

## 8. A Treat for Mosquitoes



0529CH08

### Blood test



Jaskirat

Rajat is back at school today. He had been absent for many days. “How are you now?” asked Aarti. “I’m alright,” Rajat replied softly.

**Jaskirat:** You must have played a lot while you were at home.



Rajat

**Rajat :** Who wants to play when you have fever! On top of it I had to take a bitter medicine! I even had a blood test.

**Jaskirat:** A blood test? Why? It must have been very painful.



Nancy

**Rajat:** Actually, when the needle pricked my finger, it felt like an ant bite. They took 2-3 drops of blood, and sent it for testing. That’s how we came to know that I had malaria.

**Nancy:** But you get malaria when a mosquito bites you.

**Rajat:** Yes, but we find out by the blood test.



Aarti

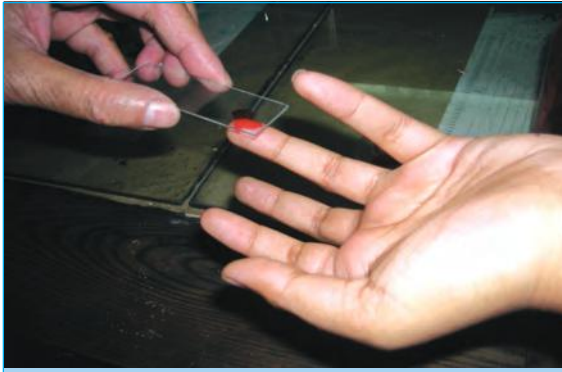
**Jaskirat:** There are a lot of mosquitoes in my house these days, but I did not get malaria.

**Nancy:** Who says that every mosquito bite causes malaria? Malaria spreads only by the disease carrying mosquitoes.

**Aarti:** All mosquitoes look the same to me.

**Rajat:** There must be some difference.





Abid Shamsbad

Taking the blood on the glass slide for test  
Malaria spreads through female  
mosquitoes (Anopheles)



Dr Maryam looking at the blood slide under the microscope. This microscope makes things look thousand times bigger. The details inside the blood can be seen clearly. There are some microscopes which make things look even more bigger than this one.

**Nancy:** Did they take the blood from the place where the mosquito had bitten you?

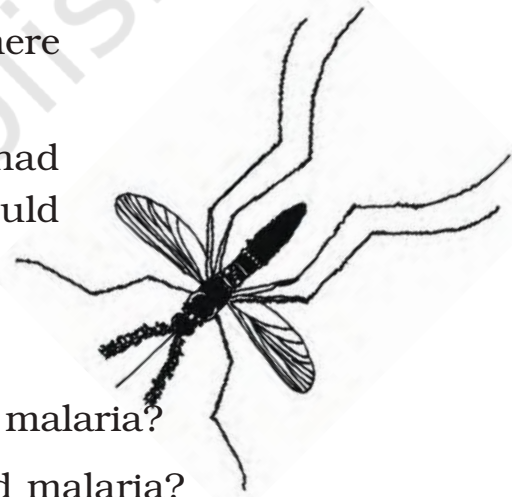
**Rajat:** Of course not! How do I know when and where the mosquito bit me?

**Nancy:** But how could they find out that you had malaria by your blood test? Do you think they could see something in the blood?



### Find out

- ♦ Do you know anyone who has had malaria?
- ♦ How did they find out that they had malaria?
- ♦ What problems did they have on having malaria?
- ♦ What other diseases can be caused by mosquito bites?
- ♦ In which season is malaria more common? Why do you think this happens?
- ♦ What do you do in your house to protect yourself from mosquitoes? Also find out from your friends about what they do.



क्लीनिकल विकृति रिपोर्ट  
CLINICAL PATHOLOGY REPORT  
केंद्रीय सरकार स्वास्थ्य योजना  
Central Govt. Health Scheme

18/08/2007

नाम/Name..... **Rajat** आयु/Age..... **11** स्त्री या पुरुष/Sex..... **Male**

रोग की पहचान/Diagnosis..... **Fever with Chills and Rigors**  
( ठंड लगकर कपकपी के साथ बुखार )

**Malarial Parasite Found in Blood Sample**  
( खून में मलेरिया के जीवाणु पाए गए )

  
Pathologist

- ♦ Look at the report of the blood test given here. Which words in the report help us to know that the person has malaria?

**Medicine for Malaria**

From early times, the dried and powdered bark of the *Cinchona* tree was used to make a medicine for malaria. Earlier people used to boil the bark powder and strain the water which was given to patients. Now tablets are made from this.

**Anaemia-What's that?**



**Aarti:** You know, I also had to get a blood test done. But they took a syringe full of blood. The blood test showed that I had anaemia.



