

**Project CACA**

A safety programme for our children
under the safety policy of the school

মোব সুরক্ষা কার্য পুস্তিকা

ଆସାର ସୁରକ୍ଷା କାର୍ଯ୍ୟ ପୁସ୍ତିକା

મારી સલામતી કાર્ય પુસ્તક

मेरी सुरक्षा कार्यपुस्तिका

ನನ್ನ ಸುರಕ್ಷತಾ ಕಾರ್ಯ ಪುಸ್ತಕ

مینه حفاظتی کتاب

എന്റെ സുരക്ഷാ വർക്ക്ബുക്ക്

માझી સુરક્ષિતતા કાર્યપુસ્તિકા

ମୋର ସୁରକ୍ଷା କାର୍ଯ୍ୟପୁସ୍ତିକା

मेरी सुरक्षा कार्यपुस्तिका

எனது பாதுகாப்பு பணிப்புத்தகம்

ನಾ ಭದ್ರತಾ ಕಾರ್ಯಪುಸ್ತಕ

مینه حفاظتی کتاب

My Eighth Safety Workbook

Life Skills & Moral Science
— Happy - Healthy - Safe —



A message from the school head

Dear Parents/Caregivers,

Children are the most vulnerable to exploitation and abuse. Child protection refers to any effort or initiative that prevents children from situations of violence, abuse, neglect and exploitation. As a community and an institution, we are responsible for ensuring that every child is safe and feels safe. We must all strive toward protecting them and creating a world where they can grow happily, healthily and safely. Prevention is the best cure. Let us collaborate and empower our children against abuse and exploitation.

Dear Children,

Sana and Arpit will be your companions as you journey through this safety workbook. They are childhood friends and enjoy learning skills and values. Sometimes, they come across situations when they are not sure what to do. They talk to their friends, parents, grandparents and teachers, but their favourite advisor is their tiger friend, Pokso. He always helps them and everyone else to be happy, healthy and safe. You are in this story too, because the three friends might need your help with some of their problems. Enjoy their antics and those of their friends and classmates as you make your very own journey of growing up. Be safe!

1st Edition - 2016 (Pilot); **2nd** - 2017; **3rd** - 2018; **4th** - 2019; **5th** - 2019; **6th** - 2021; **7th** - 2022; **8th** - 2023

Published by: Edusynergies for Social Axiom Foundation

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Posters and supplementary worksheets are available at the project's website www.projectcaca.org

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Share & Perform**

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Say Hello!

All for one and one for all - the three musketeers Sana, Arpit and tiger Pokso, are pretty famous in their school. They have known each other since they were little. They live in the same neighbourhood and go to the same school. Pokso is the confidant of not only Sana and Arpit but all children. He teaches them how to be safe.

When they were little, Sana and Arpit thought that they would be grown-up by the time they were ten years old. But they are older than that now, and they are still growing. They are beginning to understand that growing up stops when they are about 18 years old and become adults but learning never stops. They are in the first year of their teenage (teen+age) life.

When they were younger, they would play with each other every day, but now that they are teenagers, sometimes they prefer to be alone or be with other friends. Arpit and Sana are learning that as we grow, it is not only our body but also our mind, **emotions**, behaviour, likes and dislikes that grow and change too. For example, Arpit does not like when he is alone in his room, deep in his thoughts, and someone enters without knocking on the door, thus interrupting his thoughts. Sana does not like when her mother reads her messages to her friends on her smartphone.

These new changes make them feel all sorts of emotions - happiness, anger, embarrassment and confusion. But they can always talk to their loved and trusted ones like parents, grandparents and teachers about how they feel and take their help. They



know that their loved and trusted ones do their best to keep them happy, healthy and safe. They, too, do their best to make their loved and trusted ones feel proud of them.

Arpit was worried because all his classmates suddenly started shooting up and getting taller, and he remained the shortest in the class. Neither exercise nor eating helped. His science teacher, Lalitha ma'am, helped him understand his situation better when she explained the science behind growing up in the class. She explained that all the physical, mental and behavioural changes they are going through are part of *adolescence/puberty*.

She told them that the physical changes like height, chest and hair growth, pimples, body odour, heaviness and depth in voice, and a lot of other things happening to them are normal. Since each person's body is unique, the extent and pace at which these occur vary from person to person. The body grows at its own pace. So there is no need to worry if your friend has started growing taller, and you are still short, or if your friend's skin has already started breaking out, and that is not the case for the rest of the boys in the class. Just as we need to practise and learn how to ride a

A person below the age of 18 years is a child, sometimes also called a minor or a juvenile, and a person in the age group 13 to 19 years is a teenager.

bicycle, we need to practise and learn to be adults. Adolescence is like a time of practice. Sana and Arpit know now that there are many different kinds of friendships people have with each other. It is good to learn and understand how these friendships work. When we understand things, we feel comfortable. They also learn that many things change, but some are always the same. An important thing that stays the same is that we must always be safe. Liking ourselves, feeling good about ourselves, and communicating effectively help us be safe. Sana and Arpit are also learning how rules, laws, and responsibilities help them and everyone to be safe.

Growing up is a natural process. *Puberty* and *adolescence* are part and parcel of it. During puberty, a child's *sexual and physical* characteristics grow/ mature so that they become capable of *reproduction*. Puberty starts with the production of a new *hormone* in the brain called *gonadotropin* (GnRH for short), which further leads to other hormone changes/formation. Adolescence is a period in a person's life that occurs between the ages of about 11 to 19 years. During adolescence, a person attains puberty. An *adolescent* experiences *pubertal* (bodily) changes like physical growth/ change and emotional, psychological, social, and mental growth/ change. In girls, adolescence/ puberty may begin a year or two earlier than in boys. Also, the rate of change/ growth varies from person to person.

Like other teenagers, Sana and Arpit often find it challenging to choose. After all, choosing is not always easy, even for grown-ups. But life cannot progress without choosing. So we all have to choose, sometimes for ourselves and others.



Sometimes they have an uncontrolled outburst of anger and frustration called a *tantrum*. At times, they get angry for no reason. They often get confused about matters that may seem trivial to grown-ups, like when they go with their loved ones to buy new clothes but can't decide what suits them best. Sometimes they don't understand what is right for them to do, like when a cute stranger sends them a friend request on social media. That is why their loved and trusted ones have made safety rules for choosing so they can be safe. Here are these rules for everyone to follow and be safe.

Whenever you need to make a decision, you should ask yourself these seven questions:

1. Am I obeying the rules made by my parents and teachers to keep me safe?
2. Does it make me uncomfortable?
3. Can I get hurt?
4. Can someone else get hurt?
5. If I do this, what good result can I get?
6. If I don't do this, what good result can I get?
7. Will my family, friends, and I be proud (of me) for doing this?

When Sana and Arpit were in kindergarten, she dreamt of being a firefighter and he a cook. By the time they reached class 2, she had dreamt of being a rail engine (yes, you

read it correctly, a rail engine) and he, a veterinarian, a doctor of animals. In class 5, she decided to be a footballer and he a dancer. Since then, they have been planning and working hard with the support of their loved ones to achieve their goals. They also keep exploring various professional fields related to their goals, like being a sports journalist, sports psychologist, a coach, a dance teacher, a fashion designer, a writer and a music software developer.



A. Can you trace your journey of what all you dreamt of becoming as you grew up? Do you have a goal? If yes, what is it, and what are the professional fields related to it?

B. Would you like to share with your friends the three musketeers, one change you have experienced and whether you like it or not?

C. What will you choose if your grownup cousin tells you that she/he can teach you how to drive a two/four wheeler automobile? What are the reasons for your decision?

D. Unscramble the letters to spell the words correctly.

1. NONTDOAROPIG

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2. UNRD TREPOCIO

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3. TMOOIENS

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4. OEMANRH

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5. TEBYPUR

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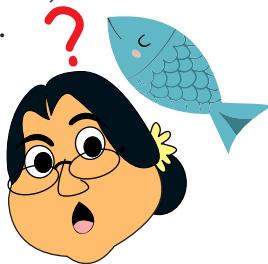


Friends and Special Friends



It was the first day after the winter vacation, but the freezing winds were yet to leave. Eklavya stood on his desk and mimicked a famous movie star. The whole class started laughing and clapping. When the 8 o'clock bell rang, Eklavya quickly sat on his seat and opened his notebook. Shobha ma'am could hear loud noises from 8-C from the corridor. "Go-oo-dd m-o-orn-i-ing, ma'am," went the musical chorus in unison. "Good morning. Is this a classroom or fish market?" asked Shobha ma'am. There was pin-drop silence. Today, madam had carefully planned a new seating arrangement to encourage inclusive interaction among the students. The children were thrilled to find out who their next seating partner would be since it gave them the opportunity to make new friends. Sana wanted to sit with Anshul because he knew a lot about Lionel Messi – her favourite football player.

