



# SPECTRUM

*The Scientific Spread*



📞 94140-34888

🌐 [cissikar.com](http://cissikar.com)

📍 Salasar Road, Chelasi, Sikar

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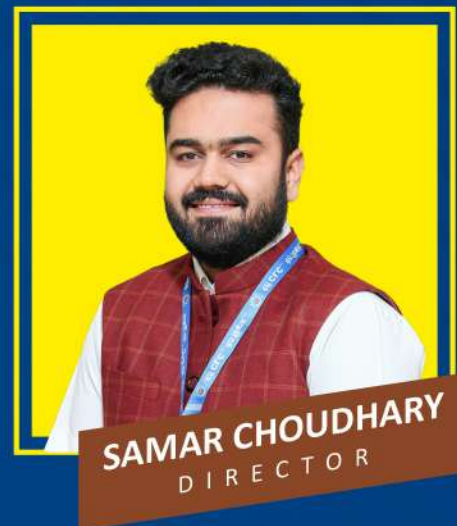
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**Career Corner**

## From the Director's Desk

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As Director, I am immensely proud to witness the continuous growth and achievements of our institution. This magazine serves as a reflection of our commitment to excellence, innovation, and holistic education. Each page showcases not just the academic brilliance of our students but also their creativity, critical thinking, and collaborative spirit. Our goal remains to nurture curious minds, empower young leaders, and foster a community that values knowledge and compassion. I extend my heartfelt congratulations to everyone involved in making this edition a success and look forward to many more milestones together.



Warm regards,  
DIRECTOR

## From the Science Team

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The world of science continues to inspire and challenge us, pushing the boundaries of our understanding. This year, the science department has made remarkable strides in igniting curiosity, encouraging exploration, and promoting problem-solving among our students. From hands-on experiments to cutting-edge research projects, we are fostering a generation that's ready to face the challenges of tomorrow. This magazine edition highlights some of these endeavors, showcasing the passion and hard work of our students and teachers alike. Together, we remain dedicated to inspiring future innovators.

Sincerely,  
The Science Team

## Does Science Matter to You ?

If you think science doesn't matter to you, think again. Science affects us every day, from the moment we wake up to the time we go to bed. Your digital alarm clock, weather reports, games, transportation, and even your choice of food are all products of scientific advancements. Without science, our modern world would be unrecognizable.

### Everyday Items:

Science has made possible many everyday items, including toothpaste, detergents, and cooking appliances. LPG gas and stoves for cooking, irons for pressing clothes, and even the clothes we wear all stem from scientific innovation.



### Agriculture:

In agriculture, science has revolutionized practices. Modern machinery like tractors, threshers, and irrigation systems facilitate efficient farming. Chemical science has also enabled the development of fertilizers, boosting crop yields



### Medicine:

The medical field is built on science, from the drugs we use to the medical tools and technologies that treat serious health issues. Antibiotics, vaccinations, MRIs, and CT scans have transformed healthcare. Breakthroughs like gene therapy and the smallpox vaccine, introduced by Edward



### Transportation:

All vehicles, from bicycles to airplanes, are inventions of science. Travel has become quicker and easier, connecting distant places like Kashmir and Kanyakumari in mere hours. Science has streamlined the transportation of goods, making logistics more efficient.



## Communication:

Science has made the world very small. You can talk to anyone anywhere in a fraction of seconds using radio waves, electromagnetic waves and device telephones, mobile phones, etc., All this is just because of inventions of science. All these mediums of communications are available at a very low cost as well. So, all are within reach of the common man. Science has made it very easy and cheap to talk to someone using a mobile phone.

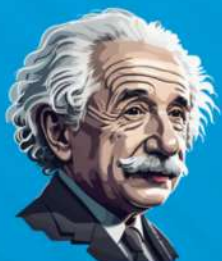


## Construction:

Construction relies heavily on scientific principles. Buildings are constructed using technology and machinery like bulldozers and backhoe loaders, showcasing the importance of science in infrastructure.

In conclusion, science has drastically changed our world. As students increasingly pursue science, it's crucial to have proper guidance for reaching their full potential. Scientific knowledge enhances our lives, influencing everything from personal choices to public policies. Science is embedded in our daily routines, often unnoticed but always essential.

“



**"Imagination is more important than knowledge"**

- Albert Einstein

# Experiment Corner

## 1. Invisible Ink Experiment

### Materials:

- Lemon juice or vinegar
- Cotton swab or small paintbrush
- White paper
- Heat source (lamp or iron)

### Steps:

1. Make the Ink: Pour lemon juice or vinegar into a bowl.
2. Write: Use the cotton swab to write a message on the paper.
3. Dry: Let the paper dry completely.



