



Safe & Nutritious Food
A Shared Responsibility

www.snfportal.in



THE YELLOW BOOK

**YOUR GUIDE TO
SAFE AND NUTRITIOUS FOOD
@SCHOOL**

fssai


FOOD SAFETY AND STANDARDS
AUTHORITY OF INDIA

Inspiring Trust, Assuring Safe & Nutritious Food

www.fssai.gov.in | snfatschool@fssai.gov.in

Disclaimer:
2017
SNF@School

All rights reserved. No part may be used, reproduced or transmitted except for purely educational purposes of a non-commercial nature. Any person or organization who contravenes this may be liable to action as may be decided.

All comments on the SNF SOURCEBOOK are welcome, particularly suggestions on its improvement and corrections wherever they might be required.

The authors believe that the contents of this publication do not violate any existing copyright/intellectual property of others in any manner whatsoever. However, in the event that any source has been traced and if any copyright has been inadvertently infringed, kindly notify us for corrective action.

PREFACE

Inculcating wholesome eating habits early in life go a long way in ensuring lasting health and happiness. It is important to bring about this consciousness in a child's formative years. With this aim we have compiled the Safe and Nutritious Food Source book particularly for our children who are the most impressionable receptors.

This sourcebook is part of our SNF@SCHOOLS KIT comprising content divided into age appropriate modules. The 'Yellow Book' gives this initiative a structure and form and is created to aid the School Health and Wellness Teams in carrying out effective activities in the classroom.

A need was also recognised to refurbish text book material with more appealing and participative didactical means. The activities and guidelines have been designed with a view to encourage adoption of safe and nutritious food at schools extending to healthier lifestyles. The book is a resource-pool of facts, information and concepts, along with a diverse range of supportive material and tools.

The program mascots, 'Master Sehat' and 'Miss Sehat', have been designed for conveying the mission as affable icons. They are the 'health champs' who bring with them a 'School Crew', additional characters that were created to devise an interactive means of bringing the central themes into focus and providing information and elucidation. Through interplay and dialogue between these characters, the children would be motivated to understand the importance of consuming safe and nutritive food in the right amount with ease.

I wish you all the very best in taking this initiative forward and lead our country towards FIT AND HEALTHY INDIA.

PAWAN AGARWAL

CEO, FSSAI

SNF@SCHOOLS VISION

Catch 'em young!

Create awareness of the benefits of eating healthy, thereby build lifelong habits that would significantly enhance health standards of the future generation.

Build capacities though knowledge:

Equip all School Health and Wellness Coordinators with resources to reach out to teachers, parents and school children, for generating awareness on safe and nutritious food based on the Core Guiding Principles.

ROAD MAP TO SNF@SCHOOL SOURCE BOOK

It is an established fact that eating safe and nutritious food is of vital importance for mental and physical health, longevity, productivity and overall wellness.

To ensure this, authentic knowledge becomes a must for parents, teachers & students. To this effect, a source book has been designed that serves as a ready reckoner that includes material for classroom narrative lectures as well as laboratory practicum or exercises.

For appropriate interventions to reach the entire target population, it is necessary to understand the two main segments of the SNF @ SCHOOLS TOOL KIT that are:

SNF@SCHOOL 'YELLOW BOOK' on SAFE AND NUTRITIOUS FOOD

SNF@SCHOOL TRAINING MANUAL FOR SCHOOL HEALTH AND WELLNESS COORDINATORS

Care has been taken to convert the most vital aspects into concise information capsules for easy retention. The sessions are expected to introduce concepts/practices and enhance knowledge through demos, activities, fun games, followed by check-lists to reiterate key learnings, and finally self-evaluation exercises to ensure lessons are soundly instilled and retained. For periodic rating individual student's progress, trackers (e.g., the smart 'rainbow tracker') are also provided.



YELLOW BOOK

The treatment given to any book that deals with children has to be to be appealing and participative. The 'Yellow Book', thus is an amalgamation of activities that are age appropriate, culturally appropriate and readily adaptable to available resources and context. The activities and guidelines are designed to encourage adoption of safe and nutritious food at schools extending to healthier lifestyles.

It is equipped with range of supportive material and tools to provide a comprehensive basis for presentation of the content areas in sessions, through slides, charts, activities, posters, handouts, and Power Point Presentations (PPTs). The 'Yellow Book' can be used independently as a guide, an activity book or in conjunction with the learning aids provided.

The resources include pointers on safe food, methods of detecting adulteration, essential nutritional facts, food groups and their health benefits. Instructive features are provided in the resource books for all levels which include, animation videos, audios, activities, stories, role-plays, on-/offline games, puzzles, mix-n-match exercises, etc. Components used uniformly through the books are, SNF Alerts, Did You Knows, Fact Files, Habit Forming Tools, Feature Story, Key Messages, Expected Learning/Queries, Ideas For Learning More, etc.

ROLE OF SCHOOLS

In this context, schools will play a vital role in ensuring the information reaches every household through the children. The teacher is their role model and children have a lot of faith in what is taught in school and what their teachers have to say & do.

Schools need to set examples by taking measures to ensure that food hygiene, personal hygiene and environmental hygiene i.e. hygiene of the classrooms and surroundings is maintained. Food served in schools must be healthy and palatable. Physical activity plays an important role in the overall growth and development of the child and this should not be neglected. Children will speak about the cleanliness, care and good food habits taught in school to their parents and this message in turn will percolate to the community.



MISS SEHAT

MASTER SEHAT

Hi !

Did you ever think food and health can be fun ?

Let Team Sehat show you a how. They will teach you a fun way to safe & healthy eating. Let's play games and do lots of activities that will not only make us enjoy ourselves but also will give us tips & easy way to nutrition. Master & Miss Sehat are keen to become your friends and partners to take you on a journey into a world of safe and nutritious food so that you can enjoy your life to the fullest !

Turn the pages and let the fun with food, nutrition and hygiene begin.



ROHAN

RIYA

DR. SARA



FOOD SAFETY AND STANDARDS
AUTHORITY OF INDIA

Inspiring Trust, Assuring Safe & Nutritious Food

INDEX

1	I EAT SAFE FOOD	1
2	I STAY CLEAN	14
3	I HANDLE FOOD HYGIENICALLY	29
4	I KEEP MY SURROUNDING CLEAN	47
5	FOOD NOURISHES ME	63
6	I AM HEALTHY	82
7	I PLAN MY MEALS	96
8	TOOL AND TRACKERS	110

Written and Compiled by:

Ms. Aditi Mehrotra

Lead Expert, FSSAI

Diet Consultant- D.I.E.T.ED and ARNEY'S FITKIDS

Contributors & Experts:

Dr. Eram S. Rao

Associate Professor of Food Technology,

Bhaskaracharya College of Applied Sciences, University of Delhi

Ms. Sunetra Roday

Independent Consultant and Former Principal,

Maharashtra State Institute of Hotel Management and Catering Technology, Pune

Senior Food Safety Specialist, EU-CITD Project

Edited by:

Ms. Namrata Khanna

Project Lead, SNF@SCHOOLS, FSSAI

I EAT SAFE FOOD

NEED FOR
FOOD SAFETY

ABOUT
MICROORGANISMS

CONTROL OF
MICROBIAL
GROWTH

FACTORS
AFFECTING
THEIR SPREAD
AND GROWTH

TEAM SEHAT KA

F
D
FUNDA



MODULE

1

Did You Know?



- More than 3 billion years ago, micro organisms were the first living cells to inhabit the Earth.
- Antonie van Leeuwenhoek discovered bacteria and developed microscope!
- Microorganisms are so small that it takes 1 million to cover the head of a pin!
- 10 000 bacteria side by side would occupy one centimeter of space!
- 1 bacterium can multiply to over 2.5 lakhs in 6 hours!
- More than 200 known diseases spread through food!
- Microorganisms are beneficial also. They are used to make food and drinks (e.g. idli, curd, cheese, bread, beer etc.), make medicine (e.g. penicillin) and help digest food in the gut (e.g. probiotics)!

NEED FOR FOOD SAFETY

Eating is necessary for staying alive and all of us enjoy doing so. It provides us necessary nutrients for our well being and day to day activities. We eat our food both at home and also at places away from home. We all know that some of us at times fall sick from what we eat. The sickness is called food-borne disease and is caused by harmful Microorganisms. Occurrence of such food borne diseases is a significant health problem.

Food Safety provides an assurance that food will not cause harm to us, if prepared or eaten according to its proposed use. Hence, ensuring Food safety is essential for preventing food borne diseases.



WHAT ARE MICROORGANISMS?

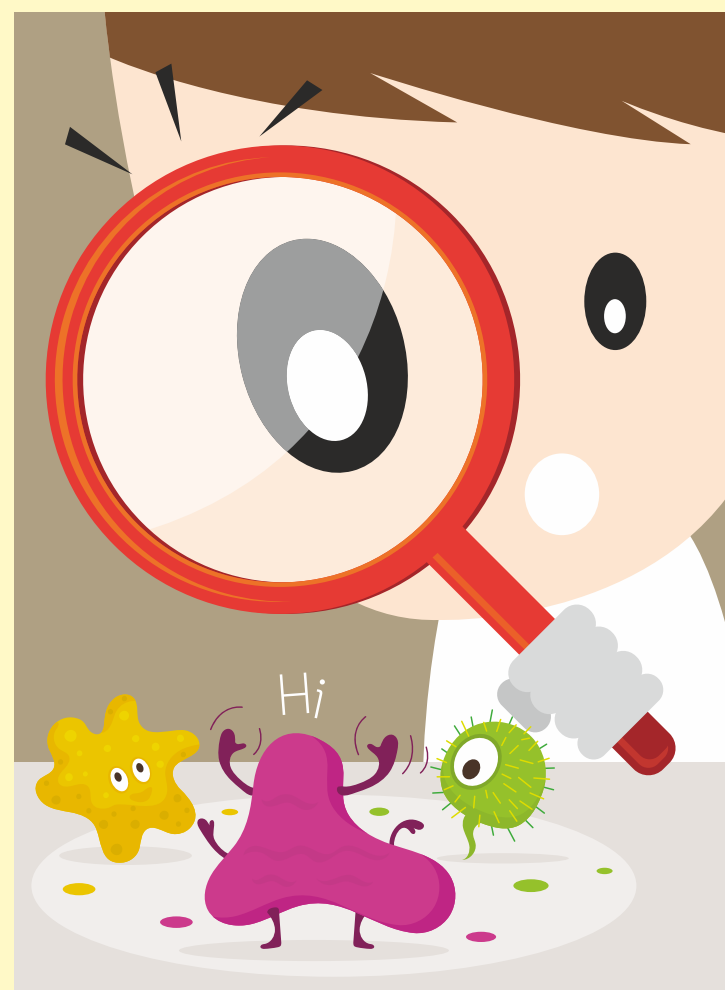
Microorganisms are very small living creatures which cannot be seen with the unaided eye. Bacteria, viruses, yeasts and parasites are all microorganisms. They are found everywhere – air, water, sewage, soil, plants, animals, humans and their food.



"Yummy! Looks delicious! We all love to eat food, isn't it? Did you know that before the meal is served on your table, many dedicated people have been working to ensure that the food is Nutritious and Safe. So let's explore the story of our food.

Even before the food we eat is planted, tests may be done on soil, seeds and water. Farmers want to grow safe and wholesome foods and raise healthy animals. Food producers do everything they can to prevent food related illnesses. Workers take many steps to keep food safe such as washing hands, wearing aprons etc. Scientists examine samples to ensure that the environment where food is produced is safe and clean. The grocery store works to deliver safe products to our family. But microorganisms are present everywhere and are constantly on the move. It's your turn to ensure consuming and keeping your food safe. Let us read more to understand the concept of Food Safety and Nutrition."

MICROORGANISMS IN FOOD



Bacteria

Bacteria are found everywhere. They are unicellular and are of different shapes and sizes, generally rod shaped or spherical. Average size of bacteria is one micron or 1/1000th of a millimetre (mm).

When they multiply on a suitable medium, visible colonies appear on the plate within 24 hours. Each colony contains lakhs and crores of bacteria which appear as dots on the plate. Each dot on the plate is a bacterial/microbial colony. Each colony seen, may have formed from a single microorganism.

Some bacteria are capable of forming spores. A spore is a resistant structure formed in some rod-shaped bacteria when conditions for growth are unfavourable. Spores remain dormant till conditions become favourable and form a vegetative cell that can once again grow and multiply. Since a single spore is formed in a cell, spore formation is not a means of reproduction in bacteria.



A

FUNGI

This group includes: Yeasts

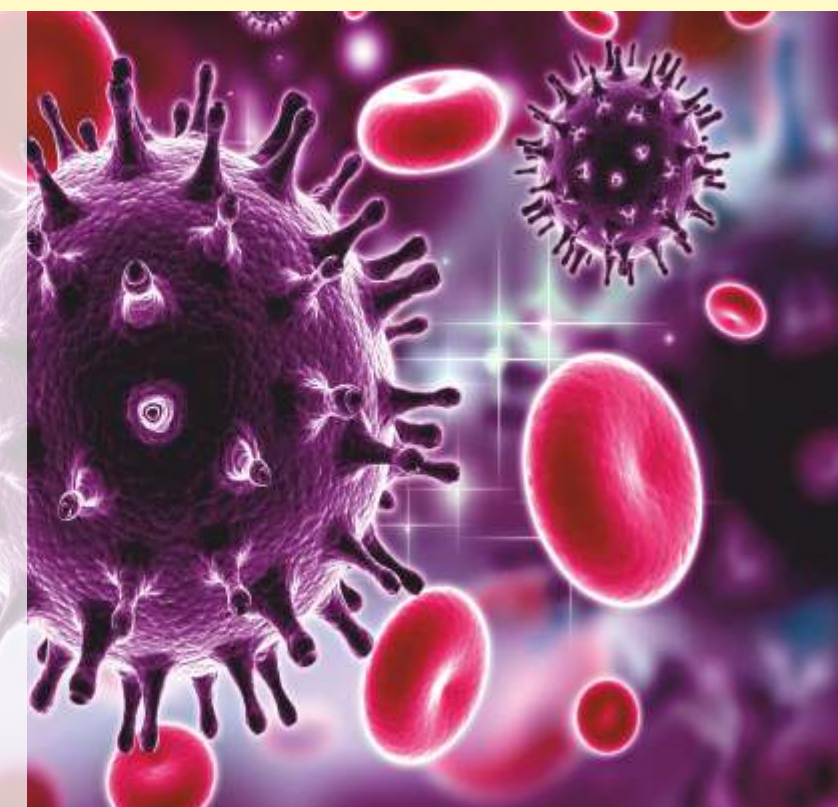
Yeasts are unicellular microorganisms which are larger in size than bacteria. They can ferment sugar and starch to ethyl alcohol and Carbon dioxide. This property is made use of in bread making and for alcoholic beverages. Food yeast is rich in B-complex vitamins. They can grow on the surface of preserves such as jams and pickles and spoil them i.e. they are osmophilic.

B

Molds : Molds are multi-cellular microorganisms and are several mm. in length. They are saprophytes i.e. they grow on the surface of dead organic matter and on food with low moisture content. Mold growth may be cottony, dry, powdery velvety or slimy, with colours ranging from white, yellow, blue, green or black.

