भारतीय शिक्षा बोर्ड
BHARTIYA SHIKSHA BOARD
आ नो भद्राः क्रतवो यन्तु विश्वतः

“आ नो भद्राः
क्रतवो यन्तु विश्वतः

Let the noble thoughts
come from all directions”

SCIENCE

Class-6 ★ Class-7 ★ Class-8

Our Vision

Bhartiya Shiksha Board (BSB) has developed a national education system that seamlessly integrates cutting-edge scientific research in brain development, child psychology, and learner-centric pedagogical approaches with the venerable traditions of our indigenous schooling model — the Guru Shishya Parampara. In doing so, the BSB curriculum embodies a balanced synthesis of wisdom from ancient Indian knowledge systems (IKS), and contemporary scientific advancements and technology.

Aligned with the guidelines of the National Curriculum Framework (NCF 2023), the Board lays significant emphasis on Competency Based Learning, and the cultivation of 21st-century skills among students, right from the Foundational Stage up to the Secondary Stage. This approach aims to nurture critical thinking and problem-solving abilities, essential for lifelong learning and success in a dynamic world. Moreover, the Board acknowledges the pivotal role of continuous professional development of educators, to ensure that they are equipped to transact the curriculum effectively and maximize student learning outcomes.

Vijñān Kathā

A Series of Science Textbooks for Classes VI to VIII

ISBN : 978-81-19157-79-2
ISBN : 978-81-982230-8-1
ISBN : 978-81-983198-0-7

Science learning material at the Middle Stage for classes VI to VIII includes the following:

- Textbooks titled Vijñān Kathā for classes VI to VIII, designed to reveal the secrets of nature through engaging stories. Each narrative not only imparts scientific knowledge but also encourages scientific temperament, inquiry, and critical analysis, nurturing students' curiosity from the start.
- Digital learning content that can be accessed by scanning the QR codes.
- Teacher resource books.

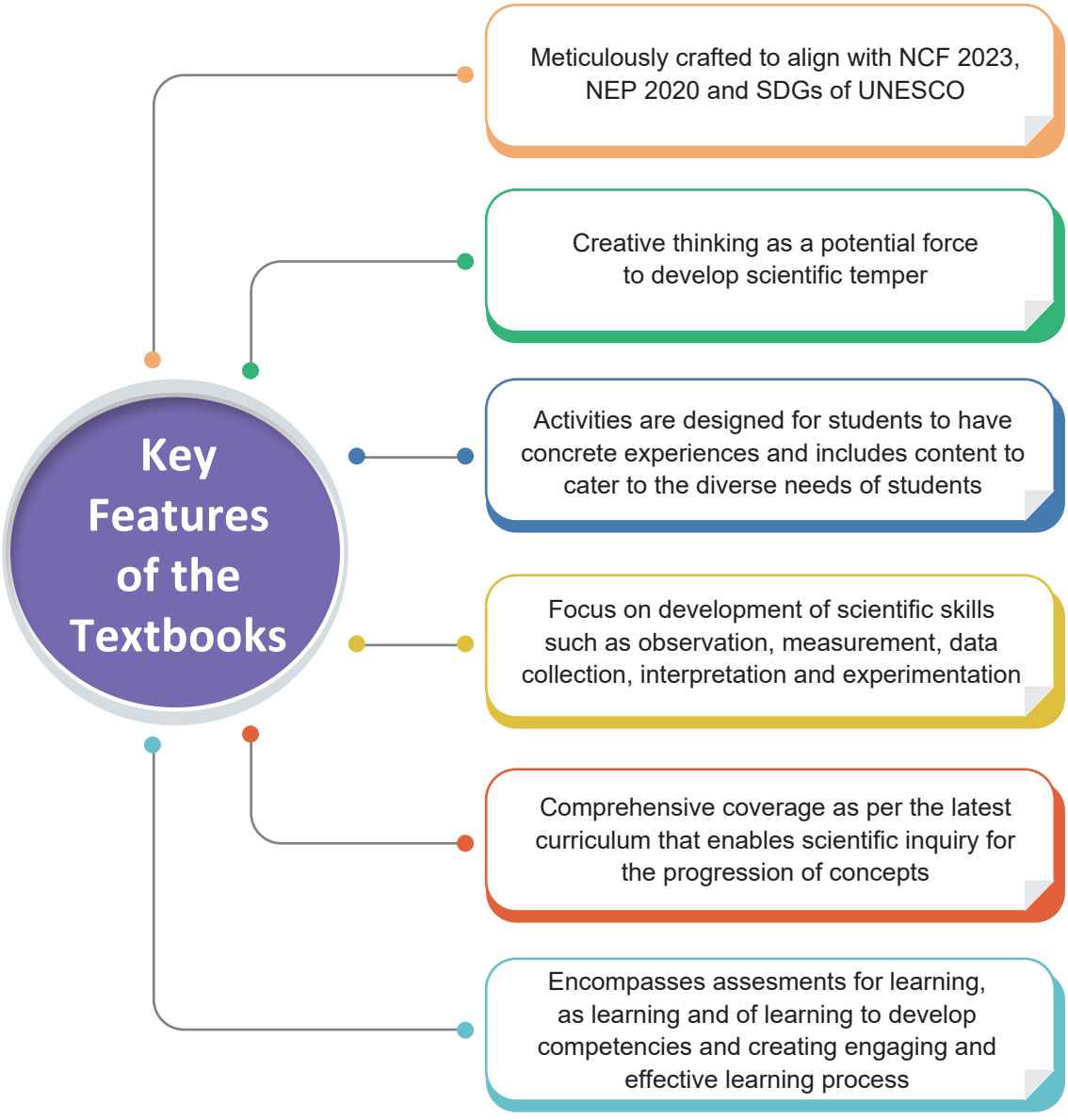
Is studying science really difficult or is it just a myth?

