



REASONING™ Trainer Plus

World's First
Reasoning
Curriculum
@ Schools

We can find challenges in every sphere of our lives. Be it finding the best route to a cinema hall on traffic packed roads or choosing the right item in a supermarket.

How best are we equipped to deal with challenges is the question?

Reasoning Ability is a systematic process of thinking where a problem or plan is analysed from various angles in its most practical sense. Hence yields better decisions and better conclusions.

That's why every student's **Reasoning Ability** is tested in almost every competitive exam today.

The process of learning is dependent on one's ability to think logically and reason quickly and effectively. These two factors are hence very crucial to a child's progress in education.

This critically important ability of reasoning should be seeded and nurtured in the minds of the students in their budding stage itself. Once the seed of reasoning sprouts in the young minds, the way they see the world entirely changes. Life itself looks like an exciting puzzle to be solved.

Reasoning and logic skills are an integral part of a wide range of subjects such as **Math, Science, Design and Technology**, etc. These skills are also vital in our day to day lives.

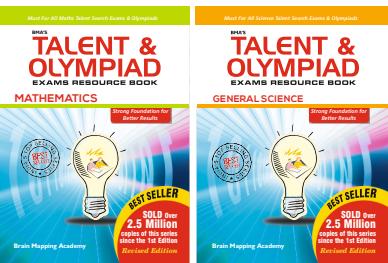
Class	1	2	3	4	5	6	7	8	9	10
Price in ₹	100	100	130	130	125	125	125	125	125	125
Solution	Solutions book included									

This book is very useful resource for various Cyber Olympiad Exams

www.bmatalent.com

RQ™
REASONING QUOTIENT IS A MUST PREPARE NOW

Talent & Olympiad Exams Resource Book



- Excellent source of important concepts and objective questions for **Mathematics and Science Olympiads / NTSE / NSTSE / Scholarship Tests and other International, National and State competitive examinations.**
- Exhaustive range of skill, reasoning and application based questions.
- Synopsis of each chapter with hints, solutions and explanations for complicated concepts. Separate book for each class.

Class	I	II	III	IV	V	VI	VII	VIII	IX	X
Maths ₹	110	110	110	110	110	130	130	130	130	130
Science ₹	110	110	110	110	110	130	130	130	130	130

Must for all Science & Maths Talent Exams & Olympiads

online payment facility is available at www.bmatalent.com

KNOWLEDGE REPUBLIC - 5

Class
5



Bringing out
the best in you

UNIFIED COUNCIL
Foundation for Success

MapmySTEP.com | YOUR OLYMPIAD COACH

UNIQUE™
5 STEPS ASSESSMENT

India's FIRST scientifically designed portal for Olympiad preparation

- Free Demo Packages
- Free Android Mobile App
- Olympiad & Talent Exams preparation packages
- Analysis Reports • Previous question papers

Get 15% discount on all packages by using the discount coupon code: KR157N

A unique opportunity to take about 50 tests per subject.





About Myself

My
Photo

Name : _____

Date of birth : _____

Father's name : _____

Class : _____

School : _____

Address : _____

Home address : _____

Signature

*All those in the Knowledge Republic,
will have endless fun and resolve*

To enjoy as much as one can.

To work hard yet keep it fun.

To respect and encourage each individual's ability and creativity.

To eat, sleep and breathe in the world of knowledge.

To uphold values, basic honesty and integrity.

To pursue ever-higher goals.



M			
E			
M			
O	R	Y	
techniques			

Memory techniques are helpful because they help us remember information more easily. There are many types of memory techniques for children that are easy to learn and apply. Acronyms, Acrostics and Association are three such memory techniques.

Acronyms

An acronym is made up of the first letters of the words to be remembered. The letters are used to form a code or a meaningful phrases/word that can be easily remembered.

Examples :

1. CORN stands for the main components of air :
Carbon Dioxide
Oxygen
Rare Gases
Nitrogen
2. 3Rs represents three ways to conserve the environment :
Reduce
Reuse
Recycle
3. ELF represents the parts of a lever :
Effort
Load
Fulcrum
4. SCREAM represents six forms of energy :
Sound
Chemical
Radiant (heat and light)
Electrical
Atomic
Mechanical



Acrostics

This is similar to an acronym as it is formed by the first letter of each word. But, instead of forming a code or a meaningful word, the letters are used to make a sentence or a story.

