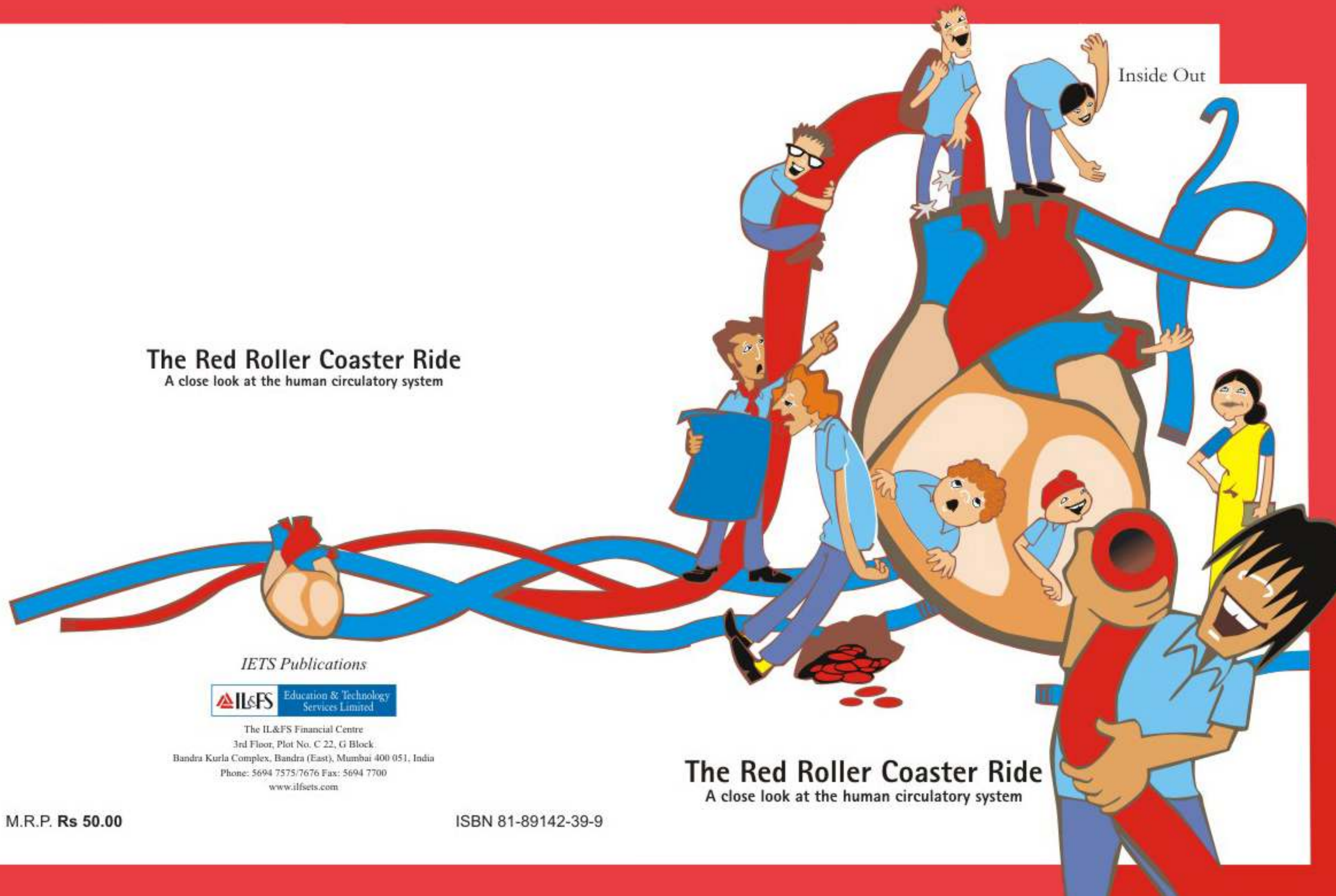


Inside Out

The Red Roller Coaster Ride

A close look at the human circulatory system



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1. F for Failure

Standard VIII F! Everybody said it was the worst class in the school. All the boys who hated studies, never did their homework, only played the fool and failed in their exams, were put into the F division. The teachers had said, F stood for failures and there the boys sat, condemned. Until one day their lives changed forever. They got a new class teacher. They called her Dimple teacher, because a little dimple appeared on her cheek whenever she smiled and that was very often! Dimple teacher believed that there was no such thing as a bad student and that if learning were made interesting, even the so-called bad student would begin to love school. For Dimple teacher, F stood for Fun. In her class, learning was fun.

