

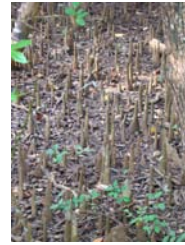
## 10<sup>th</sup> International Junior Science Olympiad



Salt crusts with chlorides and sulphates of sodium, magnesium and calcium, with trace amounts of bicarbonates are often visible on the soil surface here. It has different types of soils like clay, heavy, sandy loam, sandy and silty soils.

Mangroves are specialized plants that are adapted to grow in heavily water-logged and saline soils. Sundarbans has different kinds of forests, like dense mangrove forest, salt water mixed forest, mangrove scrub, brackish water mixed forest, littoral forest, and wet alluvial grass forest. Some of the species found here are *Acanthus volubilis*, *Nypa fruticans*, *Rhizophora apiculata*, *Sonneratia caseolaris* and *Heritiera fomes*. The last one is locally known as Sundari, or 'the beautiful woman'. The last name is believed to be the origin of Sundarbans, where 'ban' means forest.

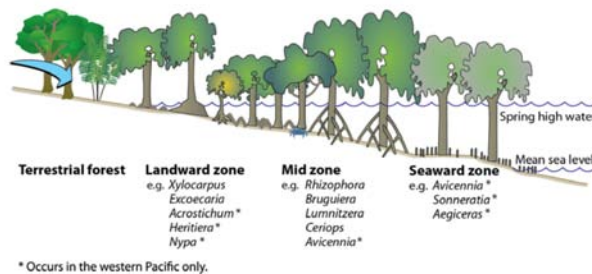
The livelihood of close to 4.5 million people living here is agriculture. But each year, the sea engulfs a huge amount of land and the locals have to seek alternate income from silviculture, pisciculture, apiculture, prawn collection, seed and honey collection, deep sea fishing, etc. Mangrove forests are largely exploited for timber, wood for paper pulp, plywood, firewood, barks for tannin, honey and wax.



This is a difficult natural terrain, hit by frequent cyclones and flooding, coupled with human-animal conflict with tigers, snakes, etc. These may account for the fact that local people following different religions worship the same Gods, and even trees, snakes, tigers and other animals. Bonobibi, or lady of the forest, is worshiped in almost every village. Manasa (Deity of snakes) is also worshiped to prevent animal attacks and natural calamities.



**Write to us**  
A young girl decided to do bird-watching in the mangroves near her house. She observed that the mangrove species near the sea differed from those nearer her house and that there was a change in the kind of plant species from sea to land. She made the following labelled drawing of what she observed. List the adaptations of the plant species in each zone.



Adapted from Waycott et. al. (2011)

Image source: Saravask, Linuxerist, Rursus, Valadrem, bri vos, V Malik, Himraj13, Nirmal Dulal from commons.wikimedia.org., Rupesh Shewalkar, Jason Chi-Shing So, Timmy Hoi-Tim Wat. Waycott et. al. (2011). Vulnerability of mangroves, seagrasses and intertidal flats in the tropical Pacific to climate change. In Bell JD, Johnson JE and Hobday AJ (eds). Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change. Secretariat of the Pacific Community, Noumea, New Caledonia.

### Editorial team

Chitra Natarajan, Rafikh Shaikh, Manoj Nair, Adithi Muralidhar, Shradha Ghumre, Geetanjali Date.



### Today's attraction

पुणे महानगरपालिका  
राजीव गांधी प्राणीसंग्रहालय व वन्यप्राणी संशोधन केंद्र, कात्रज  
PUNE MUNICIPAL CORPORATION  
RAJIV GANDHI ZOOLOGICAL PARK AND WILDLIFE RESEARCH CENTRE, KATRAJ

You must be looking forward to an opportunity to explore Pune! So here's a little to get you geared up for the experiences awaiting you! As you travel to Katraj, you will have some glimpses of Pune. All sorts of shops line our streets, many of their names written in both English, and Marathi, the local language. These bilingual name-plates can help you read the Devanagari script of Marathi. The Phule market and Shivaji market are in the heritage list of unique architectural designs. The roads and junctions are often officially named after the people the city is proud of, like Indian freedom fighters, literary and art stalwarts. Numerous such street or junction names are written in white on blue background. Interestingly, local people may have different names for the streets, and even those who live on the street may not know its official name. We are sure you will notice this and much more! And these places might remind you of something back home. We would love to hear from you of what you enjoyed on the excursion, and of things that reminded you of something from your town or country. Do 'write to us' students, and we'll try to share it with everyone in the next issue of Vigyan Beats. Leaders can mail us at [vigyan.beats@gmail.com](mailto:vigyan.beats@gmail.com).

