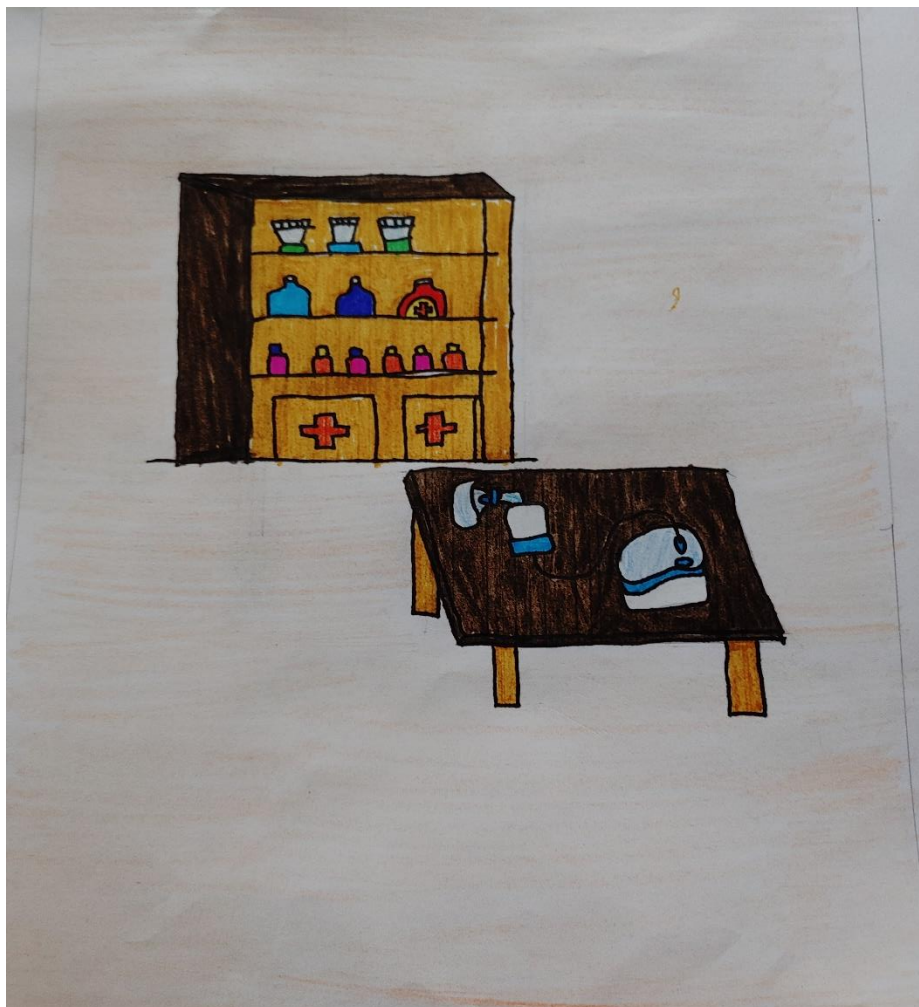


Things You Should Know About Keeping Medicines at Home



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PREFACE

We are extremely happy to present this book, the life sciences industry has made immense development in the field of medicines. There is a lot of scope for students opting for life sciences in the near future.

CBSE has introduced Life Sciences as an optional course at secondary and Senior Secondary level.

Scientists today are capable of generating more data in a day than their predecessors 20 years ago could have generated in an entire career. This ability to rapidly generate data has also created a number of new scientific challenges. We are no longer in an era where data can be processed by loading it into a spreadsheet and making a couple of graphs. In order to distill scientific knowledge from these datasets, we must be able to identify and extract nonobvious relationships.

This book is divided into 5 units and each unit has 3 to 4 sessions. All the topics are covered in simple language, with pictures to make it more interesting. As homework, at the end of every unit there is a set of questions, for revision purpose.

The team of authors is thankful to CBSE (Skill Education) for their untiring efforts for bringing out the handbook on time. It is a pleasure for the authors to express their special thanks to the CBSE (Skill Education) advisors and other coordinating staff members.