1. Kingdoms (biology) :

Monera, Protista, Fungi, Plants, Animals; can be remembered by : 'My Poor Friend Picks Apples'.

2. Digestive System :

The 7 parts of the human digestive system are :

Mouth, Gullet, Stomach, Small intestine, Large intestine, Rectum, Anus. These can be easily remembered by : 'Mary Gives Sam Some Lovely Red Apples.'

3. Chordate Features :

Dorsal hollow nerve cord, Notochord, Pharyngeal slits, Postanal tail. These can be easily remembered by :

'Do Not Pinch People'.

4. Planets :

Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto. These can be easily remembered by :

'My Very Educated Mother Just Served Unique Pizzas'.

5. The major systems of the human body

can be listed alphabetically, circulatory, digestive, endocrine, excretory, lymphatic, musculoskeletal, nervous, reproductive, respiratory; and remembered as 'c-d-e-e'; 'l-m-n'; 'r-r'.

6. Classification of Living Organisms :

Kingdom, Phylum, Class, Order, Family, Genus, Species; can be memorised as : 'King Paul Came Over From Greece Suddenly'.



7. The constellations of the zodiac

can be memorised as :

'A Tense Gray Cat Lay Very Low Sneaking Slowly
Contemplating A Pounce.'

A	T	G	C	L	V	L	S	S	C	A	P
r	A	e	a	e	i	i	c	a	a	q	i
i	u	m	n	o	r	b	o	g	p	u	s
e	r	i	c		g	r	r	i	r	a	c
s	u	n	e		o	a	p	t	i	r	e
s	i	r					i	a	c	i	s

8. For memorising the bones of the upper limb :

(scapula, clavicle, humerus, ulna, radius, carpals, metacarpals, phalanges.)



There are usually some non-routine, creative questions in Science examinations which test pupils' ability to apply their knowledge and think logically.

You cannot predict the type of questions that would be set, but you can prepare yourself mentally to tackle those questions.

If you cannot figure out the answer after reading a question, think of possible answers (but do not write them in the answer paper). You should think how each question can be supported with scientific knowledge. Finally, you should choose the option that is most logical as answer.





Association

An association is the memory technique by which you link an item to be remembered to a method of remembering it. Hence, remembering one item leads to recalling another.

1. ‘**Windpipe**’ can be associated with ‘**air**’ because wind is nothing but moving air. Air is what we draw into the body when we breathe in. So, windpipe is a part of the **respiratory system**.
2. ‘**Herbivores**’ can be associated with ‘**herbs**’. So herbivores eat plants.
- ‘**Carnivores**’ can be associated with ‘**cats**’ such as the tigers and lions. So, carnivores **eat other animals**.
- ‘**Omnivores**’ can be associated with ‘**ourselves**’ or humans. So omnivores **eat both plants and other animals**.
3. To remember what our five senses are, you can associate them with watching a movie in the cinema and eating popcorn at the same time :
You **see** the pictures, **hear** the sounds, **feel** the cool air, **taste** and **smell** the popcorn.
4. **Lefty Loosy, Righty Tighty.**

The direction to turn something. Turn to the left to loosen; turn to the right to tighten.

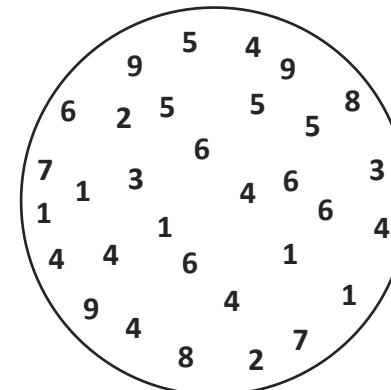
5. Right On, Left Off.

The direction to on is to turn towards right and the direction to off is to turn towards left.



Fun with Numbers

- 1) Draw two straight lines within the circle to divide it into three parts. All the digits in these three parts when added should result to a total of fifty. Lines can be drawn horizontally, vertically, diagonally, in any way you find suitable, to arrive at the required sum total.



- 2) Find the value of A, B, C and D.

$$\begin{array}{r}
 & & & D \\
 & & & C \\
 & & & B \\
 & & & C \\
 & + & A & B & C & D \\
 \hline
 & & 2 & 0 & 1 & 8
 \end{array}$$

- 3) Fill in the grey boxes with ‘+’, ‘-’, ‘×’, or ‘÷’ to complete the number sentences.

a) $2 \boxed{\quad} 2 \boxed{\quad} 2 = 2$

b) $3 \boxed{\quad} 3 \boxed{\quad} 3 \boxed{\quad} 3 \boxed{\quad} 3 = 3$



Guidelines for attempting Multiple-choice Tests

Circle or underline important words in the item.