Perceived difficulties of studying science

- Taught without connecting with real-life experiences
- Absence of experiential learning, experimentation, problem-solving, inquiry, and critical thinking
- Inherent nature of science—curiosity, exploration, and discovery—has been lost
- Primarily deals with facts, theories, and principles and lacks creativity
- Some abstract concepts which have less real-world applications
- Rote- memorisation of facts and formulas often results in short-term retention

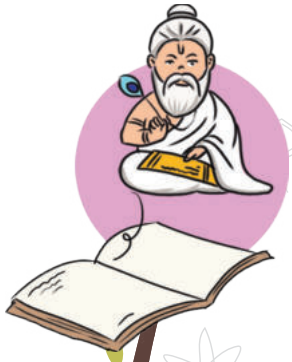
Well, Science is fascinating when taught correctly, as it reveals the wonders of the natural world through exploration and discovery. Engaging teaching methods, hands-on experiments, and real-world applications, make complex concepts accessible and exciting. With the right approach, science sparks curiosity and inspires a deeper understanding of how everything around us works.

To cultivate thoughtful, well-rounded, innovative, and creative learners with strong problem-solving, collaborative, communication skills, and social and moral awareness, **Bhartiya Shiksha Board (BSB)**, under the guidance of the renowned author of "Concepts of Physics", Prof. (Retd.) Dr H.C. Verma, has developed **"Vijñān Kathā"**. This series aims to make learning burden-free, enjoyable, and effortless, while fostering a deep connection to India's heritage.

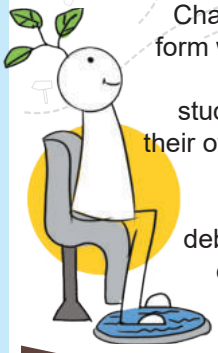


Highlights of the Textbooks

Introduces rich history of Indian knowledge system depicting their ancient origins and contributions to present day concepts and principles. **'Our Glorious Heritage'** encompasses research done in ancient and modern times.



Includes hands-on and interactive exercises that encourage students to apply scientific concepts in real-life scenarios. Integrates group activities, experiments, and projects to foster teamwork and innovative thinking.