The book has been made with lot of efforts, still there may be some errors, so valuable suggestions from the readers will be appreciated for further improvement of this handbook in future.

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Unit-1

Let's Shop-Where is my medicine

Learning Outcome

Location	Learning outcome	Knowledge evaluation	Performance evaluation	Teaching and Training method
Classroom	Students will know about places from where medicines can be shopped for	Explain about prescription, options to buy medicines.	Describe various places to get medicines	Interactive Lecture: 1. Chalk & talk method. 2. Book Activity: Name the places from where medicine can be purchased

Objectives

After attending this session, you should be able to:

- Discuss the need for purchase of medicine
- Introduction to prescription and over the counter medicines
- Explain about the various option available to buy medicine

1.1. Medicine: Solid, Liquid or gel

Medicine is something which can be a pill or even liquid, that is used to prevent, cure, or relieve a disease.



Fig: 1 pexels.com

So, now we know what is medicine in simple language, but what is the need to purchase the medicine, why we need medicine?

❖ Why Medicine?

From the definition of the medicine itself we get to know why we need medicine, to get free from disease. Let us go into little detail about what is the main aim and purpose of the medicine:

3 main purposes of medicine:

- Relief of pain and suffering, same as in the 3 images below, the child is in pain, he took the medicine and is now feeling better.

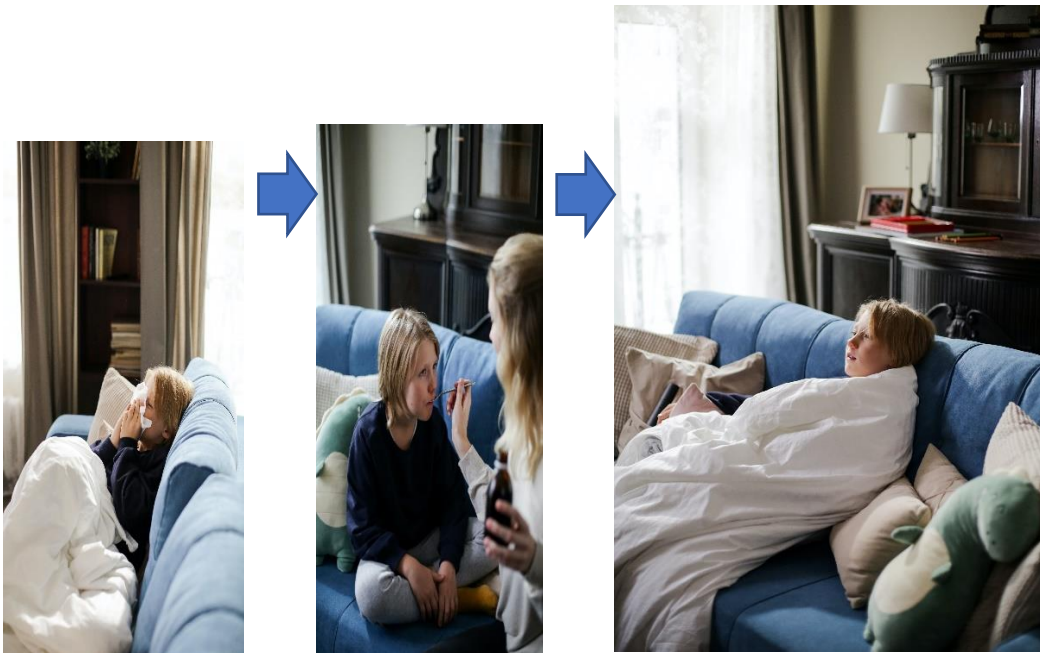


Fig: 2
pexels.com

- Promotes health, same as in the images below, we can see the child was sick, he got his medicine and became strong and happy again



Fig: 3
pexels.com

- Prevents diseases



Fig: 4
pexels.com

1.2. Medicine, medicine in the chemist store, but don't know should I buy one or all?

Till now we know what is medicine, what is its purpose, but how do we buy it? The answer is **'Prescription'**.