This will help you focus on the information most needed to identify the correct answer-choice.

Read all the answer-choices before selecting one.

It is just as likely for the last answer-choice to be correct as the first.

Predict the answer before looking at the options given.

This can make you quite sure of, that you have understood the question.

Cross-out answer-choices you are sure are not correct.

This will help you narrow down the correct answer choice.

Look for two answer-choices that are opposites.

One of these two answer-choices is likely to be correct.

Look for hints about the correct answer-choice in other items on the test.

The correct answer choice may be part of another item on the test.

Look for answer-choices that contain language used by your teacher or found in your textbooks.

Do not change your initial answer unless you are sure another answer choice is correct.

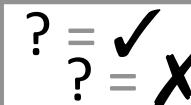
More often than not, your first choice is correct.

Choose 'all of the above' if you are certain all other answer-choices in the item are correct.

Do not choose 'all of the above' if even just one of the other answer choices is not correct.

Choose 'none of the above' if you are certain that all other answer-choices in the item are incorrect.

Knowing how multiple-choice items are constructed and using these guidelines will help you improve your score on a multiple-choice test.



Common Misconceptions and Facts in Primary Science

Misconceptions Facts

Whales & Dolphins Although whales and dolphins have fish-like **are fish.** body shapes and they live in the sea, they are mammals. They possess the characteristics of mammals : they have hair, breathe with lungs, give birth and produce milk for their young.

Fungi are plants. Fungi are not plants because they do not have chlorophyll and cannot photosynthesize. Plants have chlorophyll and can make their own food.

Gases are not Gases are matter because they have mass and **matter.** they occupy space.

Water vapour is Both water vapour and steam are gaseous **the same as** states of water, but at different temperatures. **steam.** Steam is hot water vapour at 100°C.

When clouds melt, Clouds may look like solids but they are not. They **they form rain.** are made up of tiny droplets of water that have gathered together. When the water droplets become too heavy, they fall down as rain.

The Moon appears The Moon is present in the sky all the time, **only at night.** even during the day. It is not visible during the day due to the brightness of the Sun.

Machines help us Machines make it easier for us to do work. **to do more work.** They do not do 'more' work. A person feels less tired when using machines to do work.

An object at rest There are different forms of energy. Even when **has no energy.** an object is not moving, it has potential energy.

Force is the same Energy is the ability to do work. A force is a **as energy.** push or a pull.



Useful Spelling Rules

Correct spelling is very difficult for many students because the spellings of many words do not follow rules.

Here are eight spelling rules you should learn and use :

1. A word that ends with the sound of 'v' is spelled with the letters 've' at its end.
Examples : shave, above, effective
2. The letter 'i' comes before 'e' except after 'c'.
Examples : believe, field, tried (but not receive)
3. When a word ends with 'y' preceded by a consonant, form the plural of the word by changing the 'y' to 'ies'.
Examples : countries, carries, ladies.
4. Drop the final silent 'e' when adding a suffix that begins with a vowel. *Examples : changing, notable, nervous.*
5. Keep the final silent 'e' when adding a suffix that begins with a consonant. *Examples : useful, lovely, hopeless.*
6. When a one-syllable word ends in a vowel followed by a consonant, double the final consonant when adding a suffix. *Examples : topped, swimmer, hitting.*
7. The letter 'q' in a word is followed by 'u'.
Examples : quick, antique, equation.
8. Do not change the spelling of a word when adding a prefix to it. *Examples : remove, triangle, misspell.*

While some of these rules have exceptions, learning and using them will help you correctly spell many words.



To show how the eclipse of the Sun occurs



Procedure :

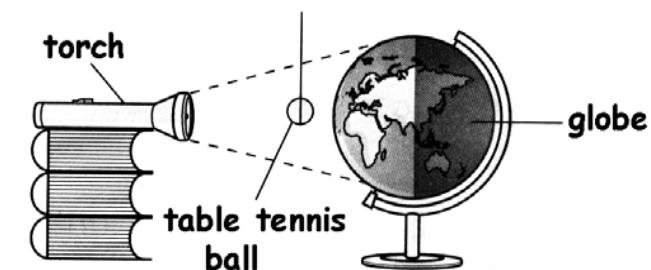
1. Assume the torch is the Sun, the table tennis ball is the Moon and the globe is the Earth.
2. Arrange the torch, table tennis ball and globe such that the table tennis ball is between the torch and the globe and the three of them lie in a straight line, as shown in the figure below.
3. Switch on the torch.
4. Observe the surface of the globe that is facing the torch.