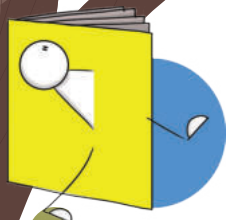
Chapters are in story form where characters represent vibrant students who design their own learning path, critically analyse the happenings, debate, discuss and discover science.

Actively dispels ambiguous definitions, common misconceptions, besides promoting accurate and updated scientific knowledge.

It fosters 21st-century skills such as inquiry-based learning, critical thinking, problem-solving, and holistic learning through an interdisciplinary approach.

'Learner's Basket' summarises the science involved in the story.

'Do You Know' contains amazing facts to arise curiosity among students by providing exposure to broad spectrum of knowledge.



Integrates cultural elements and traditions to demonstrate the links between science and culture. **'Extended Learning'** invokes interest in research, raises questions, and engages students in exploring the nature themselves.

Content for Class VI

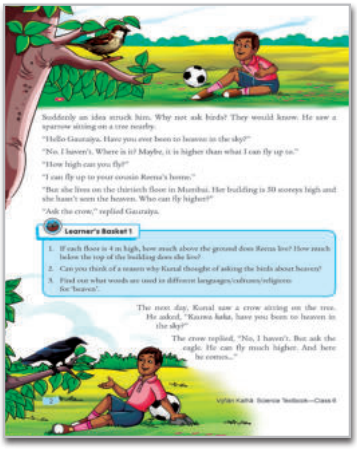
Content for Class VII

Content for Class VIII

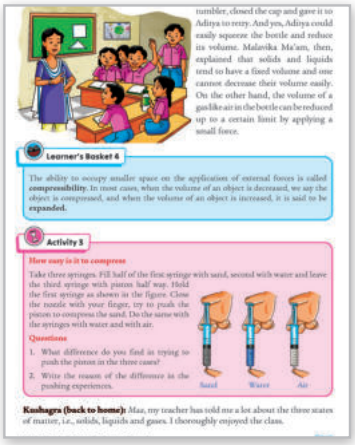
S.No.	Name of the Chapter
1.	Up in the Sky
2.	Acids, Bases and Salts
3.	From Food Deficit to Food Surplus
4.	Playing with Electric Circuits
5.	Elements – Metals and Non-Metals
6.	Soil as a Sustainable Resource
7.	Keep Moving
8.	Fabrics – Natural and Synthetic
9.	Microbes – Our Tiny Comrades
10.	Ancient Indian Knowledge System
11.	Lots of Pressure
12.	The 4 Second Journey of Air In and Out of Nose
13.	Brings Colours into Life
14.	Combustion and Fossil Fuels
15.	Adolescence: A Step Towards Adulthood
16.	Reflection and Refraction of Light
17.	Heating and Cooling
18.	Forests: Our Green Lungs
19.	Rocks and Dinosaurs

Highlights of the Chapters

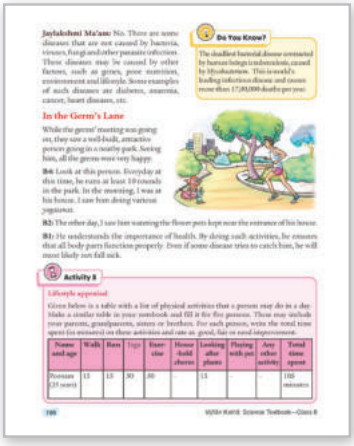
In the captivating chapter **A Search in the Skies**, young Kunal's curiosity about heaven leads him to explore the wonders of the upper atmosphere. To satisfy his quest for knowledge, he converses with various birds, each sharing their unique perspectives and wisdom, helping Kunal uncover the mysteries of the skies.



