

تم تحميل هذا الملف من موقع المناهج الإماراتية



## حل مذكرة مراجعة امتحانية وفق الهيكل الوزاري المسار العام

موقع المناهج ← المناهج الإماراتية ← الصف الثاني عشر ← علوم صحية ← الفصل الثالث ← الملف

تاريخ إضافة الملف على موقع المناهج: 2024-05-30 09:22:55

إعداد: Ghareeb Taleb Maitha

## التواصل الاجتماعي بحسب الصف الثاني عشر



اضغط هنا للحصول على جميع روابط "الصف الثاني عشر"

## روابط مواد الصف الثاني عشر على تلغرام

[الرياضيات](#)

[اللغة الانجليزية](#)

[اللغة العربية](#)

[التربية الاسلامية](#)

## المزيد من الملفات بحسب الصف الثاني عشر والمادة علوم صحية في الفصل الثالث

[حل مراجعة نهائية وفق الهيكل الوزاري المسار المتقدم](#)

1

[حل وشرح مراجعة نهائية المسار المتقدم](#)

2

[مراجعة امتحانية اختيار من متعدد نموذج ثالث](#)

3

[مراجعة امتحانية اختيار من متعدد نموذج ثاني](#)

4

[مراجعة امتحانية اختيار من متعدد نموذج أول](#)

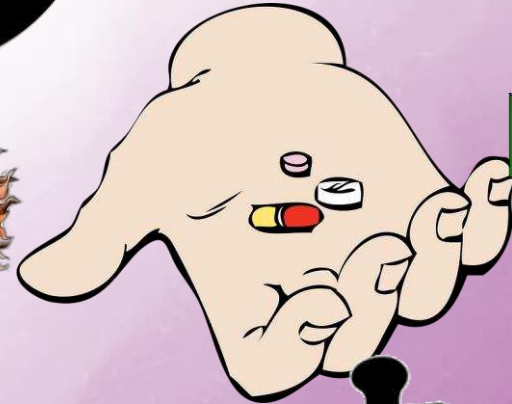
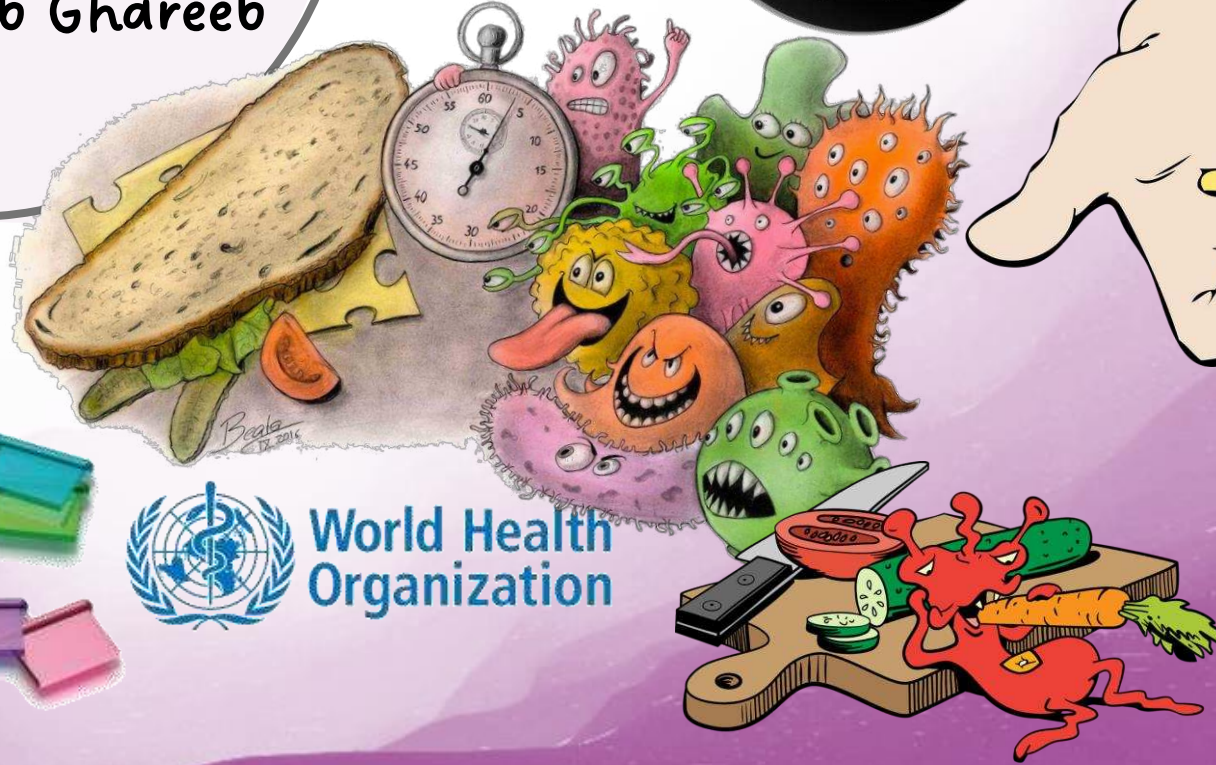
5

HS Final Exam Review  
Term3 (2024-2023)  
Grade12 **General**

Maitha Taleb Ghareeb



Rx



P12-16



**Ancient/ old Greece:** the 1<sup>st</sup> to use drugs

Asclepios + Hygeia “the masters of medicine/ health & hygiene”

**Herb:** a plant or part of it.

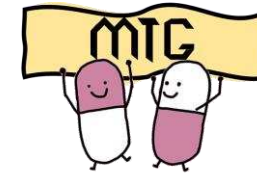
**Egypt + India + China:** used plants & herbs أعشاب

In ancient Egypt, a **small separation** between pharmacy & medicine happened.

**Medicine** الطب

**Pharmacy** الصيدلة  
تجمع تحضير  
(collect/ prepare/  
صرف/ اعطاء  
dispense drugs)

Pharmacy started as a part of medicine



في تعريف ثاني للصيدلة انتبهوا!!

**Pharmacy:** clinical health science (medical science + chemistry + biology)

**dispensing** صرف الدواء: giving drugs/ medicines following a doctor's prescription وصفة طبية

**Botany**

تشبه كلمة “pot” الذي يتم زراعة plants فيه.

Botany = بستان



فكرة الطالبة: سارة حسن <3

**Pharmacist:** healthcare professional who is involved in pharmacy

**Islamic Golden age**

(8<sup>th</sup> – 14<sup>th</sup> century):

#**Separate** between pharmacy and medicine

#Great knowledge in **chemistry** & **botany** “study of plants”

#Lots of books were written

#**Al Razi** (the first to write books based on home treatments)

#1<sup>st</sup> pharmacies were built in **Baghdad**

In the 16<sup>th</sup> century a law was created: “only **pharmacists** are allowed to prepare medicines”

**Pharmacists** صيدلاني (types of pharmacy)

أنواع الصيدلة

**Community** مجتمع

(pharmacy in **public places** where you can buy medicine)

**Home care** رعاية منزلية

(send medication to old/ sick people at **home**)

**Research** أبحاث

(develop **new drugs**)

**Clinical** عيادي

(work at **hospital** with doctors & nurses)

بداية عمر الإنسان

**Pediatric** (children/ infants) أطفال

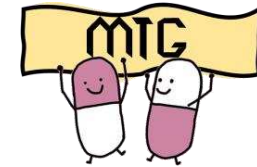
عندما يجري العمر

**Geriatric** (old people) كبار السن

سايكو

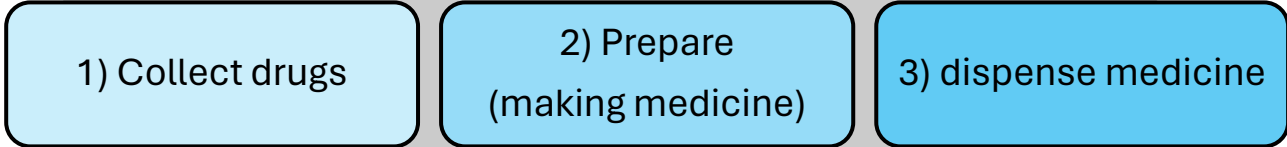
**Psychiatry** (mental disorders) أمراض نفسية

**Oncology** (cancer) السرطان



P22

# PHARMACY

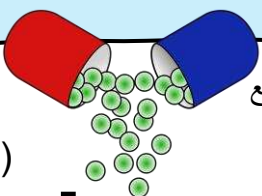


**drugs** = ingredients

- ✓ Drugs are chemical substances taken from:
  - Plants (herbs)
  - Animals
  - Microorganisms
  - Minerals
- ✓ They are **NOT** used directly as a treatment.

- ✓ **Excipients** are used to prepare medicines.
- ✓ Helps to:
  - Formulate
  - Protect
  - Support
  - Make medicines safe to use
- ✓ Most medicines have excipients added to them.

- ✓ **Medicines** are directly used as a treatment.
- ✓ They are the result of **mixing** a drug or drugs, sometimes with or without excipient.