In contrast, Arpit wanted to sit with Jyoti so that they could discuss the play for their next Kuchipudi recital. But what happened was



quite the contrary. Sana was assigned the place next to Jyoti, and Arpit ended up with Anshul instead. Nancy found herself sitting next to Abhinav, the topper in English who excelled in reciting poems. They were looking forward to sharing a lot of exciting stories. Nancy herself was well-versed at rapping. She knew a lot of tongue twisters and was fun to be with. Abhinav was amazed at how fast Nancy could recite his favourite poem, 'Macavity: The Mystery Cat', and they started talking about other interests.

The next day Abhinav said to her, "Your bag pack has stickers of the Magnificent *Mary - Mangte Chungneijang Mary Kom*, the great Indian Olympic medalist." Nancy gleefully said, "I have a collection of all the final matches of the *Meetholeima*. I have watched them a thousand times." Just then, Shobha ma'am entered and interrupted their giggles. "Renu ma'am, the counsellor, will conduct an activity next week for which you are required to bring pictures of persons you admire, paste them on the class board and prepare a paragraph of 100 words about them," said Shobha ma'am. Hereafter began the hustle and bustle of words in murmurs, "Wow!" exclaimed Pokso. "I will bring the picture of Mary Kom. I am a huge fan of her boxing," said Nancy avidly. "I will get a copy of one of my best posters of Messi. What about you, Arpit?" asked Sana. "I'm confused between Birju Maharaj and Michael Jackson," he replied. "I will bring the picture of *Praggnanandhaa*, 16-year-old chess grandmaster from



Make friends on the basis of their qualities and behaviour.

Chennai, who scripted history by beating world number 1 and 5-time world champion Magnus Carlsen,” said Kajal.

The week passed by in the blink of an eye. Nancy was the first one to do her homework. She had brought a picture of Mary Kom. Sana was next, “I am a great fan of Lionel Messi. He is an excellent footballer from Argentina. He is known for his *sportspersonship* because he creates goal opportunities for his team players. He was UNICEF’s Goodwill Ambassador. I also like the advertisements (*ads*) he does for various things. **I often buy the things like cola and shoes that he advertises.**”

But everyone was shocked when Abhinav showed them the picture he had drawn and brought. He had drawn a picture of Nancy. He said enthusiastically, “Nancy is my special friend and knows a great deal about rap music and boxing. She is fun to be with as we have debates about who is a better boxer.” Nancy was astonished. She did not know how to react. Everyone was looking at her and giggling. She was embarrassed.

After everyone was done, they settled down to listen to what Renu ma’am had to say. “We are all aware that we cannot be humans without emotions. Love is an essential emotion for all of us. Our emotions change according to the hormones released in our bodies. In adolescence, our bodies go through a transformation; we never grow as rapidly as we do in adolescence, and our emotions are on a roller coaster ride, but we need a safety belt. Emotions can be harmful if expressed without thinking. We might not have control over emotions because they are natural, but we do have control over our actions. That is what makes us different from other animals.

Human beings value the virtue of thinking which is why we respect various philosophers

like Socrates and Swami Vivekananda. They were great thinkers, and their ideas influence the world even today. So we must think carefully before acting according to our emotions because even though emotions don’t have consequences, actions do. Actions have long-term and short-term consequences. They can be good or bad and legal or illegal. We as individuals have the power, just like the thinkers, to influence our life and that of others through our actions, and as they say in the movie *Spiderman*, “With great power comes great responsibility.”

Another thing I wanted to talk about was relationships. There are two types of relationships – natural and the ones we choose. We have a natural relationship with our parents, grandparents and siblings, but when it comes to friends, we choose them, and they choose us. However, there is a difference between friendship and special friendship. You may like someone more than you like your other friends. You may want to be special friends with them. It is called *infatuation* when we have an intense but short-lived passion or admiration for someone or something. In books and movies, boys and girls or men and women fall in love abruptly. But real life is quite different. Love is very different from what we feel for our special friends, as it takes a long time to love someone after knowing them deeply and extensively for a long time.”

“But ma’am, I love Michael Phelps, the swimming champ and the most decorated Olympian in history. He is my all-time favourite sportsperson and my hero,” exclaimed Murali.

“That’s okay, Murali, but do you think he loves you back?” The kids were baffled by this



No relationship can exist without responsibilities. We cannot control our feelings.

After all, we are human. But we can always control our actions.

question. Ma'am continued, "There is a difference between loving a celebrity enough to be a fan and loving a real person we know. When a celebrity does not like us back, we do not feel as bad as we do when a special friend does not like us back. Sometimes the feeling of rejection overwhelms us and makes us question our 'self' as to why the person didn't like us the same way. You must remember that

A Relationship

- ✓ is a two-sided thing.
- ✓ is an act of responsibility.
- ✓ has to be safe for its members.
- ✓ is based on emotions and must be balanced with equality, safety and respect.
- ✓ has to be well thought about in its long-term and short-term consequences.
- ✓ that is based on secrecy will ultimately result in guilt and shame.

To enter a relationship, one has to prepare oneself for responsibilities first. A safe relationship is based on safe behaviour, including respect for personal boundaries and body safety rules. Remember, to ask for forgiveness and to forgive is a key to happiness and all successful relationships."

"Some people care too much... I think it's called love." Winnie the pooh - a bear is a world ambassador for friendship at United Nations.



There was a wave of seriousness in the cold room. The bell rang, but the students were engrossed in thought. Abhinav apologized to Nancy for putting her in a position of embarrassment and admitted that he should have asked her first before drawing her picture and showing it to the class. Nancy forgave him, and both laughed at how bad Abhinav's sketch was.

Advertisements (ads): The influence of advertisements (*ads*) that show celebrities promoting a particular product cannot be denied, especially on children and youngsters. The fans are often misled by stars and buy things that are not good for them. For example, many stars promote junk food such as beverages, chocolates and chips that, as you very well know, are not good for health. Remember, you may like a celebrity for their skills like sports, acting, singing, dancing and more but you hardly know their behaviour and values. Moreover, they earn from ads.

Misleading and false ads are not just unethical; they distort competition and consumer choice. False and misleading ads violate the basic rights of consumers like the right to information, the right to choose, the right to be protected against unsafe goods and services, and unfair trade practices. Here are a few examples of misleading *ads*.

- ✗ A toothpaste *ad* says it prevents cavities at all costs.
- ✗ **A fairness cream *ad* claims it can make you fair.**
- ✗ A pill *ad* claims it can make you thin, muscular or taller.
- ✗ A water purifier only filters bacteria (and not viruses), but its *ad* claims to be 100 per cent safe water.
- ✗ An edible oil *ad* gives the impression that you are free of heart problems as long as you use that oil.
- ✗ A cell phone service provider promises calls for free but omits that this rate is applicable only when calls are made to numbers serviced by the same provider.
- ✗ A hair oil *ad* claims it can grow hair on a bald head or nourish hair for growth.
- ✗ An infant milk/food *ad* says it is as good or better than a mother's milk.



Fair is beautiful, oh really?

India has people with all possible skin colours, but *ironically*, it is also the world's largest market for fairness creams. Most people are unaware that they have been misled through stories, literature, songs, films, *ads* and more for ages about 'fair being beautiful'. One of the main reasons for the same is that for the last 400 years, European white people have dominated the world. They and others have knowingly and unknowingly associated fairness with beauty.

Here are a few points to ponder:

Literature glorifies white. White is pure and beautiful. Dove is considered a symbol of truth and peace. "*Mirror mirror on the wall, who is the fairest of them all*". All early superheroes and heroines like Superman, Wonder Woman, and more are white. Ironically, heroes like Tarzan and Phantom, despite living in the dense forests of Africa, are white. To make matters worse, they all got married to white women.



A dark star shines in the hearts of the whites.