Findings :

The table tennis ball's shadow covers some area of the globe's surface.

Conclusion :

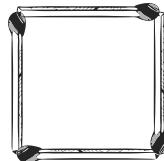
The eclipse of the Sun occurs when the Moon is between the Sun and the Earth and the three of them lie in a straight line; and the Moon's shadow covers part of the Earth.





Puzzles

- 1) Use matchsticks to form squares.



i) Four matchsticks are needed to form a square.

Can you use 7 matchsticks to form 2 squares ?

ii) Use 12 matchsticks to form 4 identical squares. How can you do it ?

- 2) Cut off one corner from the rectangle. How do you cut so that



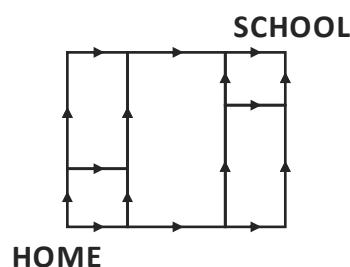
a) 3 corners are left ?

b) 4 corners are left ?

c) 5 corners are left ?

d) 6 corners are left ?

- 3) This is a route map between Sharon's home and her school. How many different ways can she go to school ?



Answers on page 21



How the type of surface affects the movement of an object

Identify :

1. What to change ? The type of surface
2. What remains same ? The object (marble)
3. What to measure ? The distance moved by the marble

Procedure :

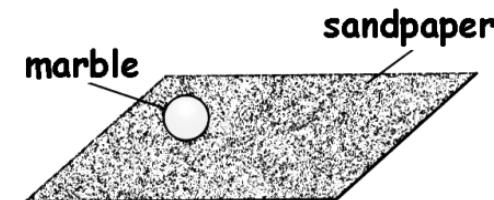
1. Roll a marble on a sandpaper.
2. Measure the distance moved by the marble.
3. Repeat steps 1 and 2 by using a piece of glass and an old newspaper in the place of the sandpaper.

Finding :

The marble moves further on the glass than the old newspaper or sandpaper.

Conclusion :

This experiment shows that a smoother surface causes lesser friction than a rough surface.

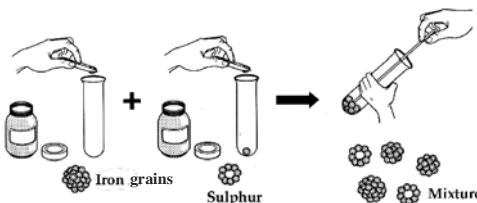




Studying Properties of a Mixture

Method and Observation :

1. Place a little iron grains and sulphur powder in a test tube. (Use about twice the weight of iron for sulphur).



2. Shake the test tubes to mix the two elements thoroughly.
3. Put a little mixture from that, on a sheet of white paper and observe it through a magnifying glass.
4. Hold a magnet over the mixture and observe what happens.
5. When iron grains are mixed with sulphur powder without heating, a mixture is formed. The two elements can be easily separated by using a magnet.
6. However, when the same mixture is heated, a chemical reaction takes place.
7. Sulphur melts and reacts with iron to produce ferrous sulphide.
8. This chemical reaction produces a large amount of heat (energy).

Finding :

Iron grains and sulphur powder in the mixture, are distinctly visible. Iron grains can be easily separated from sulphur powder because iron grains are attracted to the magnet.

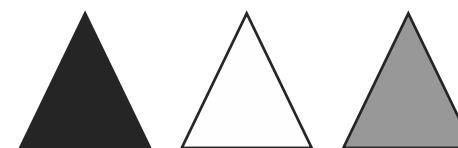
Conclusion :

In the mixture, the characteristics of iron grains and sulphur powder do not change. Both can be separated physically.



Brain Teasers

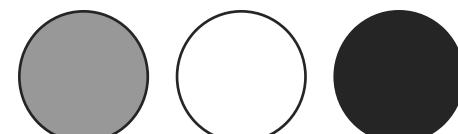
- 1) **NOTE:** The first number in each row tells the number of figures from that row, that will appear in the solution. The second number tells how many of the figures in the row are in the same position in the solution as they are in the row. Solution will have one triangle, one square and one circle.