المادة الفعالة في الدواء  
(مثال: البودرة اللي في الكبسولة)

المادة غير الفعالة في الدواء ويتم خلطها مع  
المادة الفعالة لجعل الدواء سهل وآمن في  
الاستخدام (مثال: الكبسولة الخارجية)

**Ready to be used!**  
الدواء جاهز للعلاج والاستخدام المباشر

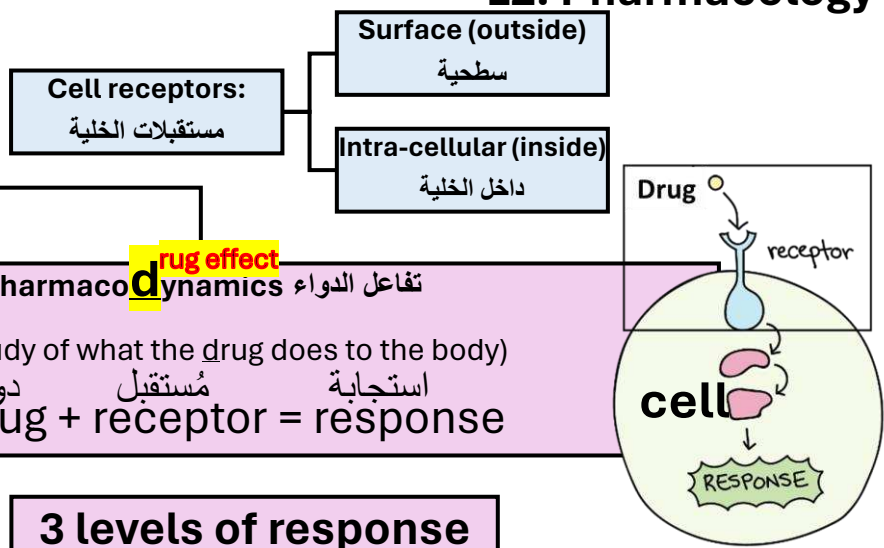
**drug(s) + excipient<sub>extra</sub> (with/without) = medicine**

يمكن ينضاف يمكن لا



P18-21

**Pharmacology علم الدواء**  
(the study of drug)



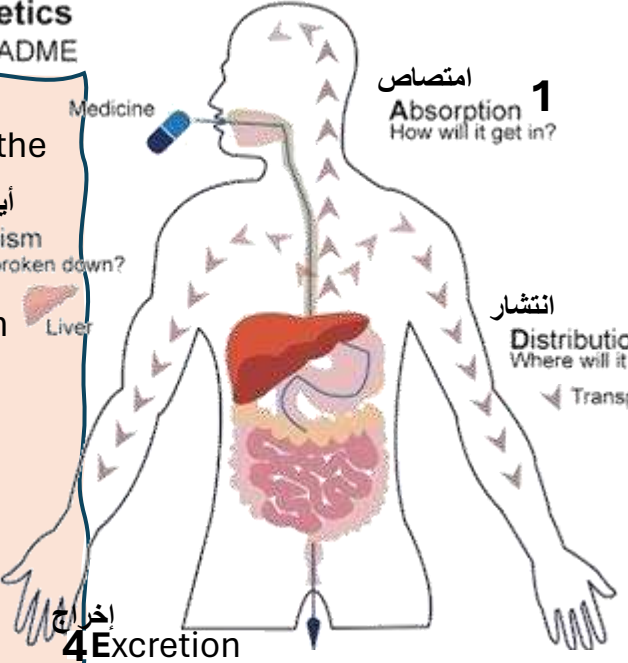
يُوصف المراحل التي يمر بها الدواء من لحظة دخوله للجسم لحظة تخرجه منها

**Pharmacokinetics حركة الدواء**  
(The study of what the body does to the drug)  
What happens to the drug once it enters the body?  
**ADME**

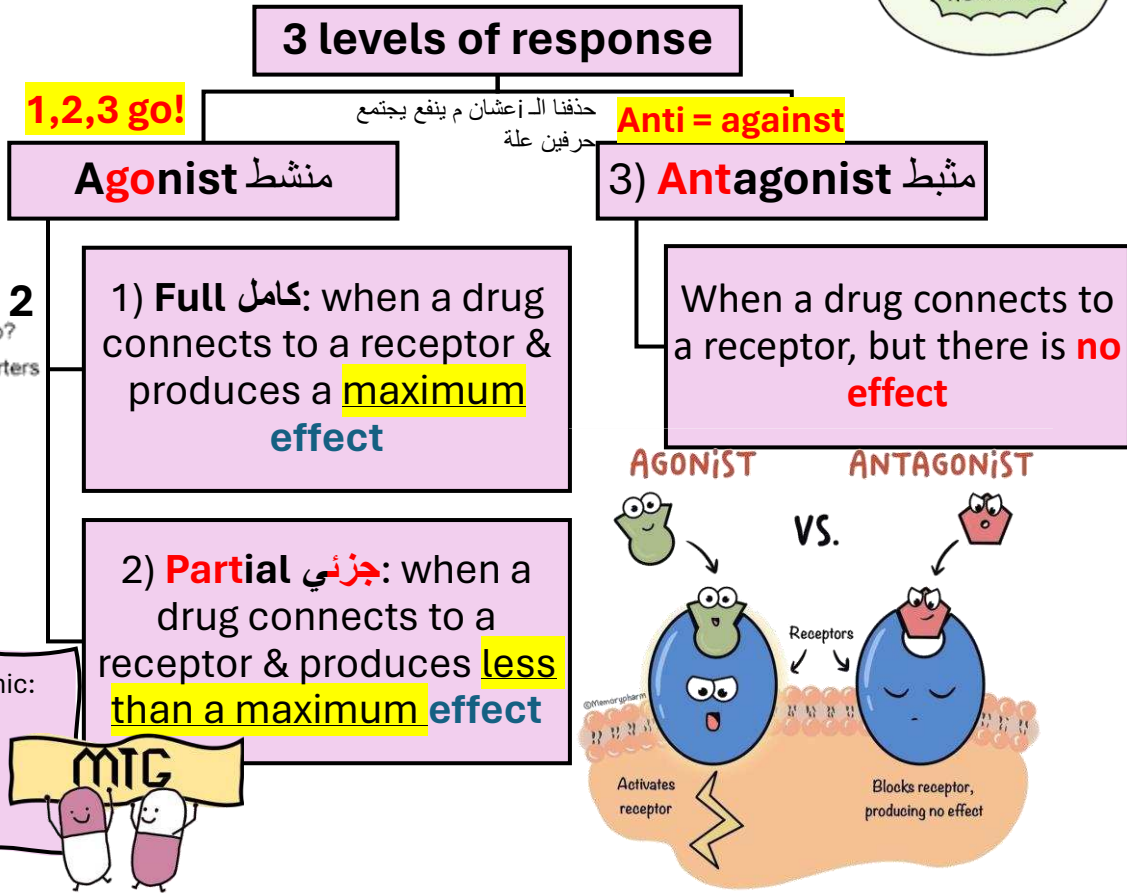
عكس بعض  $\neq$

**Pharmacodynamics تفاعل الدواء**  
(The study of what the drug does to the body)  
دواء مُستقبل استجابة  
**Drug + receptor = response**

- Pharmacokinetics**  
The principles of ADME
- Absorption:** how the medicine gets into the body (enter blood stream)  
أيض (تكسير) **3 Metabolism** How is it broken down?
  - Distribution:** where the medicine goes in the body (move with blood stream)
  - Metabolism:** what the body does to the medicine (breaks down in liver)
  - Excretion:** how the body gets rid/ remove of the medicine (eliminated in urine through kidneys)

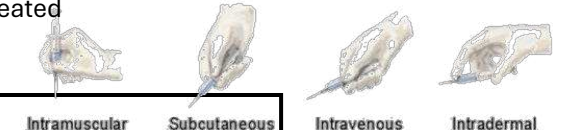


- Factors** عوامل affecting pharmacodynamic:
- 1) Patient age.
  - 2) Disease type.
  - 3) Pregnancy.
  - 4) Other drugs in the body.



طرق إعطاء الدواء  
Routes of administration:  
Provide/give

Depends on 3 Factors:  
1) Which body part is being treated  
2) How the drug works  
3) The drug's formula



P24-29

**PO**  
**Oral-B** Oral فموي amal ahmed  
(by mouth) 12/ADV

**Time until effect:**  
20 mins – 1 hour

**Forms of medication:**



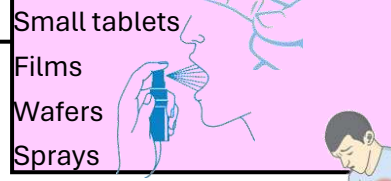
**Advantages:**  
✓ Easy/ safe/ cost-effective (cheap)  
✓ Stable & provide accurate dose.  
✓ **Slow-release** (need only to be taken once/ twice a day)

**Disadvantages:**  
X Unpredictable absorption rate affecting the effect.  
X Slow absorption it take time to show any **effect** (go through digestive system)

**SL**  
**Sublingual** (under the اللسان) &  
**buccal** (between اللثة & cheek)

**Time until effect:**  
3-5 mins

**Forms of medication:**



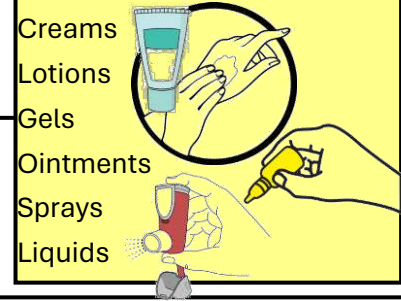
**Advantages:**  
✓ Lower doses needed  
✓ If the patient cannot swallow or nauseatic

**Disadvantages:**  
X Uncomfortable to hold small tablets for a long time  
X Can be swallowed accidentally  
X Eating/ drinking while holding the tablet can affect the absorption

**TOP**  
**Topical** موضعي  
(applied directly on affected area)  
Easy reached areas: skin/ eyes/ ears/ nose

**Time to take effect:**  
Variable (minutes to hours)

**Forms of medication:**



**Advantages:**  
✓ Easy to apply  
✓ Good for treating specific area  
✓ Low risk of side effects

**Disadvantages:**  
X Not well absorbed into deep layers of skin  
X Absorption can be slow  
X Stain cloths

**Parenteral** بالحقن  
(injection/ infusion)

**Intra-dermal:** في الجلد  
Into skin layers  
e.g., allergy test

**Intra-venous: IV** في الوريد  
Into vein  
e.g., saline infusion  
(takes from 30-60 seconds)

**Sub-cutaneous: SC** تحت الجلد  
Into **fat** under skin  
e.g., insulin infusion  
(take from 15-30 mins)

**Intra-muscular: IM** في العضل  
Into muscle  
e.g., vaccine  
(take from 10-20 mins)

**Advantage:**  
✓ Faster drug action  
✓ Useful for unconscious patients

**Disadvantage:**  
X Require aseptic (clean) conditions  
X Can be painful  
X Most injections are not self-administered  
X Dangerous if administered incorrectly

