

### PREFACE

This booklet has been developed for schools to generate awareness about child and adolescent health and government programs such as National Deworming Day (NDD) and Weekly Iron folic Acid Supplementation (WIFS). The intention is to break myths around deworming and ensure a healthy India. The booklet is first and foremost for children and adolescents, then for parents / guardians, teachers, staff, and the community in general. Teachers can easily use this material in classrooms to inform the said target group about the benefits of deworming and the relevance of National Deworming Day at their school.

Iron Folic Acid (IFA) strategy includes IFA supplementation, deworming, food fortification, promotion of diet diversity and enhanced focus on community mobilization and focussed efforts between government stakeholder departments for anemia reduction.

National Deworming Day, launched in February 2015, is the Government of India, Ministry of Health and Family Welfare's flagship preschool *(anganwadi)* and school-based mass deworming program. National Deworming Day aims to deworm all children and adolescents between the ages of 1-19 years with albendazole tablets through all government, government-aided and private schools, junior colleges, technical institutes, coaching centers, and anganwadi centres in order to improve their overall well-being, nutritional status, access to education, and quality of life. The booklet has the following three sections-

#### Section A:

Activities for children enrolled in Nursery - Class II

#### Section B:

Activities and information for children in Class III-V

#### **Section C:** Information for children and adolescents in Class VI-VIII



# **Section A**



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**Swati:** Hi. I am Swati. I am 10 years old and I love to go to school. I learn a lot at my school every day. When I grow up, I would like to be a scientist.

**Raju:** I am Swati's brother, Raju. I am 4 years old and I love to play. I also go to the anganwadi every day. I play with my friends, learn to sing rhymes, and also get food to eat. The anganwadi didi takes care of me there. When I grow up, I want to be a football player.

Hi, I am a teacher in Swati's school. Let's start with some new and interesting things that I would like to tell you about.

**Swati:** You always tell us to eat healthy and wash our hands, I have to do it so many times in a day! Why do we need to be healthy? Can we not learn about it when we get old?



National Deworming Day

**Teacher:** For your body to work properly, it needs a **balanced diet**, **good hygiene**, **exercise** and **enough sleep**. The foundations of lifelong responsibility for the maintenance of personal hygiene are laid down in childhood. Children who embrace healthy eating and exercise habits during childhood will have a much easier time maintaining a healthy lifestyle through adolescence and adulthood.

Some children seem weak and tired, and are not interested in playing or studying. Sometimes children are not able to go to school every day.



#### **Draw Healthy Food**



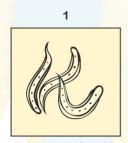


You and your friends love going to school, studying hard and playing. But have you ever thought about why some children are not like that? Some children seem weak and tired, and are not interested in playing or studying.

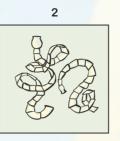
Sometimes children are not able to go to school every day. This could happen if you have worms in your intestines!

#### This could happen if you have worms in your intestines!

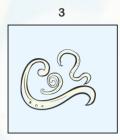
There are three types of worms that can live in your intestine. These worms spread due to lack of personal hygiene and cleanliness in your surroundings.



ROUNDWORMS



WHIP WORMS



HOOKWORMS

A child with worms can spread the infection to others when he or she defecates in the open and does not use a toilet.

Hookworms can go into children's skin through bare feet, and roundworms and whipworms get into their intestines when they eat with dirty hands. Other children also get infected when they come in contact with infected soil and get it on their hands and feet.

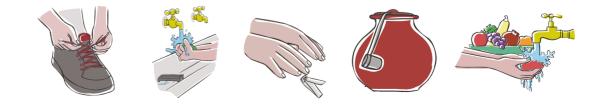
The worms that live in children's intestines soon begin to absorb nutrition from the food they eat, making them feel tired, nauseous, and giving them frequent stomach aches and diarrhoea. Because of this, children often fall sick and can't concentrate on their studies or are unable to attend school regularly. When worms feed on all the nutrition from the food you eat, then there is not enough for your body. This may lead to anemia which reduces or delays physical development and decreases mental development and alertness.



#### COLOUR IN THE IMAGES THAT ABE SHOWN BELOW



You might be surprised to know that worms are very common in children. Symptoms of worm infections might not be visible but it can impact your growth and development. Because children spend so much time playing outside, sometimes barefoot or near unclean surroundings, the likelihood of having worms is very high. Therefore, you must always keep your surroundings and yourselves clean. You can do this by wearing shoes when you are outside; washing hands before eating food and after using the toilet; keeping your nails clean and short; and drinking clean water.



**There are many benefits to deworming:** It controls anemia, improves nutritional uptake, helps improve concentration, capacity to learn, attendance at school and also benefits our ommunitybyreducingworms in the environment.



But don't worry, there is a simple way to get rid of these worms, called "deworming". Deworming is when you kill all the worms in your intestines by having a chewable deworming tablet. This tablet can help get rid of worms in your intestines.

I think I might have worms, too! Sometimes I get stomach aches and I don't always wash my hands before eating. What will happen now?



Raju, you are not alone. Many children have worms. But the good news is that we now know that having the deworming tablet and maintaining healthy practices will help you get rid of worms.