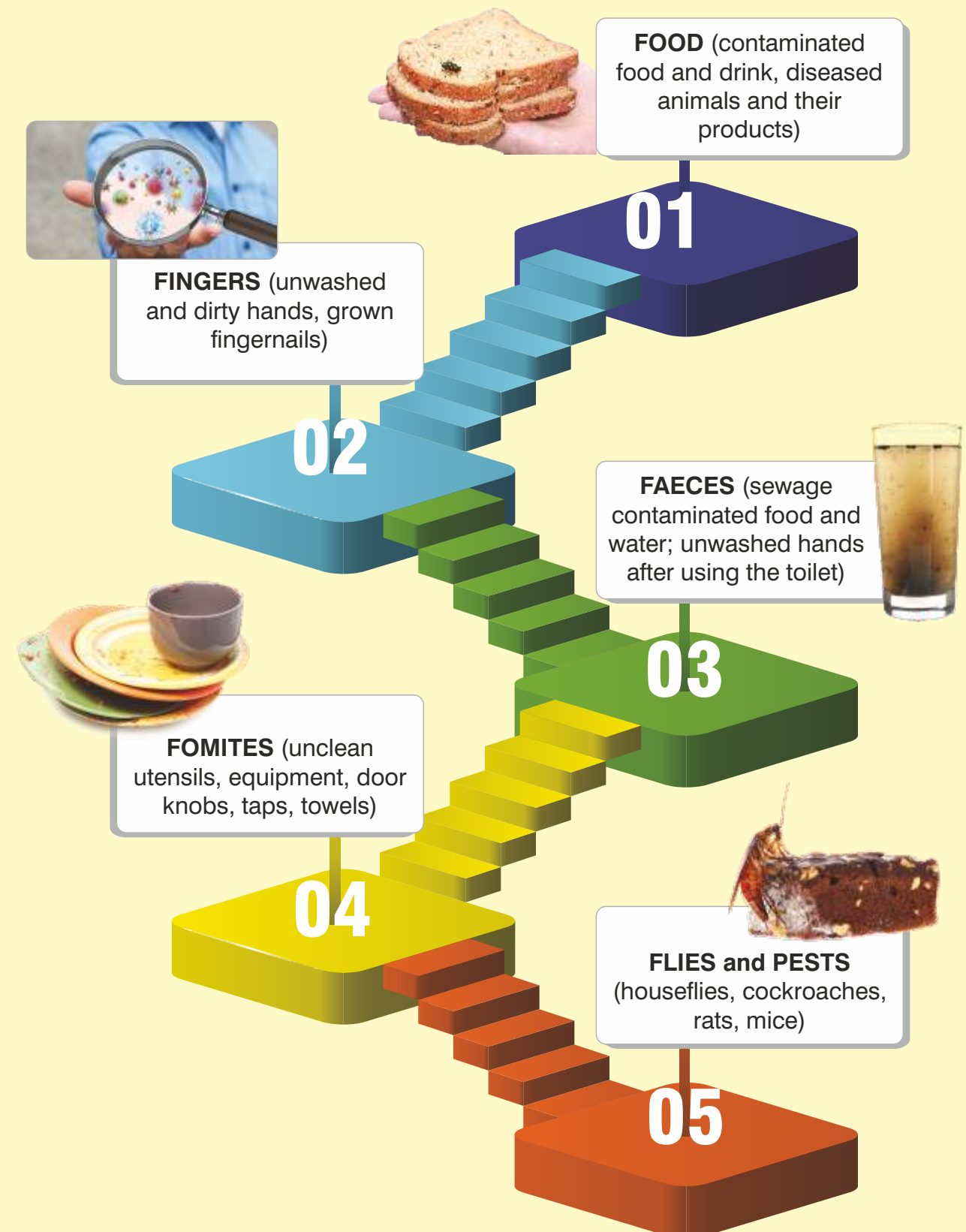


Viruses: Viruses are the smallest of all microorganisms. They are strict parasites and grow only in living cells. They are found in sewage contaminated food and water and can cause diseases such as poliomyelitis and infectious hepatitis (jaundice). Air borne viruses can cause common cold, influenza, mumps, measles and chicken pox.



HOW DO MICROORGANISMS MOVE?

The 5 'F's as given below:



The 5 'F's' namely food, fingers, faeces, fomites and flies need to be controlled to prevent food spoilage and food borne diseases.

SNF ALERT!

Eggs of round worm, thread worm and giardia are transmitted through sewage, contaminated soil, water and food and through the faecal-oral route (improperly washed hands after visiting the toilet). Practice safe hygienic practices!



FUN TIME 1

How do microorganisms look?
Discuss various microorganisms and demonstrate their shapes, sizes and structures through slides or pictures.



HOW DO MICROORGANISMS GROW?

Most microorganisms “grow” by multiplication. To grow, they need the following:

1

FOOD: Microorganisms need nutrients such as carbohydrates, proteins, lipids, minerals and vitamins for their growth. They grow rapidly in protein rich food such as milk, meat, poultry, and leftover moist cooked food if other conditions for growth are favorable.

2

WATER: Water in the liquid state is essential for the existence of all living organisms. When water is removed from food by drying, the chances of spoilage are reduced.

3

TIME: Microorganisms need time to grow to numbers large enough to spoil our food. During favorable conditions bacteria multiply by dividing into 2 every 20 minutes.

4

TEMPERATURE: Microorganisms grow best in the temperature range of 5°C and 63°C. This temperature range is called the 'Danger Zone' because it poses danger to our health as microorganisms grow very fast within this range. The temperature in our classroom, in the kitchen and in our body lies in Danger Zone. The time and temperature for which food remains in this zone should be controlled.

5

pH: It is a measure of whether or not a solution is acidic, alkaline or neutral in reaction. Most microorganisms grow best at a neutral pH of 7. Molds and yeast grow in food with an acidic pH of 4, while bacteria do not grow in acidic foods.

6

OXYGEN: Most microorganisms need oxygen for growth. Microbes which need oxygen are called aerobes, while those who do not need oxygen are called anaerobes.

FUN TIME 2

Doubling of Microorganisms!

Demonstrate microbial growth by using dried beans, pebbles or other objects. As an example of quick growth start with one object, in 20 seconds make it two objects, in another 20 seconds make it 4 objects and in another 20 seconds make it 8 objects and so on. (double the number of objects you have every 20 seconds). Please note that 20 seconds is used instead of 20 minutes so that it is possible to show how bacteria grow during a classroom session.



FUN TIME 3

Microorganisms in Food!

Discuss foods (lunch box meals, street foods etc.) that do and do not provide ideal conditions for growth of microorganisms. Salads, Boiled rice, pasta, paneer roll, aloo tikki, fruit juice, sprouts



HOW TO CONTROL GROWTH OF MICROORGANISMS?

As discussed above, some microorganisms are useful whereas many are harmful because they can cause food spoilage and food borne diseases. Thus, the objective is to reduce their numbers or completely remove them from food. They can be controlled by:

FUN TIME 4

Fill In the Blanks with the correct answer.

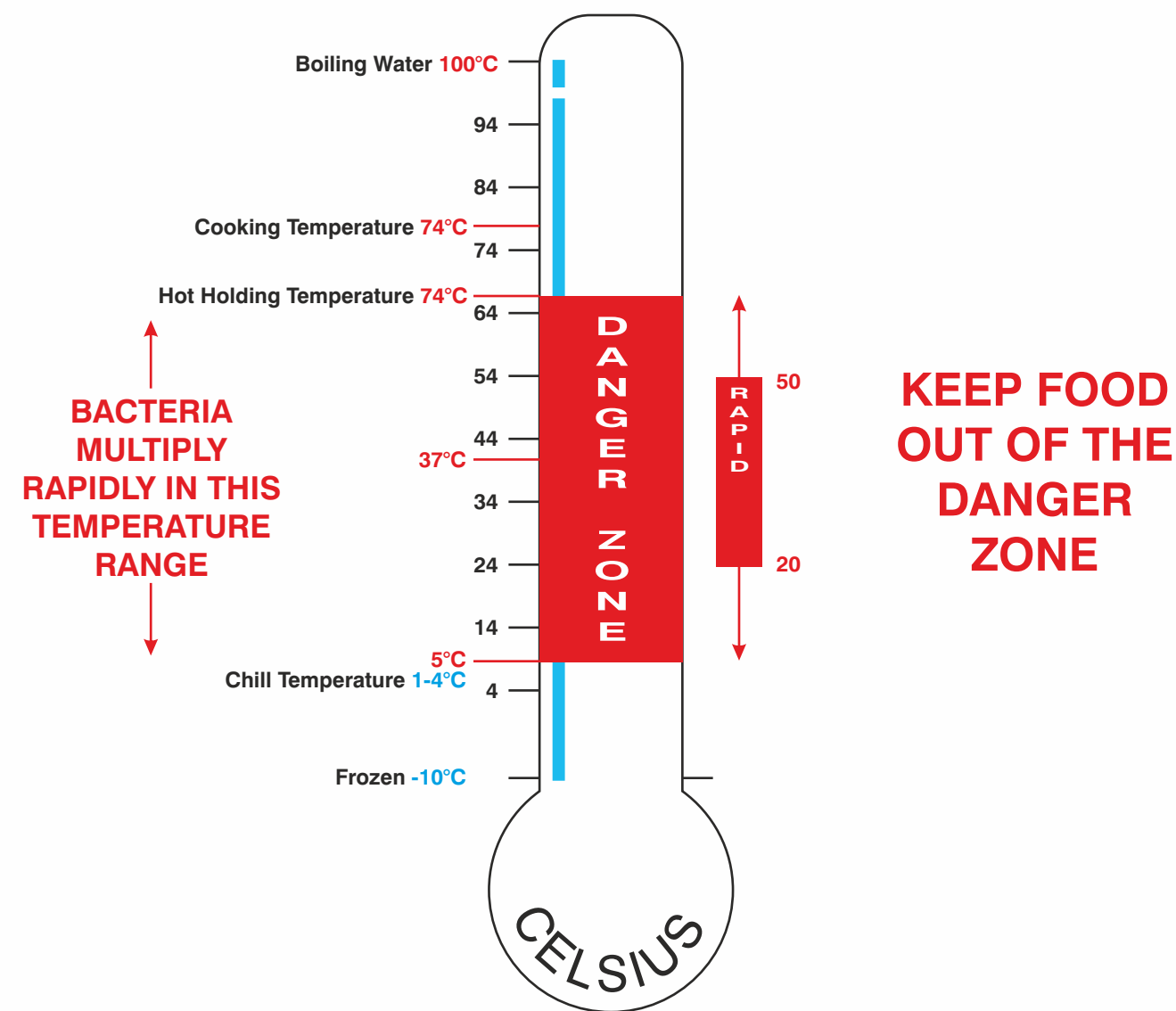
Infections wastage two
microorganisms reheat

Write the correct words from the box in the gaps:

1. Bacteria grow by dividing into _____ every 20 minutes
2. Keep hot food hot during mealtimes and _____ leftover food well
3. Microorganisms spoil our food and cause _____
4. Disease causing _____ are spread through food, fingers, faeces, fomites and flies
5. Frequent _____ affect our health and appetite.



Temperature Control



KEEP HOT FOOD HOT

KEEP COLD FOOD COLD

ANSWERS TO ACTIVITY NO 4

- **Controlling Temperature:** Bacteria grow (Multiply) best in the Danger Zone i.e. temperatures between 50°C and 630°C. They can be controlled by controlling time and Temperature.
- **Low temperatures:** At refrigerator and freezer temperatures bacterial growth slows down and bacteria become dormant. They do not die.
- **High Temperatures:** When food is heated to high temperatures, bacteria are destroyed. However spores may survive normal cooking temperatures.
 - ♦ *Removing Oxygen* – Aerobic bacteria die when oxygen is removed i.e. when food is vacuum packed and canned. Anaerobic bacteria if present, can grow in tinned foods.
 - ♦ *Adding Chemical Preservatives* – Preservatives are added in permitted amounts to tomato sauce and fruit based squashes to extend their shelf life and prevent microbial spoilage.
 - ♦ *Reducing the Moisture Content* – The moisture content of foods like milk is reduced by evaporation and dehydration to increase the shelf life. Sugar and salt bind water and make it unavailable to microbes. They are added to jams and pickles to preserve them.
 - ♦ *Exposure to Ultraviolet Rays* – Sunlight has ultraviolet rays which are lethal to bacteria. Ultraviolet Rays are useful in sterilizing the surface of food and equipment. Ultraviolet lamps can be used as well.



1. Bacteria grow by dividing into two every 20 minutes.
2. Keep hot food hot during mealtimes and reheat leftover food well.
3. Microorganisms spoil our food and cause wastage.
4. Disease causing microorganisms are spread. through food, fingers, faeces, fomites and flies.
5. Frequent infections affect our health and appetite.



NOW YOU KNOW!

Ensuring Food safety is essential for preventing food borne diseases.

Microbes are present everywhere and need to be kept in check.

Bacteria, viruses, yeasts, moulds and parasites are all microorganisms.

Microbial growth in food can be controlled by controlling time and temperature.



I STAY CLEAN

NEED FOR
PERSONAL
HYGIENE

MAINTAINING
PERSONAL
HYGIENE

GOOD HABITS
FOR SCHOOL
CHILDREN

TEAM SEHAT KA

F  **D**
FUNDA



MODULE 2

NEED FOR PERSONAL HYGIENE

Microorganisms that cause food borne illnesses are found on the skin and in the nose, throat and other body parts of human beings. These microorganisms are spread to food mainly through the hands and nails of the person or by coughing or sneezing on food. If we have good personal hygiene, the chances of microorganisms entering our body is less.

Personal Hygiene should therefore become a habit.

FUN TIME 1

Need for
Personal
Hygiene



Aim: Demonstrate the presence of microorganisms

1. In coughs and sneezes
2. In unwashed hands
3. In washed hands

Materials required

- Sterile petri-plates with culture media – 4
- Autoclave
- Inoculating chamber/bunsen burner
- Incubator
- Glass marking pencil



NEED FOR FOOD SAFETY

Procedures

- Mark all 4 plates (control, coughs and sneezes, unwashed hands, washed hands) with the glass marking pencil.
- Keep the first plate as Control (Do not open the petri plate.)
- Ask any person suffering from a cough or cold to cough onto the second plate and shut the lid.
- Lightly touch the surface of the third plate with unwashed hands leaving an imprint of the thumb and all four fingers, and close the lid.
- Lightly touch the surface of the fourth plate after washing hands as per correct procedure and leave an imprint of the thumb and all four fingers.
- Keep the petri-plates in an incubator at 37°C for 24 to 48 hours or in a warm place in the laboratory.
- Observe the colonies formed on all plates and co-relate the findings with the source of microbes.
- Observe the differences in the plates with washed and unwashed hands.
- Draw the petri-plates with microbial colonies. highlighting the fact that each colony or dot which appears on the plate has been formed from a single microbe.
- If a microscope is available, prepare a slide, stain it and observe microorganisms under the microscope.

Highlight your observations!

- Unguarded coughs and sneezes transfer microorganisms to our food.
- Unwashed hands are loaded with microorganisms from all the surfaces they have come in contact with.
- Washing hands reduces the microbial load drastically.
- Good habits and personal hygiene can minimize the microbial load and help us stay healthy.

Did You Know?

- Clean means free from visible dirt whereas Hygienic means free from disease causing organisms!
- An average of 100000 bacteria can be found on each square centimeter of human skin!
- Healthy Body+ Healthy Mind = Happy Life

WHAT IS PERSONAL HYGIENE?

It is the action, habit, or practice of keeping oneself clean, especially as a means of maintaining good health. It includes personal cleanliness, maintenance of health, and good habits to prevent spread of disease through disease causing organisms present in and on our body.

How to Maintain Personal Hygiene?

Personal hygiene includes all personal practices which need to be followed to keep our body clean and healthy. The following practices should be followed every day:



SNF ALERT!

GermS are everywhere...

- GermS accumulate around cuts, wounds & sores
- We need to keep the wounds covered with a waterproof dressing.
- STAY HOME In case you are sick or are suffering from flu, viral fever, vomiting or diarrhoea.
- if you have any contagious disease such as measles, mumps, chicken pox or typhoid. Stay home until the infection is over.
- Take proper care in case of common cold and cough.



GOOD HYGIENE HABITS (SCORE CARD)



Did You Know?