Prescription is an order for medicine which a doctor writes, and which is given to a chemist to prepare and give the medicine.

It is illegal to buy medicine without prescription, but there are still some medicines that we can buy without the prescription, and they are called **'Over the counter medicines'** or even **non-prescription medicine**.



Fig:5

pexels.com

❖ Over the counter medicine/ non-prescription medicine

All the medicines which can be bought without a prescription, can be termed as over the counter medicines.

These medicines are safe and effective if you follow the directions on the label or as directed by your healthcare professional.



Fig:6

pexels.com

1.3. Options to buy medicine

There are different options to buy your medicine:

1. You can take the written prescription to a local pharmacy, near your house and get the medicine mentioned over the prescription.



Fig: 7

unsplash.com

2. You can also call the chemist shop and tell them the medicines you want and get them at your doorstep.



Fig: 8

pexels.com

3. Email is also an option, if you find it difficult to read the prescription you can attach a copy of prescription to the mail and send it to pharma nearby, along with your address, so that you can get the medicine delivered at your home



Fig: 9

unsplash.com

4. You can even send your prescription to the pharmacy by way of a computer that is linked to the provider's electronic medical record (EMR)



Fig: 10

unsplash.com

5. Nowadays many websites are also there which are offering medicines at discounted price, like MedLife, Apollo Pharmacy, PharmEasy and many more.



Fig: 11

pexels.com

Exercise 1:

Ram went to a chemist shop to buy medicines for his grandmother, but when he went there, he realized he has forgotten his wallet at home, but he thought he will pay the amount through his smart phone. So, he asked the chemist if he has a scanner for the same, the chemist replied that they only take cash payment, now Ram had to go back home, which was half an hour from the shop, when he reached home, he saw that his neighbour Raj has got medicines delivered at home, Ram went to him and told him how he left the wallet and travelled back to get his wallet.

Then Raj told him how he got his medicines delivered at his door, so now think of the ways Raj must have told Ram to get medicine delivered at their home and name them.

See, what you have learnt

1. Ria went to the chemist, to buy medicine for fever, but she did not visit the doctor, as her mother asked her doctor gives the same medicine for fever, what is this kind of buying medicine called?
 - a. Prescription
 - b. Over the counter/ Non-prescription
2. Raj's grandmother is alone at home, she could not go to chemist to buy her medicines, what all options are there for her to get medicine?
3. Why is medicine important when you are sick?
 - a. It is tasty
 - b. It helps prevent disease
 - c. It makes you ill

Unit-2

Let's Shop- how to buy a medicine

Learning Outcome

Location	Learning outcome	Knowledge evaluation	Performance evaluation	Teaching and Training method
Classroom	Students will know about manufacturing and expiry dates	Explain about prescription, over the counter medicines.	Check expiry and manufacturing dates on medicines	Interactive Lecture: 1. Chalk & talk method. 2. Book Activity: Ask your parents to show you the medicine present at your home, note its details like name, manufacturing, and expiry date etc

Objectives

After attending this session, you should be able to:

- Discuss in brief about the prescription and how to use it to buy medicine
- Differentiate between Over the Counter and prescription only medicine
- Explain how to identify the manufacturing and expiry date on a medicine

2.1. Prescription

As learnt in earlier module, we already know what a prescription is, it is a paper on which a doctor has written the name of the medicine that you need.

Now let us learn more about it in this module.

❖ How to write a good prescription

a. A prescription should have details related to the doctor like:

1. Doctor's full name (printed on the letterhead)
2. Doctor's details like address, consultation time, contact number, should be printed on the letterhead
3. Qualifications of the doctor should also be there on the letterhead
4. His registration number and the registering authority should also be printed on the letterhead
5. Date of prescribing
6. Rubber stamp of doctor containing his full name, qualifications, and Reg. No., signature as they add to the authenticity of the prescriptions.