الأدوية الفموية بطيئة التأثير لأنها تمر عبر الجهاز الهضمي مع الطعام



**Sub- = under = تحت**  
مثال: sub-title هو العنوان اللي يكون تحت العنوان الرئيس  
تذكروا: **Sub-lingual = تحت اللسان**

اشتقينا كلمة **lingual** من كلمة **language** وطبعاً م نقدر نتكلم أي لغة من غير اللسان  
language = lingual = اللغة = اللسان  
فكرة الطالبة: سارة حسن

تذكر:  
**inter ≠ intra**  
مثل **Inter = between**  
**inter-net** "الشبكة البينية"  
**Intra = inside = داخل**

P30-33

**Antibiotics:**  
المضادات الحيوية

تذكر:  
Anti- = against مضاد / ضد  
Ante- = before قبل

**Problems:**

**What is antibiotic?**  
(e.g., penicillin)

Medication to destroy or slow the growth of **bacteria**

Examples of bacterial infections:  
Tuberculosis "TB" / cholera/ tonsilitis

Can antibiotics treat viral infection (e.g., COVID-19/ flu/ cold/ chickenpox)?

**No**

انتبهوا المضاد الحيوي ما ينفع للفيروسات والأمراض الفيروسية مثل كورونا!

**Routes of administration?**

Mainly oral

Injection (parenteral)

Topical (directly applied on infected area)

**Why is it important "to complete the course" of antibiotic even after you feel well?**

To make sure that all bacteria are destroyed & to avoid "antibiotic resistance"

That is why most antibiotics need a few hours to fight bacteria

**What is antibiotic resistance? Why does it happen?**

The **overuse** of antibiotics develop super bacteria!  
Meaning the antibiotic becomes **useless** against bacteria & no longer effective!

**Resistance:**  
مقاومة stopping something from having effect

**Side effects:** التأثيرات الجانبية / الأعراض الجانبية (harmful/ unwanted effects)

**Common side effects:**  
#Diarrhea إسهال  
#Nausea غثيان  
#Vomiting قيء  
#Upset stomach مغص  
#Rash طفح جلدي

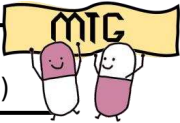
**Less common/ rare side effects:**  
#Kidney stones حصى كلى  
#Blood clotting & disorders اضطرابات دم وتخثر  
#Bowel inflammation التهاب في الأمعاء

**When to prescribe antibiotics?**

**Conditions include:**  
#If the infection is **unlikely to clear up** without antibiotic.  
#If the infection **could spread** if not treated.  
#If antibiotic can **speed up recovery** significantly.  
#If there is a risk of more dangerous **complications**

✓ Side effects range from **mild** to **life-threatening** (very rare).  
✓ Some medications show side effects in 1 out of 10 people, other medications side effects show only in 1 out of 10,000 people.





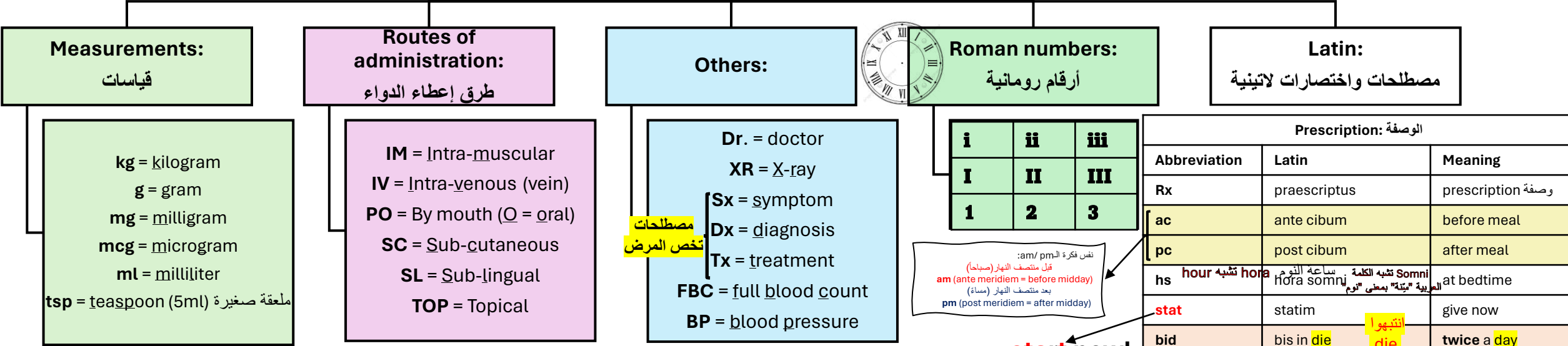
جرعة أقل من المطلوب Under-dose	جرعة زائدة Over-dose
Take medication <u>less</u> than recommended or prescribed	#Take medication <u>more</u> than the recommended amount #Overdosing is <u>very toxic</u> & can lead to death

P34-39

Why is it importance to interpret abbreviations correctly?  
Ensure patient's safety & avoid **medication errors** (underdose or overdose)

**Abbreviations:**  
اختصارات

Example: "Rx Captopril 25mg, i, SL, STAT, high BP"  
"Prescription: Captopril 25 milligram, one tablet, sublingual, give now. This medication is being administered because the patient has high blood pressure"




**Rx:**  
"Recipe" أيام أول كانوا يستخدموا كلمة "prescription" بس وبعدين تغيرت لـ الاختصار م تغير


كلمة "cibum" تشبه كلمة "سينابون"  
فكرة الطالبة: غزلان خلفان  
cibum = meal = وجبة



كلمة "insomnia" بمعنى الأرق وعدم القدرة على النوم.  
لو حذفنا الـ in أصبحت "somni" بمعنى نوم!



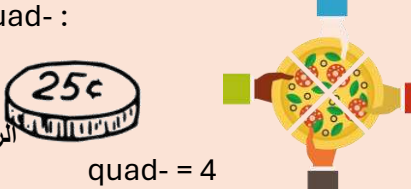
Prefix bi- :  
bicycle  
bi- = 2



Prefix tri- :  
triangle  
المثلث عنده ثلاث زوايا



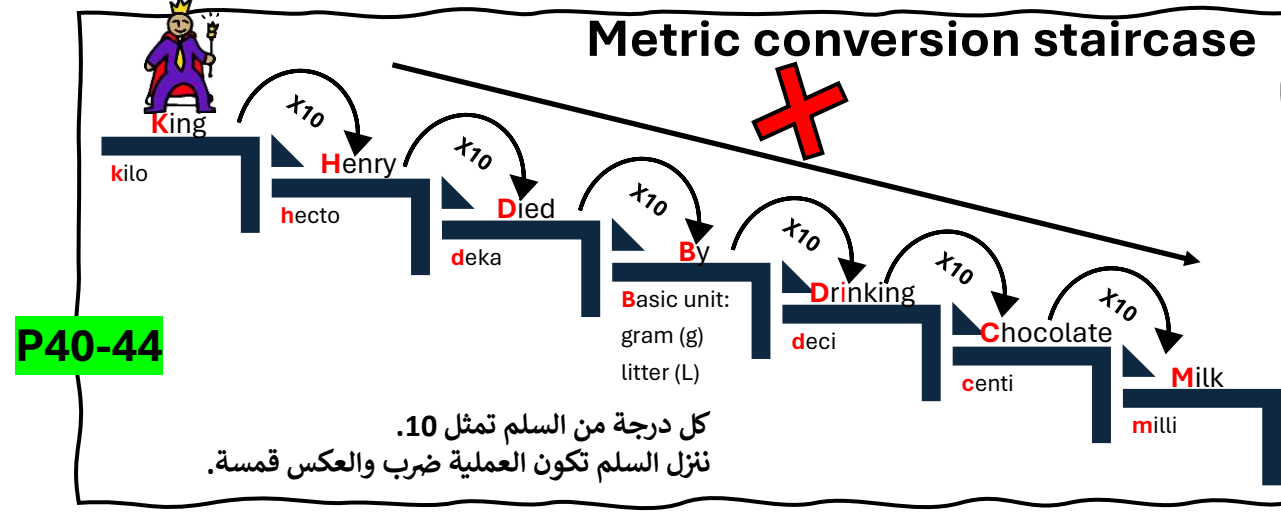
Prefix quad- :  
quarter الربع له علاقة بالرقم 4  
quad- = 4



**qid**  
فكرة الطالبة: عائشة جمعة سعيد







**Convert the following units:**

**15g to mg**  
 $15 \times 1000 = 15000\text{mg}$   
 نزول الدرج يعني ضرب. نزلنا 3 درجات يعني نضرب في 1000

**7000g to kg**  
 $7000 \div 1000 = 7\text{kg}$   
 صعود الدرج يعني قسمة. صعدنا 3 درجات يعني نقسم على 1000

**Convert 180 seconds to minutes.**  
 $1\text{min} \times ? = 180\text{s}$   
 حركة المقص بتساعدكم في التحويل  
 $(1 \times 180) \div 60 = 3\text{mins}$



**Calculating drug dosages:**  
 حساب جرعات الأدوية

**Tablets**  
 الحبوب

Example: The doctor prescribed 500mg of a drug that is available in a stock strength of 100mg. Calculate how many tablets are needed using the basic formula.