**Rajat:** What is that?



**Aarti:** The doctor said that there is less 'haemoglobin' or iron in the blood. The doctor gave some medicines to give me strength. He also said that I should eat jaggery, *amla* and more green leafy vegetables, because these have iron.



**Nancy:** How can there be iron in our blood?



**Jaskirat:** There was something about this in the newspaper yesterday.



**Rajat (laughing) :** So then you ate iron or what?!



**Aarti:** Silly! This is not the iron used to make these keys. I don't know exactly what it was. After I ate a lot of vegetables and whatever the doctor had said, my haemoglobin went up.

**Teacher's Note :** You can bring a blood report in the class and discuss with the children.



## Anaemia common in Delhi school

17 November, 2007 - Thousands of children studying in the Municipal Corporation schools in Delhi suffer from anaemia. This is affecting both their physical as well as mental health. Due to anaemia, children do not grow well, and their energy levels are

low. This also affects their ability to study properly. Now health check ups are being done in the schools and health cards are being made for all the children. Anaemic children are also being given iron tablets.



### Tell

क्लीनिकल विकृति रिपोर्ट CLINICAL PATHOLOGY REPORT केंद्रीय सरकार स्वास्थ्य योजना Central Govt. Health Scheme		क्लीनिकल विकृति रिपोर्ट CLINICAL PATHOLOGY REPORT केंद्रीय सरकार स्वास्थ्य योजना Central Govt. Health Scheme	
20/06/2007		15/09/2007	
नाम/Name..... <b>Aarti</b>	आयु/Age..... <b>12</b> स्त्री या पुरुष/Sex..... <b>Female</b>	नाम/Name..... <b>Aarti</b>	आयु/Age..... <b>12</b> स्त्री या पुरुष/Sex..... <b>Female</b>
रोग की पहचान/Diagnosis..... <b>Anaemia (अनीमिया)</b>		रोग की पहचान/Diagnosis..... <b>Anaemia (अनीमिया)</b>	
Normal Range (नॉर्मल रेंज)		Normal Range (नॉर्मल रेंज)	
Haemoglobin ..... <b>8</b> gm/dl (हीमोग्लोबिन)	12 to 16gm/dl	Haemoglobin ..... <b>10.5</b> gm/dl (हीमोग्लोबिन)	12 to 16gm/dl
<i>H. Prasad</i> Pathologist		<i>H. Prasad</i> Pathologist	

- ♦ Look at Aarti's blood report and find out the minimum required haemoglobin?
- ♦ How much did Aarti's haemoglobin go up and how long did it take for that?
- ♦ What does the newspaper report say about the problems caused by anaemia?
- ♦ Have you or anyone in your family ever needed to get a blood test? When and why?

**Teacher's Note :** A discussion can be initiated in the classroom, about how diseases spread through the housefly. Newspaper reports can also be used in the class.





- ♦ What was found out by the blood test?
- ♦ Have you had a health check up in your school?  
What did the doctor tell you?



### Find out

- ♦ Ask a doctor or elders about the food items which contain iron.

### Baby mosquitoes



**Jaskirat:** There is a poster on malaria just outside our class.

*(Everyone goes out to look.)*



**Are you inviting mosquitoes?**

**BEWARE!**

**They Spread Malaria, Dengue, Chikungunya!**

- ✦ **Don't let water collect around your house. Fill up the pits.**
- ✦ **Keep the water pots, coolers and tanks clean. They should be dried every week.**
- ✦ **Use mosquito nets to protect yourself.**
- ✦ **Spray kerosene if water has collected at some place.**



**Rajat:** The poster says something about larvae. What are those?



**Nancy:** They are baby mosquitoes. But they don't look like mosquitoes at all.





**Aarti:** Where did you see them?

**Nancy:** There was an old pot lying behind our house. It was full of water for some days. When I looked there I saw some tiny thread-like grey things swimming. I was surprised when Mummy told me that these had come out of the eggs which mosquitoes lay in water. They are called larvae. I also heard something about this on the radio.



**Rajat:** What did you do?

**Nancy:** Papa immediately threw away the water. He cleaned and dried the pot and kept it upside down, so that no water would collect.



**Jaskirat:** Shazia aunty told me that even flies spread diseases, especially stomach problems.



**Rajat:** But flies don't bite. Then how do they spread diseases?



mosquitoes's larvae



larvae seen through hand lens



### Find out and tell

- ♦ Have you seen any poster like this put up anywhere?
- ♦ Who do you think puts up such posters, or gives ads in the newspapers?
- ♦ What are some of the important points given in the poster?
- ♦ Why do you think pictures of a tank, cooler and pits are shown in the poster?



### Think

- ♦ Why do you think it talks about putting fish in the tank? What do you think the fish eats?
- ♦ What will happen when oil is spread on the water?





