

First Term
Grade 6
Preapered by
Zeinab Eldakhakhny



Words of chapter 1

Burning / Combustion	الاحتراق	Gas detector	كاشف الغاز
Candle	شمعه	Gas monitor	جهاز قياس نسبه الغاز
Lid	غطا البرطمان	Sensor	مستشعر
Flame	لهب	global Warming	احتباس حرارى
Used up	يستهلك، يستخدم	emissions	انبعاثات
replaced	يتجدد	renewable energy	طاقة متجددة
Unstable	غير مستقر	crafts people	الحرفيين
Flow	يتدفق	Power plant	محطه كهرباء
Lime water	ماء الجير		
Colourless	بدون لون		

First term Grade 6

②

Chapter 1 - part 1
Conditions of burning

حبابي grade 6 ، ف الدرس ده بيكلمنا عن الاحتراق ، ايه رايك نجيب شمعة ونحطها جوه برطمان و مرة نخليه مفتوح ومرة نخليه مقفول ونشوف هيحصل ايه ؟؟



↳ The Candle keep burning inside a Jar not Covered with a Lid → G.R

↳ Because fresh air is supplied from the surrounding



↳ The Candle's flame goes out inside a Jar Covered with a Lid → G.R

↳ Because the air inside the jar is used up

يبقى نفهم من كده ان الهواء مهم جداً ف استمرار الاحتراق ولازم الهواء ده يتجدد يعني يدخل ويطلع من البرطمان

Notes مهمة

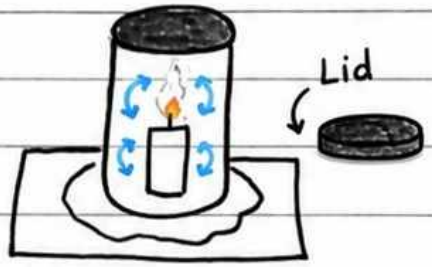
1- For things to keep burning, fresh air must constantly flow in and out.

لازم يتجدد

2- In a place where the air is not replaced, things can't keep burning.

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نقول تاني علشان الشمعه تفضل مشتعله باستمرار لازم الهواء يبخل ويطلع من البرطمان تعالى ننوف كده التجربه دي؟ ونذاكرها على شكل W.h.if .



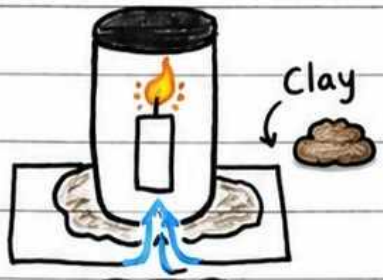
W.h.if

L1 ↳ you put a Lid on the Jar.

↳ The flame of Candle goes out after short Time → G·R

↳ Because the air inside the jar is used up.

لان الهواء تم استهلاكه كله داخل البرطمان



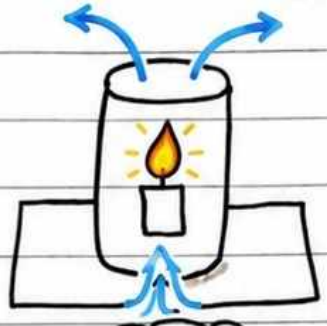
W.h.if

L2 ↳ you cut a clay to create a gap at bottom.

↳ the flame of Candle keep burning but it is unstable → G·R

↳ Because the air enters but it is not replaced.

لان الهواء بيخل بس مش بيتجدد ربطلع



W.h.if

L3 ↳ you take off the lid to make gaps at top and bottom.

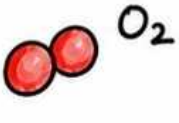
↳ The flame of Candle keep burning → G·R

↳ Because the air is replaced and flow in and out the jar.

لان الهواء بيخل ربطلع باستمرار

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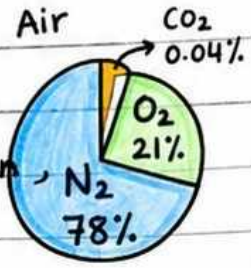


④





Part(2) The role of oxygen in burning



1→ What is the air?
air is the mixture of diffrent gases such as oxygen, nitrogen and Carbon dioxide and other gases.

2→ Nitrogen is about 78 % of air.
oxygen is about 21% of air.
Carbon dioxide is about 0.04 % of air.

لدرجة احفظ النرقام دى مهمة

3→ oxygen has the power to help things burn.
Nitrogen and Carbondioxide don't have the power.

دلوقتى عرفنا ان ال oxygen بيساعد على الاشتعال ، تعالى نجرب نحط عود بجوز فى برطمان فيه oxygen, nitrogen, Carbondioxide ، تشوف هيحصله ايه ؟

"oxygen" O_2	"Nitrogen" N_2	"Carbon dioxide" CO_2
The incense stick burns brightly. يستمر مشتعل	The incense stick goes out immediately. ينطفأ فى الحال	The incense stick goes out immediately ينطفأ فى الحال

W.h.i.f you put a LiT of incense stick into a Jar ConTaining oxygen gas. .: بيقى لوسألنك

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Questions on part 1, 2

Give reason

1- The flame of Candle goes out inside the jar with the lid.



↳ Because the air inside the jar is used up.

2- In a place where air is not replaced, things can't keep burning.



↳ Because fresh air must constantly flow in and out.

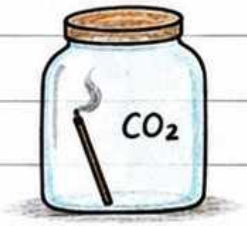
3- The Candle flame keep burning but unstable when there is a gap at the bottom of jar.



↳ Because the air enter but it is not replaced.

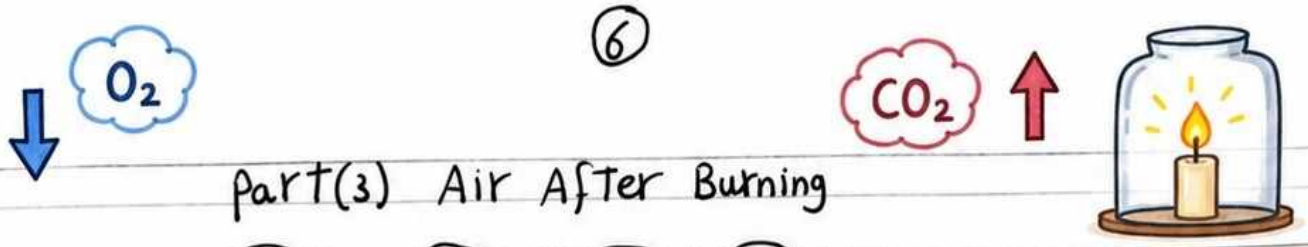
W.h.if

1- you put a Lit of incense stick into a jar Containing Carbendioxid.



↳ The flame of insenge stick goes out immediately.

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Part(3) Air After Burning

* تعالى نفكر ونفهم ايه اللى بيحصل للهواء بعد الاحتراق ؟

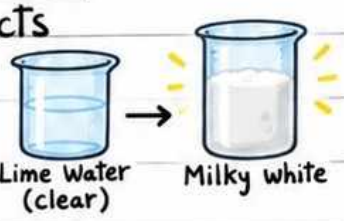
1→ When things burn :-

* the amount of oxygen decreases ⇝ G·R
  ↳ Because it used up or Consumed أستهلك when things burn

* the amount of Carbon dioxide increases ⇝ G·R
  ↳ Because it is produced or realesed أنتج when things burn.

* دلوقتى تعالى نعرف ازاى اعرف ان ده ال Carbondioxide gas ؟ بستخدم نوع من الماء اسمه Lime Water ماء الجير.

2→ "Lime Water" :-
- is clear and Colorless.
- used to check if there is Carbon dioxide gas.
- it turns into milky white when it reacts with Carbon dioxide gas.



W.h.if

ببقى لو سألنك :.

you put lime water in a jar with increased Carbon dioxide and shake it.

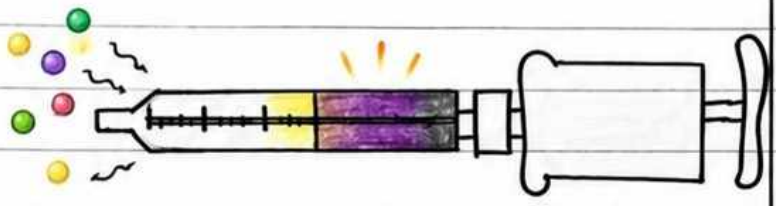
↳ the clear lime water turns into milky white because it react with Carbon dioxide gas.

Note Wear safety goggles so Lime Water doesn't get in your eyes.



في اجهزه تانية بتستخدمها علشان نتعرف ونفحص الغازات هندرس منها ٢:-

1- Gas detector Tube



↳ it is used to check the percentage of specific gas in a place by reading the number at the border where colour of chemical changes.

↳ it is Single use only.

2- Gas monitor



↳ it is used to show the percentage of gas on the screen in digital number.

↳ it Can measuie both oxygen and Carbon dioxide at the same Time (very useful).

Ancient Lights



↳¹ Ancient Egyptians developed practical ways to use fire to Light temples and Tombs.



↳² their lamps design allowed air to reach the flame. This shows That even without scientific knowledge ancient wisdom from daily Life matched the roles of science.

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L3 When there is plenty of oxygen, things burn intensely, ancient crafts people used a bellows To pump air into the fire to supply more oxygen, melting gold at high temprature to make beautiful jewellary.





Ways To reduce Carbon dioxide emissions

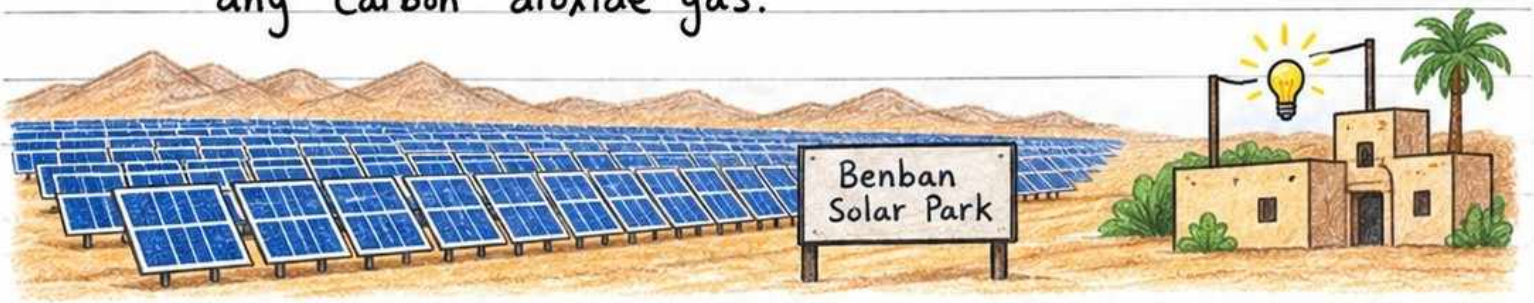
L1 Burning things produce Carbon dioxide gas which Cause global warming.



L2 instead of burning oil and Coal, Egypt is now gaining attention To use renewable energy from sun and wind.



L3 "Benban Solar Park" is gaint solar power plant in Aswan brings Light To Egyptian homes without producing any Carbon dioxide gas.



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Questions of part 3

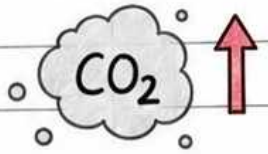
Give reason

1- When things burn, the amount of oxygen decreases.



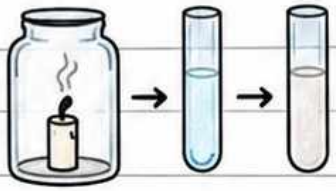
↳ Because it is used up when things burn.

2- When things burn, the amount of carbon dioxide increases.



↳ Because it is produced when things burn.