Mithun Chakraborty, an Indian film star from West Bengal, came to become popular in the Soviet Union (Russia) for his role in the movie Disco Dancer. The movie became a huge success, drawing over 50 million viewers. The movie still keeps inspiring viewers from generation to generation.



A. Can you name any Indian superheroes/heroines or cartoon characters with dark skin?

B. Are you a fan of any celebrity? If yes, write their name, field and why you like them.

C. Does the celebrity advertise for anything? If yes, what is it? Is it a misleading/false ad? If it is a food product, is it healthy?

D. Which of the two horses is more beautiful? Tick mark.



In which state of India was Mary Kom born?



7-Step Safety Rule

Arpit, Sana and Pokso are proud and disciplined cadets of the *National Cadet Corps* (NCC). In one of their training camps organised by NCC, their instructor taught the cadets about various military officers' ranks and the 7-step safety rule that every child must train for.

Step 1: Make and follow safety plans. **Step 2:** Be aware of your surroundings and your body language. **Step 3:** Be aware of your feelings. **Step 4:** Say "NO!" **Step 5:** Get Away. **Step 6:** Tell a trusted grown-up. **Step 7:** Keep telling until someone believes you.

Step 1: Make and follow safety plans. Growing up means finding yourself in many different situations for which you need to make new safety plans. Discuss with your parents, grandparents and teachers some possible situations, and ask them what you should do when these things happen. For example, what to do if a senior from your school, whom you don't know, sends you a friend request on a social networking site?

Step 2: Be aware of your surroundings and your body language. You must be going to many places by yourself, such as your school bus stop, your tuition or hobby class, your friend's house and the neighbourhood market. We should always be alert and notice our surroundings. Are the roads busier than usual? It can signify some trouble on the road ahead, and we should consider whether we should keep going, turn back, or ask for help. You also need to be aware of your body language. If your body language is confident, there is less chance that anyone will bother you with unsafe looks or touches.

Step 3: Listen to your feelings. Sometimes, being with some people or being in some places may make you feel uncomfortable,

sad, confused, embarrassed, angry, helpless or tense. Try to get away whenever any person, place, or thing gives you these uncomfortable feelings. For example, if you feel that someone is following you on the road, it is a good idea to go into a shop as if you have to buy something. You can stay there for a little while, pretending to talk to the shopkeeper or look at the items for sale. Meanwhile, try to notice whether the person following you has gone away or is still waiting for you to come out of the shop. It may seem like you are overreacting, but our feelings have evolved over millions of years. The feeling of not being safe made your ancestors climb a tree before they saw a lion. The same feeling will also keep you safe when you meet people.

Step 4: Say "NO!" to the person doing the unsafe thing. If anyone says or does something unsafe to us, we should immediately say "no" to it. Be assertive. Say "NO!" to anyone who crosses your physical or personal boundaries. If the person still does not stop the unsafe touch or look, it is okay to shout "NO!"

Step 5: Get Away - After you have said "NO!" you must immediately try to get away to a place of safety and get help. Do not stay to listen or talk to the person doing the unsafe thing. They may try to stop you or trick you from going by giving you an explanation of why they did what they did, or by apologising for what they did, or they may even threaten you. No matter what, get away! Run if you have to.

Step 6: Tell a trusted grown-up If someone is trying to abuse you, it is crucial to tell a trusted adult about it. Remember:



a. Tell as soon as you can. The sooner you tell, the sooner you will be safe. Even if you are not able to tell, immediately, tell as soon as you can.

b. Tell even if you are afraid. It is natural and normal to be afraid of the abuser. But telling will help you to be safe and feel happy again. Tell a grown-up you love and trust whenever you are ready to talk about it, even if the abuse happened long ago.

Step 7: Keep telling till someone believes you. It may happen that the person you are telling may not believe you at first. This does not mean that they do not love and trust you. Sometimes, it just happens that way. You should still keep telling them about what happened. For example, your parents may have brought your favourite sweets to serve to the guests for dinner. When they check before dinner, they may find that the sweets are almost finished, and they may ask you why you ate them. You may say that you did not eat them, but they may not believe you. Later, your younger brother may say that he ate all the sweets, and then your parents believe you. In the same way, when you tell a trusted grown-up that someone is giving you unsafe looks and touches, the grown-up may not believe you at first. Maybe they are shocked, hurt, surprised, angry, sad or many other things when they hear what you say. They may take some time to get over their emotional reaction. That is why you should keep telling them till they believe you. If the person still doesn't believe you, tell someone else. Keep telling till someone listens to you and believes you. You can also complain on the Internet by going to the POCSO E-box by NCPCR.

It is not your fault. Sometimes, the abuser will try to tell you that the abuse happened because of you. They will try to tell you it is your fault and blame you. You should not believe them because this is totally wrong. You do not have to be ashamed of it. It is the

abuser who did the wrong thing. Sometimes they will tell you to keep it a secret and may give you gifts, but you do not have to keep it a secret because it is an unsafe secret. Sometimes, they may say that if you tell, bad things will happen to you and your loved ones. They are lying. You must tell. Remember, any abuse that happens is not your fault.

Lying is a bad habit, but it is okay to make up stories and even lie to escape unsafe situations. Just like it is not safe to talk to strangers, in case of an emergency, we can take their help.

National Cadet Corps (NCC) is a voluntary organisation formed in 1948 to develop youth character and motivate them to take up a career in the Armed Forces. To join NCC, visit <https://indiancc.nic.in/>



Here are the officers' ranks in the Indian Military (not in hierarchical order).

Army: 1. Lieutenant Colonel 2. General 3. Captain 4. Major General 5. Field Marshal 6. Colonel 7. Brigadier 8. Major 9. Lieutenant 10. Lieutenant General

Navy: 1. Rear Admiral 2. Commander 3. Lieutenant 4. Admiral of the Fleet 5. Commodore 6. Captain 7. Admiral 8. Lieutenant Commander 9. Vice Admiral 10. Sub Lieutenant

Air Force: 1. Air Marshal 2. Air Commodore 3. Marshal of Air Force 4. Air Vice-Marshal 5. Air Chief Marshal 6. Squadron Leader 7. Wing Commander 8. Flying Officer 9. Group Captain 10. Flight Lieutenant

Arrange the military ranks given above in descending order on the next page. A few have been done for you.



Army

- a.
- b.
- c.
- d.
- e.
- f.
- g.
- h.
- i.
- j.

Navy

- a.
- b.
- c.
- d.
- e.
- f.
- g.
- h.
- i.
- j.

Air Force

- a.
- b.
- c.
- d.
- e.
- f.
- g.
- h.
- i.
- j.

Answer keys on page 46

You can also tell/report abuse to the

Child Helpline **1098** or

NCPCR - **9868235077, 1800115455.**

You can also report to the **POCSO E-Box** by NCPCR.

क्या आपको कोई परेशान कर रहा है, बताएं, कौन और कैसे ?
Tell us how you are being harassed ?

चित्र चुनें / Select Picture (S)

खेल मैदान / दुकान / सड़क
Playground / Shop / Road

स्कूल / ट्यूशन
School / Tuition

खलकमेल
Blackmail

स्कूल बस / वैन इत्यादि
In School Bus/ Van/ etc

परिवार सदस्य / रिश्तेदार / अन्य
Family Member/ Relative/ Others

इंटरनेट / फोन
Internet/ Phone

2. नाम / Enter your name

3. मोबाइल / Phone number

* अथवा / और OR / AND

4. ई-मेल / Your email

यदि आप के पास मोबाइल नं. अथवा ई मेल आईडी नहीं है तो आप इन्हीं एक नंबर पर संपर्क कर सकते हैं :-
9868235077, 1098 (Childline)

घटना का संक्षिप्त विवरण दर्ज करें / Enter brief description of incident

95t9c

Please Enter The Security Code shown in the Text Box Provided.
[Case Sensitive] *

6 नीचे बटन दबाएं / Click on Submit

POCSO E-Box

SUBMIT

POCSO E-Box हम आपके साथ है, हम NCPCR

Online complaint against child labour:

A law protects children from child labour. It is called Child Labour (Prohibition and Regulation) Amendment Act. Like the POCSO E-Box, one can register an online complaint against child labour at <https://pencil.gov.in/>.

National Cyber Crime Reporting Portal is an initiative of the Government of India to facilitate victims/complainants to report cybercrime online.

<https://cybercrime.gov.in/> The focus is on cybercrimes against women and children.