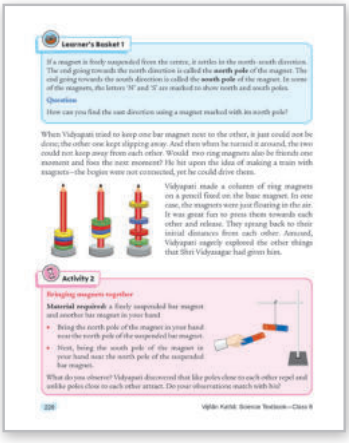
Discover the fascinating world of materials with Kushagra in the chapter **How Do Materials Show Up.** Unveil the science behind everyday objects and learn how different materials shape our world in a fun and engaging way. Perfect for young minds eager to explore and understand the wonders of science.

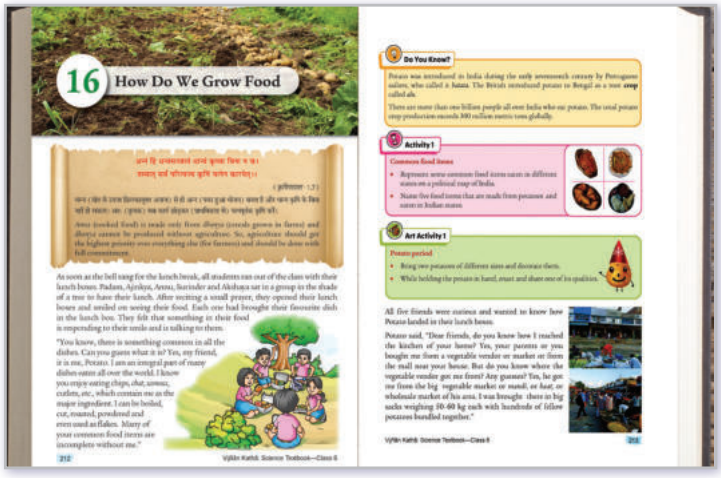


Discover the science behind diseases and how active lifestyles and hygiene can keep you stay healthy in the chapter **My Health, My Choice, My Responsibility.** Explore how human habits influence germ attacks and offers strategies for maintaining well-being through proactive health measures.



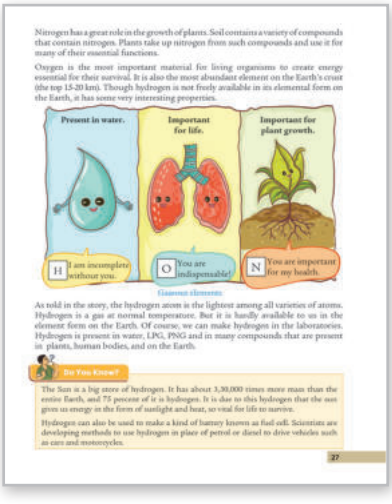
In the engaging chapter **Magnetic Adventures of Vidyapati,** join Vidyapati as he explores the fascinating world of magnets and their properties. Guided by his *Chachaji* and equipped with his old science box (*dibba*), Vidyapati discovers the magic of magnets through fun and interactive hands-on activities.





Learn and understand about agriculture in the most innovative way from the potato which reaches to your lunchbox and narrates to you how he was able to reach there in the chapter **How do We Grow Food**.

Explore the wonders of space with Jahnavi in the chapter **Reaching the Moon**. Dive into lunar exploration and discover the moon's unique features, from historic footprints to extreme temperatures. Learn the differences between rockets and aeroplanes, and experience the thrill of a rocket launch at the Satish Dhawan Space Centre. Uncover the history of India's space program and explore the mysteries of moon phases, eclipses, and craters. Join us on this exciting journey of space exploration and technology.



Unlock the mysteries of matter with Bhairav in the chapter **Atoms and Molecules**. Explore how tiny, invisible particles combine to create everything around us, from the air we breathe to the stars in the sky. Dive into the fundamental building blocks of life in this exciting chapter.

The chapter **Plants as Energy Transducers** begins with a captivating story of a girl named Ghevri who dreams of a Guava tree. In her dream, she curiously asks the tree how it prepares its food. The chapter then delves into the details of photosynthesis, the method by which plants convert solar energy into chemical energy. Besides, it also explains the mode of nutrition in plants that lack chlorophyll, insectivorous plants and the role of saprotrophs in our environment.