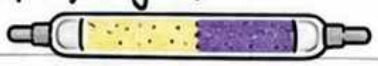
3- Clear and colourless Limewater turns milky white when shaken it in a jar with a candle recently burned.



↳ Because it reacts تتفاعل with Carbon dioxide and inTo milky white.

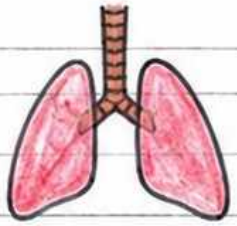
W.h.if

1- The chemical inside a gas detector tube react with specific gas?

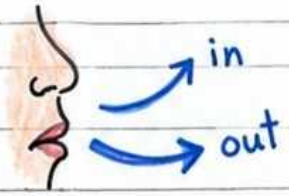


↳ The color of chemical inside gas detector Tube will change.

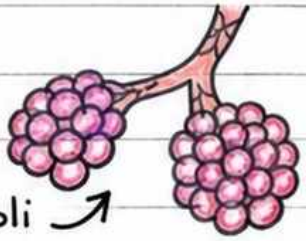
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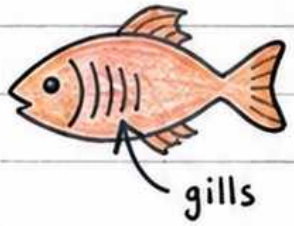


Chapter 2
Respiration



respiration	التنفس
breathe in	يستنشق
let out	يخرج
lungs	الرئتان
alveoli	حويصلات هوائيه
blood Vessels	اوعيه دمويه
gas exchange	تبادل غازات
heart	قلب
windpipe	قصبه هوائيه
Chest	صدر
gills	خياشيم



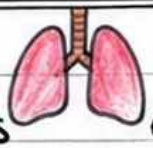


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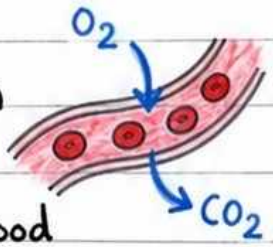
"Definitions"

1- "Respiration = breathing"
is The process of Taking in oxygen and letting out Carbondioxide.

2- "Lungs";-
They are the place for gas exchange.



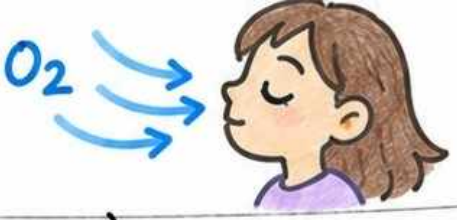
3- "Gas exchange"
is the pracess in which oxygen moves into the blood and Carbon dioxide move out The blood in lungs.



4- Windpipe:-
iT is a Tube That Carries air from The nose and mouth to lungs.







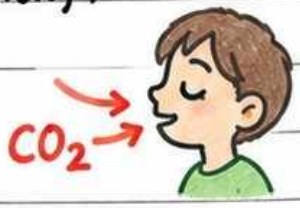
Chapter 2 (Respiration)

L1- How breathing work ?



L1 → People breathe in and out to:-

* take in oxygen from the air. (Inhalation).
* let out Carbon dioxide. (Exhalation).



L2 → "Breathing = respiration":-

is the process of taking in oxygen and letting out Carbondioxide.

L3 → دلوقتي عايزين نتاكد من نوع الغاز اللي بنخرجه مع الزفير ركمان نقارنه بالهواء اللي حوالينا) هنعمل ايه :-

- prepare 2 plastic bags.
- Breathe into one bag.
- Fill the other bag with room air.
- put "lime water" into each bag.
- shake the bags well.
- observe how Lime Water change.



L4 → We observe that:- the lime water in the bag with exhaled air turns into milky white



L5 → We Conclude that:- The amount of Carbondioxide increases in the air we breathe out.

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طب انا عايز اعرف برده كمية الغازات في كل كيس ، هنستخدم ايه ؟؟

L6→ We can use "gas detector" to: check the amount of oxygen and Carbon dioxide

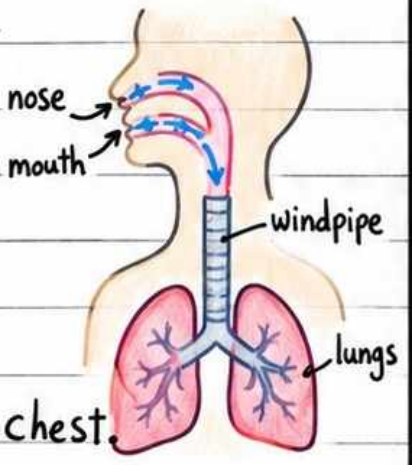


L7→ Compare result:-

	Air	oXygen	Carbon dioXide	
	around us	More	less	O_2 ↑↑↑
	breathe out	less	more	CO_2 ↑↑↑

L2- How lungs Work ?

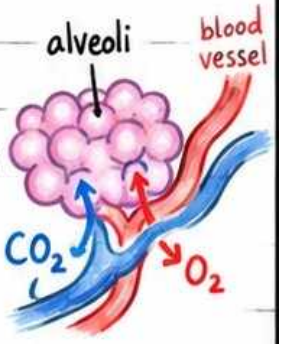
L1→ the path of air:-



- Air is breathed in through nose and mouth.
- then passes through windpipe.
- then sends to left and right lungs in the chest.

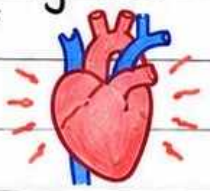
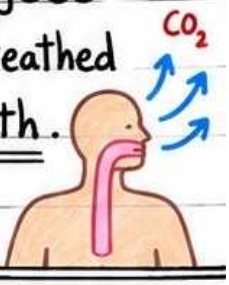
L2→ "In Lungs"

- Lungs are the place for "gas exchange" تبادل الغازات
- Inside the lungs, There are alveoli حويصلات هوائية which surrounded by blood vessels that help in gas exchange.

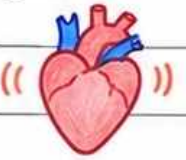


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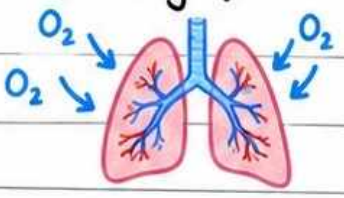
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O_2 O_2 O_2 oxygen	Carbon dioxide CO_2 CO_2 CO_2
• Through the blood vessels, around lungs, oxygen in the air is taken into the blood.	• Through the blood vessels around lungs, Carbondioxide in the blood is let out to air.
• Then, this oxygen is Carried to the whole body by the work of heart. 	• Then, this Carbondioxide goes through windpipe and breathed out by nose and mouth. outside the body. 

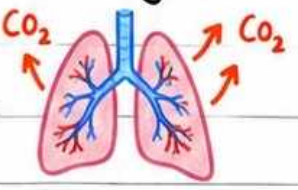
• What is the function of heart ? يبقى لو سألك :←

↳ it pumps blood rich in oxygen to the whole body. 

• What happen to oxygen duing gas exchange in the lungs?

↳ oxygen moves from air into the blood. 

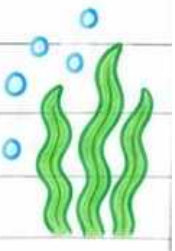
• What happen to Carbondioxide during gas exchange in lungs?

↳ Carbon dioxide moves from the blood into the air. 

Note:-



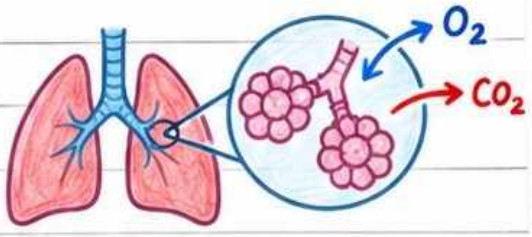
Fish let Carbondioxide out through the gills.



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Questions of chap. 2

Give reason

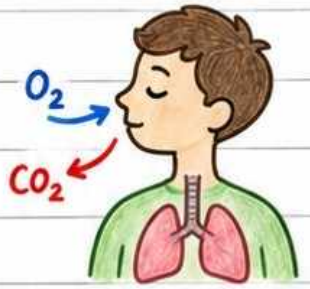


1- Gas exchange happen in lungs.

↳ Because lungs contain alveoli which surrounded by blood vessels and help in gas exchange between air, lungs, blood.

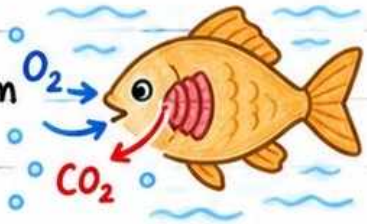
2- Breathing is impartant to our body.

↳ Because breathing provides oxygen to the body and remove Carbondioxide.



3- Fish can breathe without lungs.

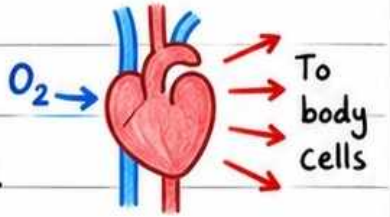
↳ Because Fish breathe by gills to take oxygen from water and release Carbondioxide.



What happen

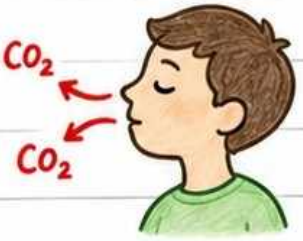
1- To oxygen after it enters the blood.

↳ it is carried to whole body by help of heart.



2- To Carbondioxide in the blood.

↳ it goes through windpipe and breathe out from nose and mouth.



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Chapter 3
Digestion

Digestion	الهضم
digestive track	قناة هضمية
path	طريق
food pipe	انبوب الطعام
stomach	معدة
small intestine	الامعاء الدقيقه
large intestine	الامعاء الغليظه
anus	فتحه الشرج
Saliva	اللعاب
starch	النشا
digestive juice	عصارة هضمية
break down	يكسر
iodine solution	محلول اليود
nutrients	مواد غذائيه
anus	فتحه الشرج
feces	البراز
Villi	نتوءات صغيرة
towel	منوطه
bumps	نتوءات
inner surface	سطح داخلي
Capillaries	شعيرات دموية
Liver	كبد
urine	بول
eliminate	يتخلص من

"Definition"

1- Digestion:-
it is the braking down food with teeth and changing it into a form That easy to absorb.

2- Digestive Track:-
The path of food starting from mouth to anus.

3- Digestive juice:-
it is a liquid that has the function of digesting food.

4- Villi:-
Very small bumps on the inner wall of small intestine.

5- Saliva:-
it is digestive juice secteted in mouth.

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Chapter 3

L1_ Where Food goes?



L1 "Digestion":-

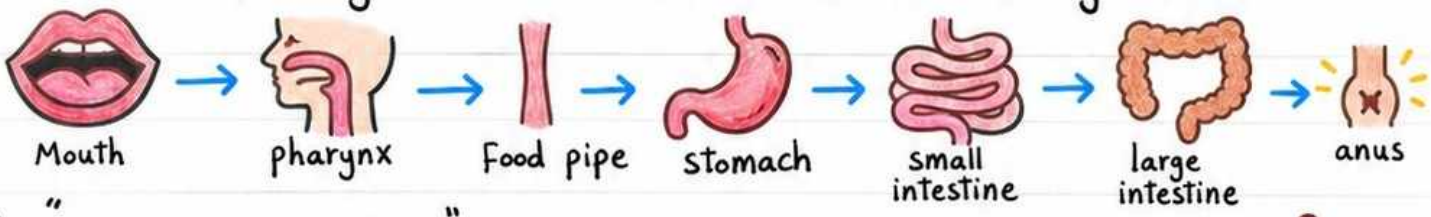
- it is The breaking down food with teeth and changing it into a form That easy to absorb.