Will we have to go to the doctor to get this tablet?

Since so many children are at risk of worm infections, the government is implementing the National Deworming Day program in all preschools (*anganwadis*) and schools. On this day, all children and adolescents between the age of 1-19 years are given the deworming tablet at their schools and preschools (*anganwadis*) free of cost.



You will be given the deworming tablet at your school on National Deworming Day. Be sure to have the chewable deworming tablet, which your teacher will give you.

If you miss being dewormed on National Deworming Day, because of sickness or absenteeism, you can have the tablet at your school on mop-up day.

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Ask your teacher, and write down the date of National Deworming Day and mop-up day in your school.

National Deworming Day

Mop-up Day

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endazole 400

Do you understand now how worms can spread so easily? If we are not careful, we may spread worms in our entire community and all children will be infected. To avoid this, it is important that all children are dewormed and we follow healthy practices to keep ourselves and our surroundings clean.



But some children might not have worms, How do we know if we should be dewormed or not?



Some children may not show any signs of it, but they might still have worms. The deworming tablet is risk-free and safe for you and you can have it even if you do not have any worms. So it is important that all children have the deworming tablet on National Deworming Day.



That is good. I will be sure to have the deworming tablet when my teacher gives it to me in my school on National. Deworming Day.



Me, too! All my friends and I will have it at the anganwadi

That is very good, Raju and Swati. Now let me tell you more about how to prevent worm infections.





Deworming is a very important part of controlling worms in children. In addition to deworming, there are other practices that help to reduce worm infections.



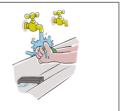
Keep your surroundings clean



Wear shoes



Do not defecate in the open. Always use a toilet



Wash your hands regularly with soap, especially before eating food and after using toilet



Wash fruits and vegetables with clean water



covered



keep drinking water covered







every week 10-19 years children and adolescents





Now that you both know so much about deworrning, make sure you tell your friends and parents about National Deworming Day.

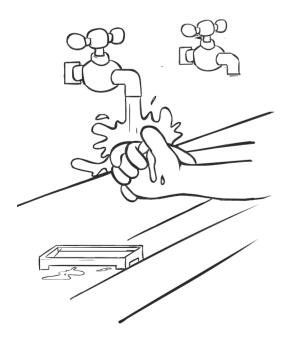


Write down the names of your friends to whom you will tell about the benefits of deworming.



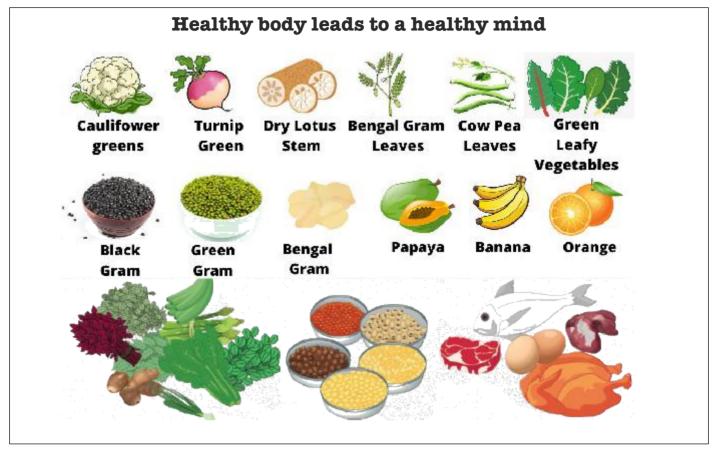


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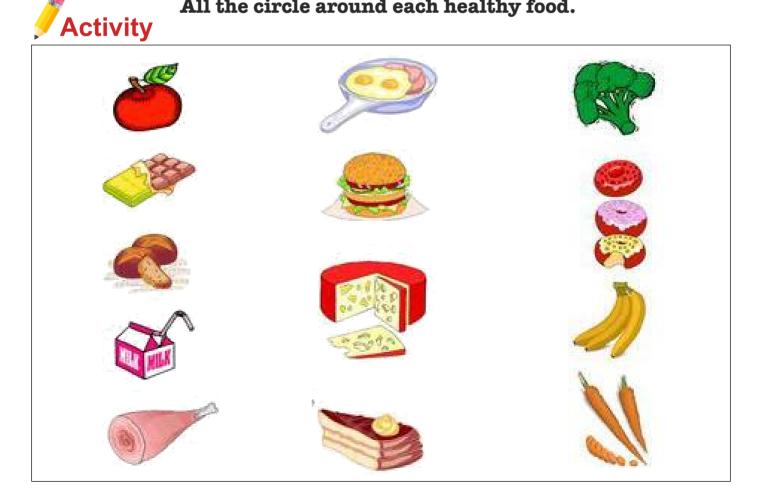








All the circle around each healthy food.



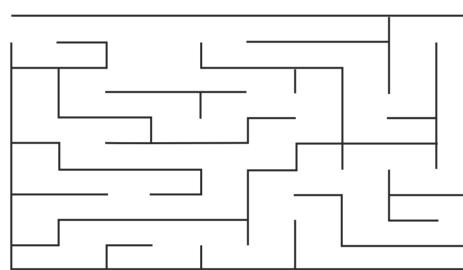


All children can also play an important part in helping their friends be worm-free. Make sure you tell everyone, that apart from deworming, washing your hands regularly before eating and after using the toilet is important to stop the spread of worms.