- When a person sneezes or coughs, particles of moisture containing a large number of microorganisms are expelled into the air
- Micro organisms can spread up to a radius of 1 metre or more
- When the moisture from the small droplets evaporates, microorganisms like bacteria or viruses remain suspended in the air
- Large droplets of moisture settle down on the floor and become a part of dust.

FUN TIME 2

Let's check your Germ-Score



- I bathe everyday.
- I take a bath even on a cold winter day.
- I take a bath even when I have a cold.
- I am well groomed daily.
- I brush my teeth twice daily.
- I clean my tongue with a tongue cleaner.
- I visit the toilet daily.
- I wash my hands after every visit to the toilet.
- I wear clean washed and ironed clothes.
- I polish my shoes everyday.
- I wash my hair regularly and comb my hair daily.
- I clean my nose daily while bathing and do not pick my nose.
- I clip my nails regularly and keep them dirt free.

Y	N
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>



SNF ALERT!



Jewellery worn by the food handlers can be hazardous to the food consumers in many ways. Stones and small parts of jewellery can accidentally fall into food. Finger rings accumulate a lot of dirt and can enter food during food preparation. Bangles, bracelets and wristwatches can get heated while cooking

TOILET HABITS

Visit the toilet regularly to remove waste from the body. Make it a habit to evacuate your bowels preferably every morning. Flush the toilet after use and wash hands well.



TOILET HABITS (SCORE CARD)



FUN TIME 3

Let's check your score

- | | Y | N |
|---|---|---|
| • I visit the toilet regularly to remove indigestible toxic waste from the body | | |
| • I make it a habit to evacuate my bowels every morning | | |
| • I flush the toilet after use and keep the toilet clean | | |
| • I wash hands well in the wash basin with soap and water | | |
| • I dry hands well using a hand clean hand towel or disposable paper tissue | | |
| • I follow the 20/20 rule for washing and drying hands-20 seconds washing / 20 seconds drying | | |

HAND WASHING

Hand washing is one of the most important components of personal hygiene. Our fingers are the main vehicle by which pathogens are transferred. We often pick up germs from hand towels, doorknobs, stair railings or any surface. Unwashed hands transfer pathogens to food.

Hand washing helps to reduce / prevent food spoilage and food borne diseases.

Don't forget to wash hands....



Before and after eating



After combing or touching hair



After using the toilet



After handling garbage and waste



After blowing your nose, coughing and sneezing



After playing with pet animals

HOW DO MICROORGANISMS GROW?



Did You Know?



Hand washing helps in reduction and transfer of pathogenic bacteria leading to Food Borne Diseases (FBD) particularly in children such as Salmonella, Escherichia coli 0157, Staphylococcus aureus, Vibrio cholera and Viral infections!

FUN TIME 4. Germi-Check Marshalls

Identify 5 Germi-Check Marshalls from your Class.

Their tasks are:

1. Identify hand washing related issues.
2. Take corrective action.
3. Maintain hand washing records.

Let's find out who amongst us in the class follows good hand washing practices!

	Student's Name	
Hand Washing Time	Before Lunch	
	After Lunch	
	After visiting the wash room	
	After games or PE class	

GERMI-CHECK MARSHALLS AT SCHOOL

Rate the cleanliness in School. Weekly Checklist of School Facilities

FUN TIME 5



- Are adequate hand washing facilities provided in school? ● ●
- Are these facilities well maintained? ● ●
- Is liquid soap used for washing hands? ● ●
- Are liquid soap dispensers refilled regularly? ● ●
- Are hygienic hand drying facilities provided in hand wash area? ● ●
- If towels are used are they changed frequently? ● ●
- Do children wash hands well before having meals? ● ●
- Are finger nails clean, trimmed and unvarnished? ● ●
- Are washbasins provided in wash rooms & outside dining area? ● ●
- Are hands washed in sinks used for food preparation? ● ●
- Are children observed picking nose, scratching head or face? ● ●
- Are children encouraged to wash hands after blowing the nose? ● ●
- Is hand sanitizer available in the washroom/class room? ● ●

Y N

PROCEDURE:

1. 8 student volunteers can participate in this activity. One should be the hand washer and one person to be the timekeeper. The washer should be blindfolded and asked to put about one teaspoon of washable paint on the palm of one hand and spread it evenly over both hands, including the backs of the hands and the skin next to and under the fingernails. Allow hands to dry completely about a minute or two.
2. Have the washer wash with just water for 5 seconds. After 5 seconds, have the timekeeper blot dry the washer's hands by very lightly touching the towel to the skin (don't rub!).
3. Don't let the hand washer see his/her hands or give away any hints about how clean they are.
4. Have the second washer wash for 10 seconds with just water, the third to wash for 15 seconds with only water and the fourth to wash with soap and water scrubbing for 20 seconds and more.
5. Using the scoring guide, record the cleanliness on a scoring chart.



Result: Paint washes off completely from hands that were washed for 20 seconds with soap and water.

FUN TIME 6. Germy Wash!

Materials Required:



Apron



Stop Watch



Sink



Blindfold



1 tube of washable colors



Towels



Soap



Newspaper

BRUSHING TEETH

Dental caries is due to breakdown of sugars to acids by bacteria present in mouth. These acids corrode the enamel destroying the hard tooth tissue and cause tooth decay. Dental caries needs to be prevented because it causes discomfort and pain leading to infection and tooth loss.



HOW TO KEEP TEETH AND GUMS HEALTHY?

To prevent dental caries, the following points should be kept in mind:

- Brush teeth at least twice a day for two minutes with a pea-sized amount of fluoridated tooth paste.
- Brush preferably after meals
- Do not swallow the toothpaste, spit out the foam and rinse your mouth
- Learn the right technique for brushing
- Use a soft tooth brush with a small head to be able to reach all teeth
- Keep the tooth brush clean and dry after use
- Use a tongue cleaner to remove bacterial build-up on the tongue
- Visit a Dentist every six months for a check-up or if there is any pain, discomfort or discoloration of teeth.
- Enjoy a balanced variety of foods. An adequate supply of nutrients is essential for healthy teeth and gums.



Did You Know?



Tooth decay is the single most prevalent Non- Communicable Disease (NCD) globally affecting 60-90% of all children!

BATHING

Bathe daily to wash away sweat and dirt and remove body odour. A good soap helps in cleaning body by emulsifying body secretions. Body odour is caused by bacteria breeding on our body and in unwashed clothes. Change and wash undergarments every day. Preferably use a talc or deodorant after a bath.

Feet should be washed and kept clean specially between the toes, and toe nails should be kept trimmed. Hair can be a breeding ground for bacteria if it is not shampooed and kept clean. Unclean hair causes dandruff and lice and makes the scalp itch. Scratching the head is a common habit because of which both hair and Staphylococci present on the skin and scalp may get into food. Boys should have a short haircut up to mid-ear level and girls should tie up/plait their hair.



10 KEY GOOD HABITS FOR SCHOOL CHILDREN

- Visit the toilet regularly and keep your bowels clean. Wash hands well after every visit to the toilet.
- Bathe daily to wash away sweat, dirt and secretions of the skin which are food for bacteria.
- Wear clean clothes and clean/polished shoes.
- Wash and comb hair and neatly tie it to prevent hair from falling on to food.
- Wash eyes, ears and keep them clean while bathing. Rubbing of eyes should be avoided.
- Brush teeth twice a day to remove food particles which get lodged between teeth, and cause tooth decay and bad breath.
- Clean tongue with a tongue cleaner and rinse mouth well.
- Keep nails dirt free and neatly trimmed.
- Clean and apply antiseptic on all cuts, sores and wounds and cover with a waterproof dressing.
- Do some form of physical activity for at least 60 minutes every day be it cycling, walking, gardening or helping the family in household chores.



DOES YOUR SCHOOL HAVE THIS?

- Maintenance of health record
- Annual medical check-up • Dental check-up
- Periodic de-worming (six monthly) and necessary inoculations
- Adequate well maintained washrooms, separate for girls and boys should be provided.
- Restrooms with basic facilities which are well maintained like dust-bins, water closets and urinals with flushing systems in place, connected to septic tanks.



TICK TOCK –TICK OR CROSS!

FUN TIME 6

Place a tick () beside the correct statements and place a cross (x) beside the wrong statements

1. You can stop the spread of germs by using a handkerchief or a tissue when you cough or sneeze. ()
2. To prevent painful cavities and bad breath, brush your teeth twice a day and gargle after every meal. ()
3. If your hands look clean you need not wash them before a meal. ()
4. A soap tablet is more hygienic to use than liquid soap. ()
5. To avoid body odour and smell clean, bathe daily, use soap and change your clothes. ()
6. Regular exercise, rest and some recreation are essential for good health. ()



SLEEP, RECREATION AND RELAXATION

Did You Know?



- Rest and relaxation revives a person, lessens psychological and physical tiredness and makes them active and alert in class
- Children need 8 to 10 hours of undisturbed sleep to feel refreshed on awakening
- Fatigue or tiredness reduces the capacity of a child to concentrate in school
- Some form of recreation is necessary for a healthy mind. It refreshes the mind just like exercise refreshes the body
- Children should pursue a hobby, listen to music, dance and be taken for outings

Were'tn you taught the basics of good hygiene as you were younger? Like washing hands, covering mouth while coughing, and having regular baths or showers. Now, adolescence is a time to build on these basics. Good hygiene habits in childhood are a great foundation for good hygiene in the teenage years. Begin sentence with It will help a great deal if you have open and honest communication with your parents in teenage. It will make it easier to talk about the personal hygiene issues that arise during adolescence.



I HANDLE FOOD HYGIENICALLY

NEED FOR HYGIENIC HANDLING OF FOOD

FOOD SPOILAGE AND CONTAMINATION

FOOD BORNE ILLNESS

FOOD LABELING

TEAM SEHAT KA

F  **D**
FUNDA



MODULE 3

NEED FOR HYGIENIC HANDLING OF FOOD

“Food quality” means the characteristics of food such as appearance, flavor, texture, nutritive value and safety of the food that are acceptable to all consumers.

“Food Safety” means an assurance that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use.

When food is handled hygienically from the farm to the plate, it will retain its quality, nutritive value and would be safe to eat. For example, if farm fresh perishable fruits and vegetables are not refrigerated, they will lose quality and nutritive value similarly if fish or chicken is left on the kitchen platform or in a bowl of water in the sink to thaw, it would not be safe to eat.

Hygienic practices affect the Quality and Safety of food, so hygienic handling of food is essential.

GOOD HANDLING PRACTICES FOR ACHIEVING FOOD SAFETY:

1. Select good quality wholesome food from reliable sources and reject contaminated or poisonous food.
2. Protect food from contamination, including harmful microorganisms, poisons, allergens and foreign bodies.
3. Prevent multiplication of bacteria to a level which would result in illness of consumers or the early spoilage of foods and reduction in nutritional values.
4. Discard /remove unsafe/ unfit or contaminated foods.

These are 5 Keys to Safer Food!



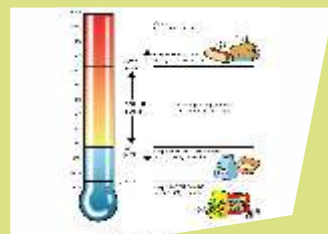
KEEP CLEAN



SEPARATE RAW & COOKED FOOD



COOK THOROUGHLY



KEEP FOOD AT SAFE TEMPERATURE



USE SAFE WATER AND RINSE MATERIAL

WHAT IS FOOD SPOILAGE?

“Food Spoilage” is the decomposition and damage caused to food by various agents, making it unsuitable for consumption. A spoiled food is a food that is unacceptable to a consumer due to changes in smell, taste, appearance, texture or the presence of foreign bodies.



HOW DOES FOOD SPOILAGE OCCUR?

The major reasons for food being spoiled are:

- Microbial action – Growth of microorganisms is by far the most important and common cause of food spoilage. Eg. souring of milk, moldy bread
- Chemical reactions – Eg. Chemical oxidation of fats leading to rancidity
- Physical damage – Eg. bruising, freezer burn
- Presence of contaminants – Eg. stones, grit, glass
- Natural enzymatic changes – Eg. Over-ripening of fruits
- Action of insects – Eg. Grains damaged by weevils, insect fragments in food



CLASSIFICATION OF FOODS BASED ON THEIR SHELF LIFE

- **NON-PERISHABLE FOODS**
 - ◆ Stay good up to a year when stored in a cool, dry place
 - ◆ Sugar, legumes, whole grains, oil, preserves like pickles
- **SEMI-PERISHABLE FOODS**
 - ◆ Stay good up to a few weeks – few months when stored in well ventilated cool rooms or fridge
 - ◆ Semolina, gram flour, vegetables like onions & potatoes, apples and frozen foods
- **PERISHABLE FOODS**
 - ◆ Spoil within a day
 - ◆ Milk, meat, fish, poultry and most fruits and vegetables specially green leafy vegetables

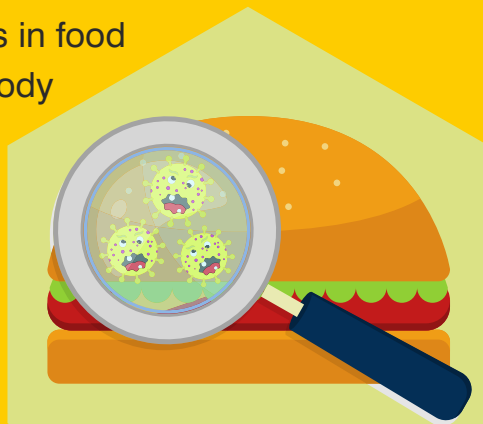
WHAT IS CONTAMINATION?

Anything naturally introduced into the product or intentionally added to the product during the different stages of the food chain from the farm to the table which may cause harm to the consumer is termed a contaminant. Contaminants are classified into three main categories namely:

1. Biological contaminants

They include both visible and invisible contaminants in food such as rat droppings, beetles and weevils, insect body parts, flies and worms which can be seen in food as well as invisible contaminants, most commonly, bacteria and other disease causing microorganisms which cause food poisoning or infection.

For example: For foods of animal origin contamination with disease causing bacteria may occur at the time of slaughter or shortly thereafter; foods such as chicken burgers and hot dogs can also be contaminated by microorganisms from the food handler, equipment or from the environment.



2. Chemical Contaminants

They include any form of chemical compound, which may contaminate food products and which result in illness or harm to consumers. These may include non-permissible food additives, adulterants, cleaning chemicals, packaging adhesives, inks and refrigerants or chemicals accumulated in food like heavy metals (lead, mercury, cadmium) pesticide residues, veterinary drugs, etc. And sometimes naturally occurring toxins in food such as solanine in green potatoes, sea food toxins and mycotoxins.

For example: When food is being grown on the farm it may be irrigated with water contaminated with heavy metals such as lead.



3. Physical Contaminants

Physical hazards can include a wide variety of contaminants such as glass, metal, bone, shell, hair, etc., which may cause harm to the consumer while they are eating the food product.

For example: When food is being packaged it may get contaminated with hair, jewellery of the person handling packaging machine.

Our food can become contaminated in many ways during its journey from farm to consumer. However, most contamination falls into three categories:

- During growing / Pre harvest
- During production / Post harvest
- During handling while food is eaten / sold

“Cross-contamination,” is the transfer of germs from one contaminated food or place to another by hands, equipment, or other foods and should be avoided.



FUN TIME 1

Classify given contaminants as Biological, Chemical, Physical.

- Moldy peanuts • Pesticide
- Staphylococci • Washing soda
- Stapler pin • Rat droppings
- Glass • Hair





Did You Know?



There is a difference between contaminated and spoiled food. The latter may never cause illness due to the fact that it never gets eaten! Food-borne illness is more likely to be the result of ingesting unseen microbial (or chemical) contaminants. Spoiled food causes visible damage to the eating quality of food and is not the primary cause of food borne illness.