L2 "Digestive track"

- is The path of food starting from mouth to anus.

L3 The order of digestive track:-

- Mouth ⇝ pharynx ⇝ Food pipe ⇝ stomach ⇝ small intestine ⇝ large intestine . and comes out through anus.



L4 "Digestive system":-

- is the system responsible for digestion process.



L5 "Digestive juice":-

- it is liquid That has the function of digesting food.
- it is produced in mouth , stomach and small intestine.



G.R you may notice a sweet taste when chewing bread.



↳ BeCause saliva changes some of starch in food into sugar.

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Human digestive Track

1- Mouth :-



- Journey of food start in mouth.
- Teeth :- To cut and grind food.
- Saliva :- is digestive juice is secreted in mouth.
- it helps begin the digestion of starch found in food such as bread or rice and changes it into simple substance.

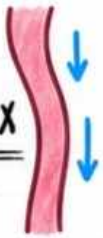
* What is the function of saliva?

2- Pharynx = throat :-



- it pushes the food into food pipe.

3- Food pipe = esophagus



- it Carries food from pharynx to stomach.

4- Stomach :-



- it secrets digestive juice on to the food.

5- Small intestine :-



- it Completes food digestion
- it absorbs the nutrients from digested food.

6- Large intestine :-



- it begins at the end of small intestine and ends with anus.
- it absorbs water from undigested food and change it into feces come out through anus

Note: ⇒ Fish and Cat have digestive track starts from mouth and end with anus.



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L2 - Function of Saliva.

L1 → What happen when we chew rice or bread ?

- it starts to Taste sweet.



L2 → "Saliva"



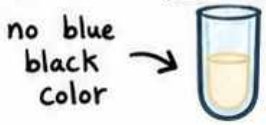
- is digestive juice in mouth that break down starch contained in food.
- starch in food changes into something else by saliva.

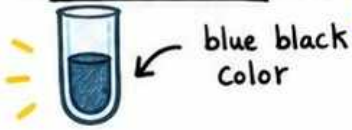
L3 → "Digestive juices":-

- They are liquids help in digesting food like saliva and produced from mouth, stamach and intestine.

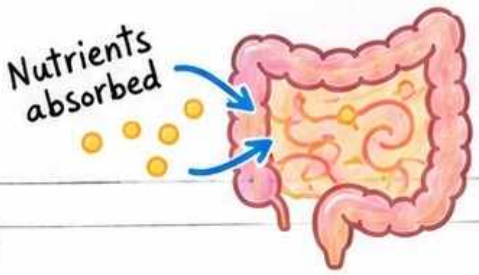
طب هنا هنعمل تجربه نشوف فعلاً هل ال saliva بتكسر ال starch ولا لأ
وهكون معانا ال Iodine solution ده مركب كيميائي لونه بني مصفر
كده لما بنحطه على النشا بيتحول للون blwe black .

	"Tube 1"	"Tube 2"
• starch • Cotton with • Temprature • Iodine solution • what happen ?	• put in it • Saliva • about 40°. • 1-2 draps. • starch is broken down and iodine doesn't change into blue black	• put in it. • water. • about 40°. • 1-2 draps. • starch is not broken down and iodine changes into blue black.





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"Conclusion": Saliva break down starch.

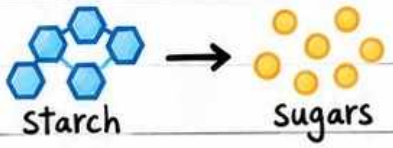
G.R the test tubes put in hot water at 40C°.



↳ To make the same enviroment as inside the body.

G.R The mixture of saliva and starch didn't turn blue-black after adding iodine solution.

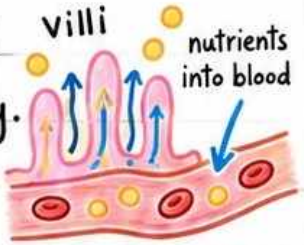
↳ Because saliva breaks down starch.



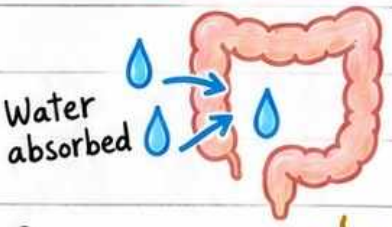
L3 - How absorption works ?

* بعد ما آكلنا الاكل ر اتهضر ف المعدة بيحصل له ايه ؟

L1 → Nutrients from digested food are absorbed in the small intestine and then carried by the blood to the whole body.



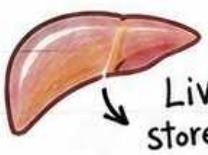
L2 → Nutrients are absorbed in small intestine.
Water is absorbed in small intestine.
More water is absorbed in large intestine.



L3 → What is left is eliminated from anus as feces

المتبقى من الاكل يخرج من تتحه الشرج على شكل براز.





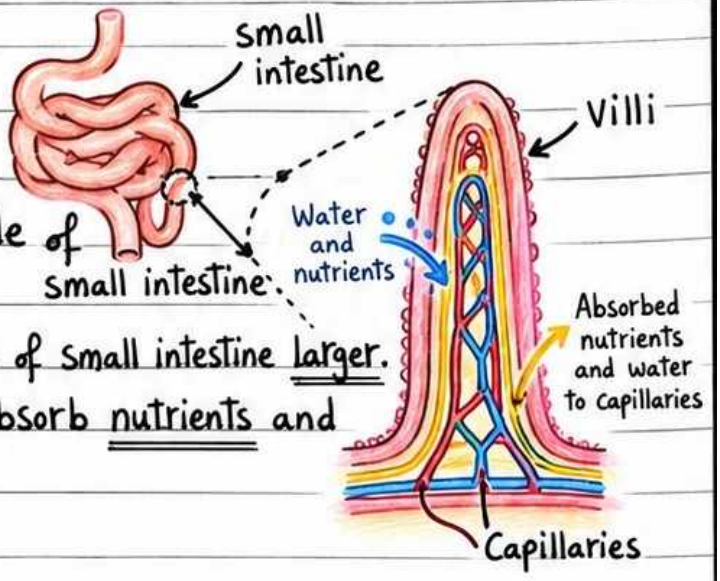


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L4 Structure of small intestine:-



- small intestine Contains Villj.
- Villi are small bumps on the inside of small intestine.
- Villi are lined up closely.
- Villi make The inner surface area of small intestine larger.
- The large surface are help To absorb nutrients and water efficiently.
- Villi Contain Capillaries.

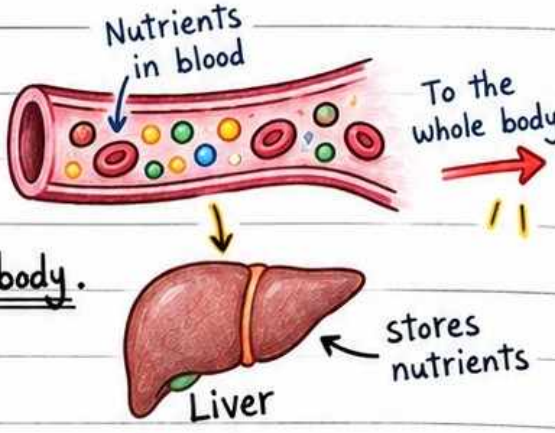
- عارف ال Villi دى شبه ايه ؟ شبه الخيوط ،الغرز الى على الفوطه ، لما تكون كتيرة بيمتص ماء اكتر.
- Villi look like the towel with many loop-Like threads The absorb water better than flat cloth.



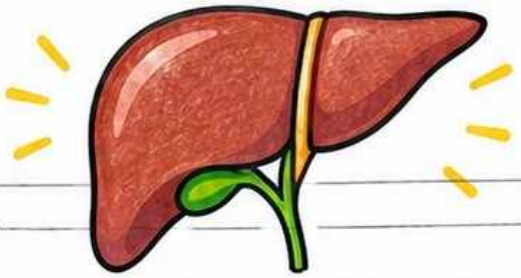
C-R Villi are imparTant in small intestine.

↳ BeCause they increase The surface area and help To absorb nutrients and Water efficiently.

L5 What happen to absorbed nutrients?

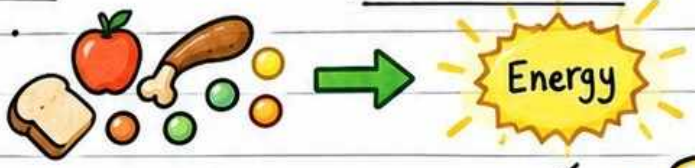


- The absorbed nutrients enter the blood.
- The blood Carries nutrients to The Whole body.
- The blood passes through Liver.
- The Liver stores nutrients
- The liver Sends nutrients To the Whole body When needed.



"let's expand" :- Function of liver:-

1. Liver converts some nutrients into a form that is easy for the body to use.

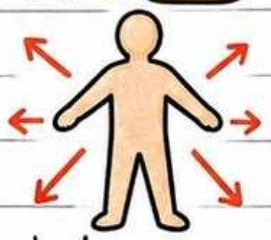


2. it stores them as energy.

الكبد يحول العناصر الغذائية لمواد بسيطه سهلة ، يخزنها كطاقة للجسم



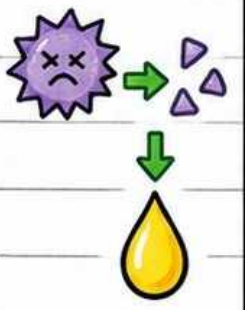
3. it sends them To whole body when needed.



(*) What happen When the body need energy ?

↳ The liver sends stored nutrients to the whole body.

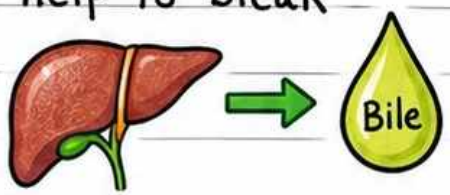
4. Liver breaks down harmful substance produced in body and These substance Can be eliminated in urine.



(*) G-R Liver is important for removing harmful substance.

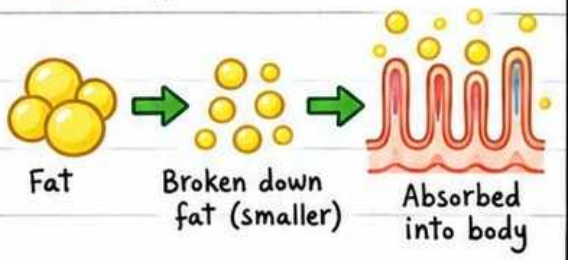
↳ Because it breaks down harm ful substance so They Can be eliminated in urine.

5. Liver produces a "digestive juices" that help to break down and absorb Fat.



G-R Live produces digestive juice.

↳ To break down and absorb fat.



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Questions on chap.3

1- You can feel a sweet taste when chewing a piece of break.

↳ Because saliva changes starch in food into sugar.



2- Water with temprature 40C° is used in starch detection expirment.

↳ To make the same enviroment as inside the body.



3- Iodine solution turns dark blue when placed on piece of bread.

↳ Because bread contains starch which turns Iodine solution into dark blue (blue black).



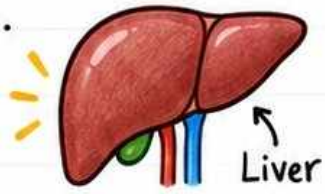
4- Villi increase the inner surface area of small intestine.

↳ To help it to absorb nutrients and water efficiently.



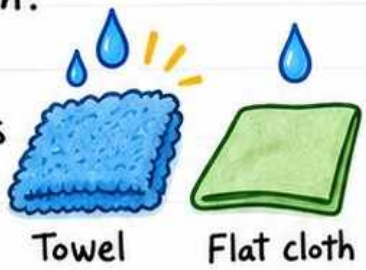
5- Liver stores nutrients resulting from food digestion.

↳ To send them to the whole body when needed.