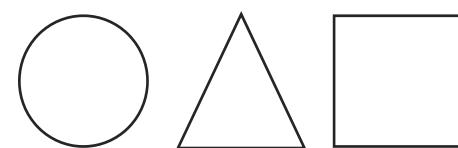
1 – 1



1 – 1



1 – 1



2 – 1

Solution:

Answer on next page



- 2) Complete the following phrases by changing or adding only the letters that go in the circles. The rest of the word stays the same.

A)

SAIL **B** O A TRAIN ___ ___CHAR ___ ___ FIELD ___ ___MOUNTAIN ___ ___

B)

S A I L BOAT

 ___ ___ A LETTERHOUSE ___ ___ ___ ___ AN EGG ___ ___ THE BILL

2) (A) BOAT, COAT, COAL, GOAL, GOAT
 (B) MAIL, MAID, LAID, PAID



Brain Teasers

Answers



Some Useful Divisibility Methods

Divisibility by 7

To check the divisibility of a number by 7 we apply the following method. Suppose the number is 133.

$$\text{Step 1. } \underline{1}3\ 3 \Rightarrow 13 - 3 \times 2 = 13 - 6 = 7$$

Since 7 is divisible by 7, so the given number 133 will also be divisible by 7.

Example 1 : Check whether 1071 is divisible by 7.

$$\begin{aligned}\text{Solution: Step 1. } &\underline{1}07\ 1 \Rightarrow 107 - 1 \times 2 = 105 \\ \text{Step 2. } &\underline{10}\ 5 \Rightarrow 10 - 5 \times 2 = 0\end{aligned}$$

Since 0 is divisible by 7 hence the given number 1071 is also divisible by 7.

Example 2 : Check whether 939715 is divisible by 7.

$$\begin{aligned}\text{Solution : Step 1. } &\underline{9}3971\ 5 \Rightarrow 93971 - 5 \times 2 = 93961 \\ \text{Step 2. } &\underline{9}396\ 1 \Rightarrow 9396 - 1 \times 2 = 9394 \\ \text{Step 3. } &\underline{9}39\ 4 \Rightarrow 939 - 4 \times 2 = 931 \\ \text{Step 4. } &\underline{9}3\ 1 \Rightarrow 93 - 1 \times 2 = 91 \\ \text{Step 5. } &\underline{9}\ 1 \Rightarrow 9 - 1 \times 2 = 7\end{aligned}$$

Hence, it is divisible by 7.

Divisibility by 13

Example 1 : Check whether 2366 is divisible by 13.

$$\text{Solution : Step 1. } \underline{2}36\ 6 \Rightarrow 236 + 6 \times 4 = 260$$

(Since, the osculator for 13 is 4 and it is 'one more' osculator. So we use addition)

$$\text{Step 2. } \underline{2}6\ 0 \Rightarrow 26 + 0 \times 4 = 26$$

Since 26 (or 260) is divisible by 13, hence 2366 is also divisible by 13.



Example 2 : Check whether 377910 is divisible by 13.

Solution : Step 1. 37791 0 $\Rightarrow 37791 + 0 \times 4 = 37791$

Step 2. 3779 1 $\Rightarrow 3779 + 1 \times 4 = 3783$

Step 3. 378 3 $\Rightarrow 378 + 3 \times 4 = 390$

Step 4. 39 0 $\Rightarrow 39 + 0 \times 4 = 39$

Since 39 is divisible by 39. So 377910 is also divisible by 13.

Divisibility by 17

Example 1 : Find out whether 323 is divisible by 17.

Solution : Step 1. 32 3 $\Rightarrow 32 - 3 \times 5 = 17$

(5 is the negative osculator of 17).

Therefore 323 is divisible by 17.

Example 2 : Check whether 12716 is divisible by 17.

Solution : Step 1. 1271 6 $\Rightarrow 1271 - 6 \times 5 = 1241$

Who am I ?

- I have all the knowledge you have. But I am small as your fist that your hands can hold me.
- I am the biggest alphabet, as I contain the most water in the world.
- It is your possession and belongs to you. However, you use it very rarely.
- You always make a more of them, but leave more of them behind you. The more you do, the more you leave behind.

Answers on page 21



Story of Circle

A circle is a common shape familiar to all of us. Normally we do not attach much importance to it. But if we start counting the number of uses of this shape, we are bound to admire it.