What is Food-borne illness?

A food-borne illness/disease is a general term applied to all types of illnesses caused by microbes, substances or any kind of material present in the food we have eaten.

It includes

- **Food Poisoning**
- **Food Infections and**
- **Food Allergies**

Food Poisoning

Food poisoning or food intoxication is an illness caused by toxins present in contaminated food. When food gets contaminated by bacteria, the toxin is produced during growth of bacteria in the food. When such food is consumed, the toxin present irritates the lining of the GI tract causing symptoms such as vomiting, abdominal pain and diarrhoea.

Food Infection

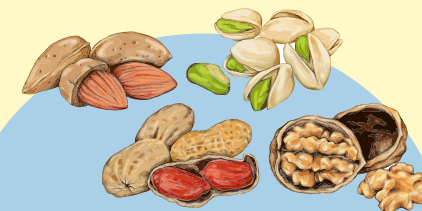
A food infection is an illness caused by microbes. It happens when we consume food which contains living bacteria. The bacteria multiply in our body and cause infection. Symptoms of infection such as vomiting, abdominal pain, diarrhea and fever occur when our body reacts to the presence of large number of bacteria or their metabolites.

Food Allergy

An allergy is defined as a special reaction of an individual to some ingredient in food. Some people show abnormal sensitivity to certain foods which are otherwise harmless to most people. Substances which cause allergies are called 'Allergens'.



Foods which commonly contain Allergens are:



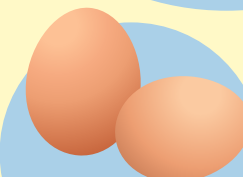
- Nuts – Peanuts and all types of tree nuts such as walnut, pistachio, Brazil nut, cashew nut, hazel nuts.



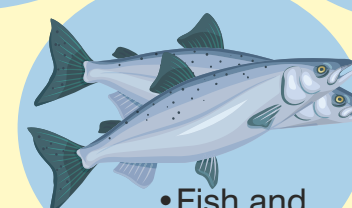
- Milk and Milk products



- Soya and its products like tofu, bean curd, soya milk



- Eggs



- Fish and Shellfish



- Wheat



- Sesame seed, mustard, and celery



SNF ALERT!

Watch out for the symptoms of food allergy.

- Flushing of the skin
- Swelling of throat and mouth
 - Severe asthma
- Sudden feeling of weakness
 - Fall in blood pressure
 - Rashes on the body
- Difficulty in swallowing and speaking
- Abdominal pain, nausea and vomiting

Friends of Team Sehat from 9th Grade HAVE SOMETHING TO SHARE ABOUT FOOD ALLERGIES.

"I am allergic to peanuts. I get really sick so everyone in my class knows not to bring peanuts to school in case I get near any".

Tarun



"I can't have cow's milk so I have soy-milk". **Jai**



"If I have seafood I swell up and can't breathe well, so I have to be careful". **Tanisha**



"I can't have wheat because it makes me sick. It's a bit sad sometimes when everyone is eating cakes at a party and I can't have any, but I can eat rice, corn and oats". **Twinkle**



"I can't eat eggs so I have to watch out for anything that has eggs in it". **Anubhav**



To ensure an allergen free meal or snack while eating out, check the following:

- Are the food handlers using different and clean utensils (including knives and spatulas), containers, cutting boards, and serving utensils for preparing foods?

For example, for a peanut allergy: Just wiping off a knife used to spread peanut butter is not enough. Use a clean, separate knife for the next ingredient, perhaps jam, you plan on spreading. The same holds true for cleaning a blender after making a shake with peanut ingredients.

- Are they using different cooking oils to fry allergenic and non-allergenic foods? Deep-frying does not destroy allergens.

For example, for a seafood allergy: Different cooking oil in a clean frying pan should be used to deep fry shrimp rather than what you used to make French fries or other foods

- Is the food being served on a separate plate with a different serving spoon?

- Do you know all the "hidden," allergenic ingredients in a dish?

For example, for a tree nut allergy: Cashew nuts added to a muffin batter or a breading mix may go unnoticed by allergy sufferer.



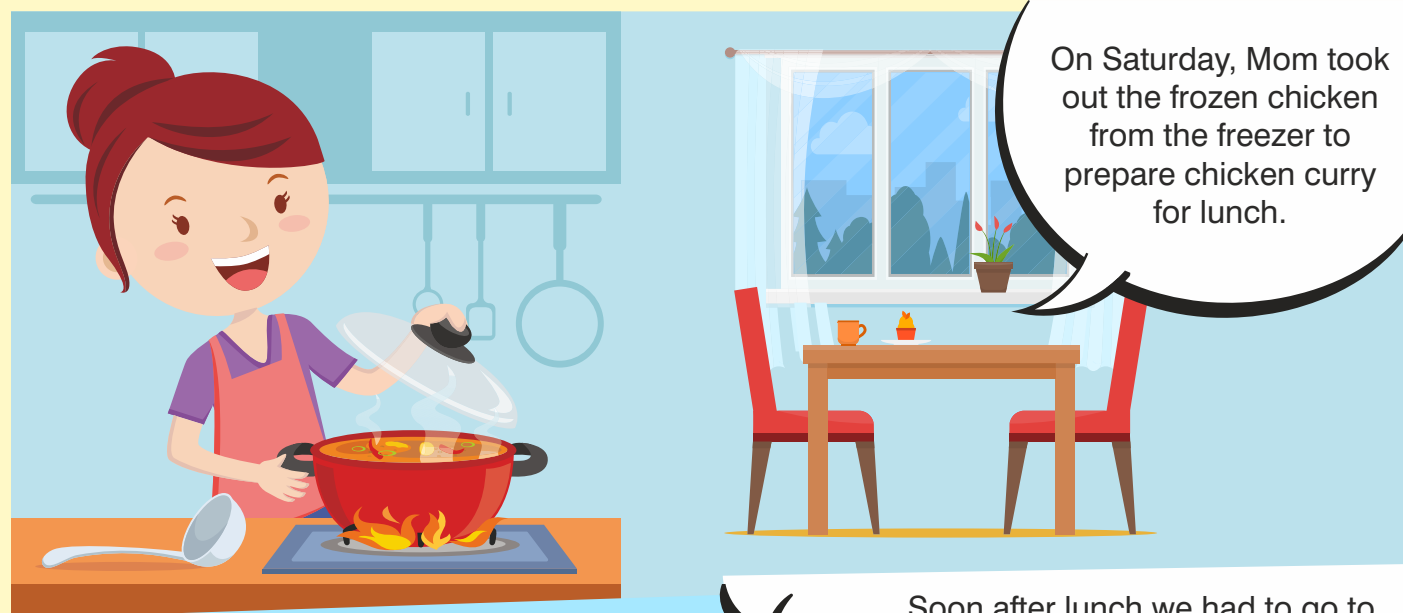
Did You Know?



- Proper food handling is the key to foodborne disease prevention!
- Foodborne illness is the primary food safety concern!
- For infants, the sick, pregnant women and the elderly, the consequences of foodborne disease are usually more severe.



Angad and Ananya tell us how their Dad got sick! Let us listen to their story!



On Saturday, Mom took out the frozen chicken from the freezer to prepare chicken curry for lunch.



Soon after lunch we had to go to the mall to buy Daddy's birthday gift. There was no time to thaw the chicken so Mom quickly prepared chicken curry and chappati's for the family and all of us ate lunch.



Soon after lunch we rushed to the mall. Mom in all this hurry forgot to put chicken curry in the refrigerator.



When my dad came home at 7:00pm, the food was still out on the kitchen table. Dad was so hungry that he ate the leftover chicken curry and chappatis.



About an hour after eating chicken curry and chapatis, Dad's stomach started feeling queasy. He decided to sleep early as he was very tired at the same time. During the night, he was throwing up, had stomach cramps, and went frequently to the bathroom. The next day, we drove him to the doctor.

Dad told the doctor about the food he ate last night that was left on the table. The doctor said he probably got sick from the food. My mom felt bad and told the doctor that it was her fault because she had forgotten to put chicken curry in the refrigerator. The doctor told my mom: "What caused the problem was dangerous bacteria that grow very fast on perishable food left out of the refrigerator for more than 2 hours. You cannot tell if food is still safe just by looking at it because

you can't see, smell, or taste harmful bacteria. Next time, thaw frozen food before cooking it, refrigerate cooked food within 2 hours after cooking and reheat leftovers well."



My Dad got well in a couple of days, but the doctor explained that some people could get more seriously ill than others and could even end up in the hospital! Young kids, pregnant women, and older adults, like our grandparents, are all part of the group that has a greater chance of getting sick from bacteria in food.

NOW, ANSWER THESE QUESTIONS!

1. What made Daddy sick? chicken curry or chappati?
2. Was it a food allergy, food poisoning or food infection?
3. What should have Mommy done to prevent Daddy from getting sick?
4. What do you think Daddy should have done before consuming the food?

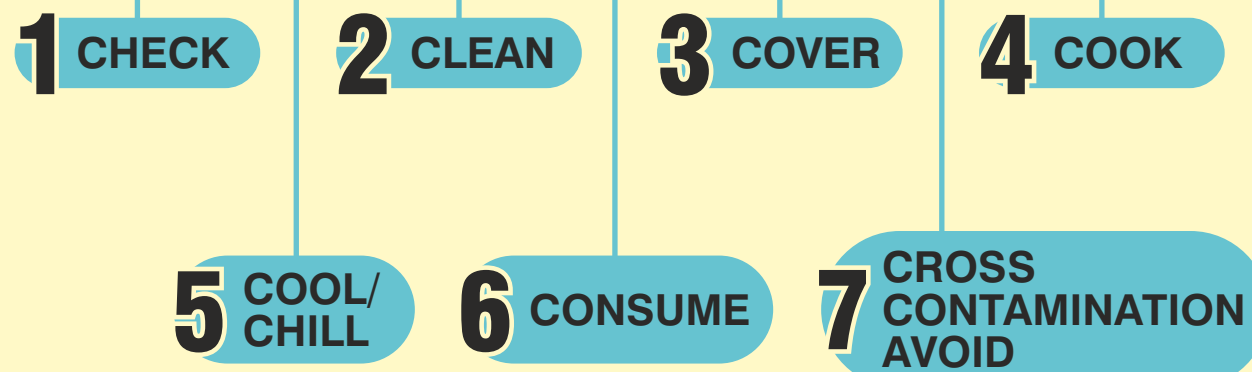
The doctor gave some information to the family on how to handle food at home and prevent food borne diseases. Read further to find out.



How to prevent Food Borne Illness and Make Food Safe?

Among the various factors involved in foodborne illness, improper handling or storage temperatures rank as major factors contributing to the outbreaks of diseases. In addition, poor personal hygiene of food handler and improper cooking temperatures are responsible for a significant number of outbreaks.

Food Borne Diseases are entirely preventable and can be prevented by practicing the 7C's :



PROJECT : Visit To School Cafeteria!

You are the Food Quality Inspector of your School. Now star rate the Cafeteria for the 7 C's

7 C's	Parameters	Star Rating
Check	Raw Material Quality Packaged food Quality Temperature of frozen food	☆☆☆☆☆
Clean	Packages, tins, bottles Fruits and vegetables Plates, glasses and spoons	☆☆☆☆☆
Cover	Food in preparation area Food in refrigerator Food during service	☆☆☆☆☆
Cook	Thaw frozen foods correctly Food is thoroughly cooked Taste, aroma and color	☆☆☆☆☆
Cool/chill	Perishable food is cooled within 1.5 - 2 hrs Food is refrigerated/frozen within 1.5 - 2 hrs	☆☆☆☆☆
Consume	Food is served in a clean environment. Crockery and cutlery is clean Hot food is above 63°C. Single service items are not reused. Plate waste and plastic waste is Segregated. Potable water is available.	☆☆☆☆☆
Cross Contamination Food	Handlers wash hands well Raw and cooked food is apart. Separate chopping boards and knives are used for raw and cooked. Store raw food below cooked food.	☆☆☆☆☆



FUN TIME



FUN TIME 2

Match the Following!

Column 1 to Column 2 (items in Column 2 may be used more than once)

Column 1	Column 2
Food Poisoning	Banana
Food Infection	Botulism
Allergy	Tree Nuts
Worm Infestation	Hepatitis A
Food Spoilage	Trichinella Apple Curdled Milk Olive Oil Pasteurised Milk



SNF ALERT!

We take extra precautions to avoid the risk of foodborne illness. You should do it too.

- Do not eat or drink unpasteurized juice, raw sprouts, raw (unpasteurized) milk, and products made with unpasteurized milk.
- Do not eat raw or undercooked meat, poultry, eggs, fish, and shellfish.



READING FOOD LABELS

Reading food labels is necessary because it tells us what we are purchasing in terms of nutritive value, safety, cost savings and convenience. It helps us make a conscious selection.

Information to be displayed on the label includes:

Name of the food product.

List of ingredients in descending order of weight

Nutritional facts

Food additives and their class/ identification number of colours

Name and address of manufacturer and manufacturing unit

Net weight of contents and drained weight

Lot/Code/Batch identification no.

Date of manufacture dd/mm/year

Best before date

If irradiated- particulars

Country of origin for imported food

Instructions for use & disposal of packaging

Licensing authority and license number

The label may have pictures and graphics on it

Nutritional facts need to be displayed on the label. In India it is mandatory that the label should mention total carbohydrates, sugar, fat, protein and energy.

FUN TIME 3

Importance of Food Labels

Imagine that your class has manufactured Baby food and you have to market it.

- Design a label for the baby food jar:
 - Choose appropriate name of product
 - Mention information on the label
 - Do its pricing



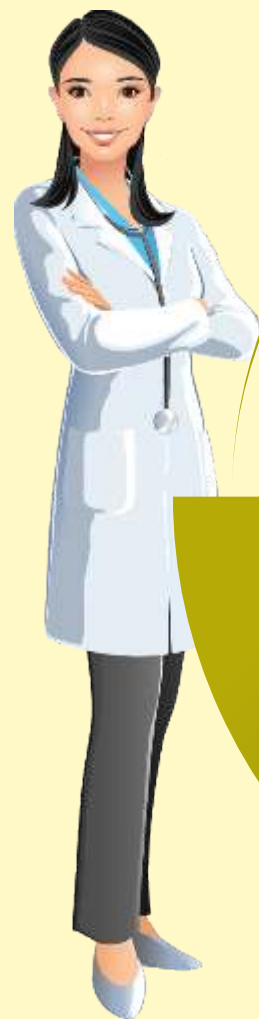
SNF ALERT!

You should store food in the right container, in the right place, at the right temperature, for the right length of time. Foods maintain their quality, safety, and nutrients when they are stored properly and consumed within a certain time.

FUN TIME 4

Visit nearest supermarket & check labels of at least 6 of your favorite foods!

- Are number of servings mentioned on the label?
- How many grams of sugar is present in one serving?
 - How many grams of fat does the food contain/serving?
- How much saturated fat is present in one serving?
- How many grams of salt does the food contain per serving?
 - Does the food make any special nutritional claims?



FUN TIME 5

Mrs. Kapoor has purchased a new refrigerator! Can you tell her where she has gone wrong while placing food in the refrigerator?



ANSWERS TO ACTIVITIES



Activity No. 1

Biological	Moldy peanuts	Staphylococci	Rat Droppings
Chemical	Washing Soda	Pesticide	
Physical	Stapler Pin	Hair	Glass



Activity No. 2

Column 1	Column 2
Food Poisoning	Banana
Food Infection	▶ Botulism
Allergy	▶ Tree Nuts
Worm Infestation	▶ Hepatitis A
Food Spoilage	▶ Trichinella
	▶ Apple
	▶ Curdled Milk
	▶ Olive Oil
	▶ Pasteurised Milk



Activity No. 5

1. Do not store ready to eat foods and raw foods side by side.
2. Store raw food below cooked food.
3. Keep all food items covered.
4. Do not store bananas and apples in refrigerator.
5. Keep vegetables in the vegetable tray.



