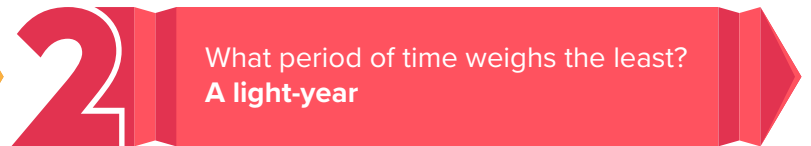
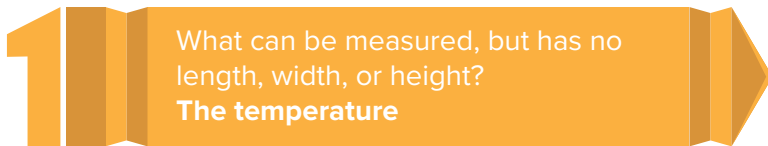
Interestingly, the ozone layer repairs itself naturally through

chemical reactions in the stratosphere. However, certain gases like nitrous oxide ( $N_2O$ ), a byproduct of agriculture, still threaten its recovery. Some scientists propose injecting ozone or using lasers to speed up healing. Unexpectedly, space missions and rocket launches also damage the ozone layer temporarily.

When the world works together, we can fix even the biggest environmental problems. The ozone crisis was once a disaster—but today, it's a comeback story!

*While the healing of the ozone layer is a positive step forward, we must continue to work consistently and diligently to sustain this progress, ensuring long-term benefits for the well-being of humanity and the planet.*