"But you didn't answer my question. Who makes food for you?"

"It is very interesting but I want you to guess where I get my food from".

Ghevri thought and murmured, "Well you have stem, branches, leaves, flowers, fruits, etc., above the ground and roots under the ground. Some of these must be involved in making food for you."

"Good guess. I will give you the exact answer in a moment but first imagine from where do these parts get the raw material to make food for me," the tree put the next challenge to Ghevri.

"Okay. To make food for you, the raw material should come from outside. But I wonder how they enter your body."

"Ghevri, just think of different things in my surroundings that are in contact with my body", said the tree.

"I think some of the raw material dissolved in water must be reaching inside your body through the roots as we regularly give water to the soil around you. The soil has many nutrients and it is in direct contact with your roots, and air is also in contact with your body. You must be getting some of the raw material from the air also. Is that all?" asked Ghevri.

"Wonderful thinking. But there is one more thing that helps me in making food. Give it a thought, maybe you will get an answer," the tree said.

This time Ghevri was clueless. She looked at all the parts of the tree that were visible and also imagined the parts under the ground. What are the things that the tree gets regularly from its surroundings? Soil, water, air, what else?

"Butterflies? Birds? But they are mostly dependent on plants for food. Hence, these cannot be the material for plants to make food," Ghevri thought aloud.

"That is good thinking. Anything more? Let me give you a hint. How are you able to see me?" asked the tree.

Soil, water, air, what else?

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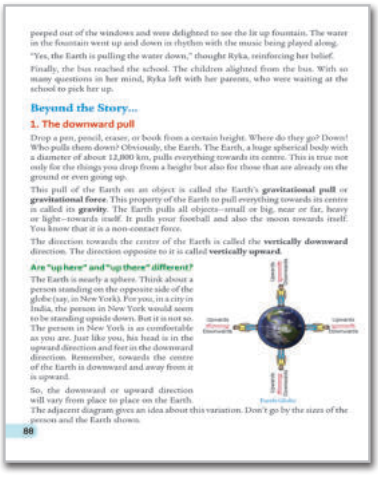
peeped out of the windows and were delighted to see the lit up fountain. The water in the fountain went up and down in rhythm with the music being played along.

"Yes, the Earth is pulling the water down," thought Ryka, reinforcing her belief.

Finally, the bus reached the school. The children alighted from the bus. With so many questions in her mind, Ryka left with her parents, who were waiting at the school to pick her up.

Beyond the Story...

1. The downward pull

Drop a pen, pencil, eraser, or book from a certain height. Where do they go? Down! Who pulls them down? Obviously, the Earth. The Earth, a huge spherical body with a diameter of about 12,800 km, pulls everything towards its centre. This is true not only for the things you drop from a height but also for those that are already on the ground or even going up.

This pull of the Earth on an object is called the Earth's **gravitational pull** or **gravitational force**. This property of the Earth to pull everything towards its centre is called its **gravity**. The Earth pulls all objects—small or big, near or far, heavy or light—towards itself. It pulls your football and also the moon towards itself. You know that it is a non-contact force.

The direction towards the centre of the Earth is called the **vertically downward** direction. The direction opposite to it is called **vertically upward**.

Are "up here" and "up there" different?

The Earth is nearly a sphere. Think about a person standing on the opposite side of the globe (say, in New York). For you, in a city in India, the person in New York would seem to be standing upside down. But it is not so. The person in New York is as comfortable as you are. Just like you, his head is in the upward direction and feet in the downward direction. Remember, towards the centre of the Earth is downward and away from it is upward.

So, the downward or upward direction will vary from place to place on the Earth. The adjacent diagram gives an idea about this variation. Don't go by the sizes of the person and the Earth shown.

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Join Ryka on her school excursion in the chapter **Let Us Move Up and Down.** As she explores Amer Fort and watches jugglers and birds in flight, she discovers the forces of nature at play. Learn about Earth's gravitational pull and how it affects everything around us, from the challenge of climbing uphill to the buoyancy of objects in water. Dive into the science of gravity and buoyancy, and see how they shape our everyday experiences.