She got the boys hooked onto history and geography, by walking with them through the streets of the city. "There's history hidden here," she would say, pointing to a heritage building. "There is biology in the street dog that just barked at us. For that matter, there is science hidden in everything, including this electric post," she would explain. Once, she took Standard VIII F to the topmost floor of a skyscraper. Fascinated, the boys gazed at the city below. After that, it was not difficult for the boys to understand maps. They drew all kinds of maps – maps of the school, maps of the neighbourhood, maps of a slum, maps of the railway lines...

Last week, she took the boys to the blood bank at Hooper Hospital. Guess what the boys learnt from that visit! You're right, they learnt a great deal about blood.



2. The Blood Bank

The boys stepped tentatively into the blood bank. They silently watched, as a doctor asked a young lady to lie on a couch. She had come to donate blood for a friend who had to undergo an operation. The doctor found a vein and gently inserted the needle. The lady didn't even squirm. It all looked so easy! The boys were awestruck and bursting with questions.

"Isn't this painful?" asked Vishnu, the tallest boy in the class.

Kindly Dr. Sen, chief of the blood bank, smiled at the donor who smiled back. "Does she look like she is suffering? A mosquito bite can be more painful than this," the doctor said. Everybody laughed. Indeed, donating blood did seem painless.

"Doctor, where is her friend – the one who requires the blood?" asked Bobby, a regular at the movies. "Isn't blood transferred from one body to another, directly?"



Now it was Dr. Sen's turn to laugh. "You've been watching too many Hindi films, my friend," he said. "Blood transfusion from one body to another takes place only in Hindi films."

Once again, laughter rang out.

Dr. Sen continued, "In real life, donated blood is tested, treated with chemicals, sometimes separated into the liquid part or plasma and the solid part or cells, stored in refrigerators and only then transfused into a patient."

Chirag peered through his glasses and asked, "Why is blood tested? What is it tested for?"

The doctor answered, "We must make sure the blood that is being donated, is free from any disease or infection. There is no point in giving a weak or sick person blood that is unhealthy, is there? Also, we have to match blood type."