$\text{Prescribed dose} \div \text{stock strength} = \text{number of tablets needed}$

$500\text{mg} \div 100\text{mg} = 5 \text{ tablets}$

**Mixtures & solution**  
 المحاليل والمخاليط

Example: The doctor prescribed a 500mg dose of solution. It is available in a strength of 250mg/5ml. How much solution is needed?

$\text{Desired dose} \div \text{stock strength} \times \text{stock volume} = \text{amount of solution}$

$500\text{mg} \div 250\text{mg} \times 5\text{ml} = 10\text{ml}$

**IV rate (ml/hr)**  
 المعدل/ السرعة اللي ينزل بها المحلول الوريدي

Example: The doctor prescribed 120ml of IV liquid medicine over a period of 3 hours. How much liquid is administered per hour?

$\text{Total IV volume (ml)} \div \text{time (hours)} = \text{quantity administered per hour (ml)}$

$120\text{ml} \div 3\text{hrs.} = 40 \text{ ml/hr.}$

في الامتحان النهائي كل المعادلات بتعطي فبدون فلسفة عوضوا بالأرقام في المعادلة المعطاة وإن شاء الله بتوجدوا الحل بكل سهولة! تدرّبوا!

مواصفات التواصل الفعال

P46-50

Safety measures إجراءات الأمن والسلامة

Measure = Procedure = Action

- The 5Cs of effective communication:**  
التواصل الفعال:
- 1) **C**lear "exact" واضح
  - 2) **C**ohesive "make sense" متماسك
  - 3) **C**omplete "all the info." كامل
  - 4) **C**oncrete "specific" محدد
  - 5) **C**oncise "direct & brief" مختصر

Effective communication: التواصل الفعال (5Cs)

- #Ensure patient's safety
- #Avoid drug/ medication error (follow the 6 rights)
- #Better treatment
- #Build good relationship with the patient

Storing medication: تخزين الأدوية

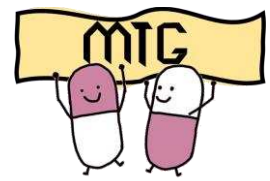
- @Store all medication out of reach of children
- @Vitamins, creams, eye drops & hand sanitizers are considered medication
- @Close medicine caps tightly & put them away after each use
- @Check the date & dispose expired medications properly
- @Becareful in places you visit with a child

**Medication error الخطأ الدوائي:** is when the patient takes the **wrong medication** at the **wrong time** or **wrong dose** (over/under dose)

- الخطأ الدوائي يمكن يحدث بسبب أخذ:
- (1) دواء خطأ
  - (2) في التوقيت الخطأ
  - (3) خطأ في الجرعة "الكمية"

- The 6 rights الحقوق الستة of drug administration:**
- 1) **Right drug:** choose **correct drug**, errors can happen if the two drugs have a similar name.
  - 2) **The right patient:** the caregiver should double-check the **patient's name and DOB** on the label.
  - 3) **Right dosage:** administer **the exact amount** directed by the doctor.
  - 4) **Right route of administration:** the medication should only be given by the **route** it was prescribed.
  - 5) **Right time:** **correct time**, thirty minutes before or after is acceptable.
  - 6) **Right documentation:** when you give medication, you should make a **record**.  
**Record:**
    - ✓ When (time)
    - ✓ What (medication/ dose/ route)
    - ✓ Any side effects

عشان نتلافى الخطأ الدوائي لابد من التواصل الفعال والحقوق الستة المذكورة.



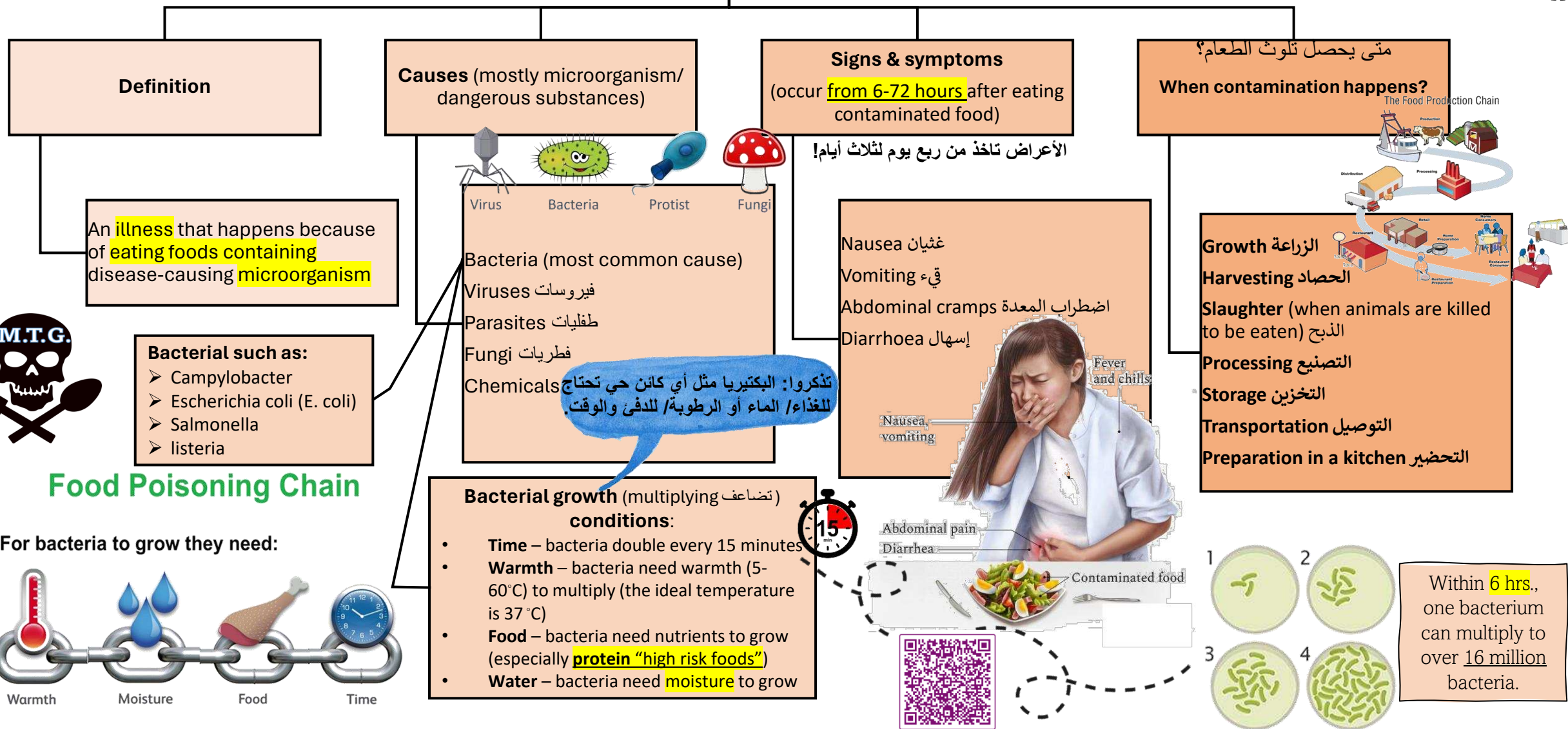


**Foodborne illness/ foodborne disease**  
 الأمراض المحمولة على الطعام  
 (food poisoning) التسمم الغذائي

P58-62



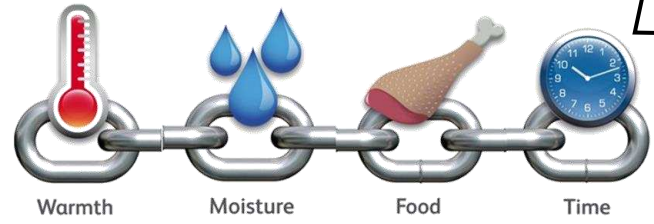
There are more than **200 foodborne diseases** ranging from diarrheal disease to cancer.  
**1 in 10 ppl** become ill after eating contaminated food.  
**Yearly: 420,000 die** from foodborne illness (125,000 are children younger than 5)



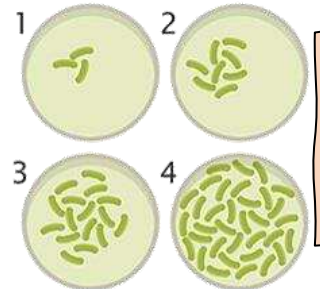
- Bacterial such as:**
- Campylobacter
  - Escherichia coli (E. coli)
  - Salmonella
  - listeria

**Food Poisoning Chain**

For bacteria to grow they need:



- Bacterial growth** (multiplying تضاعف) **conditions:**
- **Time** – bacteria double every 15 minutes
  - **Warmth** – bacteria need warmth (5-60°C) to multiply (the ideal temperature is 37 °C)
  - **Food** – bacteria need nutrients to grow (especially **protein "high risk foods"**)
  - **Water** – bacteria need **moisture** to grow