7 Changing Appearance: Physical Changes

Let the Sun's heat cause the seawater to evaporate and ascend, condensing into clouds, showering down with the sound of lightning, and reap nourish the earth.

Mrs Ruquia was preparing food in the kitchen. Her son Ashraf was standing nearby and chit chatting with her. As Mrs Ruquia cut a carrot into pieces, he said, "Ammi, you made a physical change."

"Physical change? What is it? The other day your Abbu was telling his patient to do physical exercise. Oh, the patient was really fat!" asked Mrs Ruquia.

Ashraf smiled and said, "Abbu asks me to do exercises and *pranayam* as well. He had trained me to do so many exercises, including many of *yogasanas*. By doing such exercises, one remains healthy. Ammi, my teacher Poonam Madam says that it is our choice and also our responsibility."

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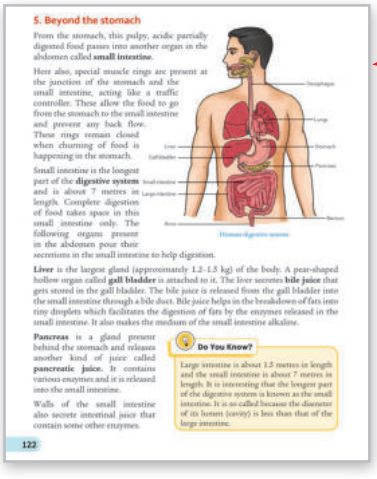
Step into the fascinating world of **Changing Appearance: Physical Changes** with Ashraf and Mrs Ruquia. Witness how substances transform in shape, size, or state—without changing their core identity. From melting ice to stretching rubber, see how matter dances through different forms.


5. Beyond the stomach

From the stomach, this pulpy, acidic partially digested food passes into another organ in the abdomen called **small intestine**.

Here also, special muscle rings are present at the junction of the stomach and the small intestine, acting like a traffic controller. These allow the food to go from the stomach to the small intestine and prevent any back flow. These rings remain closed when churning of food is happening in the stomach.

Small intestine is the longest part of the **digestive system** and is about 7 metres in length. Complete digestion of food takes place in this small intestine only. The following organs present in the abdomen pour their secretions in the small intestine to help digestion.

Liver is the largest gland (approximately 1.2–1.5 kg) of the body. A pear-shaped hollow organ called **gall bladder** is attached to it. The liver secretes **bile juice** that gets stored in the gall bladder. The bile juice is released from the gall bladder into the small intestine through a bile duct. Bile juice helps in the breakdown of fats into tiny droplets which facilitates the digestion of fats by the enzymes released in the small intestine. It also makes the medium of the small intestine alkaline.

Pancreas is a gland present behind the stomach and releases another kind of juice called **pancreatic juice**. It contains various enzymes and it is released into the small intestine.

Walls of the small intestine also secrete intestinal juice that contain some other enzymes.

Do You Know?

Large intestine is about 1.5 metres in length and the small intestine is about 7 metres in length. It is interesting that the longest part of the digestive system is known as the small intestine. It is so called because the diameter of its lumen (cavity) is less than that of the large intestine.

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Learn about the process of digestion through the story of Vipul and Smriti who observe Kaveri chewing something. They become inquisitive to know more about **What happens to the food in the body.** Unravel the science that goes behind the absorption of nutrients from the food that we eat and understand through various activities besides enjoying some astonishing facts.

Answer to Frequently Asked Questions on BSB Textbooks

Q.1. How can a school get Affiliated/Associated with the Bhartiya Shiksha Board (BSB)?

Ans. Detailed instructions including Affiliation Bye-law are provided on our website. For more details, please contact via phone or WhatsApp the BSB Customer Support Number: 8954999000 Email: affiliation@bsb.org.in, BSB Office Hours: Daily from 6:00 AM to 10:00 PM

Q.2. What is the USP of Textbooks developed by Bhartiya Shiksha Board (BSB) and how the BSB Textbooks are distinct from others?