Help Raju find the place in his school where he will be dewormed.









Ask your teacher the following questions and write down the answers below:

What can children do to inform everyone in the community about the benefits of deworming and the National Deworming Day? How will my parents be informed about National Deworming Day happening in my school?



#### **COLOUR IN THE IMAGE SHOWN BELOW**



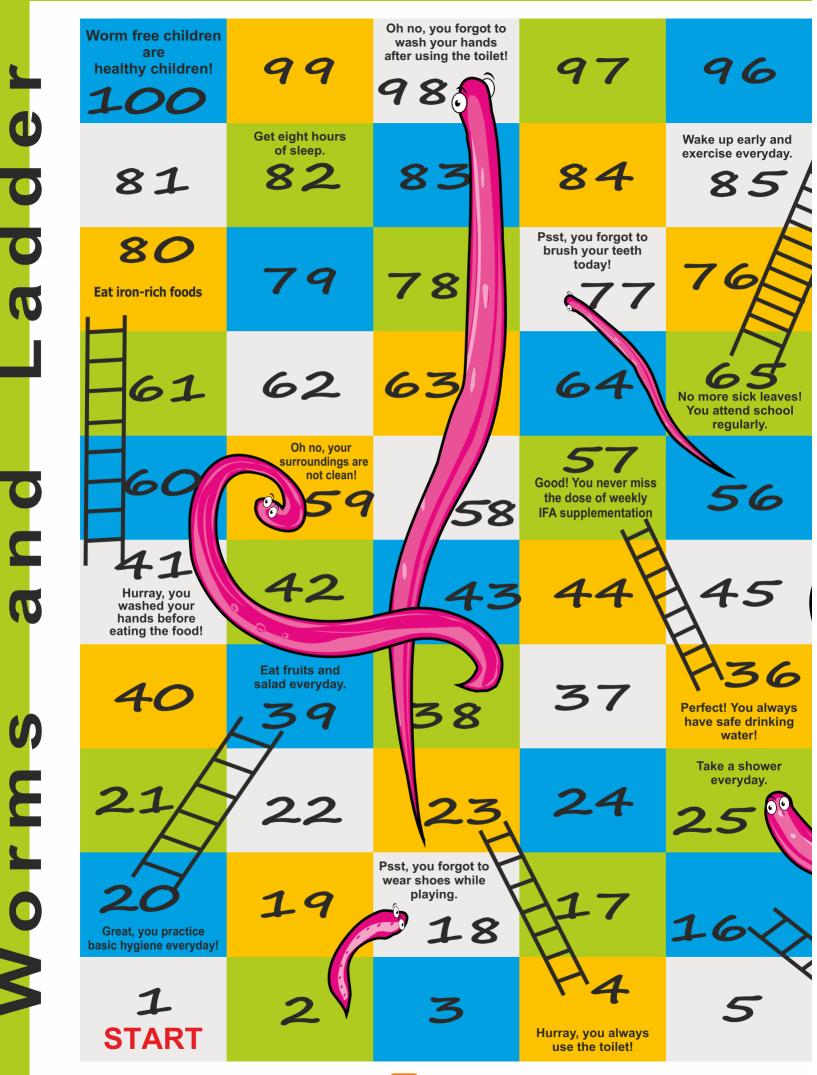


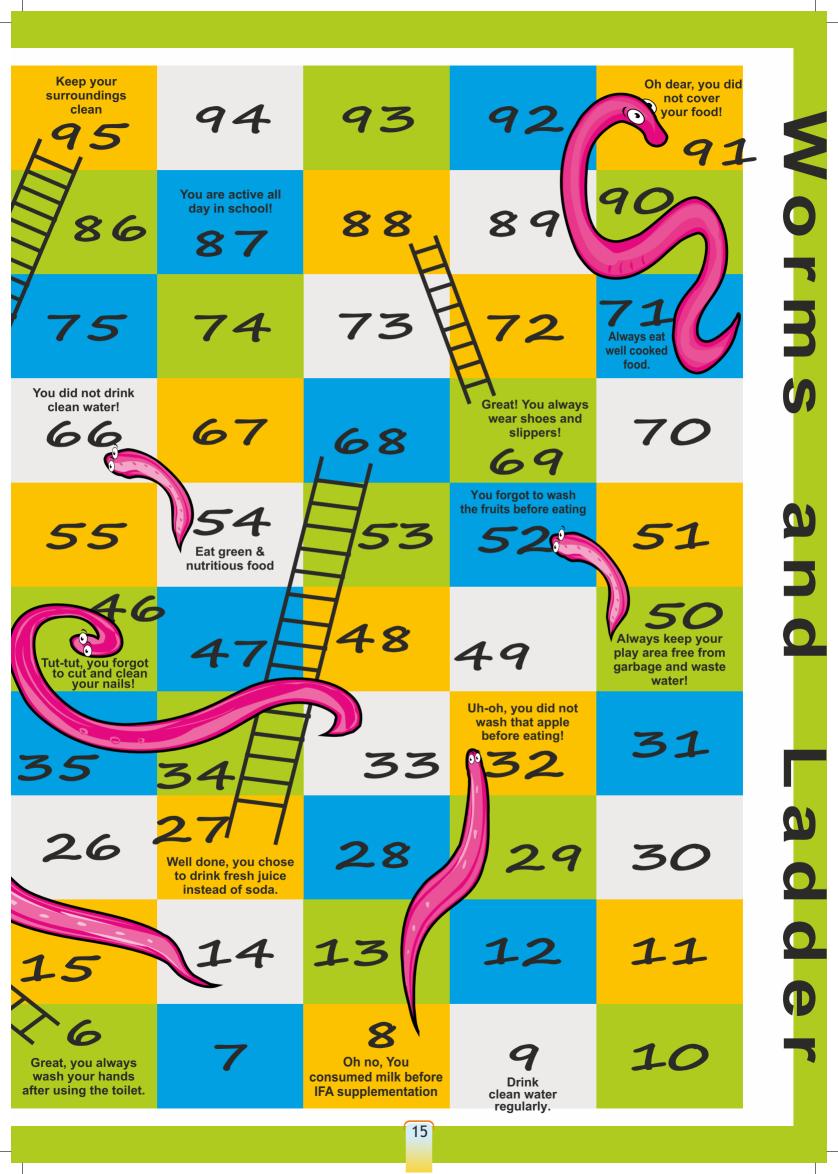
## THE WORMS AND LADDERS GAME COMES WITH A HEALTHY DOSE OF LEARNING!