Emergency phone numbers for the police are 100, fire 101, ambulance 102 and National Disaster Response Force (NDRF) 9711077372. National centre emergency number 112 was launched in February 2019 for immediate assistance services from the police, fire and health.

NIMHANS has a toll-Free Helpline - 080-46110007 for psychosocial support and mental health services during disasters.



We miss a lot of what goes on around us, and we have no idea we are missing so much. *Invisible Gorilla* is a psychological experiment about how our mind works.

Suggested viewing:
Invisible gorilla
<http://www.theinvisiblegorilla.com/>



Change Begins With Me



Sana got up late and was in a hurry. Her school bus would arrive any minute. She brushed, bathed, got dressed and polished her shoes hopping like a rabbit from one room to another. "Sana, come down fast and eat your breakfast," shouted Sana's papa. Her mother had already left for her office. "In a minute, papa!" answered Sana. She slid down the bannister while adjusting her school tie. "How many times have I told you not to do that? You may get hurt," said papa, "now finish your meal". Sana gobbled the bread and butter and then ran out, holding a banana.

Her school bus had arrived. The wise old grandma was feeding the sparrows the leftover grains in the garden. Sana ate half a banana and threw the rest in the garbage bin. "Sana, this is so wrong," said grandma. "Oh grandma, one little piece doesn't make any difference," shouted Sana and boarded her school bus.

The last-period bell rang. "Today, we will learn about United Nations' Sustainable Development Goals," said Vamika madam. "But first, I have a question for all of you. How many of you are making our planet a better place to live?" asked madam. The students were puzzled. "But ma'am, how can I do that? The planet Earth is s-o-o-o big," said Gurpreet. The students giggled. "Of course you can, Gurpreet. I think you are doing that already. Let us find out," said Vamika madam.

"The 17 Sustainable Development Goals,

SDGs, are the goals agreed upon by all world leaders to build a greener, fairer, better world by 2030. We all have a role in achieving them. Let us read them together," said the madam.

A. Along with your classmates, read aloud the United Nations' 17 Sustainable Development Goals to be achieved by 2030, given on the next page.



Madam continued, "To give an example, let us consider *SDG 2- Zero Hunger and SDG 12- Responsible consumption and production*. Do you know that out of the roughly one-third of the food produced worldwide for human consumption every year, approximately 1.3 billion tonnes get lost or wasted? That's about the weight of 216,666,666 African Elephants!" The whole class let out a collective gasp.

"I have another question for you. Which is your favourite food?" asked madam. "I love eating burgers," said Nancy. "I like eating kidney beans and rice," said Gurpreet. "My father makes the best vegetable manchurian," said Fatima. "These are all so mouth-watering. Aren't they? But do you know that 25,000 people, including more than 10,000 children, die daily from hunger and related causes around the world?" said the madam.

"Herein comes our role as responsible citizens. We must ensure that we don't waste food in our daily life. We must take only that much on our plate that we can finish. We have many options today, which our ancestors didn't have thousands of years ago, but that doesn't mean we become careless. Instead, we must have gratitude and do our bit in eating responsibly," continued madam. Sana thought of the leftover banana she had thrown away in the morning. She felt guilty.

Think of responsibility as
a blessing, not a burden.


the leaking taps in the girls' toilet, taking care of the maintenance of the school building, and planting trees in honour of his sister's birthday. He is contributing toward at least one goal," said the principal. The children became very excited.

children became very excited and counting the SDG goals they fulfilled

Coming home on the school bus, Sana
ed something on paper. After having

*"Once there was a girl, Sana was her name,
She used to waste food, oh what a shame!
Today, she learnt a lesson in her school,
She will not waste food. She has made a rule."*

She took a bow. "Bravo!" said grandma while clapping. Sana ran and gave her a tight hug. "That's my lovely child," said grandma proudly.



“ ”



Eventually, we all have to accept total responsibility for our actions, for everything we have done and not done.

Armageddon



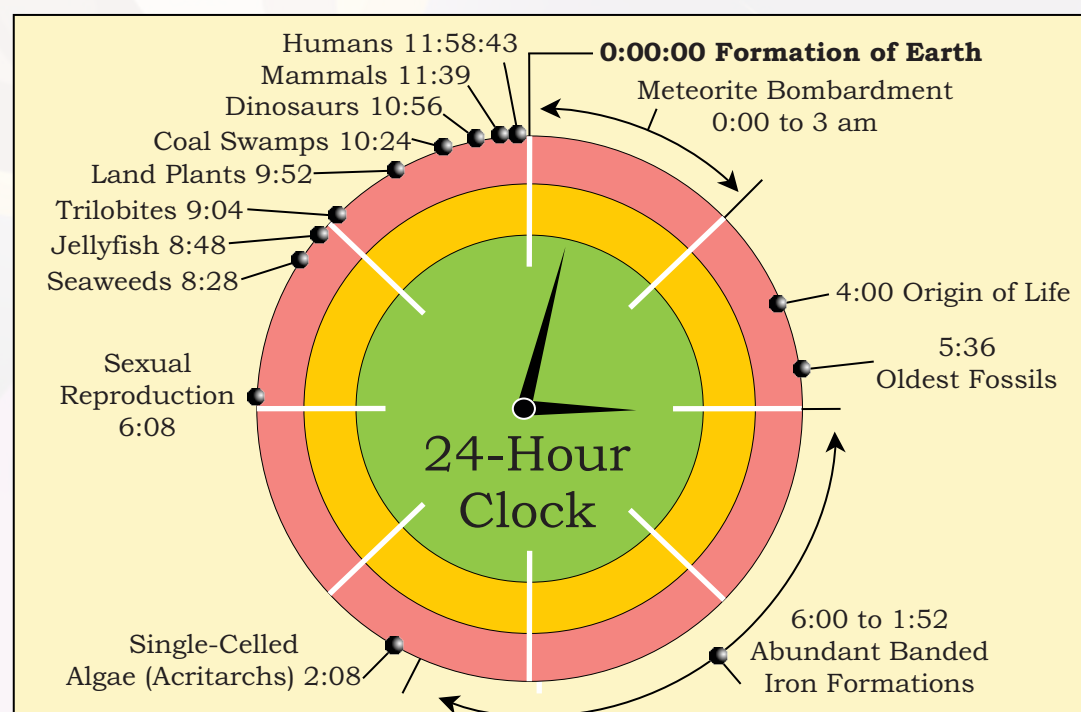
After having fun at the magic mirrors section of the Science Centre, the three musketeers, along with their classmates, entered a dome-shaped theatre. The students excitedly looked at the ceiling. They felt as if they were sitting inside a globe! Soon it displayed a video of our galaxy, and a deep baritone voice started speaking. It said:

Africa, the human cradle! The universe is not something but everything. It began about 14 billion years ago with the **big bang**. Since then, it has been expanding and evolving. The Sun is the nearest star to earth. It was formed about 5 billion years ago by the gas and dust of stars that had died earlier. The solar system formation was quite violent as collisions among the solar system bodies were quite frequent. Many comets that were rich sources of water and hydrocarbons collided with the earth. The collisions made the earth suitable for life. Life in its simplest form originated about 4 billion years ago in the cold and dark depths of the oceans near the hydrothermal vents. Slowly and steadily, life evolved into more complex forms and crept onto the land. The first humans, homo sapiens, emerged in **Africa** about 200,000 years ago. Some 65,000 years ago, they began to move (migrate) out of Africa and in the

coming thousands of years, they gradually inhabited the entire globe. All humans are one species. There is no such thing as a *race* in modern science (biology).

Distant cousins! **Charles Darwin** put forward the theory of evolution in 1859. Its principle was that new species come from pre-existing species and all species share a common ancestor. Evolution depends on a process called *natural selection*. Organisms evolve as a result of many slight changes that occur with time. So we can say that Chimpanzees and bonobos are distant cousins of humans because humans share a common ancestor with them, who lived in the jungles of Africa more than 7 million years ago.

If we were to put the history of evolution from its formation to the present day in a 24-hour format, it would be something like this. Life originated at 4:00 AM on this clock, but human existence is only a little more than one minute old. Thus, the human story is relatively new in life or evolution.