## 2. Density Column Experiment

### Materials:

- Clear glass or jar
- Honey or syrup
- Dish soap
- Water (colored with food dye if desired)
- Vegetable oil
- Rubbing alcohol (optional, colored)

### Steps:

1. Add Honey/Syrup: Pour a layer of honey or syrup into the bottom of the glass.
2. Add Dish Soap: Slowly add a layer of dish soap on top of the honey.
3. Add Water: Carefully pour a layer of colored water on top of the dish soap.
4. Add Oil: Gently add a layer of vegetable oil on top of the water.



## 3. Water Fireworks Experiment

### Materials:

- Clear glass or jar
- Water
- Food coloring (various colors)
- Cooking oil



## Steps:

1. Fill the Jar: Pour water into the clear glass or jar, filling it about three-quarters full.
2. Mix Oil and Color: In a separate bowl, mix a few tablespoons of cooking oil with several drops of different food coloring.
3. Drop the Mixture: Carefully spoon the oil and food coloring mixture over the water in the jar.
4. Watch the Reaction: Observe how the food coloring drops through the oil and creates colorful “fireworks” in the water.

## 4. Walking Water

### Materials:

- Three clear glasses
- Water
- Food coloring
- Paper towels

### Steps:

1. Prepare Three Glasses  
Fill two glasses with water (one with red, the other with blue food coloring) and leave the third glass empty.
2. Fold Paper Towels  
Fold two paper towels into long strips.
3. Position Paper Towels  
Place one end of each towel into the colored water glasses and the other ends into the empty glass.
4. Watch the Water Walk



## 5. Magnetic Slime Experiment

### Materials:

- White school glue (about 1 cup)
- Liquid starch (about 1/2)
- Iron oxide powder (or magnetic powder)
- A bowl
- A spoon
- A magnet

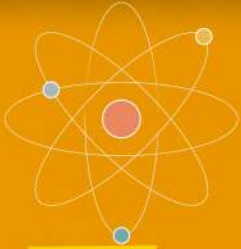
### Steps:

1. Mix Glue and Starch: In a bowl, combine the white school glue and liquid starch. Stir until it begins to form slime.
2. Add Iron Powder: Gradually mix in the iron oxide powder until the slime becomes dark and fully incorporates the powder.
3. Knead the Slime: Once combined, knead the slime with your hands until it reaches the desired consistency.
4. Test with Magnet: Bring a magnet close to the slime and watch it move and react to the magnet.



# SCIENCE

## at CIS



**"Millions saw the apple fall,  
but Newton asked why."**

**-Bernard Baruch**



# Innovations That Changed the World

What if I told you that in the past 5-8 years, humanity has done more to shape the future than in any decade before? We have got AI painting pictures, robots making pizzas, and even lab-grown meat hitting dinner plates. First up, Artificial Intelligence (AI)—or as I like to call it, the "brainy sidekick" to human genius.

Remember when DeepMind's **AlphaFold** cracked the code on **predicting protein structures in 2020**? Another one is CRISPR gene editing. In 2021, CRISPR was used to treat genetic diseases directly in patients.

The rise of renewable energy has been nothing short of explosive. Solar power, once dismissed as too costly, became the cheapest source of electricity in 2020. **Ex:** Countries like Norway boasting over 70% of their car sales as electric. Talking about alternative fuels, India's **Green Hydrogen Mission**, launched in 2023, is at the forefront of clean energy technology, aiming to make India a global hub for **green hydrogen production** by 2030.

Let's take a detour into **aerospace engineering**, NASA's **Ingenuity helicopter** became the first aircraft to take flight on another planet. It was recently retired in 2024. India's **Gaganyaan** mission, scheduled for 2024, is set to make India one of the few countries capable of sending humans into space. ISRO made significant progress with **RLV-TD (Reusable Launch Vehicle Technology Demonstrator)**, capable of re-entering the Earth's atmosphere and landing safely for reuse.

As we look at the incredible breakthroughs of the past 5-8 years, it's clear that innovation isn't just about flashy headlines—it's about reshaping the world in ways we never thought possible. The only question left is: Are you ready to keep up?



**Did you know** that in 2022, a nuclear fusion experiment generated more energy than it consumed, potentially unlocking limitless clean energy?

**Did you know** that quantum computers can solve year-long problems in seconds. A classic example is IBM's 56-qubit processor.

**Did you know** that Airbus plans to launch the first zero-emission commercial aircraft by 2035, running entirely on hydrogen fuel!