As a child, many of us had the comfort of a ride in a pram which used four circular wheels. As we grew, that was replaced by a tricycle and then further by a bicycle. But as we grew older, we went in for more stable four-wheelers like the car. Without these circular wheels, our vehicles on road and rail would not move. So is the case with our air and water transport, where propellers move in a circular motion. In all these vehicles, the chief mover, its transmission, etc., make use of circular shafts and gears. Thus we use the circular shape for transport facility.

The English letter 'O' – is a vowel, circular in shape. The parts of that circle form part of some letters in English.

In maths, the simplicity of the decimal system (numbered by tens) is due to the presence of the zero. Zero has simplified maths, which as it is, is a frightening dream for many. Without this zero, maths would have been far more complicated.

The punctuation marks also make use of the circle in full stop, brackets, etc. Even as children begin to learn writing, they first scribble circles. In nature, Sun, Moon, Earth and other planets and their orbits are of near circular shape.

In the human body, the nerves, veins, bones, hair, etc., are seen circular in cross-section. Many parts of the living beings, like eyes, ear-holes, etc., are circular in shape. Any liquid, while falling free, becomes circular globules as in the case of rain drops. Thus the circular shape is a permanent feature in God's creation.





Vocabulary

- 1) Discover more interesting places by filling in the blanks with the correct letters. An example has been done for you. Have fun!
- The place where coins are made is called the m i n t.
 - Georgina and her family went to the a — — r to board the cruise ship.
 - The children went to the — i — y to see how milk and cheese are processed.
 - My brother stayed in the — — r — — during his National Service.
 - Anne Molly bought 5 kilograms of cherries from the o r — — —.
 - The rich man's — r — g — contains ten luxury cars!
 - Dead bodies are buried in the c — m — — y.
 - Natalie loves the fragrance of the fresh bread from the — k — —.
 - The pupils found the — n n — — an interesting place to visit as they watched how canned food is sealed.
 - Being an aerospace engineer, Colin works in the — a n — — at the airport.
 - The variety programme is filmed in a — t — — o at the television station.

- 2) Find the words in the grid and write each beside its anagram.

lance _____
march _____
ample _____
plate _____
sever _____
panel _____
trace _____
baker _____

m	a	p	l	e	b
c	c	p	v	p	r
h	l	e	e	l	e
a	e	t	r	a	a
r	a	a	s	n	k
m	n	l	e	e	x
c	r	a	t	e	y

Few Amazing Facts

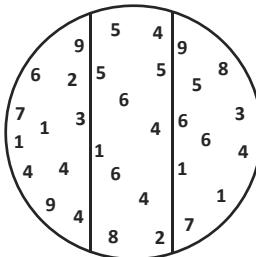
- It takes less than 1/50 of a second for an itch signal to travel from your toe to your brain.
- The area of skin on an average human being is about 1.8 m² and it weighs about 3 kg.
- The skin is thinnest at the eyelids where it measures 0.1 mm and is thickest at the soles of the feet where it is upto 3 mm thick.
- Your sense of smell is 20 000 times more sensitive than your sense of taste. In fact, much of the sensation of taste is actually the smell of food.
- When you jump from a height and land, the various bones in the leg bend slightly and then spring back to their usual shape.



Answers

Fun with Numbers

1)



$$2) \quad A = 1, \quad B = 4, \quad C = 7, \quad D = 2$$

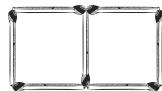
$$\begin{array}{r}
 & & 2 \\
 & 2 & 7 & 2 \\
 1 & 4 & 7 & 2 \\
 + & 1 & 4 & 7 & 2 \\
 \hline
 2 & 0 & 1 & 8
 \end{array}$$

$$3) \quad (a) \quad 2 + 2 - 2 = 2$$

$$(b) \quad 3 \times 3 \div 3 + 3 - 3 = 3$$

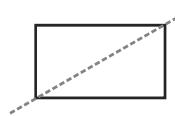
Puzzles

1)



ii)

2)



4 corners



6 corners

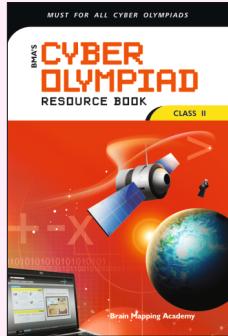
3) 6

Vocabulary

- 1) Harbour, dairy, barracks, orchard, garage, cemetery, bakery, cannery, hanger, studio.
2) Clean, Charm, Maple, Petal, Verse, Plane, Crate, Break.