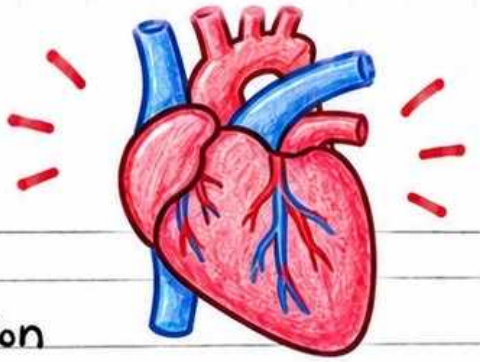


6- A Towel absorbs more water than smooth flat cloth.

↳ BeCause it has many loop-Like thread that absorbs more water.



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Chapter 4
Circulation and excretion

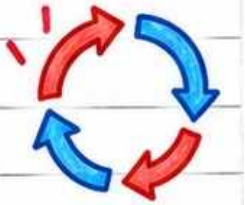
Blood	الدم
heart	القلب
pump	يضخ
blood vessels	اوعية دموية
circulate	يدور
blood circulation	دورة دموية
wastes	مخلفات
heart beats	ضربات القلب
pulse	النبض
unnecessary	غير ضروري
kidneys	الكلى
filter	ينظف
products	مخرجات
urine	البول
bladder	المثانة
extra water	ماء زائد
discharge out	يتخلص
chest	صدر
ribs	ضلوع
Abdomen	بطن

1- Heart beats:-
is the movement of the heart as it pumps blood.

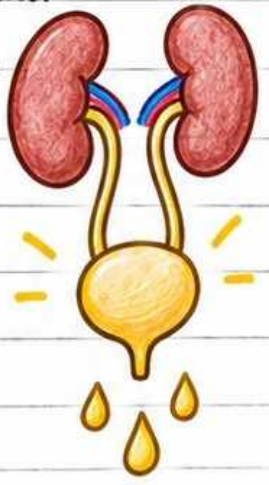
2- Blood Circulation:-
is the movement of blood through network of blood vessels spread throughout the body.



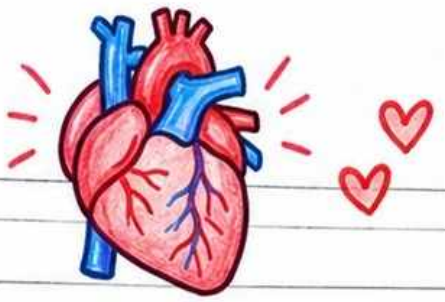
3- Circulatory system:-
is the system that pump blood throughout the body.



4- Urinary system:-
is the system that filter the blood by removing waste products and excess water forming urine.



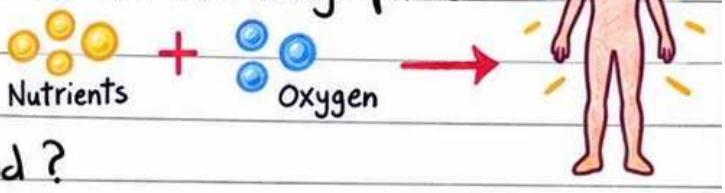
Zeinab Eldakhakhny





Chapter 4
L1 - Heart and Blood

L1 → Nutrients that come from small intestine and oxygen that come fram lungs are carried to all body parts by the blood.

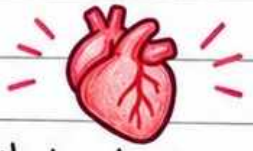


L2 → What is the function of the blood ?

↳ Bloud carries nutrients and oxygen to whole body.

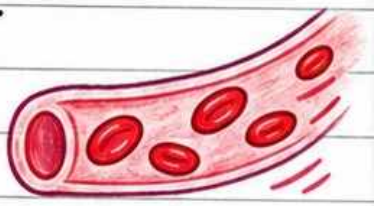


L3 → What is the function of heart ?



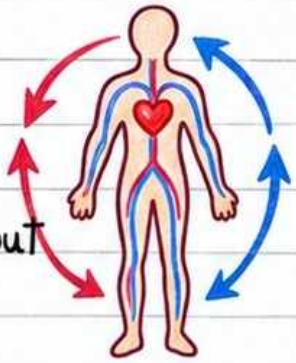
↳ it works like pump to send blood to whole body.

L4 → What is blood circulation ? ماهي الدورة الدموية



↳ it is the movement of blood through blood vessels throughout the body.

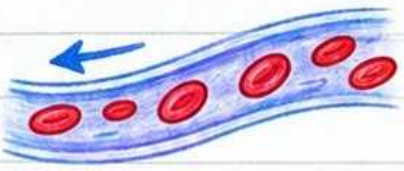
L5 → How does the bloud circulate in the body ?



↳ The heart pumps bloud out, the blood travel throughout the body and then return to the hurt.



Heart ⇝ body ⇝ Heart



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25

a healthy heart a healthier you!

L6 → The blood carries oxygen and nutrients from heart to whole body. الدم ينقل الاكسجين والغذاء من القلب لكل الجسم

Nutrients

L7 → the blood Collects Carbon dioxide and Wastes produces in body and return to heart. الدم يجمع الفضلات وثاني اكسيد الكربون من الجسم

CO_2 →

Wastes

L8 → After the blood returns to the heart, it is sent to lungs.

L9 → What happen to the blood inside lungs ?

→ the blood lets out Carbon dioxide and Take in oxygen.

CO_2 O_2

L10 → تجميع الدم الى فات

Heart to → body → (oxygen + nutrients).

Body → heart → (Carbon dioxide + wastes).

Heart → lungs → (let Co_2 + Take oxygen).

L11 → What is the heart beats?

حركة القلب اثناء ضخ الدم

→ is the movement of the heart pumping out the blood.

L12 → What is pulse ?

النبض هو نبضات القلب يمكن الشعور بها من خلال الاوعية الدموية

→ is the heart beats that Can be felt through blood vessels.

→ We Can feel pulse at the wrist, neck and ankel.

Wrist

Neck

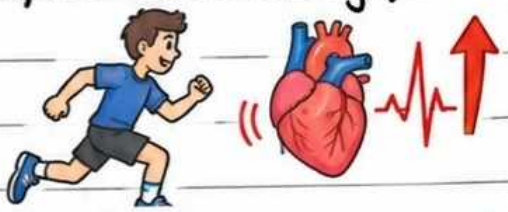
Ankel

Feel the Beat of Life

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L13 What happen to the heart beats after excercising?

↳ the heart beats will be faster.



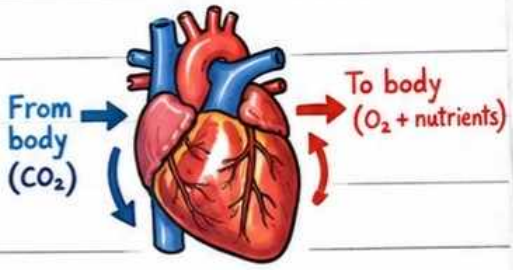
L14 G.R the pulse become faster after exercising.

↳ to Carry more oxygen and nutrients to whole body.



Questian of L1

Give reason:-



1- The heart is an important organ.

↳ Because it pumps blood rich in oxygen and nutrients to whole body and receive bloud rich in Carbon dioxide to pump it to lungs.

2- Heart beats become faster when running.



↳ Because heart pumps blood faster to provide the body with more oxygen and nutrients.

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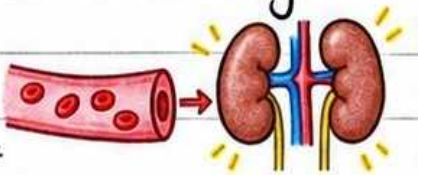
L2- How the kidneys work?



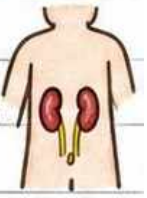
L1 → What are the waste products ?

↳ they are Unnecessary غير ضروري things produced in the body.

L2 → Waste products carried to the kidneys by the blood.



L3 → There are 2 kidneys in our body. located in lower back عندنا كليتين في اسفل الظهر



L4 → What happen to waste products and extra water in the kidneys ?



↳ they are filtered out from the blood and become urine.

L5 → Urine is stored temporarily مؤقتاً in the bladder. المثانة

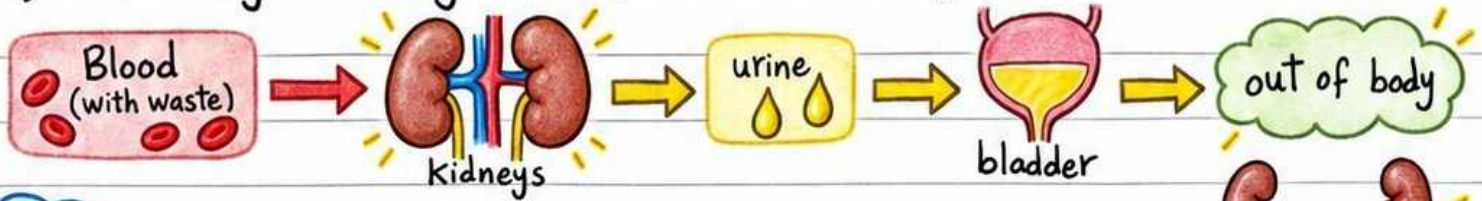


L6 → What happen to urine after being stored in bladder?

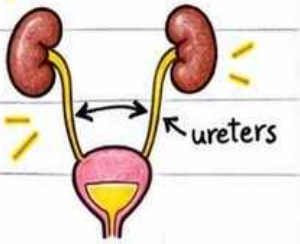
↳ it is discharged out of the body يتم اخراجه من الجسم



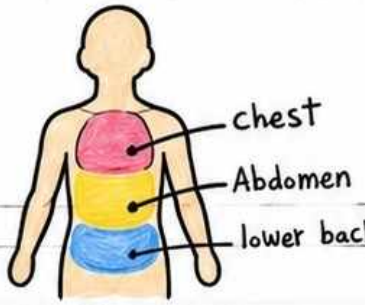
L7 → The body cleaning route :- مسار التخلص من الفضلات



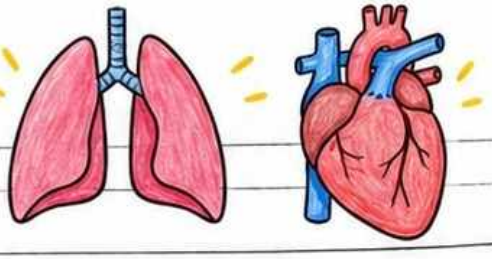
Note Urine passes from Kidneys to The bladder Through 2 ureters الحالبين



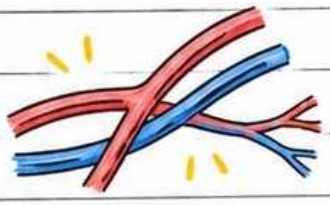
SCAN AnyScanner



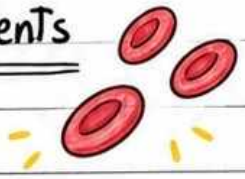
L3 - Various organs



L1 In our body, many organs are lined up closely without gaps and work together with each other.



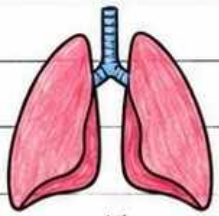
L2 All organs are Connected by blood vessels.



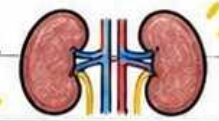
L3 The blood in blood vessels Carries oxygen and nutrients and Collect waste products.