Harbingers of doom! Many species in the past have become extinct under natural selection. Some were wiped off suddenly by the catastrophes that shook the earth. About 65 million years ago, a speeding **comet** or asteroid (the size of Mount Everest) slammed into the earth, wiping out the dinosaurs. Once dinosaurs on the top of the food chain were out of the picture, rats (rodents), like small creatures who are the ancestors of all mammals, got a chance to flourish and evolve. Quite recently, in 1908, a column of bluish light nearly as bright as the Sun was seen moving across the sky in Tunguska, Siberia. About ten minutes later, a massive explosion happened.

The energy of the explosion was 1,000 times greater than that of the atomic bomb that was dropped on the Japanese city of **Hiroshima** during the Second World War. It is estimated that the Tunguska explosion knocked down some 80 million trees over an area of more than 2,000 square km. The shock wave from the blast would have measured 5.0 on the Richter scale. An explosion of this magnitude can destroy a large city like Mumbai or Delhi, but no fatalities occurred due to Tunguska's remoteness. A comet or an asteroid travelling at high speed is believed to have burst into the air rather than hitting the earth's surface. It is for sure that a harbinger of doom from space will hit the earth, but we do not know

when. Today, we have many powerful telescopes that continuously scan the universe. We can predict such a collision and send space missions to destroy or divert the comet or asteroid. To know more, visit <https://cneos.jpl.nasa.gov/>

Star wars: Nuclear **weapons** are the most inhumane weapons ever created. They have disastrous humanitarian and environmental consequences that span decades and cross generations. It is time to end them before they end us. That is why in 1952, the United Nations (UN) General Assembly created the *United Nations Disarmament Commission (UNDC)*. Its work is to regulate, limit and reduce all armed forces and armaments including all elements of mass destruction. More than two dozen nations have nuclear power. Only 9 possess nuclear weapons: Russia, USA, China, India, Israel, France, North Korea, Pakistan and the United Kingdom. *Treaties* are agreements among and between nations. India maintains a 'no first use' nuclear policy.

Till eternity! Some species survived millions of years, while others survived only a few thousand years. *Horseshoe shrimp* has survived for the last 200 million years and can still be seen swimming in the oceans. The mayflies live for a day, and the bristlecone pines (trees) are known for living up to 5,000 years. Amazing! Isn't it? A hundred years ago, a human was fortunate to reach 40 years of age. However, today, on average, humans live for 70+ years. **Modern medicine** has increased our average life expectancy.

Science and technology, if used wisely, will play a vital role in the success of the human story. The world population will stop growing and start to decline by the end of this century. The future will be a much better place for

humans to live. However, there are dangers of global warming or climate change. There is a need for sustainable living. The proper use of science is not to conquer nature but to live in it.

Scientists cannot predict how long humans will survive until they evolve into some other species or become extinct forever. Are humans here to stay until eternity? Wait a minute! One danger that can abruptly interrupt the human story of survival is - a *virus*.

Small wonder: **Microbes** (microorganisms) are life forms that are very small (microscopic) and widespread. Microbes live in all kinds of earth habitats, from ice-cold climates to hot springs; and deserts to marshlands. They are the oldest and toughest life forms on the earth. Their sizes are measured in micrometres or microns. A micron is one millionth of a meter.

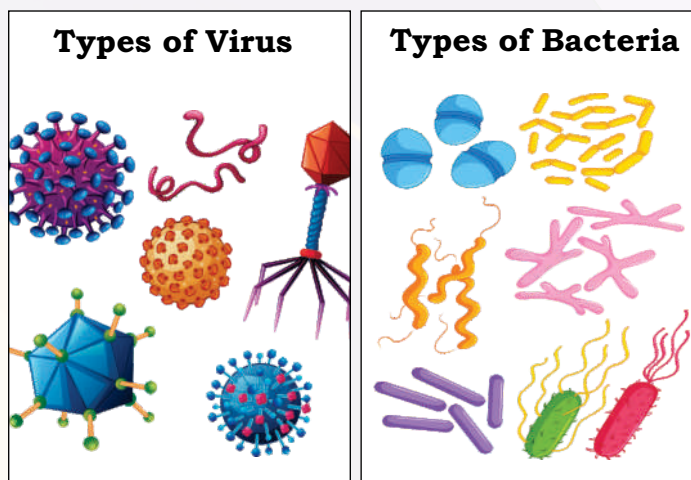
The tiny **cell** is the basic unit of all life forms (organisms). The simplest life forms may have a single cell. As life becomes more complex, it contains many types of cells (multicellular) and becomes bigger. The different types of cells perform specific functions.

For example, microbes can be unicellular (single cell), multicellular (cell colony), or acellular (lacking cells). Microbes can be classified into five types, i.e. bacterium, protozoan, fungus, algae or viruses.

Half alive, half dead: A **virus** is a borderline case of life as it does not have a cell; in other words, it is half dead - half alive! It always needs a host cell/ organ/ body to thrive and reproduce. Life forms, small or big that require a host to thrive and reproduce are called parasites. From the host's perspective, parasites can be harmful, harmless (benign) or beneficial. Tapeworms, which enter the

human body when consuming contaminated water or food, are harmful. In contrast, many **bacteria** in the human digestive system help digestion.

Viruses are the tiniest microbes. You may ask, how tiny? Here is a comparison. Human hair, on average, is 75 microns, the smallest human cell ranges from 4 to 4.5 microns, and the smallest bacteria is ten times smaller than the smallest human cell (0.4 microns). Viruses are a hundred times smaller than the smallest bacteria!



The dirty dozen: Various viruses cause diseases like the common cold, cough, and influenza (flu). They also cause various diseases like *hepatitis A*, *polio*, *chicken pox*, **AIDS - Acquired Immune Deficiency Syndrome** and **COVID-19**. The Polio virus causes polio, the HIV - Human Immune Deficiency virus causes AIDS, and the SARS - CoV - 2 virus causes COVID-19. Protozoa cause diseases like *dysentery* and *malaria*, whereas bacteria cause *typhoid* and *tuberculosis (TB)*.

The enemies within and outside: A disease is an abnormal condition that negatively affects the structure or function of all or part of an organism. It is associated with certain signs and symptoms. Some common human diseases are *influenza (flu)*, *diabetes*, *malaria* and *tuberculosis*. A few symptoms of diseases

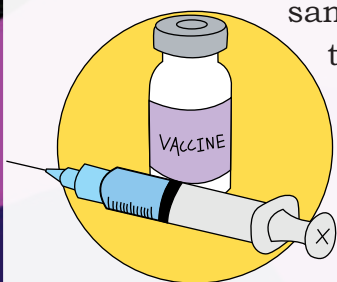
are changes in body temperature (fever), blood pressure and pulse rate.

From where do humans get diseases? They are born with inherent tendencies to develop some diseases. These are called **Non-communicable diseases (NCDs)**, for example, cancer and diabetes. Remember, NCD cannot spread or be transmitted to others.

Then there are diseases humans acquire from outside. These are called **communicable diseases (CDs)** or **infectious diseases**. Infection refers to the process of being infected with a CD. It can begin anywhere in the body and may spread throughout. For example, if a person having flu, sneezes, fine droplets of moisture carrying thousands of viruses are spread in the air. The virus may enter the body of a healthy person while breathing, thus passing on the disease.

Soldiers v/s Invaders: Now let us know about pathogens. Pathogens are those microbes that cause communicable diseases. How much harm a pathogen can cause depends upon sex, age, and the immune system. When our body's immune system senses invaders like pathogens (or substances associated with pathogens called **antigens**), it produces **antibodies** (soldiers) to fight them. Our immune system produces unique antibodies for each type of pathogen. Once the war is over, the antibody stays in the body in small quantities, and the body remembers how it fought and won the battle. So, in the future, if the same pathogen invades the body, the body produces the same antibodies it made last time and defeats the invader.

Vaccination also works like that, and many CDs, including some *viral*



diseases like *polio*, and *chickenpox* can be prevented through vaccination.

A **Pathogen** is a bacterium, virus, or another microorganism that can cause disease. Humans have been suffering from pathogens since they came into existence. Meanwhile, pathogens also evolve with time, producing new diseases. In the last 10,000 years, humans have dramatically changed their lifestyles from hunter-gatherers to settlers. In the last 100 odd years, there has been an exponential increase in their population, excessive use of pesticides in farming, massive deforestation, world wars, and more, which has led to the introduction of new pathogens, especially viruses, at a faster pace. Influenza (flu) like *avian flu* -1998, *swine flu* 2009 and COVID-19 are examples of diseases that have appeared at a rapid pace due to both natural and human factors. The H1N1 virus caused the Spanish flu of 1918, where about 500 million people or one-third of the world's population, became infected, and more than 50 million people died worldwide.