Fig: 1

pexels.com

b. Details of patient

1. Full name of patient
2. Age and weight of patient
3. Address and contact number of patients
4. Gender

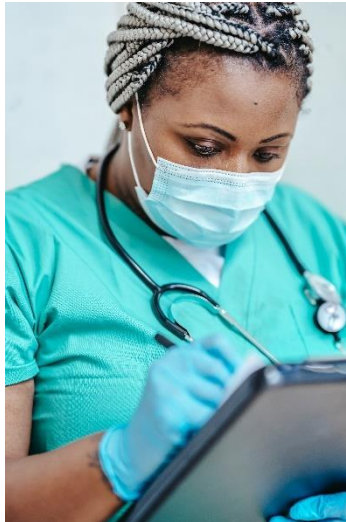


Fig: 2

pexels.com

c. Details of medicines

1. Name of medicine- Generic name in capital, brand name or company name in brackets (avoid abbreviation or scribbling name of medicine)
2. Strength of medicine
3. Dosage form, e.g., tablet, syrup etc
4. Dosage and instructions
5. Quantity



Fig: 3

pexels.com

❖ Important Dos and Don'ts

1. Letterheads should be kept secure to avoid misuse
2. Avoid overwriting
3. Prescription could be typed or generated by computer but should be signed by the doctor in blue indelible ink.
4. Nurse or assistants should not write prescriptions
5. Avoid unnecessary use of units

2.2. What is the difference between Over the Counter and prescription only medicine?

Over the Counter (OTC) medicine	Prescription only medicine
Purchase without a prescription and can be purchased right off the shelves at a store	Only available with a valid prescription from a prescriber
OTC medicines are monitored by the FDA	Prescription drugs must pass through many clinical trial phases, approval by the Food and Drug Administration (FDA), and monitored for safety and side effects even after the drug is on the market.
OTC medications can be used by more than one person	Prescription medicines are to be used by one individual patient to treat a specific condition

2.3. Identification of expiry and manufacturing date

❖ Manufacturing Date of medicine

The Date of Manufacture for a given batch of drug product is the date on which processing is started

❖ How to identify the manufacturing date

1. The first two digits (19) refer to the year of manufacture (2019)
2. The next two digits (03) identify the month the product was manufactured (March) or the date of manufacture.
3. The following two numerals (22) refer to the day of the year.

Where is the manufacturing date mentioned on the medicine?

Manufacturing Date is date mentioned at label in a form of a year and month at which a medicine or health products is packed in its finished product form.

❖ Expiry Date of medicine

The date till a medicine or a health product will maintain its purity and physical characteristics

❖ How to identify the expiry date

1. The year of manufacture is represented by the first two digits of the batch number.
2. The third and fourth digits of the number refer to the month of production.
3. The fifth and sixth figures identify the day it was manufactured.

❖ Where is the expiry date mentioned on the medicine?

The expiration date can be found printed on the label or stamped onto the bottle or carton, sometimes following “EXP.” It is important to know and stick to the expiration date on your medicine.

Exercise 1:

Ria, went to nearby chemist shop, to buy some tablets for her grandfather, but when the chemist gave her the medicines, she gave it back after having a look at it, and told the chemist to give her another one as the one he gave him could not be used, why did she say so, what could be wrong with it?

At home ask your parent to show you what Ria would have seen on the tablet packet.

Revision time

1. Which prescription could be termed as a good prescription?
 - a. Has all details of doctor
 - b. Has all details of patient
 - c. All details related to medicine
 - d. All of the above
2. What is the full form of FDA?
 - a. Food and Drug Administration
 - b. Facts and Development Administration
 - c. Family and Drug Advisory
 - d. Federal Drug Advisory
3. Why is expiry date important?
 - a. Defines effectiveness of the medicine
 - b. Defines purity of the medicine
 - c. Defines physical characteristics of the medicine
 - d. All of the above

Unit-3

Store your medicine

Learning Outcome

Location	Learning outcome	Knowledge evaluation	Performance evaluation	Teaching and Training method
Classroom	Students will know about how to handle medicines	Explain about general storage and handling guidelines for medicines	Check the storage of medicines at your home if they are stored properly.	Interactive Lecture: 1. Chalk & talk method. 2. Book Activity: Identify the medicine present at your home and see if these medicines are stored properly

Objectives

After attending this session, you should be able to:

- Discuss the procedures to safe keep a medicine at home
- Explain the procedure to store medicines properly and its importance

3.1. Storing medicine and its importance

❖ Storing medicine

Most medicines should be stored in a locked cupboard or locked container which is out of reach of children in an area that is below 25° C.