I KEEP MY SURROUNDINGS CLEAN

NEED FOR HYGIENIC SURROUNDINGS

STREET FOODS

WASTE DISPOSAL AND MANAGEMENT

ESSENTIAL HYGIENE REQUIREMENTS

PEST CONTROL

TEAM SEHAT KA

F  **D**
FUNDA



MODULE 4

NEED FOR HYGIENIC SURROUNDINGS

Poorly maintained or dirty surroundings can provide hiding places for pathogens that can then contaminate food products. Food allergens can also contaminate common allergen-free products because of these issues. Neglected equipment can result in under-processed products or it may break down and cause physical contamination of your products. Remember, safe food products cannot be made in an unsafe surrounding.

Cleanliness and Personal hygiene provides a clean school environment for the students to keep them safe and in good health.

In a city there lived three best friends – Ruhi, Angad and Geeta. They studied in the same school and were good in their studies. They never missed school.



Once Geeta didn't come to school for five days. Ruhi and Angad were worried. They decided to visit Geeta. They were shocked to see the place where she lived. It was very filthy.



There was stagnant water on the roads where they saw mosquitoes breeding. Waste was thrown all around. When they reached Geeta's house they saw that she was down with very high fever. Her mother told them she had malaria. Geeta looked very pale and tired. She could hardly talk.

Malaria is a disease that is spread by mosquitoes. It affects the liver and blood cells. The next day Ruhi and Angad told the class about Geeta. All the students decided to clean the place during the weekend. They swept the roads, collected the waste and threw it in the dustbin. They also cleared the dirty stagnant water. Thus the mosquitoes became less. Geeta's street was beautiful now.



Remember, if we want India to be a clean and healthy place to live we should first keep our house and surroundings clean. Now, let us learn more about hygiene of our surroundings.

Do's and Don'ts to Maintain Hygienic Surroundings at School

- Keep class rooms, playground, canteen and school premises clean.
- Use school properties such as chairs, tables, duster and chalks properly. Don't break them.
- Don't throw papers, chalks, pencil shavings, lunch leftovers or any other waste material in the class rooms and playground.
- Don't write on the walls of the school.
- Put all waste material in the appropriate dust bin in order to dispose the waste properly.
- Don't use non- recyclable plastic packets and plastic cups.
- Maintain cleanliness in toilets.
- Don't pluck flowers and leaves from the school garden.

Did You Know?



Dengue is the fastest growing mosquito-borne disease in the world today, causing nearly 400 million infections and an estimated 20 000 deaths every year. In the past 50 years, dengue has spread from a small number of countries to being endemic in 128 countries, affecting marginalized and wealthy populations alike.

ARE STREET FOODS SAFE?

In India, Street Foods form a significant part of the daily diet and have a major influence on health and well-being of youngsters, especially young workers and students. They cannot afford the prices charged in restaurants or hotels and look for quick, easily available, cheaper substitutes. However, nutritive value and hygiene of these foods is usually neglected or compromised.



SNF FACT!

A survey on Street Foods of Delhi revealed...

Most people are unaware about the health hazards of Street foods and find them a convenient and tasty option.

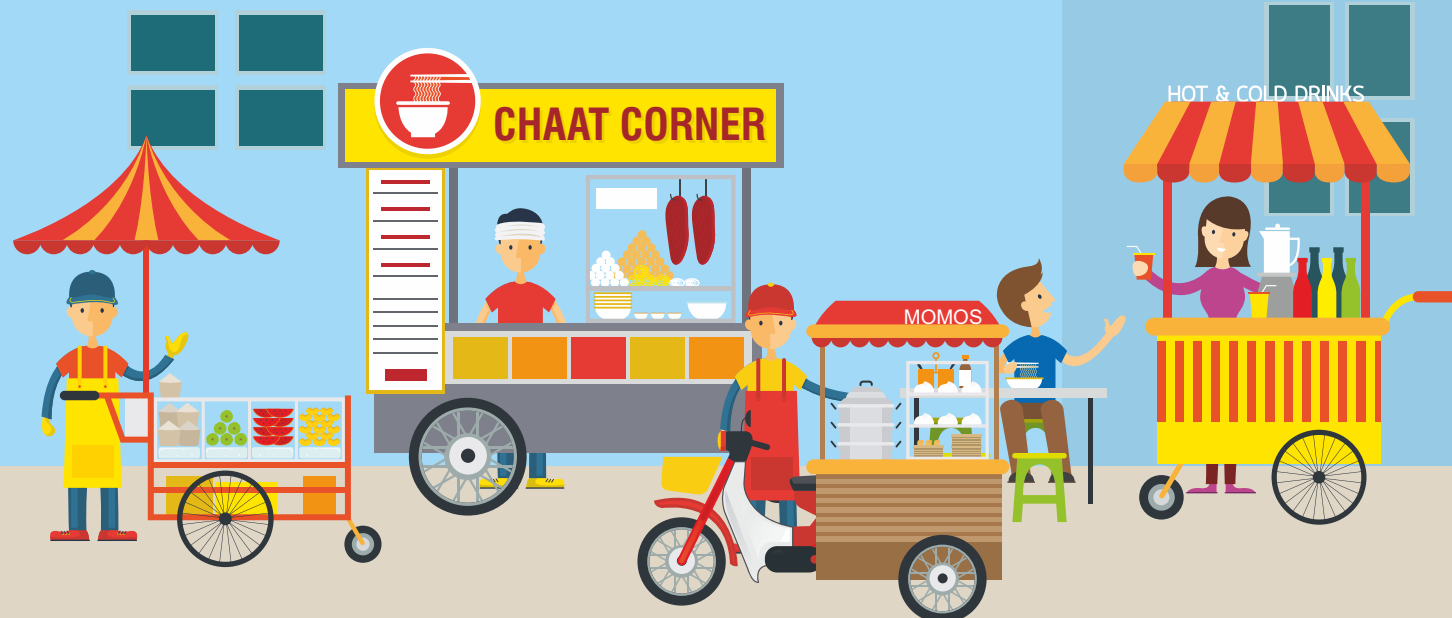
- 18% consume street food on a daily basis
- 50% of the students surveyed prefer street food over other kinds of food
- 38-45% students consume it weekly or monthly
- 74% buy street food for taste
- 31% students buy it for convenience and fairly low cost

5 Key Concerns about Street Foods

- Unhygienic cooking and serving utensils.
- Raw ingredients are not washed well, especially coriander or mint leaves and salad vegetables.
- Food displayed is open to contamination from dust, dirt, flies, customers etc.
- Food is prepared in bulk, many hours in advance and remains in the Danger Zone (5oC-63oC) for long hours.
- Lack of basic infrastructure and services, such as potable water supplies.
- Personal hygiene is poor and vendors are mainly illiterate and therefore do not understand the value of hygiene. Hand washing before handling food, serving food with bare hands, unclean hair and nails are common phenomenon. They have never undergone any health/medical check-up.

FUN TIME 1

SNF STREET FOOD PATROL CHIEFS. You are the SNF Food Patrol Chief, Check the Street Food Vendors around your home and grade them on the basis of the following:



PARAMETERS	YES / NO
1. Location of the food stall (far from source of contamination like open drains, toilets, garbage, waste water etc.).	
2. Food Service Personnel's Hygiene (nails, hair, clothes etc.).	
3. Clean cooking and serving utensils.	
4. Quality of Raw material.	
5. Food displayed is open to contamination from dust, dirt, flies, customers etc.	
6. Time and temperature of Food preparation and storage of cooked food.	
7. Cold storage facilities.	
8. Maintaining Food Service Standards eg. Wearing gloves while serving panipuri.	
9. Quality of water used not only for cooking but also to wash utensils.	
10. Best practices followed while using raw materials, authorized colors and cooking medium (fat/oil).	



Did You Know?



Food is susceptible to contamination at all stages of the food chain. Raw materials are important for the safety of street-vended food because of the biological, chemical and physical hazards that may be introduced to the vending operation and which may persist through preparation and processing.

FUN TIME 2

Check list for maintaining essential Hygiene Requirements at School (classrooms, canteens etc.)



FUN TIME 3

Put a ✓ tick mark on the correct statements



S.No.	PARAMETERS	YES / NO
1.	Location of Establishments Does the design and layout permit good hygiene practices? Is it located away from environmentally polluted areas and industrial activities?	
2.	Utensils used for cooking and serving Is it made of non-corrosive material such as stainless steel, tinned brass and copper, food grade Aluminium?	
3.	Internal structures and fittings Do the floors allow adequate cleaning? Are the windows fitted with removable and cleanable insect-proof screens?	
4.	Air quality and ventilation Does the establishment have adequate means of natural or mechanical ventilation? Is the air free from food odours, cooking fumes and smoke?	
5.	Lighting Does the establishment have adequate natural or artificial lighting? Are the lighting fixtures well protected?	

1.	Floors and walls in kitchens need not be tiled.	
2.	All windows in a kitchen should have removable and cleanable insect-proof screens.	
3.	There should be no cracks and crevices in equipment and work surfaces.	
4.	Work table tops in a kitchen should be made of aluminium.	
5.	Food preparation area should be away from garbage dumps.	



SNF FUNDA

The space for eating should be neat and clean, it is best to avoid durries in the feeding area. Children should wash hands with soap before eating (provision of soap should be made at the school). Nails of children should be trimmed. It is preferred that children eat with a spoon and safe drinking water should be available.



FUN TIME 4

How should you ideally dispose off the following single service items?

1. Bisleri water glasses
2. Leaf plates
3. Plastic spoons
4. Aluminium disposable cartons

What are Single service items/ Disposables ?

- Single service items or disposables are made of plastic, paper, thermocole, aluminium foil or leaves.
- They include glasses, plates, cups, bowls, straws, containers and utensils.
- They are convenient to use especially when cleaning and sanitizing facilities are not available.
- They must be stored in much the same manner as crockery and cutlery.
- They are designed to be used only once and then crushed, discarded and recycled.



CLEANING AND SANITISING

Effective cleaning and sanitation programs are required to achieve an adequate level of hygiene. A clean surface is free from visible food residues or particles, feels non-greasy to the touch and has no unpleasant odour. An effectively cleaned surface should also be virtually free from food allergens. A sanitised surface is a clean surface that is virtually free from pathogenic microorganisms.

The six basic steps for routine cleaning and sanitizing are:

Step 1: Pre Clean: Food waste is scraped off, pre rinsed and soaked if necessary.

Step 2: Wash: This step involves applying detergent and water.

Step 3: Rinse: Food debris and detergent residues are removed preferably using hot water.

Step 4: Final rinse and sanitize: Hot water, steam or chemical solution are used for final rinsing.

Step 5: Dry: Dishes are air dried or manually dried.

Step 6: Clean dishes are kept away from contamination.



Waste Disposal and Management

Waste can be almost anything, including waste food, leaves, newspapers, bottles, construction debris, and chemicals from a factory, wrappers or radioactive materials. Waste management is the collection, transportation, disposal or recycling and monitoring of waste. Recycling and composting, which transform waste into useful products, are forms of waste management. A primary objective of waste management is to protect the public and the environment from potentially harmful effects of waste. Education and awareness on waste management is very important, for the perseverance of global health and security of mankind.



Significance of waste disposal

- Waste must not be allowed to accumulate in food handling, food storage and other working areas and the adjoining environment.
- Suitable provision must be made for the removal and storage of waste.
- It should be disposed off regularly and efficiently to prevent contamination of food products.
- The waste should be segregated before being disposed, into biodegradable and non- biodegradable.

The three preferred options for disposal of food waste are:

- Vermiculture
- Recycling – feed for pigs
- Biogas along with animal droppings

Vermicomposting



The peels, stalks, seeds and other inedible or spoilt portions of food can ferment, attract flies and give off a foul odour, if it is not disposed off immediately. This organic waste or biomass is bio-degradable and nutrients in the waste can be returned to Mother Nature by a simple process called Vermiculture.

How is vermicomposting done?

- A special breed of earthworms feeds on our garbage and breaks it down in its gut into simple substances which can be easily assimilated by plants.
- It conserves the humus of the soil by its excreta which is a highly enriched manure containing hundreds of earthworm cocoons to continue the process.
- The burrowing action of the earthworm tills the soil ten times deeper than the traditional plough.
- Fruits and vegetables grown on such soils are healthier, tastier and more nutritious than those grown on farms fertilized by chemical fertilizers.
- Such foods are called 'Organic' and fetch a higher market price.

FUN TIME 5

Make your own Vermicompost at School/Home

Materials Required: a pit or a medium sized bin, a handful of vermi-castings, brickbat soil, garden waste, food waste



HOW FLIES SPREAD GERMS?

METHOD:

1. Make a small hole at the bottom of the bin and put a layer of brickbat to make it self-draining.
2. Half fill the pit/bin with garden soil to which vermi-castings have been applied.
3. Each student should take turns to shred the food waste, spread it in a thin layer on the designated pit, cover the food waste with garden waste (dry leaves collected after sweeping the yard, weeds, twigs etc.) and sprinkle water on top.
4. Keep repeating thin layers of food waste and garden waste.
5. Sprinkle water on top to keep the soil moist.
6. The earthworm cocoons hatch and worms feed on organic waste converting it to compost within a few months.

Note: Vermiculture can also be done in existing potted plants.

Flies cannot chew solid food so they vomit on food to liquefy it. They suck up the liquid vomit containing harmful microbes. While feeding they drop excreta which contains pathogens. Fly specks include light drops of vomit and dark particles of excreta. They have sticky hair on their limbs which helps them carry bacteria from one place to another.



PEST CONTROL

Any animal, plant or microorganism that causes harm or damage to people or their food, animals, or destroys their crops is called a pest. Insects, mites, ticks (and other arthropods), mice, rats, and other rodents, slugs, snails, nematodes, cestodes/tapeworms are all examples of pests. The presence of pests in food premises is a potential food safety issue because they can cause microbial or physical contamination of our food products. Common pests which need to be controlled are houseflies, cockroaches, rats, lizards, stored grain pests like weevils and beetles, dogs, cats and birds.

Pests can be controlled by good hygiene practices, good sanitation. Inspection of incoming materials and good monitoring can minimize the likelihood of infestation and thereby limit the need for pesticides. The most important parts of pest control are preventing pests from getting into premises and getting rid of their shelter areas and food sources.



5 Steps to Hygienic Surroundings

We like our homes neat and clean, but what about our surroundings? How many of us actually make an effort to clean our community or have stopped someone from spreading filth.

1. Stop littering and sort garbage properly

We have a very bad habit of disposing the trash right where we are sitting or standing. Don't do that. Don't litter your streets, your society, the woods, the water bodies, or your surroundings. Dispose waste in dustbin for your own good only. Sort it into two categories (Biodegradable and non-biodegradable).

2. Maintain Hygiene

By maintaining hygiene both inside and outside our home, we immediately stop the breeding spots of mosquitoes and flies that spread diseases.

3. Re-Use and Re-cycle

Reuse and recycle is the magic mantra in creating cleaner surroundings. If there is something that you don't need anymore; find another way of using it, if not then find someone who might need it; if it's broken then try to fix it before disposing it off.

4. Reduce Air Pollution

We burn a lot of fuel in our vehicles and sometimes do not service it properly which causes even more air pollution. Try to use public transport or car pooling and reduce air pollution.

5. Environmental education and tree plantation

Children must know how to keep their surroundings clean and also how to maintain proper hygiene. Tree plantation should be encouraged as it has countless benefits.