### Leader Speak

"...it was a good chance to understand Pune- its history and present...I could find parallels between India's and Korea's freedom struggle...I liked the concept of *wadas*....and in contrast to museums, *wadas* are living structures....I tried to imagine the beautiful days of the *wadas*... I was really thrilled by the sculptures and scriptures of the Victorian *wada*... would like to visit Pune again with family..."  
-Jhun, Youngseok (South Korea)

"....I really liked the explanation of the architecture..... *wadas* were fascinating ...It would have been nice to see more local artisans and handicrafts, like here at the Village Haat..."  
-Robin Powles (Zimbabwe)

### Today @ IJSO

Visit to Rajiv Gandhi Zoological Park

**Students**

- Buses will leave from your hotel at 09.00 hrs.
- This is an outdoor visit with little shade. Remember to wear your caps.
- Water bottles will be provided.
- You will be back at VITS for a late lunch.

Practical exam discussions

Lunch and Dinner at Sabha.  
Breakfast on 9<sup>th</sup> December at Pool Deck.

**Leaders**

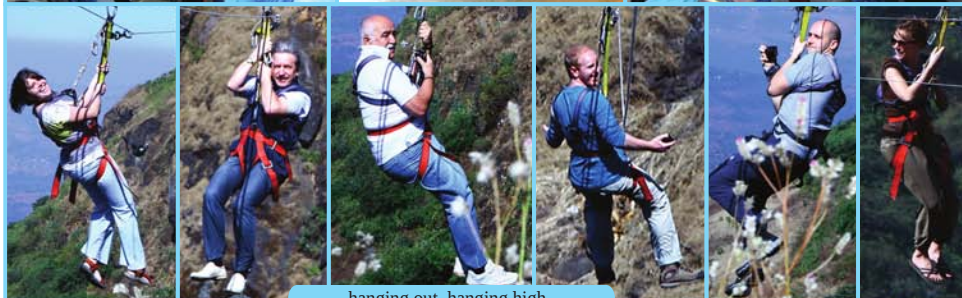
# Snapshots



was it easy, was it hard? glad it is over...



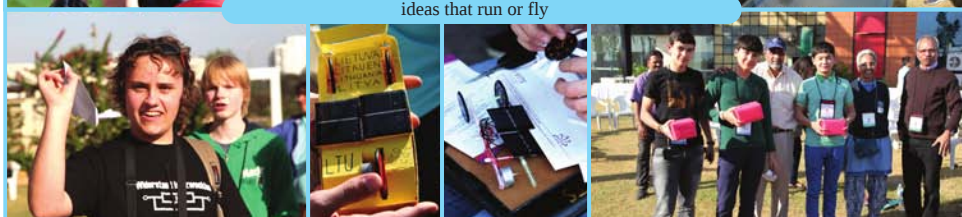
lived histories



hanging out, hanging high...



ideas that run or fly



## Happy Birthday

Doglan günün gutly bolsun

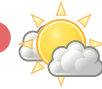


Abdyrahman Merdanov  
(Turkmenistan)

## Today's weather

Sunrise: 06.55AM

Sunset: 05.58PM



Max Temp: 29° C

Min Temp: 10° C

Sky condition would be clear

Source: www.imdpune.gov.in

## Student Speak @ Help Desk Dropbox

"Dear Team Zimbabwe- could you please sing a song for the birthday of my friend Abdyrahman?"

- Atamyrat Bashimov  
(Turkmenistan)

About the GMRT visit:

"The journey was long but fun-filled, I saw farmlands on the way which reminded me of the farms in Nigeria. Also the vegetation is just like the ones we have in Nigeria (when travelling between states).....I had a lot of fun today and understanding the principle of the GMRT was a great plus to my knowledge"

- Shuaib Abdulqudus  
(Nigeria)

We would like to present a special token of appreciation to Ethan Van Woerkom of the Netherlands. Ethan wrote an interesting essay about the semi-arid regions he has visited. Vigyan Beats thanks you for sharing your experiences.

## Winners of Yesterday's "A KEEN EYE"

The correct answer was Vithal Venkatesh Kamat. Right outside the VITS entrance, there is a statue, this quote is written underneath it. Many of you got it right, so we did a lucky draw. Congratulations Santiago Ravotti (Argentina), and Debaditya Pramanik (India-II), you have a keen eye! Collect your gift during breakfast.

## Scientific Activity- Car making



First Place- Sri Lanka  
Second Place- Turkmenistan  
Third Place- Tajikistan

## Zoom In

### Winner of yesterday's Write to us

We received a large number of entries for yesterday's puzzle. Unfortunately, none of them had the correct answer. We will keep this puzzle open for discussion, so continue to drop your answers @ the Help Desk.

## Mangrove Ecosystem of Sundarbans

Sundarbans covering about 15000 sq km across Bangladesh and India is the largest span of tidal halophytic mangrove ecosystem in the world! Declared as a Ramsar wetland site and UNESCO world heritage site, two-thirds of Sundarbans lies in Bangladesh. Three well known rivers, the Ganga, Brahmaputra and Meghna deposit their sediments here and make it the world's largest delta.

Monsoon rains, sedimentation, flooding, and tidal influence shape the mangrove communities that thrive in Sundarbans. It supports exceptional biodiversity in its terrestrial, estuarine and marine habitats from microscopic flora to large carnivores like the Royal Bengal Tiger. It is also home to threatened species like the Gangetic and Irrawaddy dolphins, river terapin, etc.