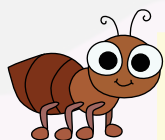
The treasure called antibiotics! An antibiotic is modern medicine that contains substances/chemicals and kills the pathogen bacteria in the human body. **Penicillin** was the first antibiotic discovered in 1929. Since then, it has revolutionised the treatment of infectious diseases. Remember, antibiotics should be taken only on the advice of a doctor, and the prescribed course must be completed. Taking antibiotics unnecessarily is harmful. Antibiotics are effective only against bacterial diseases. Treatment of viral infections is a challenge to medical science because viruses are good at *disguising* themselves. They are not easy to detect and, thus, difficult to target.

The dangerous carriers! *Vectors* are organisms that can transmit pathogens between humans or from organisms to humans. They are carriers of pathogens. Many of these vectors, like mosquitoes, are blood-sucking insects. During a blood meal, they ingest pathogens from an infected host (human or organism). They carry the pathogens inside their bodies and later transmit them to a new host, causing diseases like malaria. Diseases caused by vectors like malaria are communicable but not contagious. Some vectors, like house flies, do not carry pathogens inside them but can still transmit



them mechanically. They sit on the garbage and excreta. Pathogens stick to their bodies. When these flies sit on uncovered food, they may transfer the pathogens. The common housefly can thus transmit the pathogens that cause typhoid fever and cholera.

Incubation is the time a host body infected by a pathogen takes to show specific symptoms. During this time, the pathogen multiplies, and finally, the host body shows signs of the disease. Depending upon the disease, the host may (*e.g. HIV*) or not (*e.g. Ebola*) be contagious during the incubation period. Incubation time for a particular disease can be **hours, days, weeks or months**. There is currently no cure for HIV, but treatments are available to reduce its effects on human lives.



Why don't ants get sick?



Because they have little anty bodies

Prevention is better than cure! CDs can be prevented by maintaining proper **hygiene**. We should wash our hands regularly, especially before meals and after going to the bathroom. When sneezing, we must use a handkerchief or tissue to cover the nose or mouth. If we do not have a handkerchief, we must sneeze or cough into our elbow. We must also avoid all types of bodily contact if the disease spreads through such contacts. Taking nutritious food is a must to boost our immune system. Vaccination for diseases like *cholera*, *tuberculosis*, *smallpox*, *hepatitis* and others is also necessary. For humans suffering from a highly contagious disease, strict isolation (quarantine) is the best way to prevent the spread of the disease.

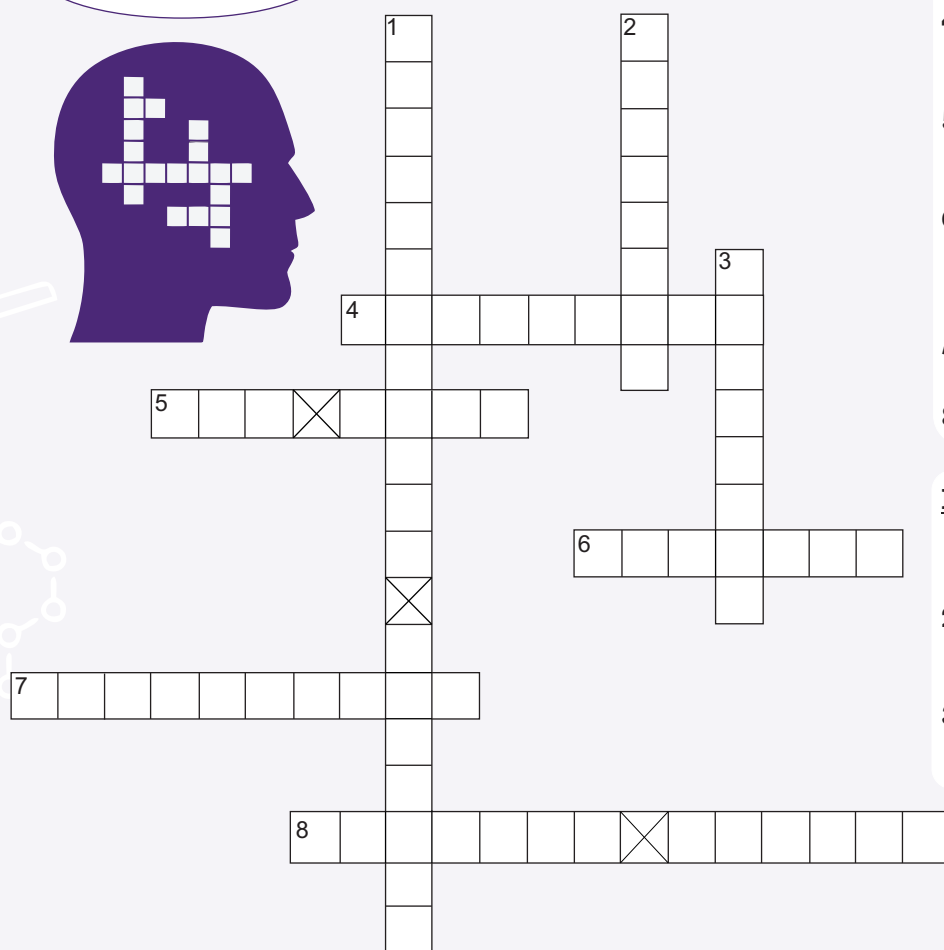
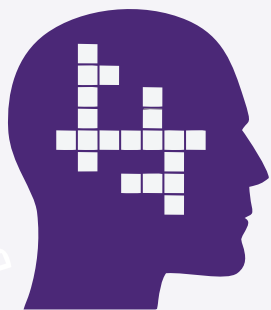


Armageddon! Diseases can also be classified as endemic, outbreak, epidemic or **pandemic** based on how many people are affected by a particularly contagious disease in a particular location or geography. Let us assume that every monsoon in a city, on average, 100 cases of malaria are reported every day. Such a situation is termed endemic. If, instead of 100, the average cases suddenly increase substantially, say to 1000, the situation becomes an outbreak. The problem becomes epidemic if the outbreak happens in other cities. A pandemic is a worst-case scenario. In a pandemic, the epidemic occurs across countries and continents, like the Spanish flu of 1918 and COVID-19 of 2020. Viruses cannot be treated but can only be prevented by vaccination.

The human story on earth is a constant battle against nature. It is our wisdom whether we want to follow an approach which is against nature or one where we collaborate with it.

[illegible]

K. Crossword



L. Match the following.

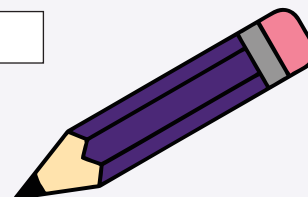
1. The human cradle
2. Harbingers of doom
3. Star wars
4. Till eternity
5. Half alive, half dead
6. The enemies within and outside
7. Soldiers v/s invaders
8. The treasure called antibiotics
9. Small wonder
10. The dangerous carriers
11. Incubation
12. Armageddon
13. Prevention is better than cure

Across

4. The first city hit by an atomic bomb.
5. The universe began with this event.
6. The practice of keeping clean to stay healthy and prevent disease.
7. The first anti-biotic (1929).
8. *The Origin of Species*.

Down

1. Disease acquired from outside.
2. An epidemic that occurs across countries and continents.
3. Causes diseases like typhoid and tuberculosis.



- a. **Virus**
- b. **CDs and NCDs**
- c. **Penicillin**
- d. **Comets**
- e. **Microbes**
- f. **Vectors**
- g. **Modern medicine**
- h. **Africa**
- i. **Antigens and antibodies**
- j. **Nuclear weapons**
- k. **Pandemic**
- l. **Hygiene**
- m. **Pathogen multiplies**

The World of Medicines



It was raining cats and dogs. Sana's mother and grandma had just returned from the doctor's clinic. Sana's grandma was not keeping well. Arpit's aunty, Dr Krupa, a psychiatrist, had come to pay a visit to the ailing grandma. "Listen, children, I want you to get these medicines for granny from the pharmacist near our house. Let us wait till the rain stops," said Sana's mother. The three musketeers tried hard to understand the doctor's prescription but couldn't decipher it.