ANSWERS TO FUN TIME



FUN TIME 2

1. Floors and walls in kitchens need not be tiled.
2. All windows in a kitchen should have removable and cleanable insect-proof screens. (✓)
3. There should be no cracks and crevices in equipment and work surfaces. (✓)
4. Work table tops in a kitchen should be made of aluminium.
5. Food preparation area should be away from garbage dumps. (✓)



FUN TIME 4

How should you ideally dispose off the following single service items?

- Bisleri water glasses - (Crush and recycle)
- Leaf plates – (Vermi-compost /Biogas)
- Plastic spoons – (Recycle)
- Aluminium disposable cartons – (Collect separately, Crush and recycle)



FOOD NOURISHES ME

**NEED FOR
NUTRIENTS**

**MACRO
NUTRIENTS:
CARBOHYDRATES,
PROTEINS
AND FATS**

**MICRO
NUTRIENTS:
VITAMINS AND
MINERALS**

TEAM SEHAT KA

**FOOD
FUNDA**



MODULE 5

THE ENERGY IN FOODS

Do you go to the petrol station sometimes when Mum or Dad is filling the car with fuel? Have you noticed that there are different kinds of fuel like petrol, diesel, CNG (compressed natural gas)?

The type of fuel to buy depends on the engine. Similarly, your body runs on the fuel it gets from what you eat. If it doesn't get the right kind of fuel then it doesn't work very well or, like your car, it could break down. To look after this amazing machine our body, you need to keep it supplied with the right kind of fuel or in other words "Nutrients". Let us begin with the need for these nutrients.

NEED FOR NUTRIENTS



To understand nutrition we need to know about nutrients. Nutrients are chemical substances found in food and keep our body functioning. The food we eat is a source of different nutrients.

Our body needs nutrients to:

- **Provide us energy.**
- **Help us grow and repair our self.**
- **Protect us against infections.**
- **Regulate basic body functions.**

People eat foods and not single nutrients but it is the amount and the combination of these nutrients in the foods we eat that can have an effect on our health.



The energy in food and drinks provides our body with the fuel it needs to keep going. Consuming the right food and drinks, and enough of them, helps to perform to the best of our ability, stay healthy and feel great.



Do you have enough energy?

When we eat and drink, we are putting energy (kilojoules/kilocalories) into our bodies. Our bodies then use up that energy, and more physical activity we do, the more energy we need. To maintain a stable weight, the energy we put in our bodies must be the same as the energy we use through normal bodily functions and physical activity.

What are the energy sources in the diet?

1. **Carbohydrates** are an essential source of energy in our diet.
2. **Fats** have a lot of energy (kJ/kcal), so have these in small amounts. This also includes foods high in saturated fat, for example, meat fat, cheese, lard, butter, cream, sausage, poultry fat and palm oil.
3. **Protein** is also an energy source, but our body needs to break it down in order to use energy.

Macronutrients: Carbohydrates, Protein and Fat

MACRO NUTRIENTS AND MICRO NUTRIENTS

Food provides us with a range of different nutrients that have roles like providing body energy and/or being needed for growth and upkeep of our body.

Carbohydrate, protein and fat are macro nutrients (macro means large), so these are the nutrients that we need to eat in relatively large amounts in the diet as they provide our bodies with energy and also are the building blocks for growth and maintenance of the body.

Vitamins and minerals are micro nutrients, which are essential nutrients your body needs in small amounts to work properly.

Although water is not always included in the strict definition of a nutrient, it is essential for health and life.

A STARCHY FOODS "CARBS"

Starchy foods are often referred to as 'carbs' (although this is actually short for 'carbohydrates', which includes sugars and starch) and include foods like bread, pasta, rice, potatoes, breakfast cereals, oats and other grains like rye and barley.

In a healthy, balanced diet starchy foods are the main source of energy. When starchy foods are digested, they are broken down into glucose, which is the main fuel for the body, especially for the brain and the muscles. Starchy foods can also provide fibre, which is important for digestive health, and a range of vitamins and minerals including B vitamins, iron, calcium and folate.



FUN TIME 7

Let's check your "Sweet" choices. Are they packed with nutrients, too? Or are they empty calories providing mostly calories and very few nutrients?



Do You.....	Always (4 pts.)	Usually (3 pts.)	Some Times (2 pts.)	Never (1 pt.)
• Reach for fruit as a snack, rather than candy?				
• Drink juice or milk with lunch or dinner, rather than soft drinks?				
• Top your cereal with fruit instead of or along with sugar?				
• Sweeten waffles, pancakes, or toast with fruit, rather than just jam or syrup?				
• Top ice cream with fruit, not just chocolate or caramel syrup?				
• Order juice or milk with a fast-food meal or snacks, such as a burger meal?				
• Choose fruit for dessert, not a rich, high-calorie dessert?				
• Go for the smaller rather than the bigger slice of cake?				
• Snack on two or three cookies with milk, rather than simply down five or six cookies?				
• Make hot cocoa with milk, not just water?				

If you scored . . .

30 or above. Your "sweet" choices are mostly high in nutrients, too. In fact, enjoy a bit of sugar now and then to add pleasure to eating.

20 to 29. Your overall diet is balanced and you're not overspending your calorie budget, your preference for sweets is probably okay.

10 to 19. Your "sweet tooth" may prove to be expensive in terms of fitness and tooth health.

HAVE YOU EVER WONDERED?

How do we use our energy?

Physical activity, such as walking, running or playing sport, use energy and balance the energy we get from eating food. Different activities use up different amounts of energy, so if you are physically active, follow the healthy eating guidelines below:

Healthy eating tips for physically active people:

- Eat plenty of starch foods, such as bread, rice, pasta and cereals, choosing whole grain versions whenever possible.
- Eat lots of fruit and vegetables.
- Have some dairy and protein rich foods, such as lean meat, fish, poultry, nuts, eggs and pulses.
- Limit your intake of food and drinks high in fat, sugar and salt.
- Drink plenty of fluids.

B PROTEINS

Protein is essential for growth and repair and keeping cells healthy. Protein also provides energy: 1 gram of protein provides 4 kcal (17 kJ). They are made up of building blocks called amino acids. Different foods contain different amounts and different combinations of amino acids. Protein from animal sources (e.g. meat, fish, eggs and dairy products) contains the full range of essential amino acids needed by the body. Protein from plant sources (e.g. pulses and cereals) typically contain fewer essential amino acids.



How to cut down on unhealthy fats?

FUN TIME 2

Nutrients and their sources!

- Can you give few examples of sources of proteins in your breakfast?
- Can you give few examples of sources of starch in your lunch?



- Use reduced fat spreads made from polyunsaturated or monounsaturated (vegetable) oils for example, spread made from sunflower oil.
- Choose lower fat varieties of milk and yoghurt
- Use mayonnaise and high fat spreads sparingly
- Eat less of unhealthy fats-confectionery, pastries, cakes and biscuits.



C FAT

Everyone needs a certain amount of fat each day to stay healthy. When you think of fat it's important to think of the right type and the right amount. Healthy fats are found in foods such as vegetable oils, oily fish for example, salmon, sardines, mackerel, nuts and avocados. Foods containing less-healthy fats include crisps, pastries and fried foods. Limit how much of these you eat.



Did You Know?



Certain fats are considered essential, specifically two fatty acids—linolenic acid and alpha-linolenic acid—which our body can't make. (Fatty acids are the building blocks of fat.) For children to grow normally and to maintain healthy skin, food choices must supply linoleic acid. Alpha-linolenic acid is also important as it keeps brain and nervous system functioning normally.



Micronutrients : Minerals and Vitamins

What are vitamins?

- Vitamins are the nutrients required by the body in small amounts, for a variety of essential processes.
- Most vitamins cannot be made by the body, so need to be provided in the diet.
- Vitamin D can be made by the body in the skin when it is exposed to sunlight.
- Vitamins are grouped into fat-soluble vitamins and water-soluble vitamins.
- Requirements for vitamins change across different stages of life.

Fat Soluble Vitamins - A, D, E and K

Vitamin A is found pre-formed in liver and whole milk. It can also be produced from beta-carotene provided by dark green leafy vegetables, carrots and orange coloured fruit.

Vitamin E is an antioxidant and is required to protect cells against oxidative damage. Good sources are nuts and oil seeds such as sunflower, soya, corn and olive oils and their spreads; nuts; seeds and wheat germ.



Water soluble vitamins - B and C

There are a number of B and C vitamins. Regular intake of each is essential as each has specific functions in the body. They are:

vitamin B1 (Thiamin) ; vitamin B2 (Riboflavin); vitamin B3 (Niacin); vitamin B6 (Pyridoxine); vitamin B12 (Cyanocobalamin); folate; pantothenic acid and biotin.

VITAMIN C IS NEEDED FOR:

- The normal functioning of the immune system;
- The protection of cells from oxidative stress.
- Formation of collagen for normal blood vessels, bones, cartilage, gums, skin and teeth



Did You Know?

Vitamin C can help with the absorption of iron from plant foods when it is consumed at the same meal.

How you ever wondered?

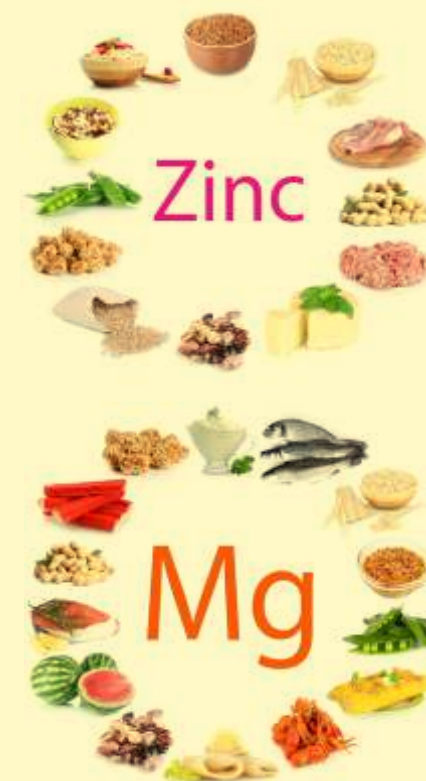
Water-soluble vitamins are destroyed more easily by food preparation, processing, and storage as compared to fat soluble vitamins.

WHAT ARE MINERALS?

Minerals are inorganic substances required by the body in small amounts for a variety of functions. These include the formation of bones and teeth; as essential constituents of body fluids and tissues; as components of enzyme systems and for normal nerve function.

Some minerals are needed in larger amounts than others, e.g. calcium, phosphorus, magnesium, sodium, potassium and chloride. Others are required in smaller quantities and are sometimes called trace minerals, e.g. iron, zinc, iodine, fluoride, selenium and copper. Despite being required in smaller amounts, trace minerals are as important as other minerals.

Minerals are often absorbed more efficiently by the body if supplied in foods rather than as supplements. Also, a diet that is short in one mineral may well be low in others, and so the first step in dealing with mineral deficiencies is to review and improve the diet as a whole. Eating a varied diet will help ensure an adequate supply of most minerals for healthy people.



LOOK AFTER YOUR BONES!

How strong and dense your bones become is decided while you are in your teens. Calcium and vitamin D are the nutrients that help your bones to develop so it is really important to pack these goodies in, during your teenage years. There are many good sources of calcium to choose from with milk and dairy foods being the best source, but sardines, dark green leafy vegetables, dried beans, nuts and ragi are good sources too.

Here are some tips for getting dairy products into your diet:

- Have a glass of milk or yoghurt with cereal or breakfast.
- Include a slice of cheese in your sandwiches.
- Have a yoghurt with your lunch.
- Drink a glass of milk in the evening.
- Have a milk-based dessert, e.g. rice pudding or custard made with low fat milk or a yoghurt dessert after your dinner.



Other ways to keep your bones strong are:

- Remember to avoid smoking as you step into adulthood
- Take regular exercise like swimming or walking

Did You Know?



Skimmed and semi-skimmed milk, cheese and yoghurts contain just as much protein, vitamins, calcium and other minerals as the full fat versions. They are lower in fat. Many teenagers think milk is fattening but the fact is it is not a high fat food. If you want to reduce fat in your diet then opt for low fat dairy options.

DRINK PLENTY OF WATER!

We all need between six to eight glasses of water or other fluids each day to keep us alert and properly hydrated. When you're dehydrated you feel tired or sluggish - not a good idea when you're expected to concentrate in class for hours at a time! Tea and coffee can count as your fluids too, but make sure you also drink beverages without caffeine. Water and milk are the healthy beverage options.



To increase your water intake:

- Take water breaks during the day instead of coffee breaks. If you are a subconscious "sipper," keep a cup of water on your desk.
- "Water down" your meals and snacks. Complement food with water, milk, or juice. Occasionally, start your meals with soup.
- Before, during, and after any physical activity, drink water, especially in hot weather.
- Consume water every fifteen to twenty minutes while you exercise. Don't wait until you feel thirsty!
- Keep a bottle of water with you as you travel, while at school etc.

Did You Know?



If you feel thirsty, then you're already a little bit dehydrated. Stay ahead of the game - fill up a bottle of water to take to school with you each day. Remember to drink extra fluids before and after sports.

SODIUM IS ESSENTIAL TO HEALTH!

The link between sodium and high blood pressure is well known, yet few people know that sodium is essential to health. Some of the most basic work your body does depends on sodium: transmitting nerve impulses and helping your muscles, including your heart muscle, relax.



Did You Know?

Most sodium that we consume comes from processed or prepared food, not from the salt shaker at the kitchen table.



Have you ever wondered?

If salting the cooking water will speed up the cooking? That's an urban legend. It's true that the boiling point of water may slightly rise with added salt, but not enough to make a noticeable difference. Salt added to cooking water will, however, make food saltier.

EAT PLENTY OF IRON!

Your body needs iron to make red blood cells. Red blood cells are needed to bring oxygen all around your body - making iron one of the most important minerals in our diet. Lean red meat and liver are the best sources of iron. Other good sources are meat, fish, eggs, green vegetables, nuts, pulses (like peas, beans or lentils) and fortified breads and breakfast cereals (check the labels).



Did You Know?

When your body has enough iron, you should feel energetic and well. But people who are low in iron can start to feel tired, pale and short of breath.



Did You Know?



Girls – you need even more iron than boys! This is because of your monthly period and because you're still growing. So be sure to pack in those iron-rich foods every day.

Tip 1: Having some vitamin C with your meal helps your body to absorb any iron that's in it. So try to include some fresh fruit, salad vegetables (like tomatoes) or unsweetened fruit juice with your meals.

Tip 2: Tea and coffee contain polyphenols that make it harder for our bodies to absorb iron. You don't need to cut them out completely, but try not to have them within 30 minutes of eating your meals.

Have you ever wondered?

If spinach will make us strong, as the famous cartoon character Popeye believed? It's true that spinach contains iron. But another food component in spinach, called oxalic acid, binds with iron, impairing its absorption, so it's not the best source. Only physical activity, not iron or any other nutrient, builds muscle strength.

If cooking in an iron skillet improves the iron content of food? It does. Before the days of aluminum and stainless steel cookware, great-great-grandma unknowingly supplemented her family's diet with iron from her iron pots and pans. Foods with acids such as tomato juice, citrus juice, and vinegar help dissolve small amounts of iron from the pot into the cooking liquids especially good for foods that simmer and stew for a while.



ZINC IS ANOTHER ESSENTIAL MINERAL!

Although it gets less attention, zinc often comes up short for teens, too. Besides its other functions, zinc is essential for growth and sexual maturation. For teens who don't eat meat and other animal-based foods, a lack of zinc may affect development.

OTHER DIETARY NEEDS

Vegetarian diets

Lots of young people think about becoming a vegetarian at some point for all sorts of reasons. A vegetarian diet can be very healthy, but you need to be in-the-know before you attempt it.

If you're going to take animal products out of your diet, then you need to make sure you're not losing out on vital nutrients like protein and iron. This may mean finding meat alternatives, including things you might not normally eat like tofu. Most nutrients we need can come from plant foods as well as animal foods - except for vitamin B12.