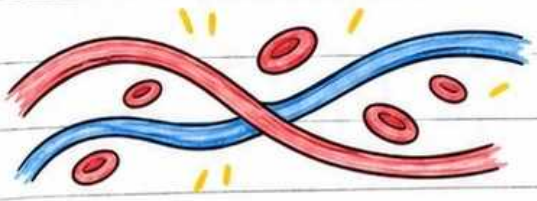
L4

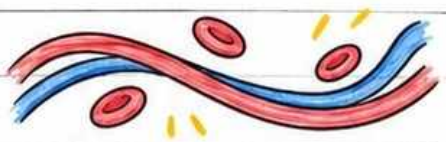
Body part	organ	location
• chest	• lungs	• left and right lungs.
• chest	• heart	• between left, right lungs.
• chest	• heart & lungs	• protected by the ribs.
• Abdomen	• stomach.	• at the top of abdomen.
• Abdomen	• small intestine.	• is below the stomach.
• Abdomen	• large intestine.	• is around the small intestine.
• lower back	• 2 kidneys	• one kidney on each side.











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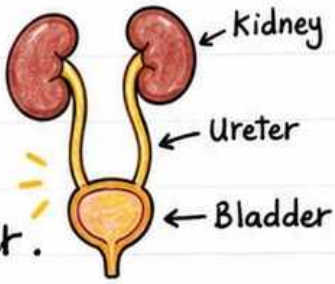
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Question on chap. 24



1- Kidneys play an important role in the body.

↳ Because kidneys remove and filtered out the waste products and extra water in the form of urine.



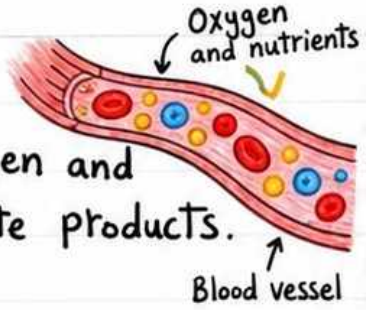
2- The extinsion of the two ureters from 2 kidneys.

↳ To transport urine from kidneys to the bladder.



3- The organs are arrenged close together inside the body.

↳ Because They work together to do their functions.



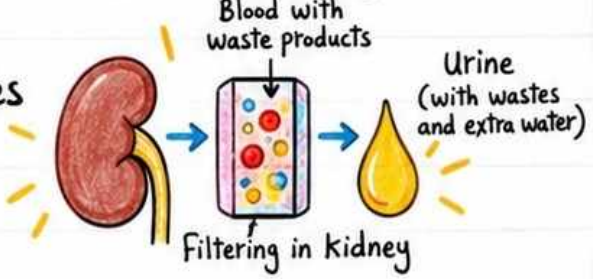
4- All organs are Connected by blood Vessels.

↳ Because the blood in the blood vessels Carry oxygen and nutrients to diffrent organs and Collect Waste products.

What happen

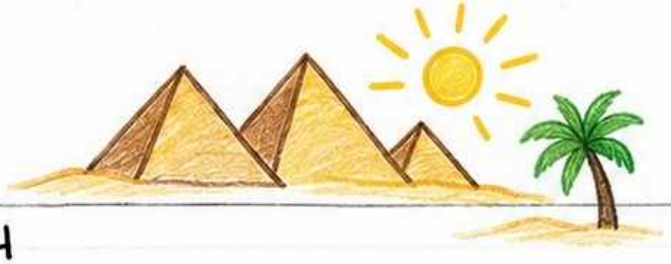
1- If the blood with Waste products flow thrangh 2 kidney.

↳ They will filter the blood from Wastes and excess water to form urine.



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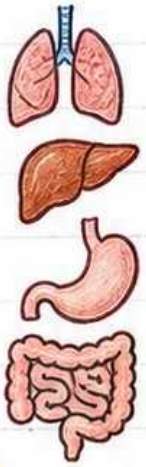
Coloumn 4

1 → Mummies and organ locations:-

- Ancient Egyptian were the first people know the shape and location of the body organs.

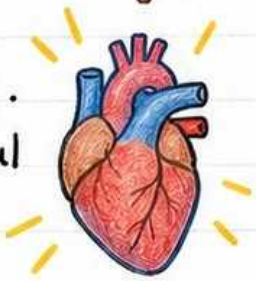
2 → The Sectet of Canopic Jars:-

- when ancient Egyptians made mummies, they kept four very important organs (lungs - Liver - stomach - intestine) safe in special jars. They know that these organs performed vital functions that support human body.



3 → The heart in the "piace of Wisdom"

- Heart is a pump That send blood throughout the body.
- Ancient people believed That the heart is the mind, soul so They left it inside the body.



4 → Canopic Jars:-

- Imsety :- has human shape to be the god. Who protects Liver.
- Hapi :- has baboon shape to be the god who protects lungs.
- Duamutef :- has wild dog shape to be the god who protects stomach.
- Qebehsenuef :- has falcon shape to be the god who protects intestine.



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Chapter 5
photosynthesis



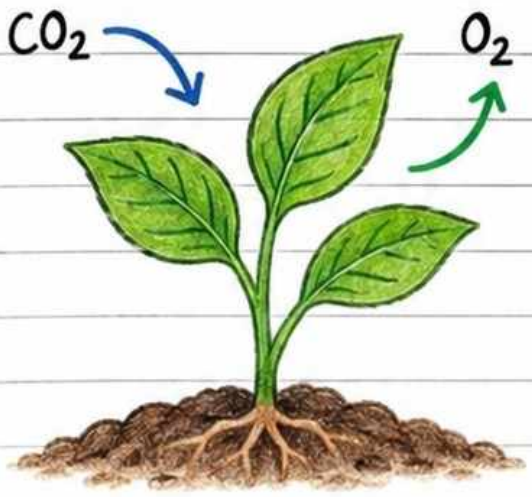
Words

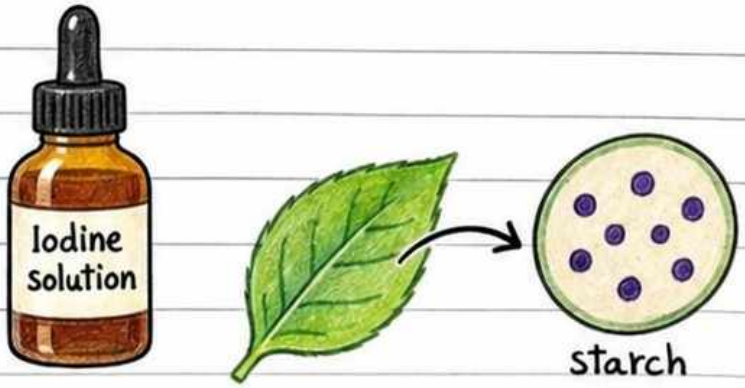
Starch	نشا
Iodine solution	محلول اليود
flammable	مشتعل
gas exchange	تبادل الغازات
dayTime	بالنهار
nightTime	بالليل
breathing	التنفس
alchol	الكحول
Liquid	سائل
Iodine solution	محلول اليود
release	ينتج

Definitions

1- photosynthesis:-
is the process in which green plants use sunlight to make their own food inside the leaves.

2- Iodine solution:-
is a liquid substance that used to check the presence of starch.







Chapter 5

L1- Sunlight and starch

L1 When sunlight hit the leaves of plants, starch is produced.
عندما تسقط اشعه الشمس على الاوراق تتكون النشا

L2 (G·R) plants need starch?
↳ To grow.



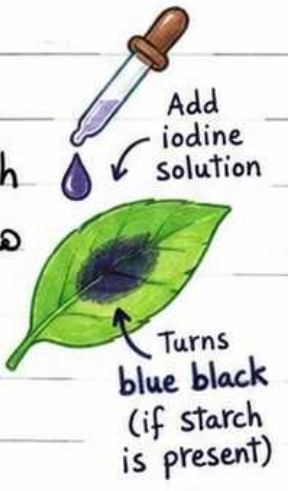
L3 How to check if sunlight in needed To produce starch:-

* Condition to change :- Whether the leaf get sunlight or not.

* leaves are covered from the day before the expirment ⇝ (G·R)
↳ BeCause there may already starch in them. and To prevent sunlight to reach them.

---

* Iodin solution is used to check for starch ⇝ (G·R)
↳ BeCause it changes into blue black when there is starch
هنستخدم محلول اليود لانه بيتحول للون الازرق الغامق لما يكون فيه نشا.
وهو أصلاً لونه بني ، مع النشا بيتحول للازرق الغامق.
*تعالى نشوف هنعمل ايه في ورق النبات علشان نتاكد من وجود النشا فيه *



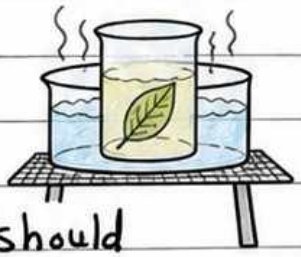
* Iodine Solutions- is a Liquid chemical used to check the presence of starch.

4

step 1:- put leaf in hot water ~~> (G.R) ~~> to make it soft.



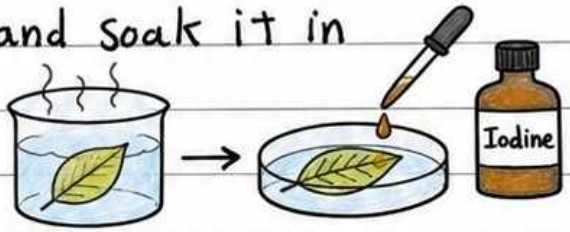
step 2:- put the leaf in warmed ethanol (G.R)
↳ to remove green color from leaf.



Caution تحذير:- Ethanol is highly flammable so it should not be heated directly over a flame.

يعني الايثانول شديد الاشتعال لذا منسخنهوش على النار مباشرة ، بندفيه في الماء.

step 3:- Wash the leaf with hot water and soak it in dilute iodine solution.



observation:-

- leaf exposed to sunlight, The color of Iodine Turns dark blue.



- leaf not exposed to sunlight, The color of Iodine remains brown

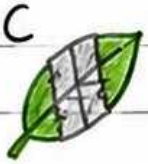


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5 Sunlight and starch:-



تعالى نتاكد من وجود النشا
لشغلى ورق النبات بورق فويل
من اليوم الى قبل التجربه
عندنا ٣ ورقات A, B, C

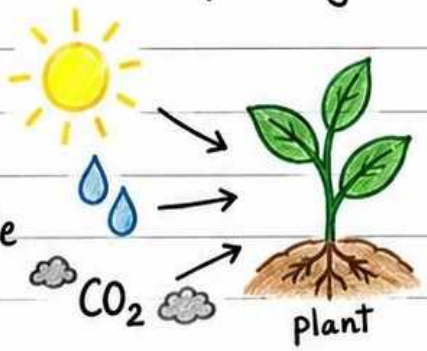
leaf	sunlight	starch	iodine solution
A 	No sunlight	No starch	• doesn't turn into blue black 
B 	exposed to sunlight for 5 hours	produce starch	• turns into blue black. 
C 	Covered with aluminum foil for 5 hours	No starch	• doesn't turn into blue black. 

*Conclusion:- plants produce starch when they receive sunlight.

Extra من المعاصر

photosynthesis

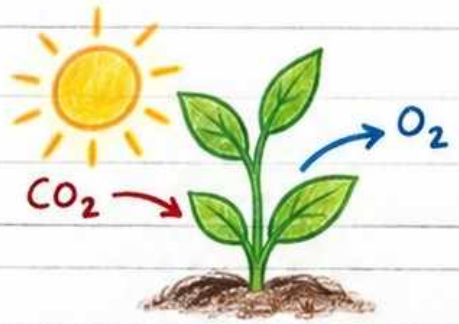
- Sunlight
- Water
- Carbon dioxide

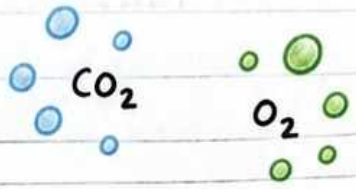


- oxygen O_2
- Sugar stored as starch



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L2- Gas exchange

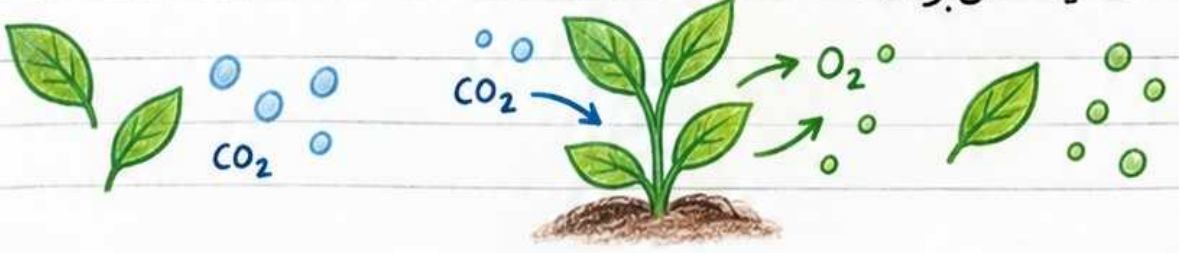
1- When sunlight is hitting the leaves, plants take in Carbon dioxide and release oxygen (photosynthesis).