# INVENTOR'S CORNER



## Across

1. Her work isolated elements that revealed the power hidden in atoms.
3. He discovered penicillin, which became the world's first antibiotic.
5. He clashed with the Church over his observations of celestial bodies.
8. His studies of finches led to a ground-breaking idea about species change.
10. His "Eureka!" moment came from a bath when he discovered the principle of buoyancy

## Down

2. His thought experiments reshaped our understanding of space and time.
4. His innovations electrified the world, but he often clashed with Edison.
6. He explored the mysteries of black holes and wrote A Brief History of Time.
7. Known as the "Father of Genetics" for his laws of inheritance.
9. He described an invisible force that keeps planets in their orbits

## My Next-Gen Science Idea

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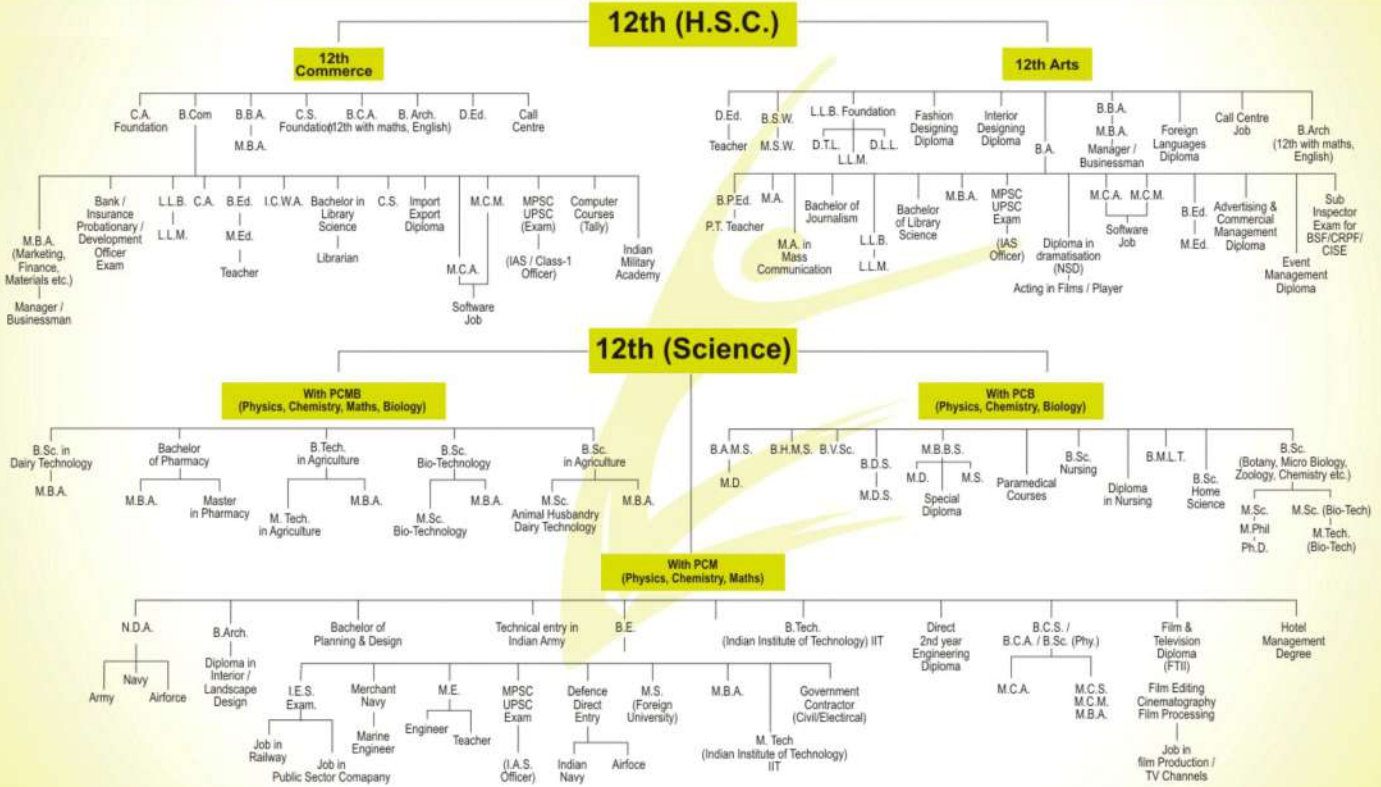
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# Career Corner

## CAREER OPTIONS ROADMAP



### Science Department

- Ms. Ishita Saxena
- Mr. Jharit Ratan
- Mr. Arvind Augustus

### Credits

Published by :

**Mr. Samar Choudhary & Principal, CIS**

Graphic Design

• **Mr. Chandan Sharma**



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