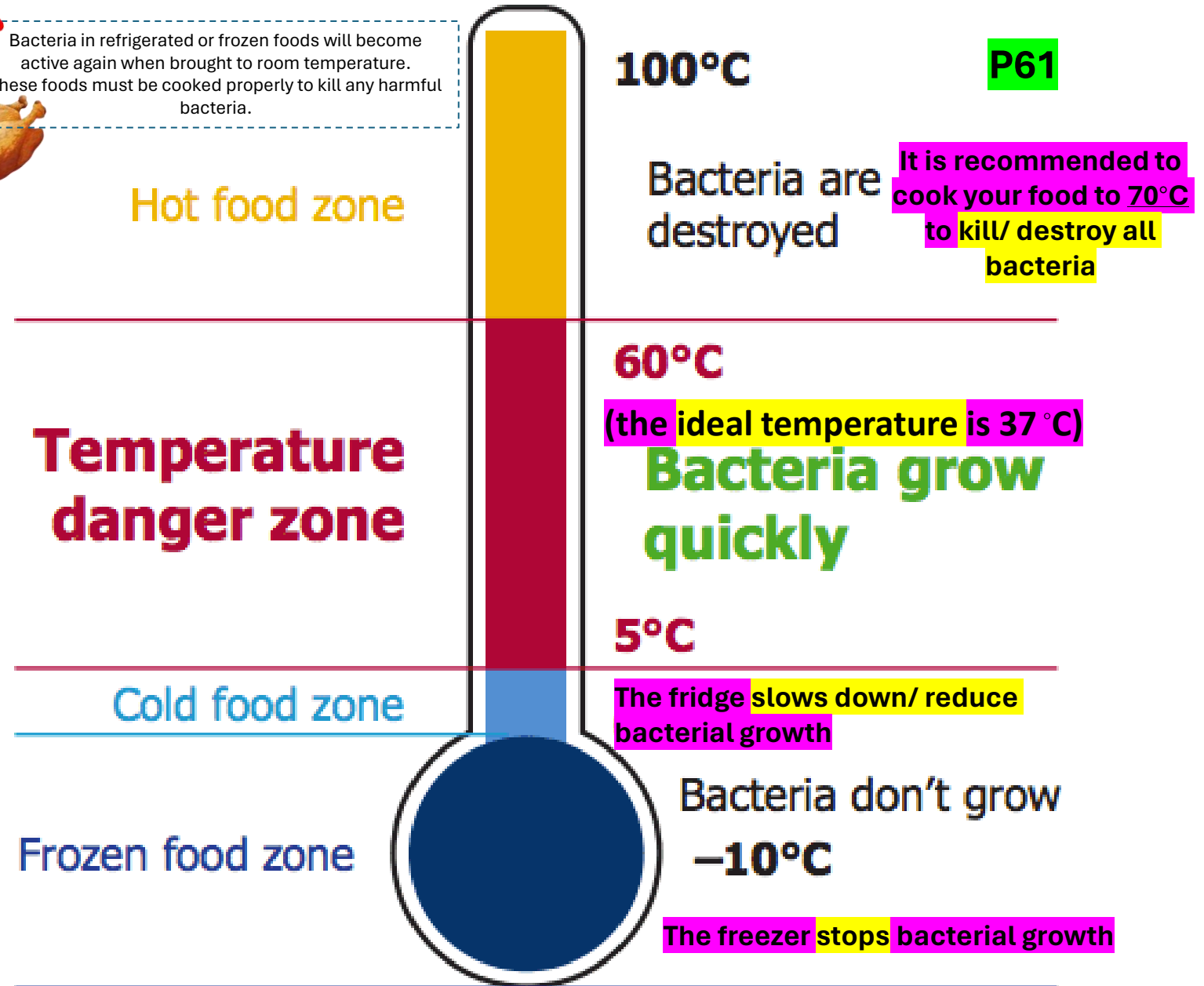
Within **6 hrs.**, one bacterium can multiply to over **16 million** bacteria.



- The temperature danger zone is between 5°C and 60°C, when it is easiest for harmful bacteria to grow in food
- Minimise the time that food spends at these temperatures in order to keep food safe
- Refrigerated food needs to be kept at 5°C or below
- Hot food needs to be kept at 60°C or above



Bacteria in refrigerated or frozen foods will become active again when brought to room temperature. These foods must be cooked properly to kill any harmful bacteria.





**High-risk foods**  
(foods that more at risk of bacterial growth & more likely make us sick)

**P63-65**

**Poultry**

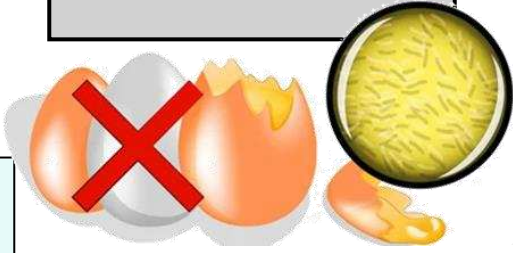
Avoid washing raw chicken as this will spread bacteria around the kitchen.

**DON'T WASH YOUR CHICKEN!**



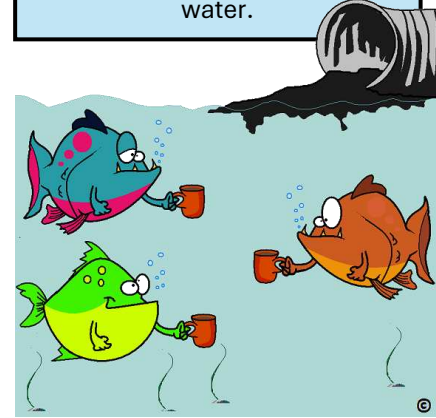
**Eggs**

Bacteria can live in the yolk, white part of the egg & on the eggshell.  
ممكن التلوث يكون موجود في كل مكونات البيضة!



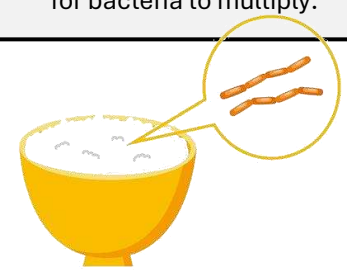
**Seafood**

There are lots of different bacteria & toxins in fish, even cooking them to high temperatures cannot get rid of some toxins especially fish contaminated through sewage water.



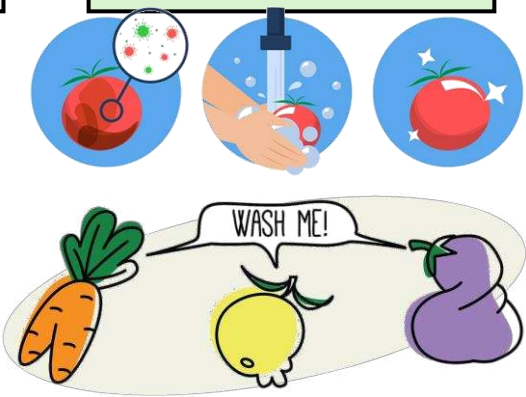
**Rice (leftover rice)**

Bacteria can live in both uncooked & cooked rice.  
Cooked rice provides heat, moisture & food which are perfect for bacteria to multiply.



**Vegetables**

Leafy green vegetables are especially dangerous as they are usually eaten raw.  
It is important to wash vegies before eating them.



**Careful!**  
High-risk foods are more dangerous than other foods, because they are more at risk of bacterial growth!



Cross-contamination  
انتقال/ عبور التلوث

P66-67

Bacteria are hitchhikers.



Definition

How bacteria can spread & contaminate safe food.

It happens when bacteria from an object, a food or a person touch safe food (3 types)

It also can refer to allergen touch safe food making it dangerous for allergic people!

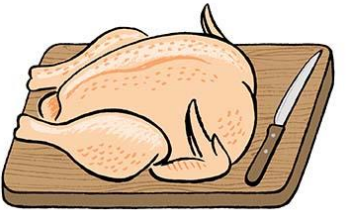
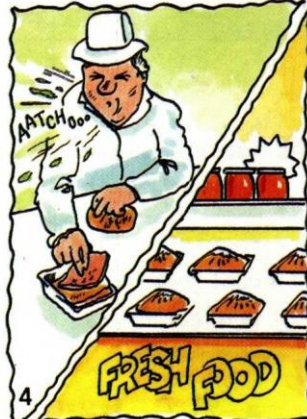
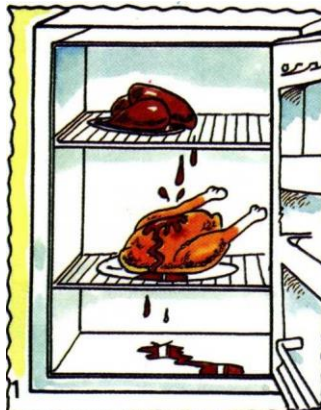
Contaminated food: when a harmful or unwanted substance such as bacteria gets into food.  
X Eating contaminated food cause foodborne illnesses which may lead to other complications

Types

1) Equipment-to-food  
Most common type of cross contamination.  
Happens when germs transfer from dirty equipment to food like:  
#countertops  
#cutting boards  
#utensils (knives & forks)  
#storage containers  
#factory equipment  
It is important to properly wash equipment using soap and hot water.

2) Food-to-food  
Can happen if raw food touch clean food, or if the juices from raw food drips into other food, either in the fridge, shopping cart or while preparing food.  
e.g., adding unwashed, contaminated lettuce to a fresh salad can contaminate the other ingredients

3) People-to-food  
Happens when bacteria transfer from a person's body or cloths to clean food.  
A person could cough into their hand and continue to prepare a meal without washing their hands