2- plants also breathe in oxygen and release Carbondioxide to stay alive. (respiration).

3-

Time	What happen?	gas taken in	gas released
• DayTime 	• BeCause There is light, Taking in Carbondioxide and releasing oxygen is very active. • Breathing also happen	Carbon dioxide	oxygen
• Night Time 	• BeCause there is no light, plants breathe only • photosynthesis stops.	oxygen	Carbon dioxide

Note ملحوظة :- During daytime, breathing also happen but over all plants take in more Carbon dioxide.
اثناء النهار بيحصل التنفس ولكن فى المعملة تمتص النباتات كمية اكبر من ثانى اكسيد الكربون.



Zeinab Eldakhakhny



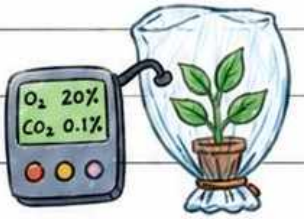
4 Experiment :- measuring the gas inside the bag :-

step 1:- on sunny day, put a bag over the plant, Tie the base with a Twist tie and breathe into it.

step 2:- Make a small hole in the bag with scissors.



step 3:- Use gas detector to check the percentage of oxygen and Carbon dioxide.



step 4:- leave the plant in sunlight for 1 hour.



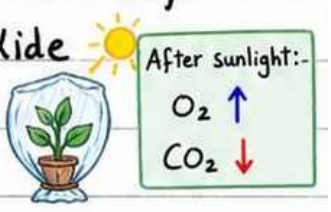
step 5:- measure the percentage of oxygen and Carbon dioxide again.

step 6:- Compare the result before and after leaving plant in sunlight.

" observation :- After blowing air into the bag, the amount of Carbon dioxide increases.



After leaving the plant in sunlight, The amount of oxygen increases and Carbon dioxide decreases.



" Conclusion :- During photosynthesis, plants take in Carbon dioxide and release oxygen.

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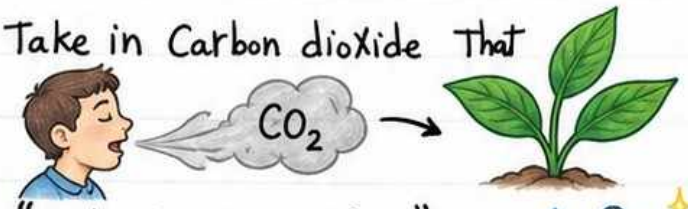
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Coloumn 5 "Green Factory"

1→ The leaves of lotus plant (water lily) float on The Nile River and they have flat, large shape. To absorb sunlight and produce starch efficiently.

2→ When plant do photasynthesis, They Take in Carbon dioxide That human breathe out.

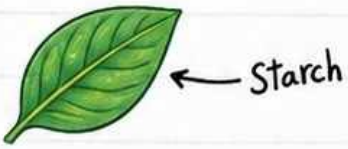


3→ The beautiful green plants acts as "natural air purifier" to keep The air clean in Egypt.



Question of Chap.5

1_The green plant stores starch in the leaves.
↳ To help plant to graw.



2_The green plant need sunlight.
↳ To help plant to make the food by photosynthesis process.



3_In the activity of detecting the presence of starch, The leaves are washed with hot water.
↳ To make the leaf soft.



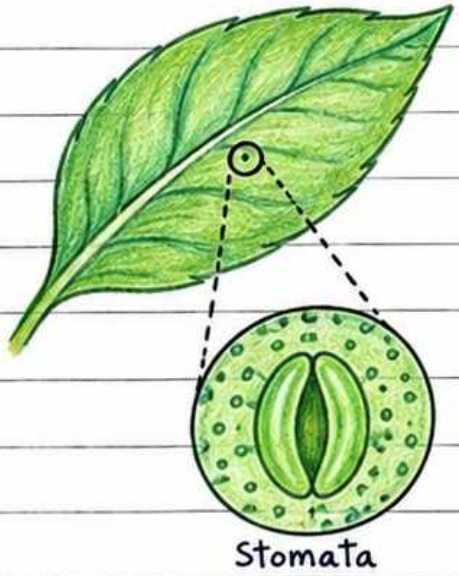
4_In the activity of deteeting the presence of starch, we Transfer leaf on a beaker Contain ethanol.
↳ To remove the green Color from leaf.

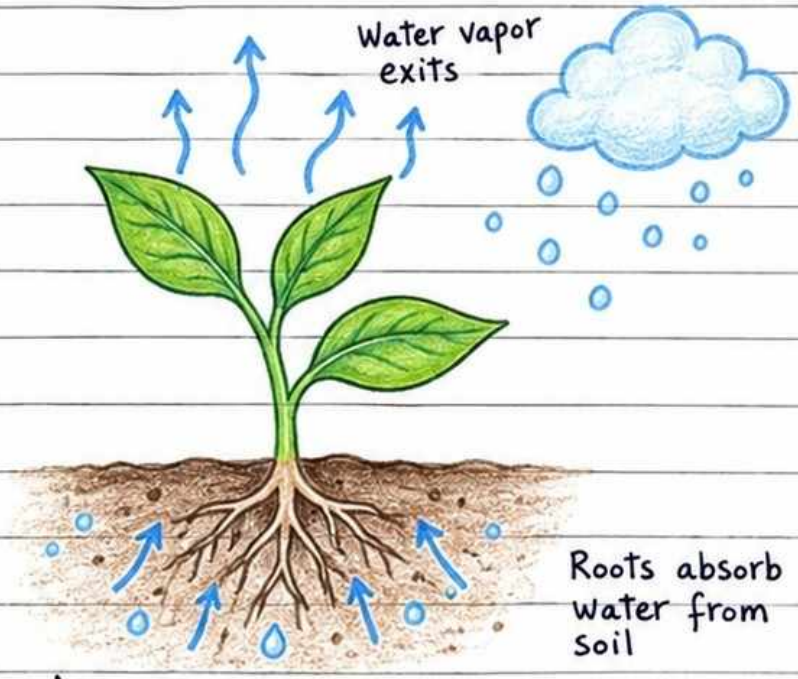


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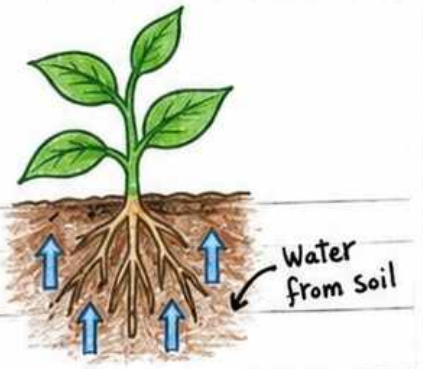
Chapter 6
Transpiration of water in plants

Words		Definitions
stomata	ثغور	1- stomata:-
transpiration	النتح	small pores found mainly on the
pores	ثقوب	underside of leaves that act
water vapor	بخار الماء	as exits of water vapor.
exits	مخارج	
wilted plant	نبات ذبلان	2- Transpiration:-
recover	يستعيد حيويته	The process by which plant loses
spread	ينتشر	water as water vapor into
path of water	مسار الماء	the air.





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Chapter 6

1.1 Transpiration

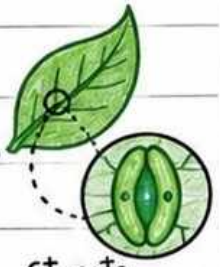
1 → Plants absorb water from the soil through the roots.



2 → Some water goes out into the air from leaves in the form of water vapor this process is "Transpiration"

3 → "Transpiration":- is the process of water inside the plant changes into water vapor and released into air.

4 → "Stomata":- are very small pores found mainly on the underside of leaves. صغيرة على السطح السفلي للأوراق



∴ they act as exits مخارج for water vapor.
∴ transpiration happen through stomata.

5 → Find water drops in the bag:-

* plant(A) with leaves *	* plant(B) without leaves.
	

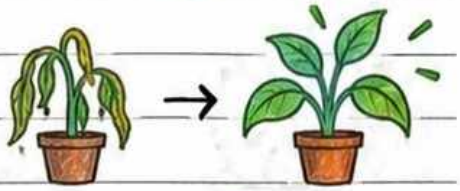
→ put bags over the plants and tie the base with twist ties.
→ leave them in sunny day for a while.
→ check the drops inside the bags.

↳ Many water drops. ↳ Water comes out from leaves through transpiration	↳ No water drops.

L2- The path of Water



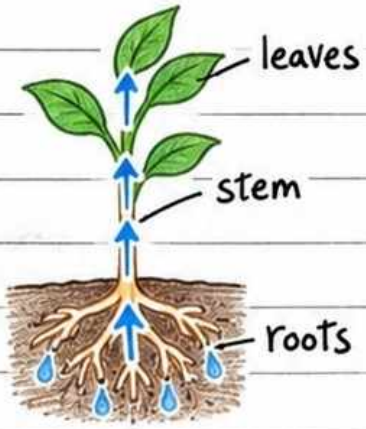
L1 plants need water to stay healthy.



L2 If you water the base of wilted plant, the plant recovers after a while.

L4 G.R the plant recovers after water it.

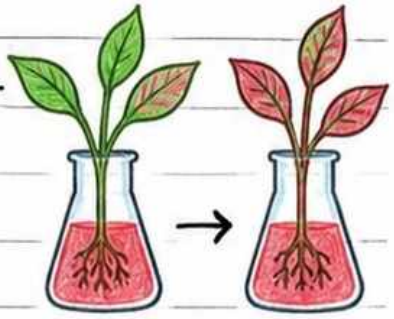
Because water spreads to whole plant through roots, stem and leaves.



L5 Water is transported in this order:-
"roots ⇝ stem ⇝ leaves."

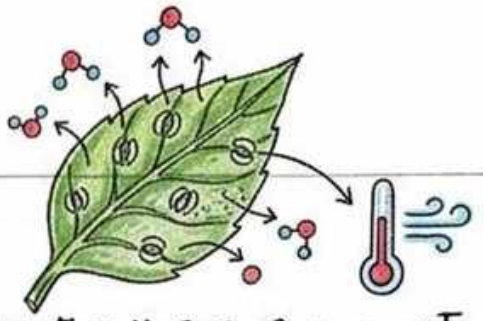
L6 observing The path of Water:- ملاحظة مسار الماء

* step 1:- Dig up the plant with the soil and wash roots with water
* step 2:- put colored water in flask and soak the roots in it.
* step 3:- After few hours, observe the color change in plant.
* step 4:- Cut roots, stem, leaves and observe the color.



"Conclusion:- The parts that turned red are the path of Colored water (roots- stem- leaves).

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Column 6

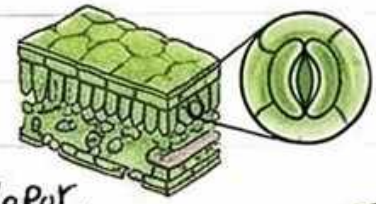
1- Transpiration is the process in which water vapor comes out of leaves and work to lower the temprature around plant and plants act as "air conditioner" to cool the air around us.