"Shobha ma'am always scolds me for my handwriting. She says that I kill insects in my notebooks. I wonder what she will say about this doctor's handwriting," Arpit said. Sana and Pokso chuckled. "I guess these are different kinds of insects," said Pokso. "Let me try," said Sana. "Well, I think it will be easier to decipher the *Harappan script* than this prescription", she laughed and gave up.

The doctor aunty, who heard their banter, giggled and sat near them. "You are right. Doctors should write clearly," she said. "Let me tell you something about the world of medicines, and maybe that will help you read a doctor's prescription," she continued.

"We cannot imagine a world without medical science, including modern medicines,

vaccines and operations. We have taken medicines and vaccines manufactured by pharmaceutical companies since birth. They are treatments for various diseases. Science based modern medicine is also called allopathic medicine.

There are OTC medicines. OTC stands for 'over-the-counter'. For these medicines, we do not need a doctor's prescription. Remember, non-OTC medicine should never be bought without a prescription or taken without a doctor's advice.

A drug is a substance/ chemical that people use to give themselves pleasant or exciting feelings. It also makes people sleepy or unconscious, for example, tobacco, alcohol and cannabis. All drugs are harmful, and many are dangerous.

The drug **de-addiction helpline number is 1800-11-0031** (Ministry of Social Justice and Empowerment Govt. of India). *The Narcotic Drugs and Psychotropic Substances Act, 1985 (NDPS Act)* states that it is illegal for a person to produce/ manufacture/ cultivate, possess, sell, purchase, transport, store, and consume any narcotic drug or psychotropic substances like cannabis, cocaine and opium. The NDPS is a very stringent Act.

Modern medicine also uses drugs. However, due care is taken so that they cause no harm. Like packaged food in our homes, we must read the medicines' labels. These labels include price, expiry dates, ingredients, weight and how to store them. However, the labels do not mention how a medicine tastes, do they?" asked aunty with a smirk. The three musketeers smiled.

"The Indian Council of Medical Research (ICMR) is the apex organisation for

developing and testing modern medicines. A doctor's prescription mentions how much, for how long, and when a medicine is to be taken. How much means the weight, like milligrams or grams or volumes like one spoon or half a spoon? The prescription may also mention whether the medicine should be taken before or after eating something.

The prescription medicine schedule says OD = once daily (typically in the morning) – 24 hourly; BD = twice daily – 12 hourly; TDS or TID = thrice daily – 8 hourly; QID = 4 times or 6 hourly. Sometimes, the prescription may also mention *SOS medicine*. It is to be used as and when required. For example, an SOS medicine for fever by a patient is to be taken whenever there is a fever.

From a purchase point of view, there are mainly two medicines: branded and generic. Medicines can have all kinds of names. These names are given to them by their manufacturers. However, the key substance in medicine has a generic name. For example, *paracetamol* used for fever is a generic name, while *Crocin/ Metacin/ Meftal* are brand names given by manufacturers. Branded medicines are costlier than generic medicines.

Generic medicines are sold at a controlled price. This is done so that everyone can have access to affordable health solutions. One can find details about what quality generic medicine is available and where they can be bought from the National Helpline: 1800-180-8080, Department of Pharmaceuticals, Government of India – Bureau of Pharma PSUs of India (BPPI) - <http://janaushadhi.gov.in/>

Sometimes, a doctor prescribes food supplements or dietary products such as pills, capsules, tablets or liquid to supplement the diet. They can provide nutrients either extracted from food sources or synthetic. They should not be confused

with allopathic medicine and are not a treatment or cure for a disease.

Drugs and Magic Remedies (Objectionable Advertisements) Act, 1954 prohibits advertising any food supplement, drug or remedy with claims to have magical properties like a cure for cancer, diabetes, smallpox, tuberculosis or AIDS. *The Consumer Protection Act 2019* protects and strengthens the rights of consumers. **National Consumer Helpline - 1800114000.**

The three musketeers bought the medicines and told grandma how many tablets must be taken and when. They asked Dr Krupa if they had correctly read the prescription. “Absolutely!” said doctor aunty smiling.

The Indus script, also known as the *Harappan* script, is a collection of symbols produced by the Indus Valley Civilisation for writing their language. Harappa is an *archaeological* site in Punjab, Pakistan. Harappa was one of the major towns of the Indus Civilisation. The ancient Indus script from the *Bronze Age* has not yet been *deciphered*. The civilisation flourished in the region marked **X** on the map on page 12.



March 15 is World Consumer Rights Day, and India celebrates it on December 24. The day commemorates safeguarding consumer rights.



Medicines

Floori-boo - BD _____

Hoogi-boogi - TID _____

Zoomi-zoomu - QID

smaller
symbol

larger
symbol

Figure 1 shows a schematic representation of the 20 amino acids (A through Z) arranged in three columns. Each amino acid is represented by a unique pattern of black dots on a grid. A red arrow points to the top-left dot of 'A', and a blue arrow points to the top-right dot of 'I'.

| Amino Acid | Pattern (Dots) |
|------------|---|
| A | ● (1,1) |
| B | ● (1,2), ● (2,2) |
| C | ● (1,2), ● (2,2), ● (3,2) |
| D | ● (1,2), ● (2,2), ● (3,2), ● (4,2) |
| E | ● (1,2), ● (2,2), ● (3,2), ● (4,2), ● (5,2) |
| F | ● (1,2), ● (2,2), ● (3,2), ● (4,2), ● (5,2), ● (6,2) |
| G | ● (1,2), ● (2,2), ● (3,2), ● (4,2), ● (5,2), ● (6,2), ● (7,2) |
| H | ● (1,2), ● (2,2), ● (3,2), ● (4,2), ● (5,2), ● (6,2), ● (7,2), ● (8,2) |
| I | ● (1,2), ● (2,2), ● (3,2), ● (4,2), ● (5,2), ● (6,2), ● (7,2), ● (8,2), ● (9,2) |
| J | ● (1,3), ● (2,3), ● (3,3), ● (4,3), ● (5,3) |
| K | ● (1,3), ● (2,3), ● (3,3), ● (4,3), ● (5,3), ● (6,3) |
| L | ● (1,3), ● (2,3), ● (3,3), ● (4,3), ● (5,3), ● (6,3), ● (7,3) |
| M | ● (1,3), ● (2,3), ● (3,3), ● (4,3), ● (5,3), ● (6,3), ● (7,3), ● (8,3) |
| N | ● (1,3), ● (2,3), ● (3,3), ● (4,3), ● (5,3), ● (6,3), ● (7,3), ● (8,3), ● (9,3) |
| O | ● (1,3), ● (2,3), ● (3,3), ● (4,3), ● (5,3), ● (6,3), ● (7,3), ● (8,3), ● (9,3), ● (10,3) |
| P | ● (1,3), ● (2,3), ● (3,3), ● (4,3), ● (5,3), ● (6,3), ● (7,3), ● (8,3), ● (9,3), ● (10,3), ● (11,3) |
| Q | ● (1,3), ● (2,3), ● (3,3), ● (4,3), ● (5,3), ● (6,3), ● (7,3), ● (8,3), ● (9,3), ● (10,3), ● (11,3), ● (12,3) |
| R | ● (1,3), ● (2,3), ● (3,3), ● (4,3), ● (5,3), ● (6,3), ● (7,3), ● (8,3), ● (9,3), ● (10,3), ● (11,3), ● (12,3), ● (13,3) |
| S | ● (1,4), ● (2,4), ● (3,4), ● (4,4) |
| T | ● (1,4), ● (2,4), ● (3,4), ● (4,4), ● (5,4) |
| U | ● (1,4), ● (2,4), ● (3,4), ● (4,4), ● (5,4), ● (6,4) |
| V | ● (1,4), ● (2,4), ● (3,4), ● (4,4), ● (5,4), ● (6,4), ● (7,4) |
| W | ● (1,4), ● (2,4), ● (3,4), ● (4,4), ● (5,4), ● (6,4), ● (7,4), ● (8,4) |
| X | ● (1,4), ● (2,4), ● (3,4), ● (4,4), ● (5,4), ● (6,4), ● (7,4), ● (8,4), ● (9,4) |
| Y | ● (1,4), ● (2,4), ● (3,4), ● (4,4), ● (5,4), ● (6,4), ● (7,4), ● (8,4), ● (9,4), ● (10,4) |
| Z | ● (1,4), ● (2,4), ● (3,4), ● (4,4), ● (5,4), ● (6,4), ● (7,4), ● (8,4), ● (9,4), ● (10,4), ● (11,4) |

C. What does the Morse code at the bottom of this page mean? Hint: letters are separated by '-' and words by '--'.

| | | | | | | |
|--|--|--|--|--|--|--|
| | | | | | | |
|--|--|--|--|--|--|--|

████ ● ● ● - ● -- ● ● ● ● - ● █████ - ● █████ █████ ● - ● █████ █████ ● - █████ ● █████ █████

Answer: One needs a mirror to read the answer. Y99AH 3B

All About Fire Extinguishers



Fire combines 3 elements - oxygen, heat, and fuel. A fire can be prevented or extinguished if these elements are removed. A fire extinguisher uses its contents (agent) to eliminate one or more of these 3 elements. There are different types or classes of fires. No fire extinguisher is suitable for all classes of fires. The fire classification is based on the materials that constitute the fire. There are six classifications from A to F.