**DON'T**  
cross contaminate



P69

## Prevent cross contamination

Use the correct colour coded chopping boards and knives

Raw meats and poultry only

لون الدم

Raw fish and shellfish only

لون البحر

Raw unwashed vegetables, salads and fruits only

لون التراب

Ready to eat and cooked foods only

Washed vegetables, salads and fruits only

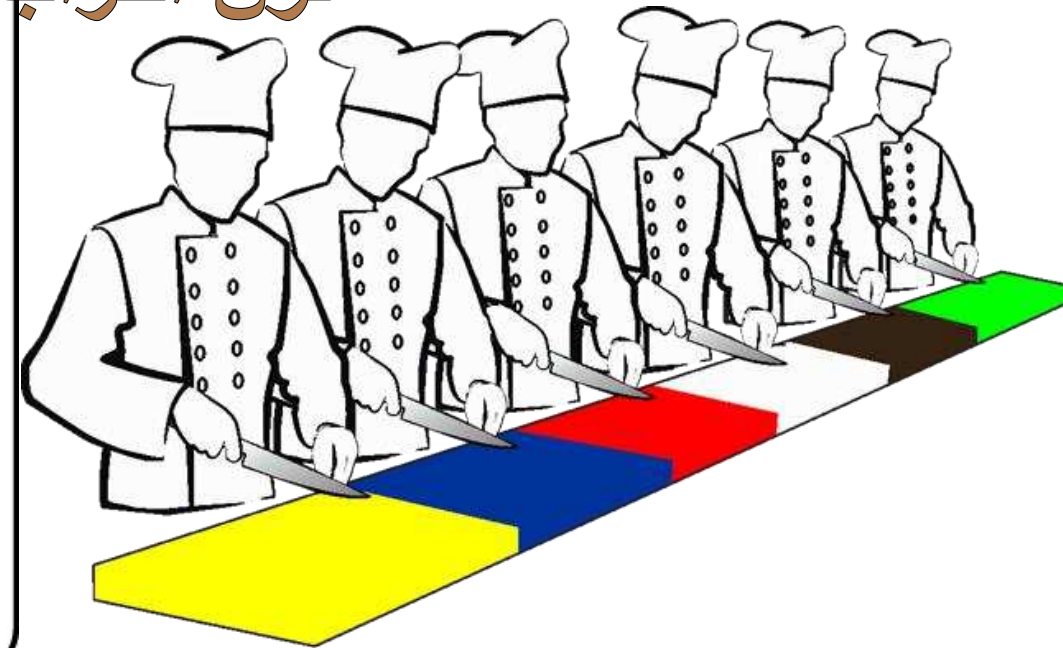
Bakery and dairy products only

Food hygiene act 1996

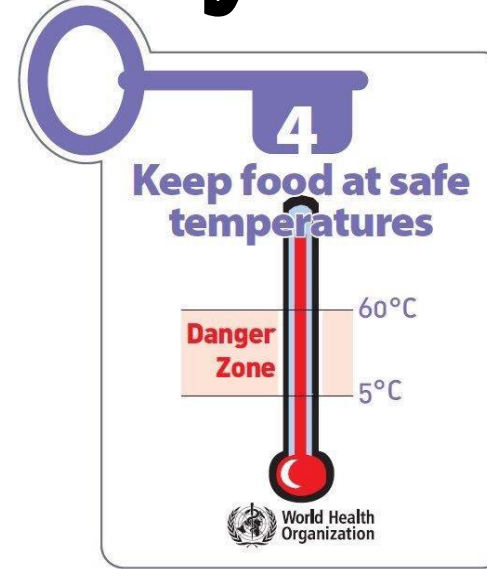
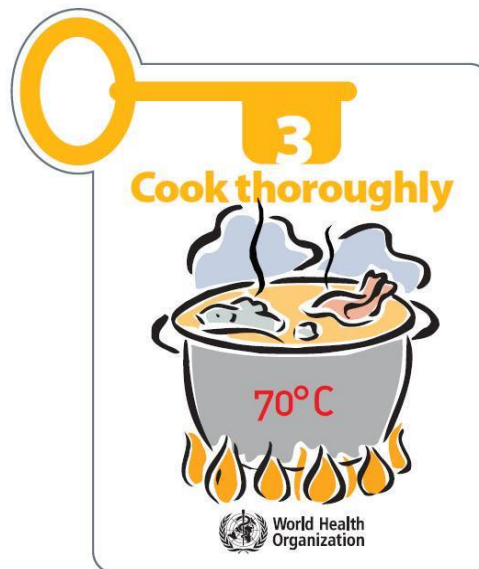
Raw  
النيء

لون الخضار

لون الحليب والطحين

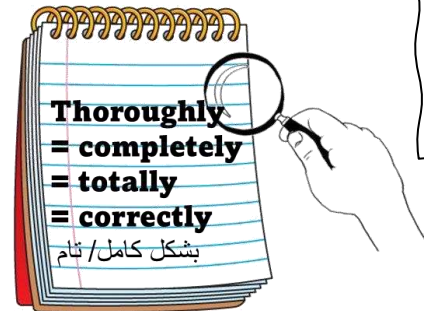


# 5 keys for food safety



**Cleaning:** the process of removing dirt & crumbs of food.

**Sanitizing:** the process of killing germs/ disinfecting.



تذكروا: الأكل المطبوخ يخزن في الرف العلوي والأكل النيء واللحوم تحت عشان نمنع انتقال الجراثيم.  
**Cooked food should be kept above raw food to avoid cross-contamination!**





#	Question:	Answer:																		
1	What is the definition of pharmacy?	The science of collecting, preparing and dispensing drugs																		
2	Pharmacy is the clinical science that combines which three sciences?	1) Medical sciences 2) Chemistry 3) Biology																		
3	<table border="1"> <thead> <tr> <th></th> <th>True</th> <th>False</th> </tr> </thead> <tbody> <tr> <td>Pharmacy is the science of collecting, preparing and dispensing drugs.</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Pharmacy is a very modern and new science. It didn't exist since a very long time ago.</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Ancient (old) Greeks were the first ones to treat a person using a drug.</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>During the Islamic Golden Age, the separation between pharmacy and medicine happened.</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Pharmacists are healthcare professionals specialised in preparing, using, storing and providing medicines.</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>		True	False	Pharmacy is the science of collecting, preparing and dispensing drugs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Pharmacy is a very modern and new science. It didn't exist since a very long time ago.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ancient (old) Greeks were the first ones to treat a person using a drug.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	During the Islamic Golden Age, the separation between pharmacy and medicine happened.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Pharmacists are healthcare professionals specialised in preparing, using, storing and providing medicines.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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4	What are the four types of pharmacy you studied in this unit?	1) Community pharmacy 2) Clinical pharmacy 3) Research pharmacy 4) Homecare pharmacy																		
5	<p>The first table below has four different types of pharmacy. Read the sentences in the second table and decide which one describes each type of pharmacy.</p> <table border="1"> <thead> <tr> <th>community</th> <th>clinical</th> <th>home care</th> <th>research</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	community	clinical	home care	research					<table border="1"> <tbody> <tr> <td>These pharmacists develop new drugs.</td> <td><b>Research</b></td> </tr> <tr> <td>These pharmacists work in a pharmacy where you would go to buy medicines.</td> <td><b>Community</b></td> </tr> <tr> <td>These pharmacists work in hospitals with doctors and nurses.</td> <td><b>Clinical</b></td> </tr> <tr> <td>These pharmacists are responsible for preparing and sending medication to people who are at home.</td> <td><b>Home care</b></td> </tr> </tbody> </table>	These pharmacists develop new drugs.	<b>Research</b>	These pharmacists work in a pharmacy where you would go to buy medicines.	<b>Community</b>	These pharmacists work in hospitals with doctors and nurses.	<b>Clinical</b>	These pharmacists are responsible for preparing and sending medication to people who are at home.	<b>Home care</b>		
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#	Question:	Answer:
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6

In the diagram below, write the name of the two principals of pharmacology and explain what each of them mean

```

graph TD
    A[Pharmacology] --> B[Pharmacokinetics]
    A --> C[Pharmacodynamics]
  
```

7

There are four stages of pharmacokinetics. In the spaces below, write the name of each stage and explain what it means.

Stage of pharmacokinetics	What does it mean?
<b>Absorption</b>	How the medicine gets into the body
Distribution	<b>Where the medicine goes in the body</b>
<b>Metabolism</b>	What the body does to the medicine
Excretion	<b>How the body gets rid of (removes) the medicine</b>

8

What is the meaning of pharmacodynamics?  
 ..... Pharmacodynamics is the study of what the **drug** does to the body  
 .....

What factors affect the pharmacodynamics of a drug?

- ✓ Patient age.
- ✓ Disease type.
- ✓ Pregnancy.
- ✓ Other drugs in the body.

# Question:

Answer:

9 Look at the sentences in the table below. Choose whether they are describing pharmacokinetics or pharmacodynamics.

Statement	Pharmacokinetics	Pharmacodynamics
Metabolism is what the body does to a drug.	<b>K</b>	
This is the study of what happens to drugs once they enter the body.	<b>K</b>	

Statement	Pharmacokinetics	Pharmacodynamics
Patient age or pregnancy are factors that influence what the drug does to the body.		<b>D</b>
This is the study of the effect that drugs have on the body.		<b>D</b>

10

Sentences	True	False
Drugs are directly used as a treatment. For example, a drug can directly treat a pain or cure an infection.		<b>X</b>
An excipient helps formulating, protecting or supporting a medicine.	✓	
Medicines are chemical substances that are taken from plants, animals, microorganisms or minerals.		<b>X</b>

Medicines can contain (have) an excipient or not.	✓	
Drugs are considered ingredients to medicines.	✓	
An excipient makes a medicine unsafe and harmful to use.		<b>X</b>
Medicines are directly used as a treatment.	✓	

11 Match the following routes of administration with the correct explanation.

#	Question:	Answer:
---	-----------	---------

12	Choose one of the routes of administration and write down one advantage and one disadvantage of this route.				
	<b>Route of administration:</b>	<b>Oral</b>	<b>Sublingual + buccal</b>	<b>Topical</b>	<b>Parenteral</b>
	<b>Advantages:</b>	#The <u>easiest/ safest</u> & most <u>cost-effective</u> . # <u>Stable</u> & provide <u>accurate dose</u> . # <b>Slow-release</b> over a period of 12/ 24 hrs. (need to be taken once or twice a day).	# <u>Lower doses</u> needed (it goes straight into bloodstream) #If the patient <u>unable to swallow</u> or suffer from <u>nausea</u> .	#Easy to apply. #Good if treatment is only needed for <u>specific area</u> . # <u>Lower risk of side effects</u> & affecting other drugs.	#Fast drug action (suitable for emergencies) #For unconscious patients or when the oral drugs do not work.
	<b>Disadvantages:</b>	* <b>Unpredictable absorption</b> . (the drug will not have the expected “wanted” effect).  * <b>Slow absorption</b> , it takes time to show any effect. (not suitable for emergencies)	*Uncomfortable to hold a small tablet for long time. *Can be swallowed accidentally. *The absorption can be affected if the patient is eating or drinking.	*Not well absorbed into deep layers of the skin. *Slow absorption. *Can stain cloths.	*Require aseptic (clean) conditions. *Expensive. *Painful. *Cannot be self-administered as they need a trained medical professional. *Dangerous if administered incorrectly.