While playing you will learn about preventive measures and good practices to lead a healthy and worm free life.

#### How to play:

- Each player puts their counter on the space that says "start"
- Take turns to roll the dice. Move your counter forward the number of spaces shown on the dice.
- If your counter lands at the bottom of a ladder, you can move up to the top of the ladder.
- If your counter lands on the head of a worm, you must slide down to the bottom of the worm.
- The first player to get to the space that says "worm free children are healthy children!" is the winner.





# **Section B**

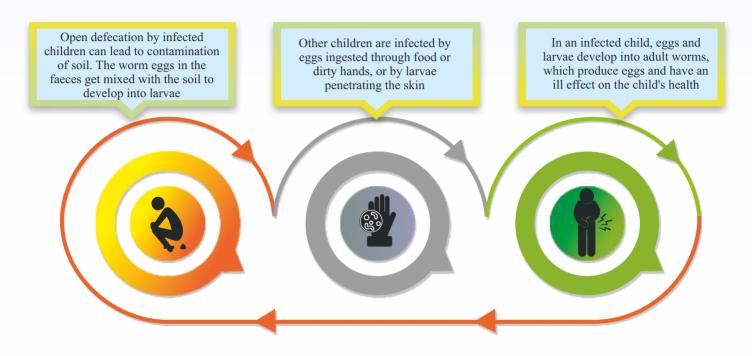


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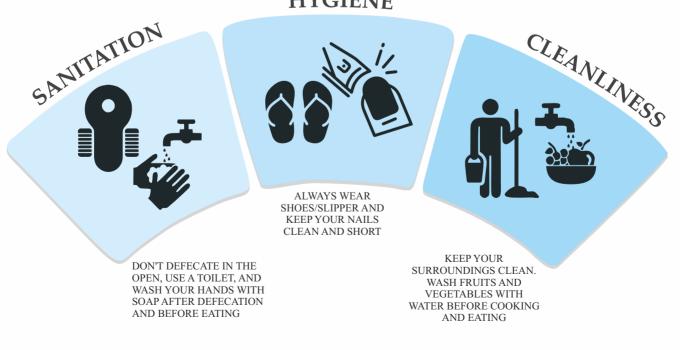
## WORM FREE INDIA HEALTHY INDIA