Who am I ?

- 'C'
 - Your Name
 - Foot steps



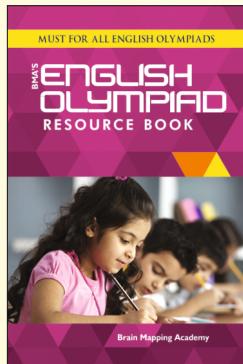
Cyber Olympiad Resource Book

Must for all Cyber Olympiads

- Prepared on curriculum suitable for various central and state boards.
- Mental Ability, Reasoning, Computers are covered in this single edition.
- Suitable for all International / National / State Cyber / Informatics / Computer Olympiad / Talent Exams Like Unified Cyber Olympiad, NCO, Informatics Olympiad etc.

Class	2	3	4	5	6	7	8
Price in ₹	150	150	150	150	150	150	150

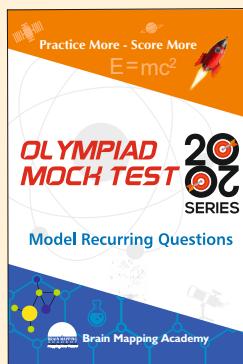
www.bmatalent.com



Price : ₹ 100 for each book

English Olympiad Resource Book (For Class 1 - 10)

- Synopsis for each chapter
- Entire syllabus is covered
- Innovative Puzzles and charts for mastering the concepts
- Suitable for International / National / Regional / State English Olympiads



Price : ₹ 100 for each book

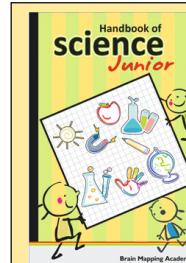
Olympiad Mock Test - 20-20 Series Maths & Science (For Class 1 - 10)

This 'Mock Test 20-20 series' provides students, the rigorous practice they need to prepare for any **Regional/National/International Olympiads**.

Every book in this series contains 20 test papers, each of 20 questions.

This readies the students for confidently tackling different types of questions and prepares them adequately.

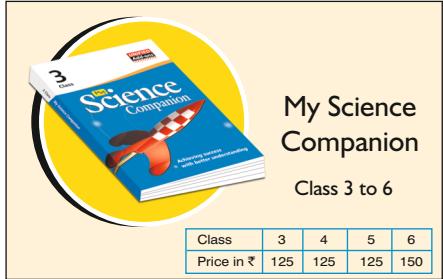
online payment facility is available at www.bmatalent.com



Handbook of Science Junior

Useful for
Class 1 to 5

Price : ₹ 125



My Science Companion

Class 3 to 6

Class	3	4	5	6
Price in ₹	125	125	125	150

Awesome English - Vol. 1 & 2 (Useful for Classes 3 - 10)



Each Book Price : ₹ 175

Vol. 1 : Truly Awesome

A unique coverage of various aspects of grammar
An all-time guidance for beginners and trotters.

- Concise Charts
- Spellings & Vocabulary
- Everyday Errors

Vol. 2 : Truly Awesome . . . Again !

A thorough upgrade for better English

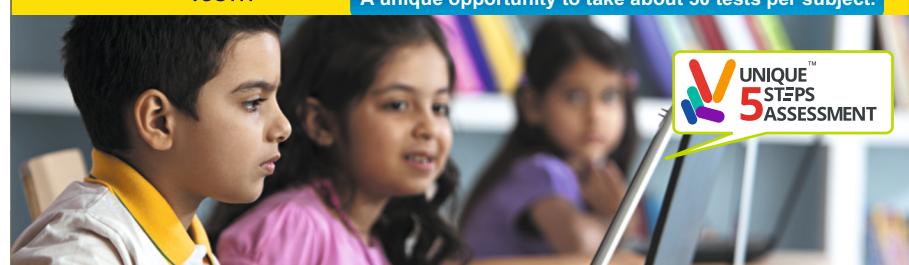
- Concise Charts
- Spellings & Vocabulary
- Everyday Errors

Phones : 0 7729997306, 0 8019965338

MapmySTEP.com

Maths Science English Computers Reasoning

A unique opportunity to take about 50 tests per subject.




Online Olympiad & Talent Exams Preparation Portal www.mapmystep.com