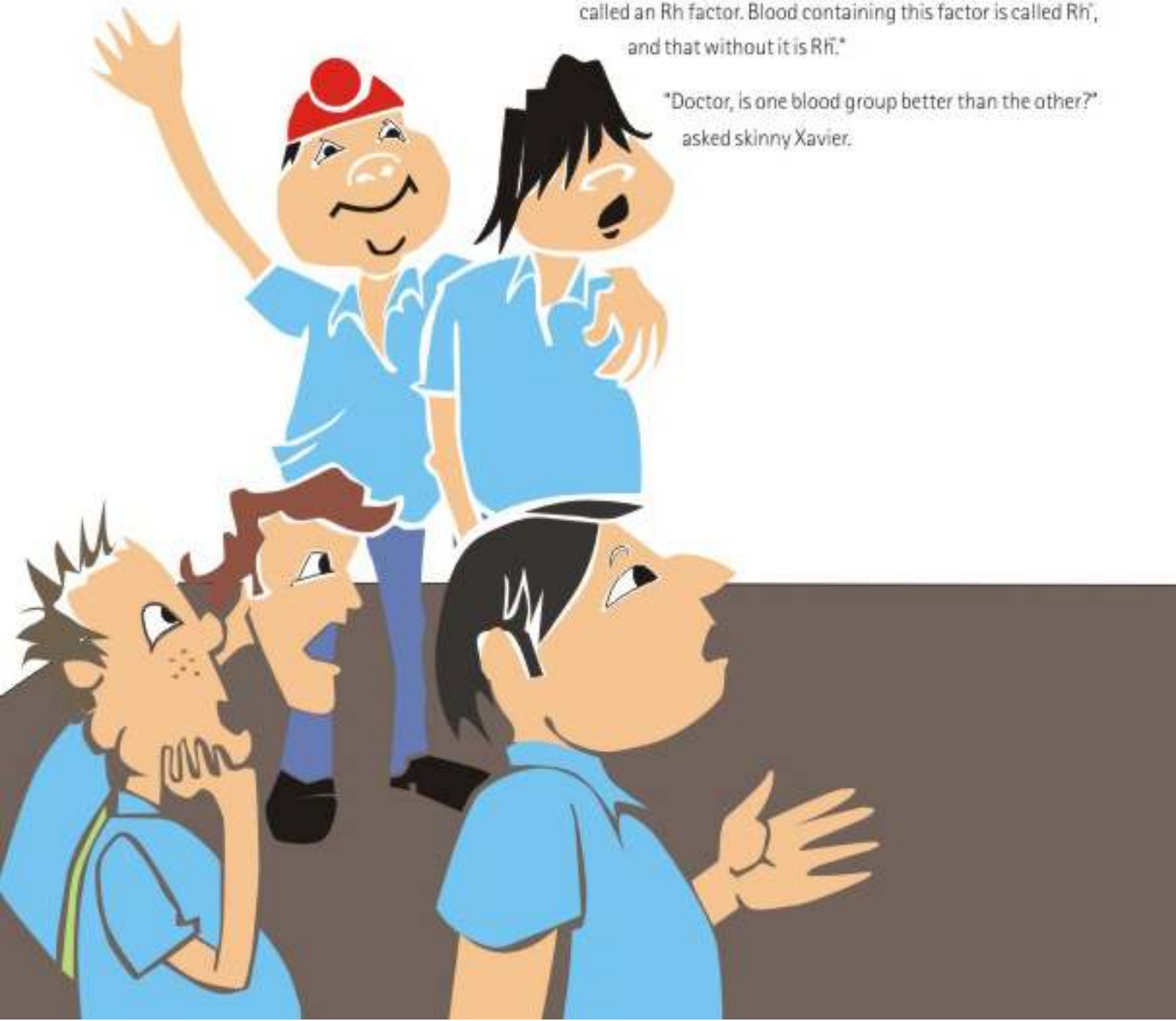


Adi piped up, "I've heard of that. My mother says my blood group is 'Type A'. What does that mean?"

Dr. Sen was pleased that the boys were asking so many questions. They seemed extremely bright. "Human blood is classified into four main groups, A, B, AB and O. The blood type is based on a kind of protein found on the surface of red blood cells," explained Dr. Sen. Pointing to a computer screen, he continued, "This chart here tells you which protein each blood group contains. The blood group O is the universal donor. People with this blood group can donate blood to people belonging to all the other blood groups. AB is the universal receiver. It can receive blood from the A group, B group and the O group. A can receive blood from only A and O, while B can receive blood only from B and O."

The doctor added, "In addition to this, blood contains something called an Rh factor. Blood containing this factor is called Rh⁺, and that without it is Rh⁻."

"Doctor, is one blood group better than the other?" asked skinny Xavier.



Dr. Sen smiled, "A blood group may be rarer than another, but there is no such thing as a superior blood group. There are no superior people based on blood, just as there are no inferior people based on blood."

"Doctor, what would happen if blood of the wrong group were given to someone?" asked a worried Feroz.

"Good question," replied Dr. Sen. "Such mixing of blood would be disastrous. It would create all sorts of complications and problems and could even lead to death."

Prakash, who was usually silent and thoughtful, asked with a tinge of sarcasm:

"Doctor, would similar complications arise if boys of Standard VIII A are mixed with those of Standard VIII F?"

"These boys are certainly sharp," thought Dr. Sen, peering at Prakash. He cleared his throat and spoke, "Boys, the divisions of blood are nature-made. Most other divisions are man-made. Breaking down man-made divisions also leads to complications, but many times this is not bad at all."