#### HOW DO WORMS SPREAD?



#### BEST PRACTICES TO PROTECT YOURSELF FROM WORM INFECTIONS

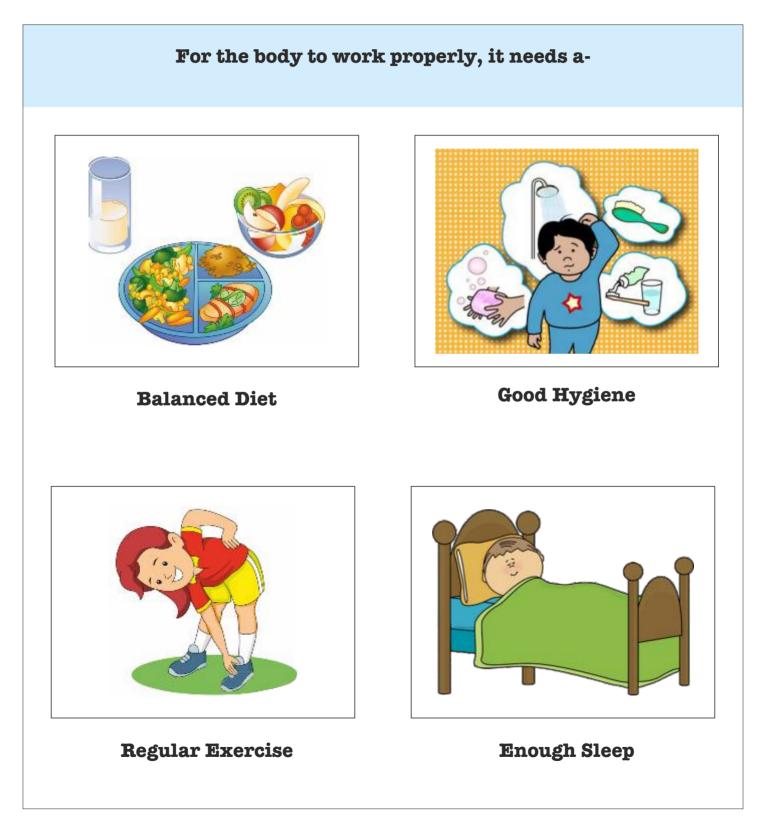
#### **HYGIENE**



#### What is health?

As per the World Health Organization (WHO), Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being.

The foundations of lifelong responsibility for the maintenance of personal hygiene are laid down in childhood





Swati often defecates in the open, like other children in her neighbourhood.

This is Swati. Like other children in her neighbourhood she:

- Plays outside barefoot
- Does not wash her hands before eating food
- Defecates in the open
- Does not wash her hands after using the toilet
- Eats fruits and vegetables without washing them
- Does not keep her food covered, which may result in food contamination





Swati is often sick and has become really weak.

Because of diarrhoea and weakness, she is unable to attend school regularly

Swati often suffers from:

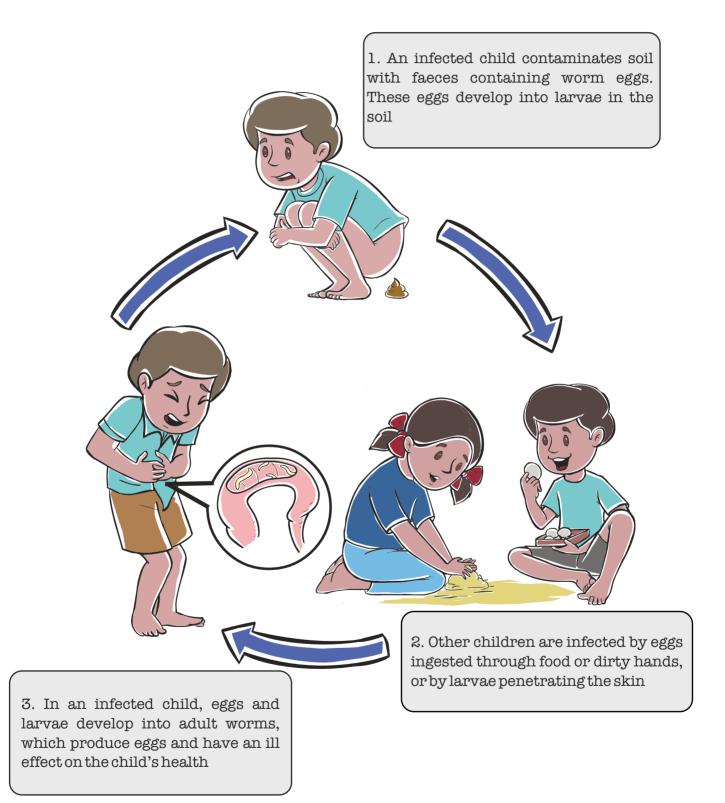
- Anemia
- Nutritional impairment
- Weakness and anxiety
- Stomach ache, nausea, vomiting, and diarrhoea
- Loss of appetite
- Fatigue
- WeightLoss





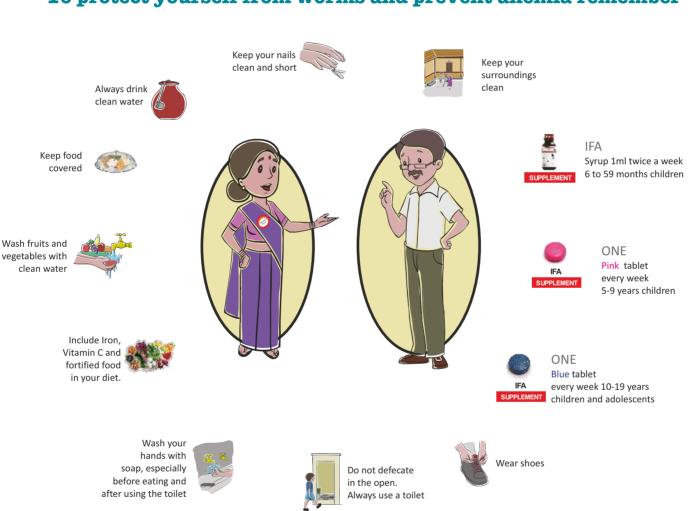
All these are symptoms of worm infection. Worms are parasites that live in the intestines

### **Transmission Cycle**



#### What are intestinal worms?

Which results in anemia, poor nutritional intake, and impaired growth. Intestinal worms are parasites that thrive on nutrition from human intestines, which The greater the amount of worms in an individual (intensity), the more symptoms the infected child will have. Children with mild infections usually have no symptoms. Sometimes children will show mild symptoms of weakness, loss of appetite, anemia, malnutrition, nausea, mild abdominal pain, vomiting, diarrhoea, and fatigue, which can be expected if they have worms.