## Find out

- ♦ Which diseases are spread by flies and how?



## Mosquito check

Divide your class into two or three groups. Each group will go around to check one area in school or around it. It must carefully note if water has collected anywhere, and mark ✓ where it finds stagnant water.

Pot ☐ Cooler ☐ Tank ☐ Any open space in the school ground ☐ Gutter ☐ Any other place \_\_\_\_\_

- ♦ Since how many days has water collected there?  
\_\_\_\_\_
- ♦ Who is responsible for keeping these places clean?  
\_\_\_\_\_
- ♦ Who is supposed to get the gutters and drains repaired?  
\_\_\_\_\_
- ♦ Can any larvae be seen in the collected water?  
\_\_\_\_\_
- ♦ Has it caused any problem in the area? Write.  
\_\_\_\_\_

## Make a poster

- ♦ In your group, make a poster with a message to keep the cooler, tank, drains and the area clean (wherever water collects). Put up your poster in and around your school.
- ♦ Find out who is responsible for keeping the area around your school clean. Write a letter from your class, reporting your findings and suggestions. Find out to whom the letter should be written and to which office it should be sent.



## Survey report

Some children did this survey. Here are some of their reports.

### Group 1

We found something green around the taps in our school which is called algae. Due to algae (a kind of plant) it had also become slippery there. The algae spreads a lot during the rainy season. We think that they are some kind of small plants that grow in water.



### Tell

Is there a pond or river around your house or school? Go and look around and observe these things:

### Group 2

There is a pond near the school. At first you cannot see the water in the pond as it is completely covered with plants. One aunty told us that these plants have grown themselves in water. Around the pond there are pits full of water. We also saw some larvae in the water. As we moved around, lots of mosquitoes flew from the plants growing around. Jaskirat feels that there are so many mosquitoes in her house because of this dirty pond nearby.

- ♦ Can you see algae in or around the water?
- ♦ Where else have you seen algae?
- ♦ Are there plants growing on the side or in water? Find out their names. Draw some of these in your note book.
- ♦ Do you think these were planted by someone or did they grow on their own?
- ♦ What else can you see in water? Make a list.



Ronald Ross

### A scientist peeps into a mosquito's stomach

This interesting incident took place almost a hundred years ago. A scientist found out that mosquitoes spread malaria. Let's read about this discovery in his own words.

"My father was a general in the Indian Army. I studied to become a doctor, but what I really liked was reading stories, writing poetry, music and drama. In my free time I enjoyed doing all this.





In those days, thousands of people used to die from a disease that we now call malaria. The disease was found in areas where there was a lot of rain, or in swampy places. People thought that the illness was caused by some poisonous gas that came from the dirty swampy areas. They gave it the name 'malaria' which means 'bad air'. One doctor had seen tiny germs in the blood of one of the patients, when he observed it under a microscope. But he could not understand how these had got into the patient's blood.

My professor had some ideas about this. "I think that these may be carried by some kind of mosquito." As his student, I spent all my time chasing mosquitoes, to catch and observe. We used to carry empty bottles and chase mosquito after mosquito. Then we would put the mosquitoes into a mosquito net in which there was a patient of malaria. The mosquitoes would have a feast, biting these patients. The patients were paid one *anna* for allowing one mosquito to bite them.

I will always remember those days at the hospital in Secundrabad – how we used to cut open the mosquito's stomach and peep into it. I would spend hours and hours bent over the microscope. By night my neck would be stiff and my eyes could not see clearly! It used to be very hot but we dared not fan ourselves, as all the mosquitoes would fly off in the breeze! Once I also fell ill with malaria.

I spent months like this with the microscope, but could not find anything. One day we caught a few mosquitoes that looked different. They were brownish with spotted wings. When I looked into the stomach of one of the female mosquitoes, I saw something black there. I looked closer. I saw that these tiny germs looked just like the ones that were found in the blood of malaria patients. At last we had the proof! Mosquitoes did spread malaria!"

In December 1902, Ronald Ross got the highest award for his discovery—the Nobel Prize for medicine. In 1905, even as he lay dying, Ross's last words were, "I will find something, I will find something new."

## What we have learnt

What can you do so that mosquitoes do not breed in your house, school and neighbourhood?

- ♦ How can you find out if someone has malaria?



**Teacher's Note :** Tell children that '*anna*' was a form of currency used earlier in India. Use the story of Ronald Ross to encourage children to know and talk about scientific processes. It is important to share with children that in an ordinary hospital of Secundrabad many important experiments were done – some successful and some not so successful – which led to an amazing discovery about a disease which has still not been controlled. Collect more such exciting stories on discoveries about different diseases and share with children.