13 Look at the images and descriptions below. Identify if the route being described is sublingual or buccal. Write your answer in the boxes below the description.



The drug is placed between your gums and cheek.

**Buccal**



The drug is placed under the tongue.

**Sub-lingual**



















15	What is an antibiotic?	Medicines that destroy or slow the growth of bacteria.
----	------------------------	--

16 Can antibiotics cure (treat) COVID-19 infection? **COVID-19 is viral infection caused by corona virus.**

Yes, it can cure it.

No, it cannot cure it.



#	Question:	Answer:																
14	Decide on the appropriate route of administration for each of the following forms of medication.																	
	<table border="1"> <thead> <tr> <th>Form of medication</th> <th>Route of administration</th> </tr> </thead> <tbody> <tr> <td>   <b>Ointments + creams + gels</b> </td> <td><b>Topical</b></td> </tr> <tr> <td>   <b>Injection</b> </td> <td><b>Parenteral</b></td> </tr> <tr> <td>   <b>Tablet pills</b> </td> <td><b>Oral/ Sublingual + buccal</b></td> </tr> </tbody> </table>	Form of medication	Route of administration	 <b>Ointments + creams + gels</b>	<b>Topical</b>	 <b>Injection</b>	<b>Parenteral</b>	 <b>Tablet pills</b>	<b>Oral/ Sublingual + buccal</b>	<table border="1"> <thead> <tr> <th>Form of medication</th> <th>Route of administration</th> </tr> </thead> <tbody> <tr> <td>   <b>Spray</b> </td> <td><b>Topical/ sublingual + buccal</b></td> </tr> <tr> <td>   <b>Capsule</b> </td> <td><b>Oral</b></td> </tr> <tr> <td>   <b>Infusion</b> </td> <td><b>Parental</b></td> </tr> </tbody> </table>	Form of medication	Route of administration	 <b>Spray</b>	<b>Topical/ sublingual + buccal</b>	 <b>Capsule</b>	<b>Oral</b>	 <b>Infusion</b>	<b>Parental</b>
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17	<b>What is antibiotic resistance and why dose it happen?</b>	When the antibiotic becomes <b>useless</b> and cannot kill/ destroy bacteria. It happens because of antibiotic <b>overuse</b> .																
18	Read the following scenarios and decide if you think the person requires a prescribed antibiotic or not.																	
	<table border="1"> <thead> <tr> <th>Scenario</th> <th>Is an antibiotic needed?</th> <th>Why?</th> </tr> </thead> <tbody> <tr> <td>Mahra has a virus which has given her a chest infection.</td> <td><b>No</b></td> <td><b>Viral infection</b> إصابة فيروسية</td> </tr> <tr> <td>Sultan has a bacterial infection in his eye that spreads easily from person to person.</td> <td><b>Yes</b></td> <td><b>Bacterial infection</b> إصابة بكتيرية</td> </tr> </tbody> </table>	Scenario	Is an antibiotic needed?	Why?	Mahra has a virus which has given her a chest infection.	<b>No</b>	<b>Viral infection</b> إصابة فيروسية	Sultan has a bacterial infection in his eye that spreads easily from person to person.	<b>Yes</b>	<b>Bacterial infection</b> إصابة بكتيرية								
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#

Question:

Answer:

19

What do the following abbreviations mean?

Abbreviation	Meaning
IM	Intra-muscular (into muscles) في العضل
TOP	Topical موضعي
bid	bis in die (twice a day) مرتين في اليوم
Rx	Prescription وصفة طبية
qid	quarter die sumendus (four times a day) أربع مرات في اليوم
PRN	pro re nata (as needed) عند الحاجة

Read the abbreviations below and write the meaning of each of them.

Abbreviation	Meaning
kg	Kilogram
ml	Milliliter
PO	By mouth/ oral
IV	Intra-venous (into vein) في الوريد
Dr.	Doctor
Tx	Treatment
Dx	Diagnosis

#	Question:	Answer:																		
20	<p>Read the following sentences about abbreviations in healthcare and decide if the sentence is true or false.</p> <table border="1"> <thead> <tr> <th>Sentence</th> <th>True</th> <th>False</th> </tr> </thead> <tbody> <tr> <td>Abbreviations are not used in healthcare.</td> <td></td> <td>X</td> </tr> <tr> <td>Abbreviations are only used by doctors.</td> <td></td> <td>X</td> </tr> <tr> <td>Healthcare professionals use abbreviations when writing and communicating.</td> <td>✓</td> <td></td> </tr> <tr> <td>Not interpreting abbreviations correctly can be dangerous for patients.</td> <td>✓</td> <td></td> </tr> <tr> <td>Interpreting abbreviations correctly is very important as it guarantees patients' safety.</td> <td>✓</td> <td></td> </tr> </tbody> </table>	Sentence	True	False	Abbreviations are not used in healthcare.		X	Abbreviations are only used by doctors.		X	Healthcare professionals use abbreviations when writing and communicating.	✓		Not interpreting abbreviations correctly can be dangerous for patients.	✓		Interpreting abbreviations correctly is very important as it guarantees patients' safety.	✓		
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1. What is the diagnosis of the patient?  
**Dx: pneumonia**

2. What type of X-Ray did the patient have?  
**Chest XR**

3. What are the names of the three medicines the patient has been prescribed?  
**1) Augmentin**  
**2) Clindamycin**  
**3) paracetamol**

21

Imagine you are a pharmacist or a nurse, you are going to read now the medical records of a patient who was admitted to hospital yesterday. After you finish reading the medical record, answer the questions on the next page.

♂ 72 y.o. admitted to A&E due to SOB, F/C/S, cough

Tests: Chest XR, FBC, MCS, ABG, Sputum sample.

Dx: pneumonia

Tx: antibiotic therapy, antipyretic

Rx:

- Augmentin 1.2g, IV, qid, pneumonia
- Clindamycin 300mg, PO, tid, ac, 7 days, pneumonia
- Paracetamol 1g, IV, tid, fever

BP 132/77  
T 39.5  
O2 82%  
HR 132  
RR 31

4. What is the indicated route of administration of Augmentin 1.2g and Clindamycin 300mg?  
**Augmentin: intravenous (IV)**  
**Clindamycin: by mouth/ oral (PO)**

5. How many times is Paracetamol 1g prescribed?  
**tid (three times a day)**

6. How many times is Augmentin 1.2g prescribed?  
**qid (four times a day)**

7. When should the patient take Clindamycin 300mg? Before, with or after food?  
**ac (ante cibum) before meal/ food**

#	Question:	Answer:
22	The doctor prescribed 200mg of a drug. The drug is only available in 40mg tablets. How many tablets should be given to the patient?	$Prescribed\ dose \div stock\ strength = number\ of\ tablets\ needed$ $200\ mg \div 40mg = 5\ tablets$
23	The doctor wants to administer a drug intravenously. 120ml of liquid needs to be administered by IV over a period of six hours. How much liquid is administered per hour?	$Total\ IV\ volume\ (ml) \div time\ (hours) = quantity\ administered\ per\ hour\ (ml)$ $120\ ml \div 6\ hours = 20\ ml/hr$

24 Convert the following units. You can use the space below for your calculations.

15g to mg $15 \times 1000 = 15000\ mg$	3kg to g $3 \times 1000 = 3000\ g$
7L to ml $7 \times 1000 = 7000\ ml$	8L to ml $8 \times 1000 = 8000\ ml$
2 hours to min كل ساعة فيها 60 دقيقة $2 \times 60 = 120\ mins$	4 min to sec كل دقيقة فيها 60 ثانية $4 \times 60 = 240\ sec$

Bigger to smaller, **MULTIPLY**

Smaller to bigger, **DIVIDE**

25 Calculate the correct number of tablets in the following scenarios. Remember, the 'No. of tablets' section is for one dose only.

**Scenario 1**  
There is 5mg of prednisolone in one tablet. The doctor wants the patient to take 40mg once daily at 7am. How many tablets should the patient take at 7am?

Desired dose	Equation	Stock strength	Equals	No. of tablets
40	÷	5	=	8

**Scenario 2**  
The doctor has prescribed 400mg of Ibuprofen three times a day for a patient. The tablets come in 200mg tablets. How many tablets need to be dispensed per day?  
حبتين في كل مرة ياخذ الدواء

Desired dose	Equation	Stock strength	Equals	No. of tablets
400	÷	200	=	2

المريض بياخذ الدواء ثلاث مرات في اليوم فينضرب 2 X 3 = 6  
6 ← X 3

**Scenario 3**  
There is 250mg of penicillin in one tablet. The doctor wants the patient to take 500mg twice daily. How many tablets should the patient take in the morning?

Desired dose	Equation	Stock strength	Equals	No. of tablets
500	÷	250	=	2



# Question:

Answer:

26 Look at the scenarios below. Use the calculation tables to calculate the amount of solution needed.

**Scenario 1**

A child has a temperature of 39.0°C. The doctor has ordered a 500mg paracetamol suspension, four times a day. Paracetamol suspension comes in 250mg/5ml. How much paracetamol suspension needs to be dispensed per day?