Did You Know?



Around a quarter of the world's population consumes a vegetarian diet. If you drink soya milk, read the label and go for a brand that is fortified with calcium.



Have you ever wondered?

If a vegetarian diet is okay for you? A well-planned vegetarian diet can supply all the nutrients that children need for their growth and energy needs. Calcium and iron need special attention. Since you don't eat any meat, poultry, fish, eggs, and may be even dairy foods, be especially cautious about good sources of vitamin B12, vitamin D, and zinc.

Take the "shaker test" to find out. Cover a plate or a bowl with foil or plastic wrap. Now pretend your dinner is on the plate—or that the bowl is filled with popcorn. Salt your "food" just as you would if the bowl or plate was full of food. Now measure how much salt you added. If you shook as much as 1/4 tea spoon of salt, you added almost 600 milligrams (0.6 g) of sodium to your meal or popcorn.

Note: Sodium intake should not be more than 2 g per person per day.

FUN TIME 3

How much salt do you typically add to food? Let's find out!



SNF FACT!



- Our bones take in the most calcium during teen years and early twenties. Calcium gives our bones strength. The best sources are milk, yoghurt, and cheese, and most teens need four servings of dairy foods daily.
- If we don't eat breakfast, our body is like a computer without power.
- Eating cookies, candy, or other sweet foods before an athletic event won't give an energy boost.
- Make sure you read the label on soya milk and check for calcium fortification.
- For girls, when you have a menstrual period you lose iron. If you don't eat iron-rich foods to replace this loss, you may feel weak and tired.
- Eating smart and moving more can help you feel good, look good, and do your best!

WHO AM I?

FUN TIME 4

Nutrients Quiz! Who am I? Fill in the blanks with appropriate nutrients.

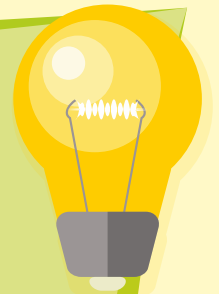


- I serve many functions in the body. I help carry nutrients to the body's cells and I also help regulate body temperature. I am _____.
- I can be converted into energy. I am also used to build, maintain and repair body tissues. I am _____.
- I have a bad reputation in many people's minds but I do serve many functions in the body. For example, I am the most concentrated source of energy and I also am needed for growth and healthy skin. I am _____.
- I am the body's main source of energy and I come in two forms, simple and complex. I am _____.
- I do not provide energy (calories) but I do help regulate many of the chemical processes in the body. You need 13 different forms of me everyday. I am _____.
- I am depended on for nearly every process necessary for life. The body requires 16 types of me everyday from calcium to iron. I am _____.

FUN TIME ANSWER

FUN TIME 4

- I serve many functions in the body. I help carry nutrients to the body's cells and I also help regulate body temperature. I am **Water**.
- I can be converted into energy. I am also used to build, maintain and repair body tissues. I am **Protein**.
- I have a bad reputation in many people's minds but I do serve many functions in the body. For example, I am the most concentrated source of energy and I also am needed for growth and healthy skin. I am **Fat**.
- I am the body's main source of energy and I come in two forms, simple and complex. I am **Carbohydrates**.
- I do not provide energy (calories) but I do help regulate many of the chemical processes in the body. You need 13 different forms of me everyday. I am **Vitamins**.
- I am depended on for nearly every process necessary for life. The body requires 16 types of me everyday from calcium to iron. I am **Minerals**.



I AM HEALTHY

SIGNS OF
GOOD
HEALTH

NEED TO
OVERCOME
DEFICIENCY
DISEASES

SYMPTOMS OF
DEFICIENCY
DISEASES AND THEIR
PREVENTION

UNHEALTHY
AND
HEALTHY FOODS

TEAM SEHAT KA

FOOD
FUNDA



MODULE 6

Master and Miss Sehat are a picture of good health. They are friendly, cheerful, helpful and keen sports persons. They have thick bouncy hair, a glowing complexion, beautiful white teeth, sparkling eyes and a good posture. They are good in academics, have good concentration and never seem irritable or restless. They seem to have time for all their activities.

Have you ever wondered how Master and Miss Sehat excel and where they get all this charm and energy from?

Master and Miss Sehat answer is simple. We eat Healthy Foods!

But that is not all. Apart from meals, studies and recreation, they practice personal hygiene, exercise regularly and sleep well at night.

Most of us follow the same routine, but are not particular about when and what we eat and drink. We often skip exercises, make wrong choices or succumb to peerpressure, and land up where we are today.



SNF CASE STUDIES

SNF FACT!

What are the ABCs for good health?

- **A for Aiming for fitness:** Aim for a healthy body weight and be physically active through the day.
- **B for Building a healthy lifestyle:** Choose a variety of nutritious, health-promoting foods such as whole grains, fruits and vegetables. Keep food safe to eat
- **C for Choosing sensibly:** Choose a diet that is low in saturated fat; choose beverages and foods that limit intake of sugars and salt.



- Raju is a shy boy. He avoids the swimming class in school every week as he has a poor physique and is pale and tired most of the time. He thinks of different excuses to make to the PT Sir each time. He would have loved to make friends with Ria and Rohan and would have enjoyed being in the pool with them.

Do you think staying away from the problem will help Raju build his body, gain confidence or feel active and energetic?

Let's help Geeta and Raju.



Geeta and Raju, all cells in our body be it skin, muscle, bone, nails or hair need proteins and zinc for growth, repair and good health. Eat Cereal + Pulse combinations, include some milk/curd in the meal and use processed Soya products like Textured Vegetable protein (TVP) – Nutri - nuggets etc. to overcome the deficiency of proteins and zinc.

Let us meet Ria and Rohan's friends.

- Hi! I am Geeta, I wish my hair had more life in it. In spite of brushing it several times and using all possible shampoos and conditioners, it is sparse, dull and lifeless, and falls terribly each time I wash or comb it. I wish I had hair like Ria's. I must ask her which hair wash does she use?

Do you think Geeta's problem will be solved by changing her hair wash????



SNF CASE STUDIES

1

The glare of the incoming traffic momentarily blinds Sunil at night. He has difficulty in reading or seeing things in dim light. Does he need spectacles? What should he do?



Vitamin A deficiency harms our eyes affecting our ability to see clearly in less light. Sunil you do not need spectacles, but do make sure you eat yellow orange coloured fruits and vegetables and green leafy vegetables rich in pigment carotene. Carotene is converted to vitamin A in the body. Butter and ghee and whole milk products will help you as well.

2

Rama and Sunita are too tired after school. They get breathless after climbing the stairs or playing outdoors.



Rama and Sunita are anaemic. They have low haemoglobin levels, and the oxygen carrying capacity of blood is reduced making them breathless. Deficiency of Iron, Vitamin B12 and Folic acid can cause these symptoms. Consume meat, eggs, green leafy vegetables, whole grain cereals and pulses, dates and jaggery to overcome this deficiency.

3

Rohit and Sana have a poor appetite, and often carry their unfinished lunch back home. They are disinterested in their school activities and feel lethargic. Rohit and Sana are not getting the energy from the foods they eat. They need to eat foods rich in B-complex vitamins. Let us read further to see what they can do.



When our food does not supply all nutrients in required amounts, it results in ill-health or malnutrition. Malnutrition (mal means faulty) occurs because of a deficiency, excess or imbalance of nutrients in the diet and includes both over-nutrition and under-nutrition.

Geeta, Raju, Sunil, Rama, Sunita, Rohit and Sana are all suffering from some or the other deficiency which can be easily corrected through simple home-cooked, fresh food. Good nutrition and health are closely interlinked. Clean, wholesome and nutritious food promotes health, keeps diseases away and results in a good nutritional status.

THINK ABOUT IT!

Let us learn more about deficiencies and how to overcome some of the common symptoms of Deficiency Diseases

1

Do you suffer from Dental caries or painful cavities?

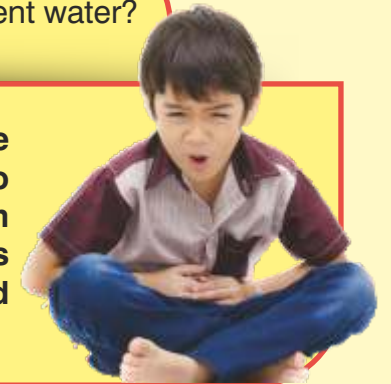
Apart from poor oral hygiene, consumption of foods high in sugars and starches promotes tooth decay. Eating candies, chocolates, chips etc. in moderation, preferably with meals are part of healthy eating.



2

Are you frequently constipated? Do you drink sufficient water?

Deficiency of fiber causes constipation. Consume Wholegrain cereals, millets and vegetables to prevent constipation. Drink ample fluids in the form of beverages, soups, juices and water. Probiotics (foods containing good microorganisms) and exercise may help you too.



3

Do you suffer from pain in the legs and lower back? Are your legs shapely and straight or bowed? Do your bones break/fracture easily?

Vitamin D, Calcium and Phosphorus are required for strong bones. Strong bones are needed to be able to take the weight of our body. Weak bones can bend and get deformed. Drink at least 200 ml milk daily. Ragi, green leafy vegetables, drum stick leaves, nuts and oilseeds especially sesame seeds provide you calcium.



4

Do you get frequent acne and skin problems?

The best approach to healthy skin is to eat an overall varied and balanced diet, healthy fats and oils, keep skin clean, get enough rest and wait. After the body matures, most acne clears up.



5

Do you miss school due to frequent colds and fever? Do your gums bleed while brushing your teeth or wounds take time to heal?

A simple remedy is eating sufficient fresh fruits rich in vitamin C, sprouting grains and having salads with meals. Vitamin C is necessary for the synthesis of collagen, which acts as a cement between cells and provides structure to blood vessels, bones and ligaments. Rich food sources include fresh fruit especially citrus fruits like sweet lime, orange, grapefruit, guava, amla, and all berries.



6

Do you keep getting mouth ulcers? Do you get tingling and numbness in your hands and feet? Is your skin patchy?

You could be suffering from vitamin B complex deficiency. Eat plenty of whole grain and enriched breads and cereals, dry beans and peas, peanut butter, nuts, meat, poultry, fish, eggs and milk.



Did You Know?



- **Scurvy**, which plagued seafarers several hundred years ago, was finally cured by stocking ships with lemons, oranges, and limes; hence, British sailors were called "limeys." Scurvy is caused by a deficiency of vitamin C, a nutrient that citrus fruits provide in abundance. Amla is the richest source of Vitamin C!
- **Night blindness**, caused by a deficiency of vitamin A, was known in ancient Egypt. The recommended cure of the day: eating ox or rooster livers. Today it's well known that liver contains more vitamin A than many other foods. Milk and its products, dark green leafy vegetables, yellow and orange coloured fruits and vegetables provide Vitamin A besides fish and egg.
- Giving children cod liver oil to prevent Rickets was practiced since the nineteenth century. But it was not until 1922, when vitamin D was discovered, did scientists know what substance in cod liver oil gave protection. Exposure of the body to morning sunlight is necessary to prevent deficiency of vitamin D.
- **Beriberi**, a deficiency of thiamin, was noted in Asia as polished, or white rice became more popular than unrefined, or brown, rice. The cure was discovered accidentally when chickens with symptoms of beriberi ate the part of rice that was discarded after polishing. It contained the vitamin-rich germ. Consume whole grain cereals rather than refined cereals.

Let us see what we need to do to prevent all this from happening.

How can Nutritional Deficiencies be prevented?

- Eat a balanced diet with variety of fresh wholesome food. Include whole fruits and ensure some vegetables are eaten uncooked.
- Include a small quantity of complete protein food in every meal. Complete proteins such as milk, curd, paneer, buttermilk and eggs could be used in small quantities in various preparations like raita, curd rice, kadhi etc.
- Eat probiotics like curds and yoghurt to promote the growth of good bacteria in your gut. Good bacteria can synthesize some vitamins and improve the health of the GI tract.
- Consume cereal and pulse combinations as they complement each other. Essential amino acids deficient in cereals are present in pulses and vice versa.
- Use foods which have been fortified with iron, iodine, vitamin A etc. Read nutrition facts on the label.
- Follow proper cooking and storage practices to retain the nutrients present in food.
- Use simple measures to enhance the nutrient content of food like using whole grains and steeping and sprouting them, fermenting cereal/pulse batters and using iron utensils to cook food.



Did You Know?



If children and teens can keep a healthy weight while they are growing, their chance of being overweight adults is lower. More active play, fewer sedentary activities (such as being a couch potato, too much screen time- TV and video and computer games), and healthful eating are the best strategies to a healthy weight.

Did You Know?



Protein quality of
(CEREAL+PULSE+GREEN LEAFY VEGETABLE)
= Protein quality of
FLESH FOODS



What are unhealthy and healthy foods?



Aanya's friend Neha eats tiny portions, refuses to eat and always denies her hunger. She sees herself as fat, wanting to lose more weight. Their classmate Shashi eats mainly in private and often disappears to the bathroom after eating. Let's help them!

Neha and Shashi could be suffering from eating disorders. Neha could be suffering from Anorexia Nervosa and Shashi from Bulimia. By starving or throwing up what you have eaten is not going to help you remain slim and healthy. You will not get the nutrients required for normal body functions and will develop worse complications.

Food fads, myths and faulty food habits are the main cause of malnutrition amongst the vulnerable age groups. These days the Fad diets to lose weight or detox the body are gaining popularity. They are extreme diets and can have adverse effects in the long run. Most weight loss is fluid loss and not fat loss. In most cases you tend to put on more weight than what you have lost once you are off the diet.

ALWAYS REMEMBER THAT A FAD DIET CANNOT REPLACE A WELL BALANCED DIET AND EXERCISE!

Unhealthy Foods

Junk foods are those containing little or no proteins, vitamins or minerals but are rich in salt, sugar, fats and are high in energy (calories). HFSS foods.

Examples of unhealthy foods include:

Foods high in fats & sodium: burgers, pizza's, potato chips, French fries, namkeens, bhajjias

Foods high in sugars: candy, soft drinks

Foods high in saturated fats: cake and chocolates



Healthy Foods

Healthy foods help in maintaining good health, support growth and body building. They provide us with essential nutrients and energy to carry out our day to day activities.

Examples of healthy foods include:-

Protein rich foods like Milk shakes, lassi, smoothies, omlette, fish fillet, Besan chillas

Sprouts and salads, fruits and fruit juices are rich in vitamins and minerals

Energy rich foods such as stuffed paratha etc.



So Dr. Sara does that mean we should not eat these foods at all?



Friends you can have these foods occasionally. Remember! Eating them occasionally in moderation is a part of healthy eating. They cannot replace a balanced meal. Frequent consumption of unhealthy food because of our changing life-style can result in NCD's.

PREVENTING NCD'S

Lifestyle related diseases are also known as Non-Communicable Diseases (NCDs). They are not contagious or communicable, but we could get them if we lead an unhealthy lifestyle.

They are the main cause of concern and often have their roots in our early childhood, although some symptoms may not surface till early adulthood. They are called lifestyle or life course diseases because they are commonly seen now a days due to a change in our lifestyle. They have an early onset and lifelong consequences. NCD's can be effectively prevented at no or minimal cost, but prevention needs to be started early in life.

Important NCD's range from Diabetes or high blood sugar, hypertension or high blood pressure, heart attacks, excess body weight or obesity and the ones that particularly affect children more are:

- Dental caries or tooth decay
- Injuries
 - Mental diseases
 - Depression
 - Hormonal imbalances



Prevent NCD's by controlling the key risk factors:

- Unhealthy diet
- Physical inactivity
- Use of tobacco
- Use of alcohol
- Inadequate medical facilities/ treatment
- Lack of oral hygiene

School facilitators should focus on importance of personal hygiene, physical activity and healthy eating. Harmful consequences of tobacco and alcohol consumption, and carelessness regarding injury and health should be high-lighted. "Build a strong and healthy foundation. Keep Non Communicable Diseases (NCDs) away."