A few medicines, such as asthma inhalers, may need to be readily available and in this circumstance must not be locked away.

Store your medicines in a cool, dry place, you can also store medicine in a storage box, on a shelf, in a closet.

It is best to keep medicines in a purse or a separate bag when you travel. Take care during the hot summer months and frigid winter months if driving to the chemist, as both high heat and very low temperature is bad for medicines.



Fig: 1
pexels.com

❖ Consequences of not storing medicines properly

- If medicines aren't stored properly, they may not work as promised.
- Exposure to light, humidity, and extreme temperatures can make them less effective and – in rare cases – even toxic
- Extreme temperatures can have a big effect on both prescription and over-the-counter drugs

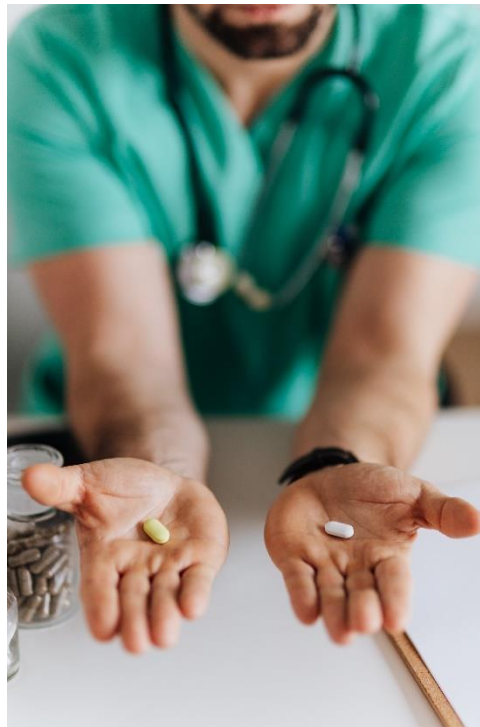


Fig: 2
pexels.com

❖ Which last longer pill or liquid medicine?

- Always ask your doctor for pill or tablet medications because they will last longer than a liquid form.
- Vacuum seal the pills and store them in a cool, dry place to preserve effectiveness as long as possible.



Fig: 3
pexels.com

❖ Importance of storing medicines

All medicines have storage requirements that are specified by the manufacturer.

- If medicines are stored properly, they would be safe to use.
- Storing medicine in the right way would maintain the quality of medicine
- Medicines would not lose their effectiveness on use, if stored properly
- Storing your medicines properly can help to ensure they work as they should
- It prevents poisoning accidents



Fig: 4
pexels.com

3.2. How to keep medicines safe at home?

❖ Where is the best place to keep your medicines at home?

1. Don't store your medicines in the bathroom cabinet
2. Do not store it above the cooktop or fridge either
3. Make sure your medicines are up high and safe
4. Always check the dates on your medicines.

❖ Medicines at home

1. Store all medicine up and away and out of site and reach

To be safe, medicine should be stored out of sight in a high cabinet or drawer where children can't see it and out of reach

2. Keep medicine in its original child-proof packaging

Medicine should be store in a child proof package, so that the children are not able to consume it as it could be life threatening.

3. Listen for the Click

Make sure your safety cap is locked: It should make an audible click.

4. Teach your children about medicine safety

Tell your children that medicine should only be given to them by an adult, and they should not take it alone, thinking it to be a candy.

Make them learn about the expiry and manufacturing dates mentioned on the medicine.

5. Consider buying lockboxes

Buy a small safe or lockbox to lock up all medicines and drugs, to maintain its effectiveness.