Desired dosage	Equation	Stock strength	Equation	Stock volume (ml)	Equals	Amount of solution required (ml)
500	÷	250	×	5	=	10 ml

Total per day =  $10 \times 4 = 40 \text{ ml}$   
 المريض بياخذ الدواء أربع مرات في اليوم وكل مرة بياخذ 10ملي

**Scenario 2**

The doctor has ordered a 250mg paracetamol suspension, two times a day. Paracetamol suspension comes in 250mg/5ml. How much paracetamol suspension needs to be dispensed per day?

Desired dosage	Equation	Stock strength	Equation	Stock volume (ml)	Equals	Amount of solution required (ml)
250	÷	250	×	5	=	5 ml

Total per day =  $5 \times 2 = 10 \text{ ml}$   
 المريض بياخذ الدواء مرتين في اليوم وكل مرة بياخذ 5ملي

27 Calculate the correct IV rates in the following scenarios. The 'total IV volume' section should be entered in ml. You may need to do unit conversion.

**Scenario 1**

The doctor has prescribed 300ml of normal saline solution over six hours. What is the rate in ml per hour?

Total IV volume (ml)	Equation	Time (Hours)	Equals	ml administered
300	÷	6	=	50 ml/hr

**Scenario 2**

نحول اللبتر للملي لتر (الوحدة المطلوبة في المعادلة)

A patient needs to be given two litres of saline over 16 hours. What is the rate in ml per hour?  
 $2 \times 1000 = 2000 \text{ ml}$

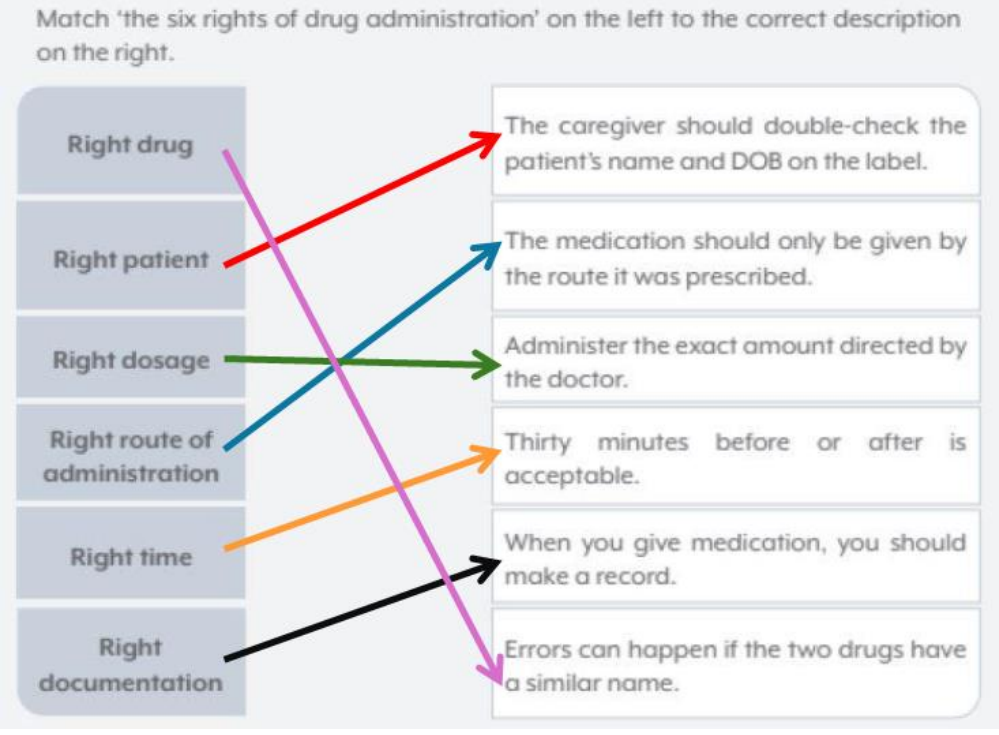
Total IV volume (ml)	Equation	Time (Hours)	Equals	ml administered
2000	÷	16	=	125 ml/hr

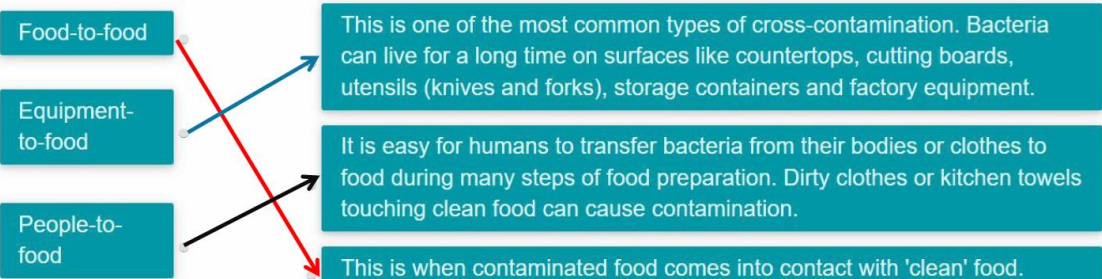
**Scenario 3**

نحول التوقيت من الدقائق للساعات (الوحدة المطلوبة في المعادلة)

A patient needs to be given 50ml of saline over 90 minutes. What is the rate in ml per hour?  
 $90 \div 60 = 1.5 \text{ hours}$

Total IV volume (ml)	Equation	Time (Hours)	Equals	ml administered
50	÷	1.5	=	33.3 ml/hr

#	Question:	Answer:
28	<b>Safe administration and storage of medication are very important. What might happen if medication are not administered or stored (kept) correctly?</b>	<b>Medication errors</b> could occur, or the drug could become less effective, affecting treatment. <b>Medication error:</b> wrong medication, at the wrong time or dosage.
29	<b>What are “the six rights” of drug administration?</b>	<ol style="list-style-type: none"> <li>1) Right drug</li> <li>2) The right patient</li> <li>3) Right dosage</li> <li>4) Right route of administration</li> <li>5) Right time</li> <li>6) Right documentation</li> </ol>
30	<b>Explain how effective communication can improve safety in pharmacy.</b>	<p>#Ensure <u>patient’s safety</u></p> <p>#Avoid <u>drug/ medication error</u> (follow the 6 rights)</p> <p>#Better <u>treatment</u></p> <p>#Build <u>good relationship</u> with the patient</p>
31	<p>Match 'the six rights of drug administration' on the left to the correct description on the right.</p> 	
32	<b>What are foodborne illnesses?</b>	Illnesses that happen because of eating foods containing disease-causing microorganism

#	Question:	Answer:
33	<p><b>Fill in the blanks</b></p> <p>Read the following paragraph about foodborne illnesses. Fill in the blanks with the correct answers.</p> <p>Foodborne illnesses normally last a for <b>a short</b> time. They happen from <b>6</b> to <b>72</b> hours after eating food that is contaminated. Most people recover <b>without</b> treatment.</p>	
34	<p><b>Explain the following types of cross-contamination:</b></p> <p><b>1) Equipment-to-food:</b> Happens when germs transfer from dirty equipment to food like: <b>countertops, cutting boards, utensils</b> (knives &amp; forks), <b>storage containers &amp; factory equipment.</b></p> <p><b>2) People-to-food:</b> Happens when bacteria transfer from a person's body or cloths to clean food.</p> <p><b>3) Food-to-food:</b> When contaminated (raw/ undercooked/ unwashed/ unclean) food comes into contact with 'clean' food</p>	
35	<p>Match the elements.</p> <p>Let's look at three main types of cross-contamination, can you match them up to their description:</p>  <p>Food-to-food: This is one of the most common types of cross-contamination. Bacteria can live for a long time on surfaces like countertops, cutting boards, utensils (knives and forks), storage containers and factory equipment.</p> <p>Equipment-to-food: It is easy for humans to transfer bacteria from their bodies or clothes to food during many steps of food preparation. Dirty clothes or kitchen towels touching clean food can cause contamination.</p> <p>People-to-food: This is when contaminated food comes into contact with 'clean' food.</p>	
37	<p><b>In your own words, explain what is contamination is.</b></p>	<p>When something becomes dangerous because a harmful or unwanted substance, such as bacteria, gets into it.</p>
38	<p><b>List the points that contamination with bacteria can happen.</b></p>	<ul style="list-style-type: none"> <li>•Growth</li> <li>•Harvesting</li> <li>•Slaughter (when animals are killed to be eaten) الذبح</li> <li>•Processing</li> <li>•Storage</li> <li>•Transportation</li> <li>•Preparation in a kitchen</li> </ul>



#	Question:			Answer:		
36	Name of food:	Poultry الدواجن	Eggs	Seafood	Rice	Vegetables
	Why is it high risk?	Avoid washing raw chicken as this will spread bacteria around the kitchen.	Bacteria can live in the yolk, white part of the egg & on the eggshell.	Fish contaminated with toxins & sewage water.	Bacteria can live in both uncooked & cooked rice.	Leafy green vegetables are especially dangerous as they are usually eaten raw.

39 Read the following scenarios and decide which type of cross-contamination is being described.

1 - Huda made dinner for the family. When she finished, she rinsed the utensils (knife and fork) in cold water and left them to dry. The next day Huda's mother used the same utensils to prepare breakfast. During the day, the whole family became unwell.  
**Equipment-to-food (from dirty utensils to food "breakfast")**

2 - Mohammed works in a fast-food restaurant. He emptied the bins in the restaurant and did not wash his hands. Then he prepared some burgers. Customers reported feeling sick a few days after this happened.  
**People-to-food (from dirty hands to food "burgers")**

3 - Hind used a brown chopping board to prepare some sushi for her friends. Hind and her friends thought the sushi was delicious, but they could not understand why everyone was sick the next day.  
**Equipment-to-food (from brown chopping board for unwashed vegetables to food "sushi")**

4 - Saeed made a chicken shawarma for dinner. He did not realise that the chicken he made was not fully cooked. It made him so unwell that he had to go to the hospital for a few days.  
**Food-to-food (from undercooked chicken to the shawarma)**