## RIDDLES – JUST FOR LAUGHS



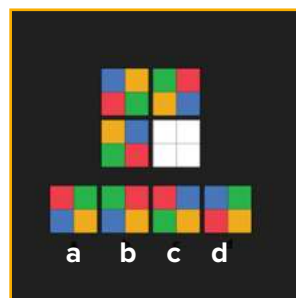
## TOP BRAIN TEASERS



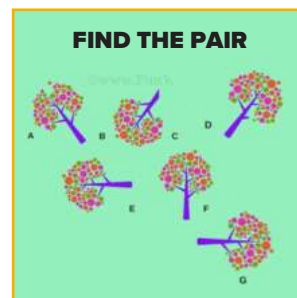
Answer: 5



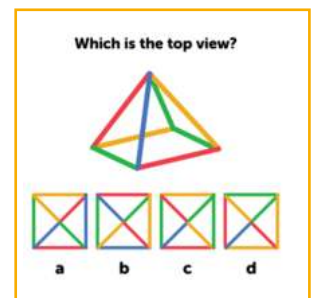
Answer: 8



Answer: a



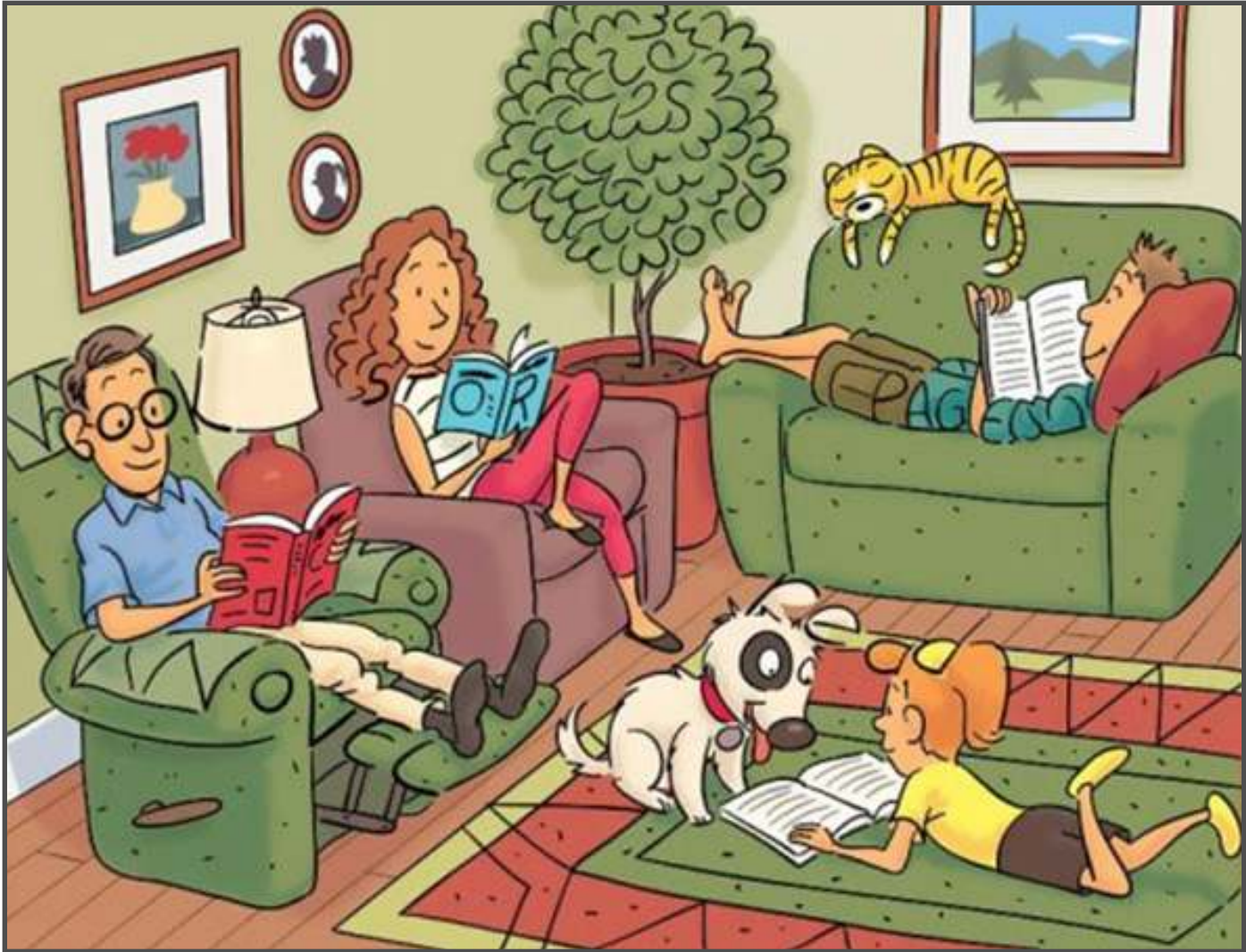
Answer: C & G



Answer: C

## BRAIN TEASER PICTURE PUZZLE

In this fun quiz, try to spot all 6 words hidden inside the family's living room picture.



### Answers:

1. **Book** - The word 'Book' is written across the man's face in the picture.
2. **Novel** - The word 'Novel' is written on the side of the man's couch in the picture
3. **Story** - The word 'Story' is written across the woman's book in the picture
4. **Words** - The word 'Words' is written on the Plant in the picture.
5. **Page** - The word 'Page' is written on the cloth of the kid on the couch in the picture
6. **Read** - The word 'Read' is written on the heads of the dog and girl in the picture

## CELEBRATING THE ILLUSTRIOUS BCG ALUMNI

Dream Big – Set Goals – Take Action



**Gagan Amin**  
Batch of 2020

Athlete (Achievements at District, State and National Level)

## ARTIST OF THE MONTH



Submitted by Palak Jadhav  
Std. 6, BCSW

## FAILING FORWARD: HOW MISTAKES DRIVE SCIENTIFIC PROGRESS

Failure is an indispensable ingredient in science. It's not merely where the action starts, but what propels scientific understanding forward. Mistakes are an inevitable part of life, and in science, they are integral to the learning process.

When students engage in hands-on laboratory experiments, the trial-and-error method fosters powerful learning. Struggling with challenging material builds confidence and reinforces the understanding that mistakes are a natural part of scientific inquiry. This process encourages students to think critically, explore different problem-solving approaches, and engage in meaningful group discussions, observations, and reflections. The focus shifts from solely achieving a desired outcome to valuing the learning process itself. When an experiment "fails" or doesn't yield the expected results, it prompts a crucial reassessment. This is where the most profound and valuable questions arise, sparking new ideas and innovative experiments.

Understanding the role of mistakes makes science more accessible and demystifies the notion of scientists as infallible geniuses. The history of science is replete with errors and detours. Even iconic figures like Isaac Newton, whose theory of gravity was later refined by Einstein's Theory of Relativity, demonstrate that scientific progress is not a linear path. Serendipitous discoveries like penicillin, X-rays, and insulin further illustrate how "mistakes" or unexpected outcomes can lead to breakthroughs.

The scientific process is, in essence, a journey toward truth paved with mistakes. It's not about avoiding errors, but about learning from them.

In conclusion, while making mistakes is a universal human experience, our response to them determines our growth and success. Instead of fearing failure, we should embrace it as a learning opportunity. Focusing on progress rather than perfection allows us to cultivate a growth mindset, drive innovation, and deepen our understanding of the world. By embracing mistakes and asking the right questions, we unlock the true potential of scientific exploration.

**Ms. Smita Mahajan**  
**Science Teacher**  
**BCISW – BCSW**



Did you like our newsletter? Do send your feedback and share your stories of positivity in real life.  
Be a part of the movement to build a positive and a harmonious society  
Write to us at [lighthouse.bcg@gmail.com](mailto:lighthouse.bcg@gmail.com)