Fig: 5
pexels.com

Exercise1:

Seema, a housewife was working in the kitchen and her 2-year-old son was playing in the drawing room, in the drawing room, under the table there were some medicines kept, the child unknowingly went under the table and started opening the medicines and started drinking the cough syrup. Seema when saw this from the kitchen came running and grabbed her child but till then he already had drunk a lot as per his age. She rushed to the doctor, and he gave him some medicines, it took him a week to recover. So, what do you think did Seema did a right job by storing medicines under the table? In the same way identify the medicine present at your home and see if these medicines are stored properly

Question Answer time

1. Gagan went to a doctor, as he was suffering from fever, the doctor prescribed him a syrup, he asked the doctor to prescribe him with a tablet instead of syrup, why do you think he did so?
 - a. Tablet is tasty
 - b. Tablet is easy to eat
 - c. It has more life than syrup
 - d. It is small
2. How should we store medicines at home?
 - a. Out of site and reach of small children
 - b. In child proof packaging
 - c. Teaching child about medicine safety
 - d. All of the above
3. Why is it important to store medicines appropriately?
 - a. If stored properly, they are safe to use
 - b. Maintains quality and effectiveness
 - c. Prevents poisoning accidents
 - d. All of the above

Unit-4

How to use a medicine

Learning Outcome

Location	Learning outcome	Knowledge evaluation	Performance evaluation	Teaching and Training method
Classroom	Students will know how to identify medicines not fit to use	Explain about identification of medicines not fit to use and procedure to have them	Demonstrate what is the secure and unsecure medicine.	Interactive Lecture: 1. Chalk & talk method. 2. Book Activity: Identify the safe medicine and unsafe medicine

Objectives

After attending this session, you should be able to:

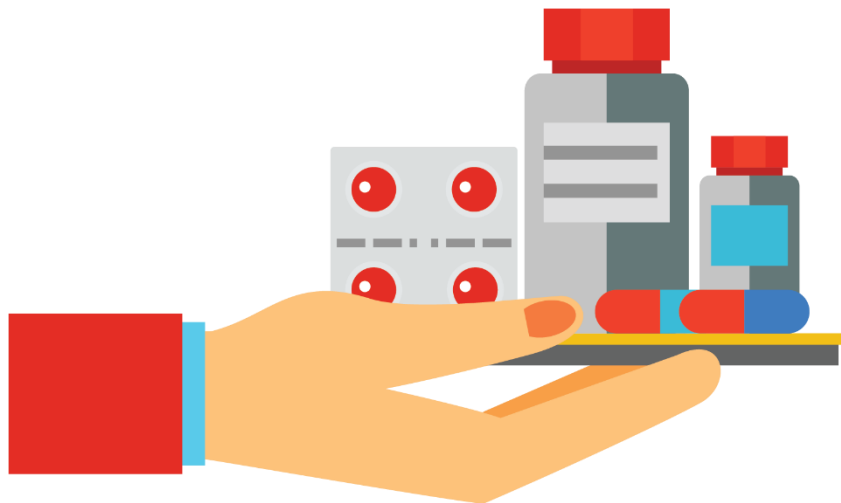
- Explain in brief how to check that the medicine is safe for consumption
- Discuss the procedures to consume different kinds of medicines

4.1. Consumption of medicines

Till now we know what medicine is and how it affects our body when we are ill. Now let us study about what are the different ways of consuming medicines.

❖ Proper way to take medicine

1. Take the prescribed dose at the same time each day
2. Don't skip doses or take half doses to save money.
3. Take medicine until it's finished or until your doctor says it's okay to stop.
4. Don't take medicines prescribed for another person.