Ans. The BSB Textbooks have been developed meticulously, selecting the base for modern education. Appropriate references are given from ancient Indian Traditional Knowledge scriptures, traditional practices and ethos. The objective is to enable students to grow as global citizens with 'Bharatiya' orientation. The content material in the textbooks is consistent in curriculum and in alignment with national educational standards. The Textbooks reflect the emphasis on the Competency Based Learning - CBL through a balanced synthesis of wisdom from ancient Indian Knowledge Systems -IKS, and the 21st century skills.

Q.3. Where can I obtain a copy or set of the Textbooks?

Ans. Interested people can visit Bhartiya Shiksha Board website: https://bsb.org.in click on the "Availability of Books" section, select books and place an order. There are also local dealers of books to know list of these dealers or for any other assistance, you can contact at following no: Phone / WhatsApp: +91 89549 99000.

Q.4. Provide some details about the team behind the development of the textbooks?

Ans. The Textbooks are developed by experienced subject experts, under the mentorship and guidance of the leading luminaries in Education, i.e.:

- Science Text Books under the guidance of **Dr H C Verma**, (Former Professor, IIT Kanpur and renowned author of many books like 'Concepts of Physics').
- Mathematics Text Books under the guidance of **Dr Hukum Singh** (Former Professor & Dean, Academics & Head DESM, DEK, NCERT).
- Hindi Text Books under the guidance of **Dr Pramod Dube** (Former Professor, NCERT) and **Dr Ram Darash Mishr** (Former Professor, Delhi University and renowned author).
- Social Science Text Books under the guidance of **Prof. Madhav Govind** of JNU and **Prof. S.C. Rai** of DU alongwith **Prof. Dr Shri Prakash Singh**, DU-South Campus.
- Sanskrit Text Books under the guidance of **Prof. Radhavallabh Tripathi** (Ex-Vice Chancellor), **Prof. Shri Nivas Varkhedi** (Vice Chancellor), **Dr. Vijay Pal Shastri** (Ex-Professor) - Central Sanskrit University.
- English Text Books under the guidance of the professors of DU and subject experts working with the Directorate of Education.

Q.5. Can teachers or experts provide feedback or suggest improvements for the Text Books of Bhartiya Shiksha Board?

Ans. Bhartiya Shiksha Board is open to the feedbacks and suggestions for improvements from the experts, which, after deliberations by the "Text Books Development" teams, will be considered for incorporating in future editions.

Q.6. Can schools of other Boards like CBSE, ICSE and State Boards, use the Text Books of Bhartiya Shiksha Board?

Ans. The Text Books developed by Bhartiya Shiksha Board are in consonance with NEP-2020, NCF-FS 2022 and NCF-2023, and follow the national educational standards, hence, can be relevant for other Boards/Institutions, also.

Q. 7. Which curriculum is followed by BSB and how is this different from NCERT pattern?

Ans. The BSB textbooks are distinct due to their core focus on integrating traditional 'Bhartiya Gyan Parampara' with modern learning approaches and synthesize a balanced approach emphasizing Competency Based Learning (CBL) aligned with NEP- 2020 & NCF-2023.

Q.8. Whether BSB textbooks are oriented to prepare students to different competences exam?

Ans. Students studying BSB books will be well-equipped for competitive exams because the BSB curriculum is entirely based on NEP 2020 and NCF 2023. These national frameworks focus on the same conceptual understanding and competency-based learning required performing well in exams like JEE and NEET etc, ensuring students receive the necessary foundation to excel.

Q.9. When are offline/online applications for all categories of affiliation generally permitted to be submitted according to the Bye-Laws.

Ans. Online/Offline applications for all categories within the scope of these Bye-laws shall generally open on 1st January and shall close by 31st December of a particular calendar year. For more details read chapter no.10, clause no. 10.4.3 of Affiliation bye-laws.

Q.10. What does Affiliation and Association mean?