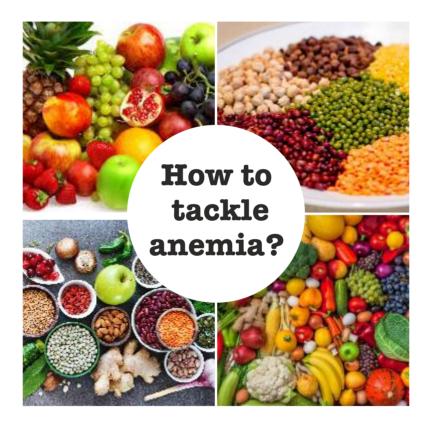
All children 6-59 months will be administered biweekly Iron Folic Acid (IFA) syrup during home visits by Accredited Social Health Activist and 5-19 years will be administered weekly IFA pink/blue tablets at ASHA all anganwadis and government schools free-of-cost.

<sup>1</sup> Miguel E. & Kremer M. (2002) Worms: Identifying Impacts on Health and Education in the Presence of Treatment Externalities. http://post.economics.harvard.edu/faculty/kremer/

To protect yourself from worms and prevent anemia remember

• Signs of anemia - The signs of anemia include paleness/palor of lower eyelid, tongue, skin, nails. The symptoms are dizziness, tiredness, lethargy, low energy, inability to concentrate, etc. (can be added as images).





1. **Promote diet diversity:** Inclusion of iron-rich foods like green leafy vegetables (spinach, fenugreek, mustard), cereals, pulses and legumes (Bengal gram, cowpea, soybean), nuts and oilseeds, jaggery, etc in regular diet. Iron from flesh foods (eggs, meat, chicken and fish) is well absorbed by the body. Vitamin C rich foods like fresh coriander, lemon, gooseberry, watermelon, guava, oranges also help in preventing anemia.

<sup>1</sup>Anemia Mukt Bharat operational guidelines, 2018

2. Iron and Folic Acid (IFA) supplementation program of the government: All children 5-19 years will be administered weekly IFA pink/blue tablets at all anganwadis and government schools free-of-cost. Regular IFA supplementation increases haemoglobin in the blood and gives the body energy, better immunity, improved muscle function, concentration, and memory.

# Remember!

Studies show that deworming decreases absenteeism in schools by  $25\%^1$ 

- The easiest way to treat millions of children with worm infection is with a deworming tablet
- Albendazole (400 mg) is a safe tablet for both children and adults
- It is important to administer this tablet to all children



Benefits of deworming children:

Direct Benefits:

- Controls anemia
- Improves nutritional uptake

Indirect Benefits:

- Helps improve concentration, capacity to learn, and attendance at anganwadis and schools
- Helps improve work potential and livelihood opportunity
- Benefits the community by reducing worms in the environment

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- On this day, all registered, enrolled, unregistered, and out-of-school children and adolescents, aged 1-19 will be administered the albendazole tablet at anganwadis and schools free-of-cost
- Teachers will administer the tablet to all enrolled children and adolescents, aged 5-19 at schools
- Rolling out National Deworming Day at anganwadis and schools enables the program to get high coverage on a single day



Children who could not be dewormed on National Deworming Day must be administered the tablet on mop-up day



### Fill in the blanks (Column A and B)

A	B
Roundworm	Deworming treatments decreases school absenteeism by
Anemia	Children who could not be dewormed on national deworming day should be administered treatment on
Faeces	Treatment using tablet is the easiest way to curb worm infestation
Intestinal Worms	Are parasites that thrive on nutrition from human intestines
Swati and Raju	Worm infestation can lead to
25%	Is a common type of worm
Albendazole	Are the mascots of national deworming day
Mop-up day	An infected child contaminates soil with worm eggs by
Wearing shoes	ls one of the simple ways to protect yourself from worm infestation



 पोस्ट कार्ड POST CARD -	
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#### Write to your future self about living healthy



Solve these jumble words-

 Jumble Words	Actual Words	
aimnae		
wondrmeig		
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# **Section C**



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#### Health

As per the World Health Organization (WHO), health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition. Informed opinion and active co-operation on the part of the public are of the utmost importance in the improvement of the health of the people.

Children who embrace healthy eating and exercise habits during childhood will have a much easier time maintaining a healthy lifestyle through adolescence and adulthood **balanced diet, good hygiene, exercise** and **enough sleep** 

#### Soil-Transmitted Helminths (STHs)

Parasitic worms, or Soil-Transmitted Helminths (STH), are among the most common infections worldwide. The World Health Organization (WHO) estimates that 220 million children between the age of 1 and 14 are at risk of STH infection in India.

Soil-Transmitted Helminths live in human intestines and consume nutrients meant for the human body. They produce thousands of eggs each day, which are passed in faeces and spread to others by contaminating soil in areas where open defecation is common and sanitation is poor.