❖ Route for medications

Other than injections and swallowing pills there are other ways of taking medicines too, some are mentioned below:

Route of medicine	Explanation
Buccal (cheek)	Inside the cheek
Enteral (related to the intestines)	delivered directly in stomach or intestine
Inhalable (related to breathing)	Breathed in through tube or a mask
Nasal	given into the nose by spray or pump
Ophthalmic (related to eyes)	given into the eye by drops, gel, or ointment
Oral	swallowed by mouth as a tablet, capsule, or liquid
Topical (ointment, cream, lotion)	applied to the skin
Sublingual (tongue)	held under the tongue
Otic (relating to the ear.)	given by drops into the ear

❖ Route for the medicine in our body

It depends on 3 main factors

- Part of body which is being treated
- Way the medicine works in the body
- Formula of the drug

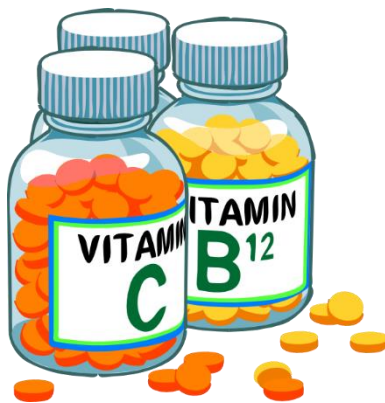


Fig:2

kindpng.com

4.2. Medicine consumed: Safe or not

Now we have learnt about different forms in which a medicine can be consumed, now let us check whether the medicine we are having is safe for us or not.

The five main points that we should check before using a medicine are:

1. The right patient
2. The right medicine
3. The right dose
4. The right route
5. The right time

❖ Medicine, used to cure but can it be damaged?

1. Medicine that has changed colour, texture, or smell, even if it has not expired is damaged
2. Pills that stick together, are harder or softer than normal, or are cracked or chipped.

❖ Tips for using medicine safely

1. Whenever you go to the doctor, always take the list of medicines you have been taking and ask your doctor about the safety of the medicine if he prescribes a new one.
2. Choose a chemist and doctor you feel comfortable talking with about your health and medicines
3. Make sure your medicine is what the doctor ordered
4. Ask how to use the medicine correctly
5. Side effects can occur with many medicines, so ask your chemist and doctor about the possible side effects.



Fig: 3 Right patient
kindpng.com



Fig: 4 Right medicine
kindpng.com



Fig: 5 Right dose
kindpng.com



Fig: 6 Right route
kindpng.com



Fig: 7 Right time
kindpng.com

Exercise 1:

Sia, was suffering from cold and cough, she went to the doctor he prescribed her medicines and asked her to take them for a week, she took the medicines for 3 days and felt better, and stopped taking the medicines and resumed to her daily routine, but after 2 days she again fell ill, and this time her cough was even worse, she had tonsils, what do you think Sia, went wrong? Similarly at your home identify safe and unsafe medicines and how you consume them.

Time to check what you have learnt

1. What defines the route of medicine in our body?
 - a. Part of body which is being treated
 - b. Way the medicine works in the body
 - c. Formula of the drug
 - d. All of the above

2. Ria was ill, she went to the doctor, he prescribed her some medicines, she then went to the chemist, bought the medicines, has them but, when she went home, she saw the medicines were damaged, what could she have noticed?
 - a. Colour of medicine
 - b. Tablets were sticking to each other
 - c. Smell and texture were damaged
 - d. All of the above

3. What does the route of medicine “Buccal” is for?
 - a. Tongue
 - b. Cheeks
 - c. Nose
 - d. Ear

Unit-5

Safe Disposal of medicine

Learning Outcome

Location	Learning outcome	Knowledge evaluation	Performance evaluation	Teaching and Training method
Classroom	Students will know how to dispose expired medicine	Explain about procedure for disposal of medicine that are no longer in need	Demonstrate safe disposal of medicine	Interactive Lecture: 1. Chalk & talk method. 2. Book Activity: Perform safe disposal of expired medicines and inculcate this habit and follow as a life skill

Objectives

After attending this session, you should be able to:

- Discuss when to dispose of a medicine
- Explain the procedure to dispose of an unused/expired medicine

5.1. Which medicine can be termed as damaged?

Any medication that has changed color or consistency, regardless of the expiration date, and you can also check the smell. Discard pills that stick together, are chipped or are harder or softer than normal.