Ans. **Affiliation means –** Schools that are recognized by the State Government up to Class 8 and wish to get affiliated with Bharatiya Shiksha Board upto Class 10 or 12, or those schools that are already affiliated with any other education board upto Class 10 or 12 and wish to switch over to Bharatiya Shiksha Board.

Association means – Schools that are recognised by the State Government up to Class 8 and are fully committed to ensuring 100% implementation of all textbooks published by Bharatiya Shiksha Board, participation in teacher training programmes organised by the Board, and compliance with the Board's assessment process during examinations — such schools are associated with Bharatiya Shiksha Board up to Class 8.

Q.11. Can the school apply for affiliation even if the land is in two different campus?

Ans. If school is already running upto class 8th in one campus and want to take affiliation from 9th to 12th in other campus. In this scenario the school can still apply for affiliation but the land should be under the same local government authority and in the same revenue areas. However it has to be decided by the Board on case to case basis.

Q.12. Can the school use a common playground of a society or another school?

Ans. Yes the school can use another ground but should have a proper permission from the local authority. If more than one school uses the same play ground then the game period should not be the same. Secondly it has to be nearby so that student can use that particular playground.

Q.13. Are there any special provisions to take affiliation for Tribal area and Hilly area's School?

Ans. Yes, there are some special provision for notified Hilly and Tribal areas on the basis of Regional Characteristics to give impetus to Geo- Economic traditions and Eco-friendly culture of the location and in notified Tribal areas where BSB has also provided 50% fee concession for school affiliation fees.

Q.14. Does BSB conduct teacher training?

Ans. Yes, every Affiliated/Associated school shall organise Annual Training & Triennial Training. For more details read chapter no.16, clause no. 16.1 & 16.2 of Affiliation bye-laws.

Q.15. What are the conditions under which a school's affiliation with Bhartiya Shiksha Board may be revoked (Revocation of Affiliation)?

Ans. If a School is found violating the provisions of the Affiliation Bye Laws/Examinations Bye Laws of the Board or does not abide by the directions of the Board, the Board shall have the authority to revoke affiliation of that school. For more details read chapter no.13, clause no. 13.2 of Affiliation bye-laws.

Swami Ramdev and Acharya Balkrishna envision an educational system that cultivates well-rounded individuals who are not only intellectually proficient, but also morally and spiritually grounded. Their perspective on education seamlessly integrates traditional Indian wisdom with contemporary educational practices, focusing on self-realization and holistic development. They emphasize the importance of instilling values such as discipline, respect, and moral integrity in students. According to them, education should help build the character and foster a sense of responsibility towards society and the nation. True education transcends textbooks and exams, nurturing the mind, body, and soul, and equipping individuals with the necessary 21st-century skills to positively impact society and the nation, in the modern world.

The vision of BSB regarding education aims to create a progressive, inclusive, and dynamic educational ecosystem, that empowers students to become responsible, innovative, and capable leaders of the future. In the contemporary educational landscape, there is a growing recognition of the need to integrate modern competencies with ancient wisdom and cultural heritage. This holistic approach aims to produce well-rounded individuals who are not only adept in contemporary skills, have the knowledge to prioritize economic growth, but also remain grounded in their cultural identity and ethical values. Education should foster scientific and technological advancements with environmental sustainability. It acts as a catalyst for promoting social justice and equality, shaping a society where every individual, regardless of their background, has the opportunity to thrive. Moreover, it encourages student participation and contribution, vital for shaping the economic, cultural, and democratic environment. Together, these elements forge a path towards a prosperous, progressive, and harmonious global community.

Dr N. P. Singh
I. A. S. (Retd)
Executive Chairman
Bhartiya Shiksha Board

Learning is the true imperishable wealth.

—Thiruvalluvar

The main aim of education is to create human awareness so that they can understand the difference between the truth and untruth.

– Maharishi Dayanand Saraswati

Education is the manifestation of perfection already in man.

—Swami Vivekananda

Awake, Arise and Educate.

—Savitribai Phule

The purpose of education is to make good human beings with skill and expertise.

—A.P.J. Abdul Kalam

Bhartiya Shiksha Board

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