#### **STH Transmission**

• There are three main types of STH that infect people: roundworm (Ascaris lumbricoides), whipworm (Trichuris trichiura) and hookworm (Necator americanus and Ancylostoma duodenale).







• Adult worms live in human intestines where they produce thousands of eggs each day. Infected people spread worm eggs through their faeces, with transmission amplified in places where open defecation is common. Soil contaminated by the worm eggs is ingested via vegetables that are not carefully cooked, washed or peeled; contaminated water sources; and unwashed hands of children who play in contaminated soil.

<sup>1</sup> WHO Number of Children (Pre-SAC and SAC) requiring Preventive Chemotherapy for STH, 2.014 (http://apps.who.int/neglected\_diseases/ntddata/sth/sth.html)

#### How do worms spread?

1. An infected child contaminates soil with faeces containing worm eggs. These eggs develop into larvae in the soil

3. In an infected child, eggs and larvae develop into adult worms, which produce eggs and have an ill effect on the child's health

#### Nutritional and Health Consequences of Infection

Parasitic worms impair the nutritional status of the people they infect in multiple ways:

- Worms feed on host tissues, including blood, which leads to anaemia
- Worms prevent proper absorption of critical nutrients in the intestines, such as vitamin A and iron
- The nutritional impairment caused by STH is recognized to have a significant impact on growth and physical development

All children 6-59 months will be administered biweekly Iron Folic Acid (IFA) syrup during home visits by ASHAs and 5-19 years will be administered weekly IFA pink/blue tablets at all *anganwadis* and government schools free-of-cost.

#### Introduction:

Anemia is a serious global public health problem that particularly affects young children and pregnant women. The WHO estimates that 42% of children less than 5 years of age are anemic. In India, according to the National Family Health Survey (NFHS-4), the prevalence of iron deficiency anemia is around 58% in children (6-59 months), 54% in adolescent girls and 29% in adolescent boys (15-19 years).

#### What is anemia and what are the signs and symptoms?

Anemia is a condition in which the number of red blood cells or their oxygencarrying capacity is insufficient to meet the body's physiological requirements. It is also defined as a haemoglobin concentration below established cut-off levels ( $\leq 11g/d1$ ) in the blood which are used for diagnosing anemia across ages. Anemia is an indicator of both poor nutrition and poor health.



2. Other children are infected by

eggs ingested through food or dirty

hands, or by larvae penetrating the

skin





Anemia impairs cognitive and motor development among children, increases their susceptibility to illness, and in adults reduces work capacity and productivity.

Signs	Symptoms
<ul> <li>Paleness or pallor: <ul> <li>Inner rims of the lower eyelid</li> <li>Tongue</li> <li>Overall skin</li> <li>Nails and palms of the hand</li> </ul> </li> <li>Soreness of the tongue</li> <li>Cracks at the corners of lips</li> <li>Brittle and spoon shaped nails</li> </ul>	<ul> <li>Dizziness, tiredness, fatigue and low energy</li> <li>Unusually rapid heartbeat, particularly during exercise</li> <li>Lowered resistance to infections and frequent illness.</li> <li>Leg cramps</li> <li>Shortness of breath</li> <li>Frequent headaches, particularly with exercise</li> <li>Difficulty or inability to concentrate</li> <li>Lethargy, lack of interest in playing and studies</li> </ul>

#### Anemia Mukt Bharat:

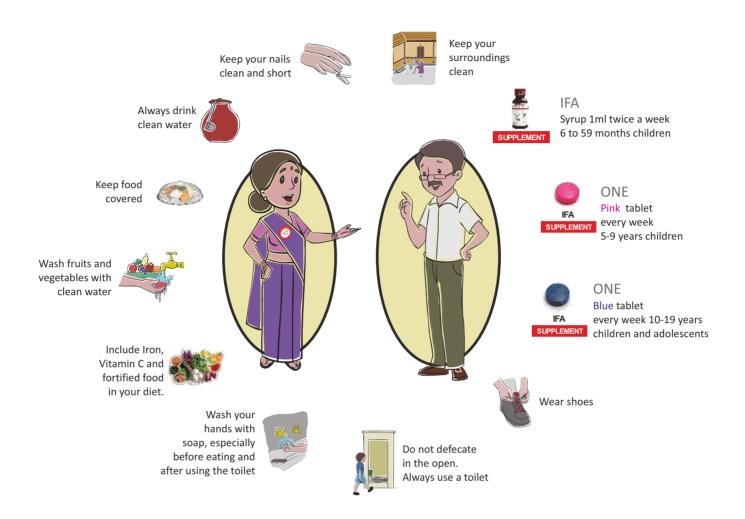
To tackle anemia in India the Anemia Mukt Bharat (AMB) program was launched by the Government of India under the Prime Minister's overarching scheme for Holistic Nourishment (POSHAN) Abhiyaan in 2018. One of the key interventions of the program is Iron and Folic Acid (IFA) Supplementation. The IFA programme aims to meet the challenge of high prevalence and incidence of iron deficiency anemia among age groups from 6 months to 19 years.