Fig: 1
kindpng.com

5.2. When to dispose medicine?

Many people have unused or expired prescription or over the counter (OTC) medicines at home. Let us see when we should dispose them.

You should get rid of the medicine when:

- Your health care provider changes your prescription, but you still have some medicine left
- You feel better and your provider says you should stop taking the medicine
- You have OTC medicines that you no longer need
- You have medicines that are past their expiration dates

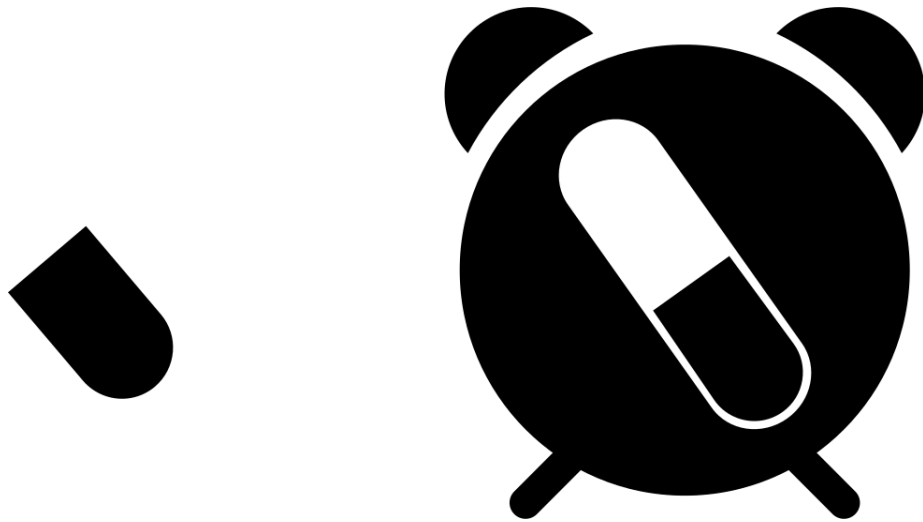


Fig: 2
kindpng.com

Never take, expired medicine they are not effective and might cause a threat to life. Always check the date of expiration, Dispose the medicines that are no longer needed, in the next section we would read about how to dispose the medicine that are no longer needed.

5.3. Correct way to dispose damaged medicine

- Never flush unused medicines down the washroom, where they could make their way into the water supply. Instead, mix the pills or liquid with coffee grounds, cat litter or another material that makes them unpleasant, and put the mixture in the trash.
- The best way to dispose of your medicines is to bring them to drug take-back programs. These programs safely dispose of medicines by burning them up, these types of programs are organized in many states.
- Place the mixture into a sealable plastic bag or sealed containers that won't leak and dispose in the trash
- Remove all the personal information from the medicine bottle.



Fig: 3
kindpng.com

Exercise 1:

Manya had a dog, she played with it daily, one day Manya's mother Rama, while cleaning threw some expired medicines in the ground outside her house, Manya was as usual playing with her dog, the dog by accident ate those expired medicines and got severely ill, and was rushed to a veterinary, when the veterinary examined him he told them that the dog had eaten some expiry date medicines, and it would take 1 month to recover.

It was that time when Rama realized that it was her who threw the medicines, at home she told this to Manya, Manya had learnt how to dispose unwanted medicines at school, she told her mother the same and her mother along with help of Maya disposed the medicines in a safe way.

In the same way perform safe disposal of expired medicines and inculcate this habit and follow as a life skill.

Let us see, what you have learnt till now

1. At what time should we dispose of the medicines?
 - a. Medicines have passed the expiry date
 - b. They are no longer needed
 - c. Doctor has changed the medicines
 - d. All of the above
2. When a medicine can be termed as damaged?
 - a. Changed the colour
 - b. Has smell
 - c. Expired
 - d. All of the above
3. What is the correct way to dispose the medicines?
 - a. Flush it in the washroom
 - b. Do not remove your personal information from medicine bottle
 - c. Give them to drug take-back programs
 - d. Throw in garbage without sealing in plastic bag