I PLAN MY MEALS

**NEED FOR
BALANCED DIET**

**HEALTHY
LUNCH BOX**

**THE HEALTHY
EATING PLATE
FOR TEENAGERS**

TEAM SEHAT KA

**F O D
FUNDA**



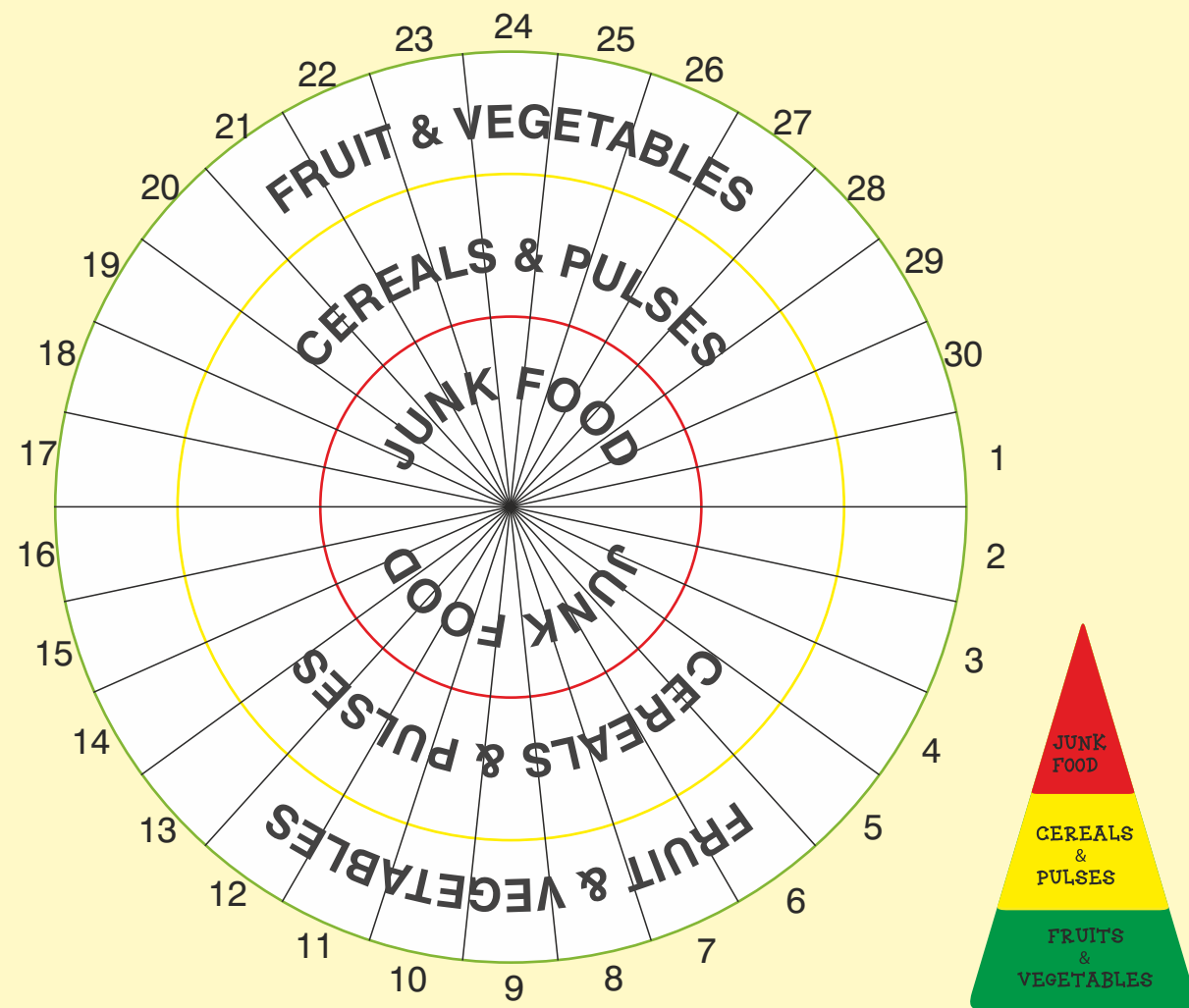
MODULE

7

MY JUNK FOOD TRACKER

Name _____

Class _____ Section _____



INSTRUCTIONS

Each numbered band indicates one day of monthly calendar. Match and Tick the colour of the food group consumed in the day on the tracker. Ensure the consumption of junk food goes down daily.

JUNK FOOD EXPLAINED

Any food item that has high fat content, contains saturated fats, has high sugar- salt content, low on nutrients, contains msg/flavour enhancers. They contain preservatives and chemicals.

MY HYGIENE TRACKER

Name _____

Class _____ Section _____

I AM HYGIENE SUPERSTAR

<p>BRUSH TEETH</p> <ul style="list-style-type: none"> - Morning - After Big Meal - At Bedtime 	<p>BATHE</p> <ul style="list-style-type: none"> - Morning - After Play - Before Bedtime 	<p>CHANGE CLOTHES</p> <ul style="list-style-type: none"> - After Bath - After School - Before Play - Before Bedtime 	<p>WASH HANDS</p> <ul style="list-style-type: none"> - Before Brushing - Before any Meal - After any Meal - After Play - After visiting the washroom - Before Bedtime
---	---	--	--

Activities	1	2	3	4	5	6	7
BRUSH TEETH							
BATHE							
CHANGE CLOTHES							
WASH HANDS							

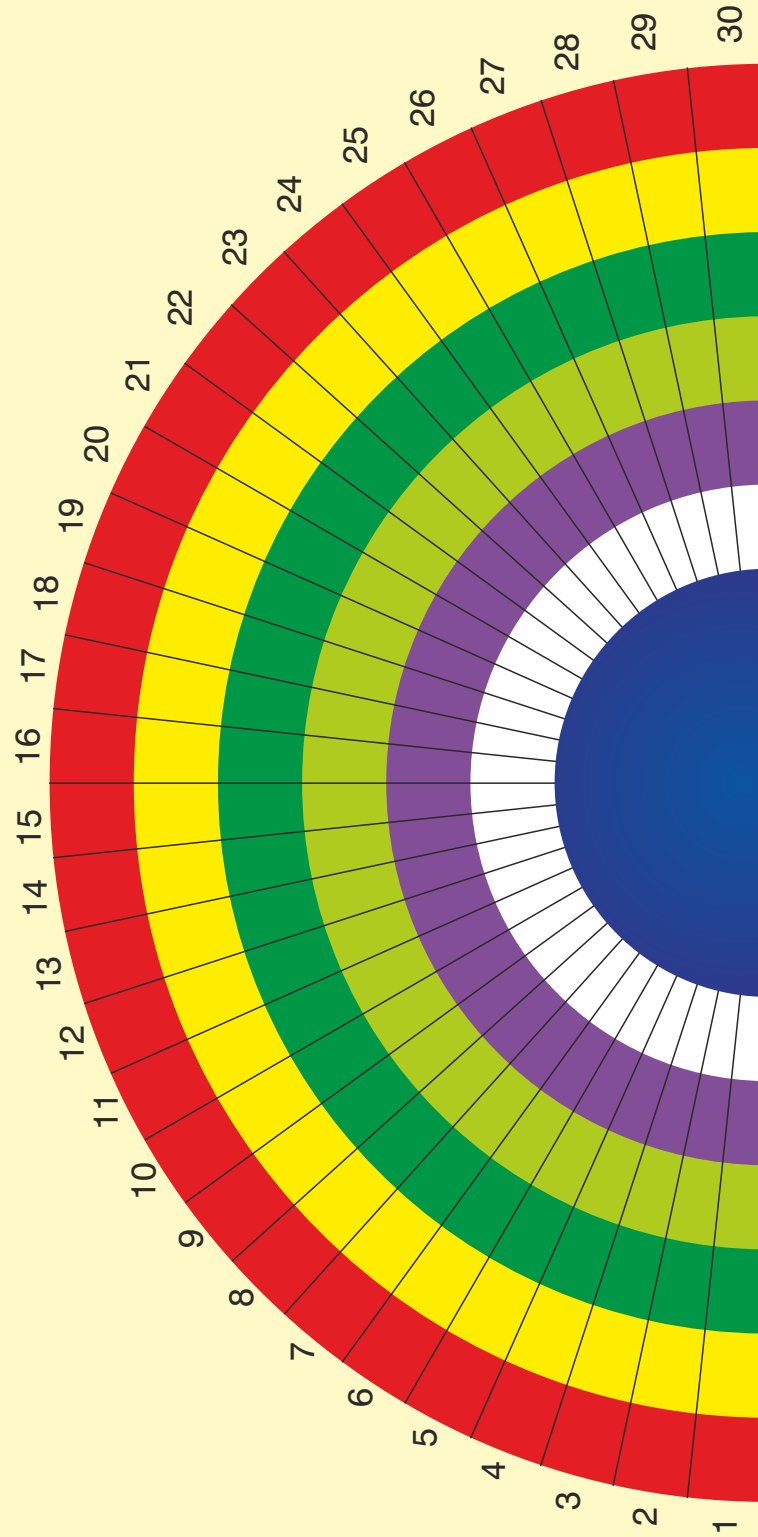
INSTRUCTIONS

1. Work on your tracker by slaying the germs with your pencil.
2. Kill one germ each time you perform the personal hygiene activity.

MY FRUIT TRACKER

Name _____

Class _____ Section _____



FRUIT COLOUR KEY

Red : Apple with skin, Pomegranate, Cherries, Strawberries, Water Melon
 Orange : Papaya, Orange
 Yellow : Pineapples, Golden Apple, Mango, Indian Ras-bhari
 Green : Pears, Green Apple Kiwi
 Purple : Jamun, Black Grapes
 White : Banana, Litchi, Mangosteen, Dragon Fruit

INSTRUCTIONS

Each numbered band indicates one day of monthly calendar. Match and Tick the colour of the fruit consumed in the day on the tracker. Ensure the consumption of different coloured fruits goes up daily.

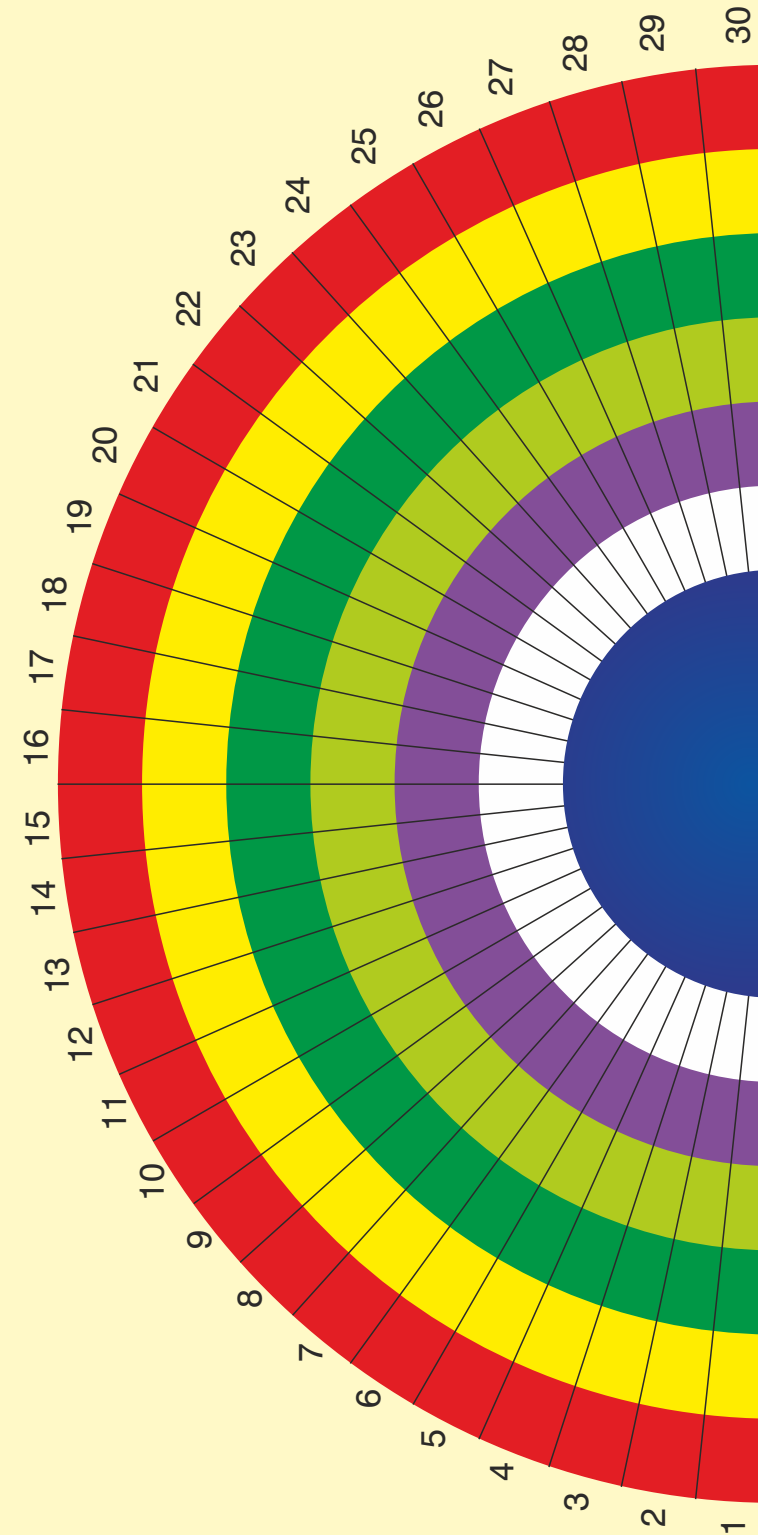


SOURCE: TOOLS AND TRACKERS -ARNEY'S FITKIDS-PROMOTING HEALTHY CHILD DEVELOPMENT

MY VEGGIE TRACKER

Name _____

Class _____ Section _____



VEGETABLE COLOUR KEY

Red : Tomatoes, Carrot, Beet, Red Peppers
 Yellow : Bell Pepper, Yellow Squash, Sweet Corn, Yellow Tomato, Pumpkin, Sweet Potato
 Dark Green : Spinach, Methi, Broccoli, Green Beans, Capsicum, Spring Onions, Zucchini, Karela, Torai, Okra, Green Pumpkin, Parwal
 Light Green : Cabbage, Cucumber, Peas, Lauki, Tinda, Lettuce, Celery
 Purple : Purple Cabbage, Brinjal, Black Olives
 White : Potato, Mushroom, Arbi, Turnip, Lotus Stem, Cauliflower, Raddish, Onions

INSTRUCTIONS

Each numbered band indicates one day of monthly calendar. Match and Tick the colour of the vegetable consumed in the day on the tracker. Ensure the consumption of different coloured vegetable goes up daily.



SOURCE: TOOLS AND TRACKERS -ARNEY'S FITKIDS-PROMOTING HEALTHY CHILD DEVELOPMENT

CERTIFICATE OF ACHIEVEMENT

15th Oct. is celebrated as Global Hand Washing Day

Certificate of Achievement

THIS IS TO CERTIFY THAT _____ IS THE

“HAND WASHING CHAMP”

DATE _____

SIGNATURE _____

FEEDBACK FORM

Name

Address

Contact Information

Gender : Male Female

Name of School

Did you find the Yellow Book useful ? Yes No

Did you find the Yellow Book easy to read? Yes No

Would you like to know more about food safety and nutrition? Yes No

What do you think should be added to the book?

What do you think should be removed from the book?



Inspiring Trust, Assuring Safe & Nutritious Food



Inspiring Trust, Assuring Safe & Nutritious Food

Food Safety Connect