#### How to tackle anemia?

- 1. Prophylactic (IFA) Supplementation: It is given to children, adolescents, women of reproductive age and pregnant women, irrespective of anemia. For children and adolescents of 5 to 19 years, weekly IFA pink and blue tablets are provided in government schools and anganwadi centres free-of-cost. Regular IFA supplementation increases haemoglobin in the blood and gives the body energy, better immunity, improved muscle function, concentration, and memory.
- **2. Promote diet diversity:** Inclusion of iron-rich foods like green leafy vegetables (spinach, fenugreek, mustard), cereals, pulses and legumes (Bengal gram, cowpea, soybean), nuts and oilseeds, jaggery, etc in regular diet. Iron from flesh foods (eggs, meat, chicken and fish) is well absorbed by the body. Vitamin C rich foods like fresh coriander, lemon, gooseberry, watermelon, guava, oranges, etc increase absorption of iron from food.
- **3. Consumption of fortified staples with iron**: Food fortification is the process of adding micronutrients (essential trace elements and vitamins) to food which significantly improve the nutritional quality of the food. Some examples are fortified wheat, rice (with iron, folic acid and vitamin B12), and double fortified salt (with iodine and iron).

#### **Prevention of infection**

Infections can be prevented by taking precautions, including:



#### **Benefits of Treatment**

Studies have shown that deworming has a significant impact on the health, cognitive development, and education of treated children and adolescents. Outcomes of deworming can include:

- Decreased rate of anemia and improved nutrition
- Age appropriate physical growth and weight
- Increased growth and weight gain

<sup>1</sup>https://www.who.int/health-topics/anaemia#tab=tab\_1

<sup>2</sup>The National Family Health Survey (NFHS) is a large-scale, multi-round survey

<sup>3</sup>conducted in India to understand the key trends in population, health and nutrition indicators of the country.

<sup>4</sup>Global nutrition targets 2025, Anemia Policy Briefs

<sup>5</sup>AMB operational guidelines, 2018

<sup>6</sup>https://anemiamuktbharat.info/

Deworming also has important spill-over effects, with members of the community benefitting who do not receive treatment as there are fewer worms in the environment. This is especially important for children who are too young to be treated but where worm infection may impair cognitive development

#### School/Anganwadi-Based Deworming Strategy

- WHO recommends deworming without previous individual diagnosis to all at-risk people living in endemic areas.
- National Deworming Day is held in bi-annually in February and August at all schools and aganawadis, with some states like Rajasthan and Madhya Pradesh conducting annual National Deworming Day, based on the prevalence mapping for each state.
- Any child or adolescent who is not dewormend on National Deworming Day due to sickness or absenteeism will be administered the tablet on mop-up-day.
- Deworming treatment delivered through mass campaigns in schools and *anganwadis* can reach millions of children and adolescents cost-effectively because teachers and *anganwadi* workers can safely administer treatment to large numbers of children and adolescents. Other countries implementing government-run, mass school-based deworming programs include Kenya, Ethiopia, the Philippines, Bangladesh, among others.

#### **Deworming Goals**

The objective of National Deworming Day in India is to deworm all preschool and school-age children and adolescents (enrolled and out-of-school) between the ages of 1-19 through the platform of government/government-aided and private schools and *anganwadis* in order to improve their overall health, nutritional status, access to education, and improved quality of life.





WHO Number of Children (Pre-SAC and SAC) requiring Preventive Chemotherapy for STH, 2014. http://apps.who.int/heglected\_diseases;htddata/sth/sth.html)
 WHO PCT Databank: http://apps.who.int/heglected\_diseases;htddata/sth/sth.html

WHO FOT Databank. http://apps.who.me/neglecced\_useases,httdata/stif/sun.html
 WHO, Eliminating Soil-transmitted helminthiases as a public health problem in children, progress report 2001-2010 and strategic plan 2011-2020 (2012)

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#### Did you know?

India has the highest wormload burden in the world with almost 22 crore children at-risk of STH infections

#### Did you know?

National Deworming Day is the Ministry of Health and Family Welfare's program

#### Did you know?

Intensity of worm infection in an area is mapped out by prevalence survey

#### Did you know?

Worm infestation can be reduced by health habits like wearing shoes, washing hands before eating and after toilet, washing vegetable and fruits before eating

#### Did you know?

2019 Nobel prize winner Michael Kremer co-founded Deworm the World Initiative in 2008

#### Did you know?

Albendazole is included in triple drug therapy mass drug administration, used for treating Lymphatic Filarasis

#### Did you know?

India's is home to 58.6% children as per the National Family Health Survey 4 (NFHS-4)

#### Did you know?

Worms are parasite that thrive on nutrition from the body which can cause anemia.

#### Did you know?

Various social media platforms like Facebook, Twitter, Instagram, WhatsApp and, YouTube are used to generate awareness regarding National Deworming Day



- ✓ On National Deworming Day, your teacher will give you the chewable deworming tablet
- ✓ Remember to always take your iron folic acid supplementation for a Solid Body and Smart Mind
- ✓ The deworming tablet will kill worms in your intestines and will make you healthier
- ✓ Be sure you chew the tablet properly and drink a glass of water
- Tell all your friends about National Deworming Day and the benefits of deworming so that all children and adolescents can be healthy