CLASS A: Combustible solids – wood, plastic and paper.

CLASS B: Flammable liquid – oil, paraffin, and petrol.

CLASS C: Flammable gases – methane, butane and propane.

CLASS D: Metals – magnesium, titanium and aluminium.

CLASS E: Electrical fires – electric wires.

CLASS F: Cooking oil and fat – grease fires.

All extinguishers (fire) are red. They also have a small label on them for their colour codes. The colour code indicates the content or agent of a fire extinguisher and its suitability for a particular class or classes of fire. Some extinguishers have a numerical rating indicating the fire size they can extinguish. All extinguishers must be inspected, maintained, and hydrostatically tested routinely. The test dates are mentioned on each extinguisher.

WARNING

Using an extinguisher for the wrong fire class may cause the fire to spread, re-ignite or even explode.

Red colour: Class A - *Agent Water* - These are the cheapest fire extinguishers and the most popular. They primarily remove the heating element of fire.

Cream Colour: Class A and B - *Agent Foam* - They are a little more expensive than a water extinguisher.

Blue colour: Class A, B and C - *Agent Dry Powder* - They are called multi-purpose ABC extinguishers. They are pretty common and especially effective against Class B fires, but they can help exterminate fires that fall under Classes A and C. They work by inhibiting chemical reactions involving a fire's heat, fuel, and oxygen elements.

They effectively help put out fires resulting from gas. However, turning off the gas supply before putting out the fire is always important. If the gas supply is not isolated, it can lead to a dangerous situation. Special powders are used for extinguishing metal fires that fall into the Class D category. While effective, dry powder extinguishers can also leave behind quite a mess. They also tend to damage machinery and other objects and can blur your vision when used indoors.

Black colour: Class B - *Agent Carbon Dioxide* - They are also commonly called CO₂ extinguishers. They remove the oxygen and the heating element of fire. However, they provide no security after the fire is out, meaning the fire could start again. A CO₂ extinguisher with a wet chemical is a special extinguisher for Class F fires. There is also a special fire extinguisher against Class D metal fires such as sodium, lithium, and manganese when the metal is turnings or swarf.

Green Colour: *Agent Halon* - Halon is a toxic chemical. The military or law enforcement agencies use this type of extinguisher.

Before using a fire extinguisher, sound the fire alarm, and identify a safe evacuation route. Extinguishers are placed in corridors

of buildings like your school, inside large rooms like your school auditorium, labs like your science lab, and vehicles like your school bus. Portable fire extinguishers, like on your school bus, are used when the fire is confined to a small area. Once you have sounded the fire alarm and confirmed a safe escape route, you may use a fire extinguisher from a safe distance to douse the fire.

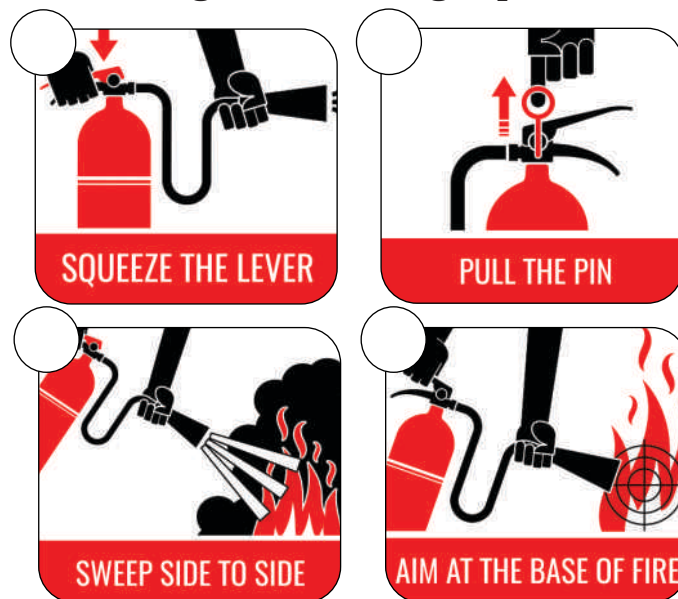
An effective way to remember how to use a fire extinguisher is the acronym **PASS**:

1. **P**ull the pin on the handle.
2. **A**im the nozzle at the base of the fire.
3. **S**queeze the lever slowly.
4. **S**weep from side to side at the bottom of the fire.

14th April is observed as “**MARTYR’S DAY**” to pay homage to those brave firefighters who sacrificed their lives while discharging their duties. *President’s Fire Service Medal for Gallantry* is awarded on Republic Day to those fire service officers who have displayed bravery while dealing with fire situations. Check who received the award this year and display their name on the classroom board.



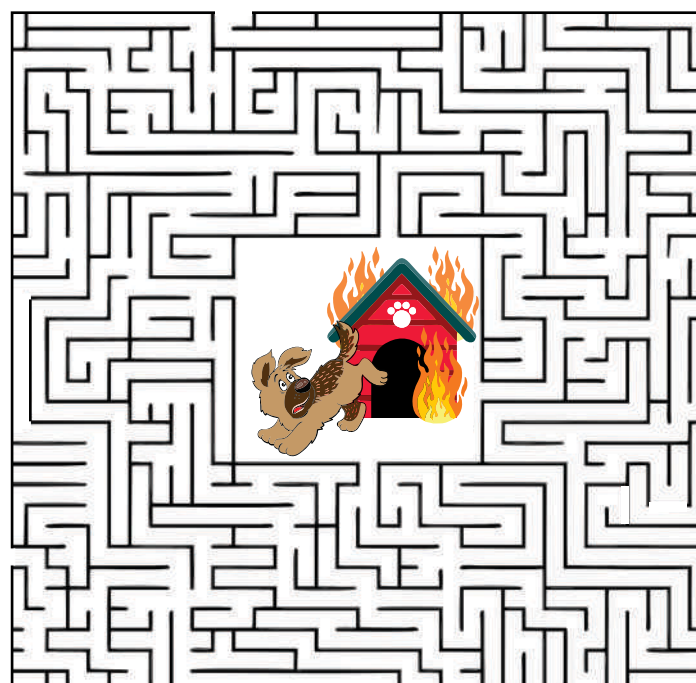
B. Arrange the following as per PASS.



C. Match the fire extinguishers classes with the types of materials that constitute fire.

- | | |
|------|----------------|
| 1. A | a. Solid |
| 2. B | b. Liquid |
| 3. C | c. Gas |
| 4. D | d. Metal |
| 5. E | e. Electrical |
| 6. F | f. Cooking Oil |

D. Can you help the dog by rescuing him from his burning house?



A. Take the help of your physical education and science teachers to check for the fire extinguishers on your school premises and school bus. Write their types here.

School premises: _____

School bus: _____

Suggested viewing: YouTube search ‘How to use fire extinguishers, Kids’





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Feedback Request

We hope you liked this Safety Workbook. Please feel free to give your feedback and suggestions at contentcoordinator@projectcaca.org



RESOURCES

Videos/Supplementary Worksheets/Posters/Booklets embedded as **QR Codes** in the chapters of the workbooks. Page 75 of each workbook is dedicated to the resources in English, Hindi and various regional languages for parents, teachers and support-staff.

CACA Safety Workbooks UKG to Class IX



Resources: Parent /Teacher / Support- Staff Companion Booklets.

Webinars: Academic/ Legal/ Psychological for Parents, Teachers & Support-Staff

Partners



With Support From

- State Legal Services Authorities (**SLSA**) & District Legal Services Authorities (**DLSA**)
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End the Stigma, Raise Awareness