2- papyrus is a plant used to make paper in an ancient time inside it's stem, there are strong straight water path (Xylem) to carry water from roots to the top plants.



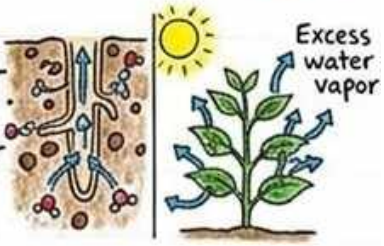
Questions on chap 6



1- stomata are found on plant leaves.
↳ to ged rid of excess water as water vapor.



2- The plant leaves turned red after placing it in red water.
↳ Because the water is transported from roots to stem then leaves so the color reaches to the leaves.



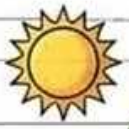
3- Transpiration is very important for a plant.
↳ Because the plants get rid of excess water as water vapor.

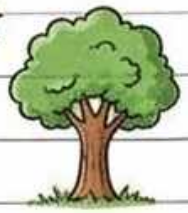
4- plants don't consume all the amount of water which absorbed from soil.
↳ Because the plants get rid of excess water as water vapor through stomata.

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chapter 7





Food chain

Food chain	سلسلة الغذاء
Feeding relationship	علاقة غذائية
Herbivores	آكلات العشب
Carnivores	آكلات اللحوم
photosynthesis	البناء اللحوم
Clouds	سحاب
Water cycle	دورة الماء
photosynthesis	دوران الماء
Atmosphere	الغلاف الجوي







Clouds سحاب



Water Cycle دورة الماء



Atmosphere الغلاف الجوي





1- Food chain:-

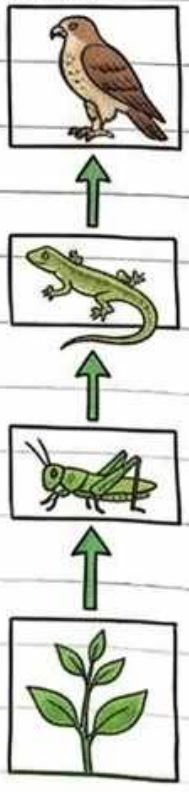
is the eat and be eaten Connection or feeding relationship between Living organisms.

2- Herbivores:-

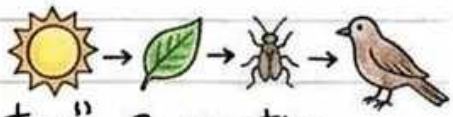
they are animals that eat plants to get energy.

3- Carnivores:-

They are animals that eat other animals to get energy.



L1- Food chain

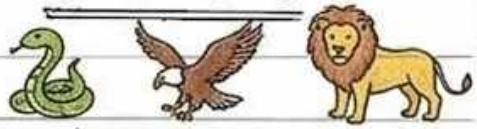


L1 "Food chain":- Is the "eat and be eaten" Connection or feeding relationship between Living organism.

L2 plants use sunlight to produce nutrients inside the body 

L3 Food chain starts with plants.(Producers) 

L4 "Herbivores":- They are animals that eat plants to get energy.
ex :- grasshopper - rabbits - gazelle. 

L5 Carnivores:- they are animals that eat other animals.
ex :- snakes - eagles - Lions. 

L6 Direction of food chain:- 
"Grass → Grasshopper → Frog.

* The arrow points to the direction in which energy is carried. يعني السهم بيوضح اتجاه انتقال الطاقة من النبات المجردة من الجرادة للضفدع

L7 plants such as:- (grass - wheat - maize - Tree - algae - Water plant) 

- Herbivores:- Come after the plants in the food chain. 
- Carnivores:- Come after the herbivores in the food chain. 

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L2- Living organisms, air and water

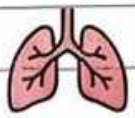


L1 → Living organisms, air and water are connected by invisible bonds.

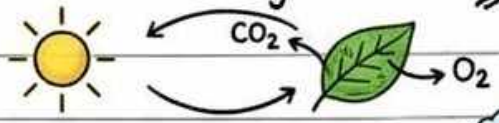




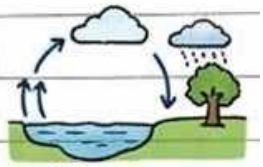
L2 → How Living organisms Connected Through air?



→ Animals use oxygen (O_2) that released by plants to breathe, plants use carbon dioxide that breathed out by animals to make photosynthesis.



L3 → How Living organisms Connected Through Water?



→ plants release water into the air through transpiration, and this water vapor join to water cycle.

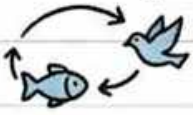
L4 → Water also evaporates from oceans, rivers and lakes, rises into atmosphere to form clouds and fall as rain.



L5 → (G-R) Transpiration is an important part in water cycle.



→ Because it keeps water moving between living organisms and the enviroment.



لان النتح بيخلي الماء بتحرك ما بين الكائنات والبيئة.

16→ our Lives are supported by the oxygen produced by plants and water circulation around Earth.



17→ the breathe you breathe out can be used by a tree to make photosynthesis.



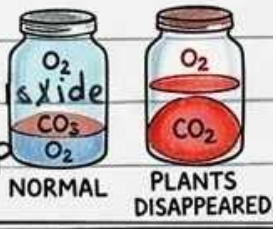
يعتبر الهواء الذي نخرجه من التنفس تستخدمه الشجرة لعملية البناء الضوئي

18→ the water you drink today, have been a clouded or water absorbed by a tree.



19→ What happen if plants Completely disappeared?

↳ The amount of oxygen will decrease and Carbondioxide will increase and photosynthesis may stop



Question of chap.7

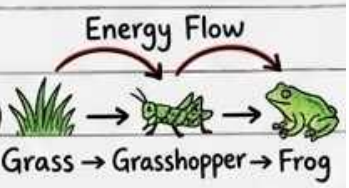
1- Food chain starts with plant.



↳ Because plant can make their own food by photosynthesis.

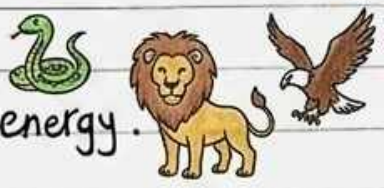
2- using arrow in food chain drawing.

↳ to show the direction of energy flow



3- Shakes, Lions, eagles are Carnivores.

↳ Because they feed on animals to get energy.



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Chapter 8
Desert and Nile food chains

Algae طحالب	معنيش تمرينات تعالى ناخد اسئلة :-
Carnivorous Fish اسماك عاشبه	1- Nile Tilapia is an herbivorous fish in an aquatic food chain.
Nile Tilapia سمك البلطي	↳ Because it feeds on algae to get energy.
Nile perch البياض النيلي	
shrubs شجيرات	
grasshopper جرادة	
Egyptian Vulture نسر مصري	
Top Carnivores اكلات اللحوم العليا	2- The occurance of imbalance عدم توازن in desert if Jerboa are absent.
Desert horned Viper الذعش الصحراوية ذات القرون	↳ Because Carnivores such as fox and snake will lose their food source.
papyrus نبات البردى	

L1 → Egypt has completely diffrent food chains in aquatic envirament and arid areas (desert).

L2 → Food chain in Nile river :-

Algea and Water plant → Herbivorous fish → Carnivorous fish → Top Carnivores.

Algea and Water plant → Nile Tilapia → Nile perch → Nile Crocodile.

3- Food chain in the desert:-



- shrubs and grass → Herbivores → Top Carnivores.



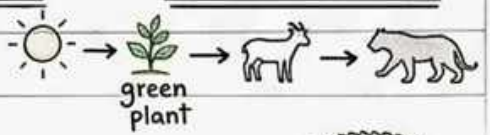


ex: shrubs, grass → grasshopper or Jerboa → Fennec Fox or Egyptian Vultures.



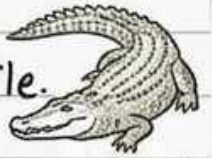

4- Even if the types of animals are diffrent, the chain always start with plants and end with large Carnivores

5- Examples of food chains in Egypt:-



* Algae → Nile Tilapia → Nile perch → Nile crocodile.





* Shrub seeds → Jerboa → desert horned viper → Fennec fox.



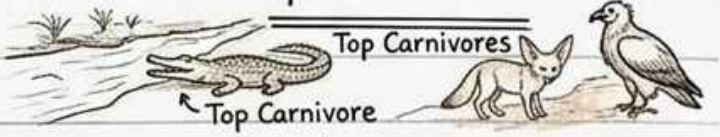


* Papyrus → grasshopper → Frog → Egyptian Vulture.



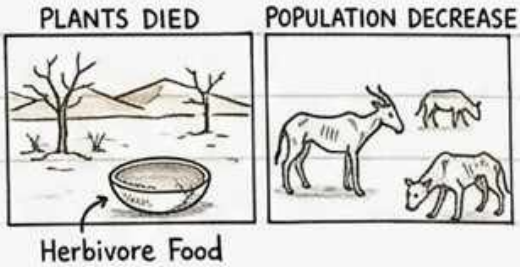



6- Nile crocodile is a top Carnivores in Nile River food chain, fennec fox and Egyptian Vulture are Top Carnivores in desert food chain.

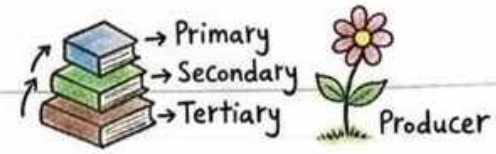


7- If all plants in the desert died out, what happen To Carnivores?

- The herbivores Can't find food and their the number of Carnivores will decrease also.



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L8 Plants are Called producers.

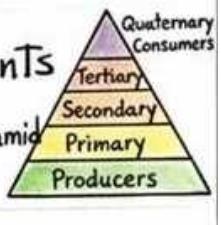


→ Primary Consumers:- They are animals feed on producers.
→ Secondary Consumers:- They are animals feed on primary Consumers.
→ Tertiary Consumers:- They are animals feed on Secondary Consumers.

Colomun 8 "IT always start with plant"

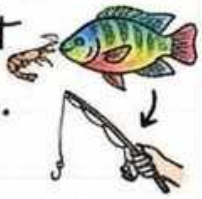


L1 The food pyramid is adiagram of a food chain and plants which can make their own food is the base of Pyramid



L2 The Nile River is a Wonderful Cycle of life. Small shrimp eat aquatic plants, Fish (Nile Talipia) eat shrimps, then The water bird, human eat Fish.

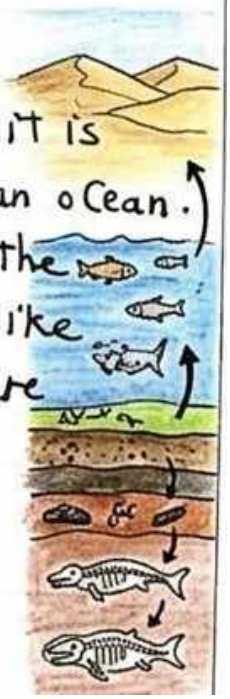




L3 In desert Where there are few plants, animals That eat small amount of grass seeds or Lizards Sustain food chain. Without Consumers like fennec fox, The balance of desert would be disrupted.




L4 Wadi al-Hitan "Valley of whales" is desert now but it is filled with fossil fuel when it is used to be an ocean. We can see That tens of mallions of years ago, the ancient ocean had a Complete food chain just like The Nile does Today. From the past to the future Connectim The life remain unbraken.



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Chapter 9 (Grouping Solutions)

Solution	محلول
Litmus paper	ورقة عباد الشمس
Acidic	حمضي
Alkaline	قلوية
Neutral	متعادلة
Vinegar	خل
hydrochloric acid	حمض هيدروكلوريك
Ammonia solution	محلول امونيا
dissolve	يذوب
evaporating	تبخير
baking soda	بيكربونات صوديوم
sparkling Water	مياه غازية

1 Solution:-
is a type of mixture that is formed by dissolving a substance in another substance.

2 Litmus Paperr:
it is a tool used to determine if a solution is acidic, alkaline or Neutral.

علشان تفهم الدرس ده عيزاك تتعرف على كلمتين هستكروا كيتر:-

① Litmus paper ← ده ورق فى المعمل بيكون لونه أحمر وازرق وعشه قدره سحريه إنه يغير لونه لما يتفاعل مع محلول معين ، طب يعنى ايه محلول ؟؟

Laboratory paper
Magical change
Magical change

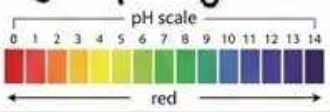
② Solution ← يعنى حاجة دابت مع حاجة تانيه ، زى المكرلما يدوب فى الماء أو الملح يدوب فى الماء ده اسمه محلول "solution" لازم فيه ماء

سكر
ماء
محلول سكر في ماء

③ dissolved substance ← يعنى الحاجة اللى دابت فى الماء زى الملح

Salt

1 → Solutions Can be divided into 3 groups by change of Color of litmus paper.



Type of Solution	Effect on litmus paper	Examples
Acidic حمضي	• Turns blue litmus paper into red Blue ⟶ red	• lemon juice • Vinegar. • hydrochloric acid. • Soda water.
Neutral متعادل	• No Color change.	• Salt Water. • sugar Water. • distilled Water.
Alkaline قلوي	• Turn red litmus paper into blue. Red ⟶ Blue.	• Soapy Water. • lime Water. • ammonia solution. • Baking Soda solution.



تعالى ناخد اسئلة ربعي في الجدول رجاوب

1- (G.R) lemon juice is acidic solution.
↳ Because it turns blue litmus paper into red.

2- (W.h.If) you put litmus paper in salt water.
↳ The Color of litmus paper doesn't change.

3- (G.R) Lime Water is alkaline solution.
↳ Because it turns red litmus paper into blue.

L2 Cautions :-

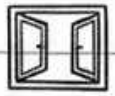


- When changing the solution, rinse اشطف The glass rod with water in a beaker and wipe it off every day.



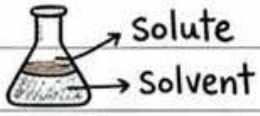
- Make sure To Ventilate the room and wear safety gogles.





لازم تهوى الغرفه و تلبس نضارة

L2_What is dissolved in solutions ?



L1 إزاى نعرف الحاجة الدايبة فى المحلول ؟



L1 By evaporating a solution, We can find What dissolved inside.



L2 What happen to a dissolved solid When Water evaporates ?





↳ it remains at the bottom of the dish تبقى فى قاع الطبق

L3 Examples of solid dissolved in water (Salt, baking soda).





L4 What happen to dissolved gas when water evaporates ?





↳ Nothing remains because the dissolved substance will escape into the air. مش هتلاقى حاجه لان الغاز طار فى الهواء

L5 Example of gas dissolved in water :- (sparkling water) غازية



L6 Sparkling water has Carbon dioxide dissolve in it.

CO_2

7 → let's heat and excract what is dissolved?

Step 1:- use pipette to transfer the solution from Test tube into evaporating dish نستقل المحلول من الانبوبة لطبق التبخير



Step 2:- Heat it gently over low heat with gas stove



Step 3:- Turn off the heat while little liquid is still left and let the remaining heat dry it.





Step 4:- observe what is left.



Caution:- Don't bring your face to evaporating dish to smell or breathe it directly.





:- Don't touch heated objects until they cool

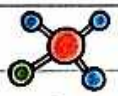
Conclusion:- ① When the dissolved substance in solution is Solid, The Solid substance Will remain in a dish.



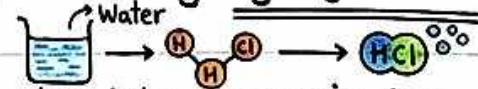


② When the dissolved substance in solution is gas, the "No Thing" is remained in a dish

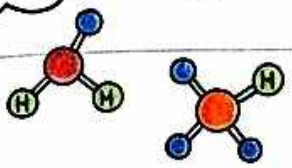
Notes من المعاصر

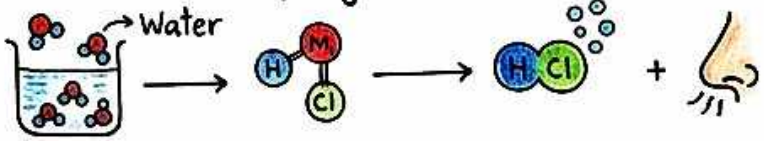


- Hydrochloric acid is formed by dissolving hydrogen chloride gas in Water.



- Ammonia solution is formed by dissolving ammonia gas in Water and has pungent smell رائحة نفاذة





SCAN AnyScanner

Questions on chap.9

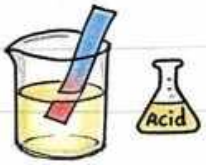
1- Ammonia solution changes the color of litmus paper to blue.

↳ Because ammonia solution is an alkaline solution.



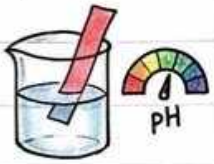
2- Vinegar changes the color of blue litmus paper into red.

↳ Because vinegar is an acidic solution.



3- Distilled water doesn't change the color of litmus paper.

↳ Because distilled water is neutral solution.



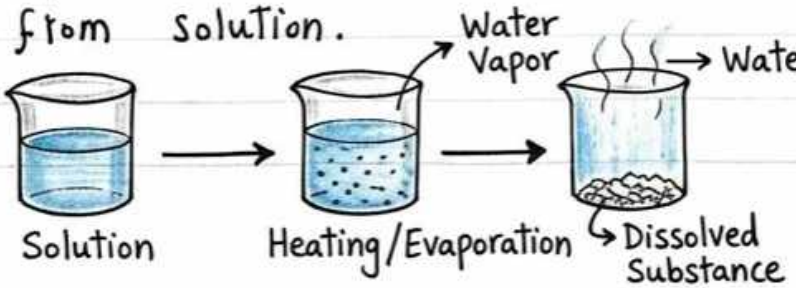
4- A solid substance remains at the bottom of the dish when heating salt water until completly evaporation of water.

↳ Because the dissolved substance is solid.



5- Evaporation process is used to separate the dissolved substance in solution.

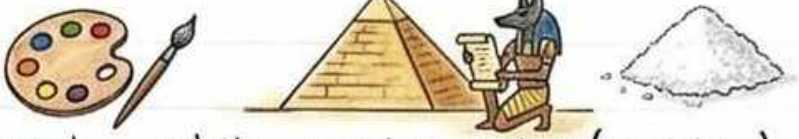
↳ Because evaporation changes the water in solution into water vapor and the dissolved substance separate from solution.



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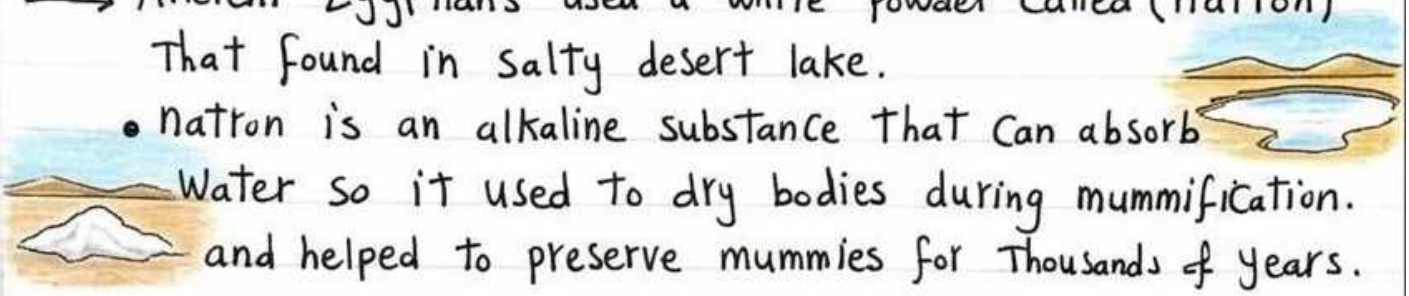
Coloumn 9 "chemical eye"

L1 Ancient Egyptians knew the properties of solutions and used a substance Called "natron" to help preserve mummies.

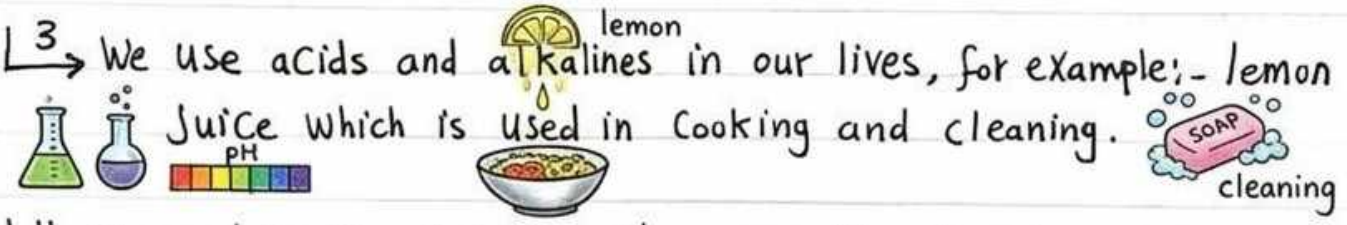


L2 Ancient Egyptians used a white powder Called (natron) That found in salty desert lake.

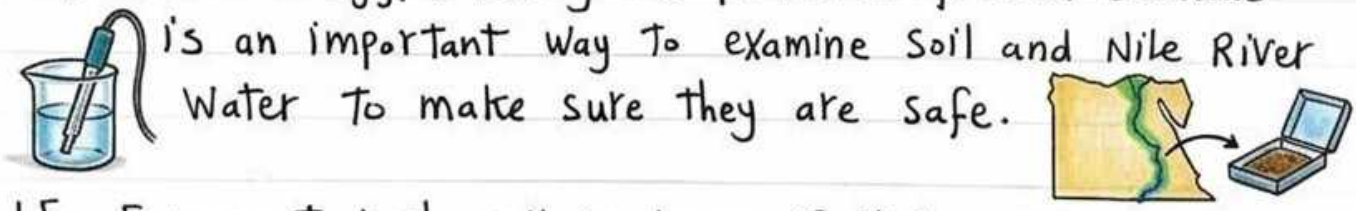
- natron is an alkaline substance that can absorb Water so it used to dry bodies during mummification. and helped to preserve mummies for Thousands of years.



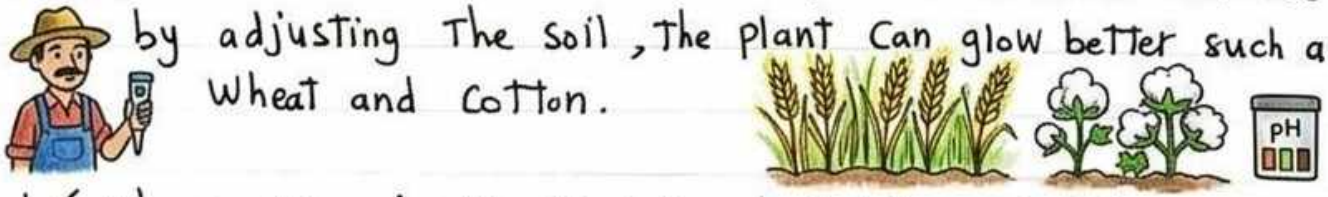
L3 We use acids and alkalines in our lives, for example:- lemon Juice which is used in Cooking and cleaning.



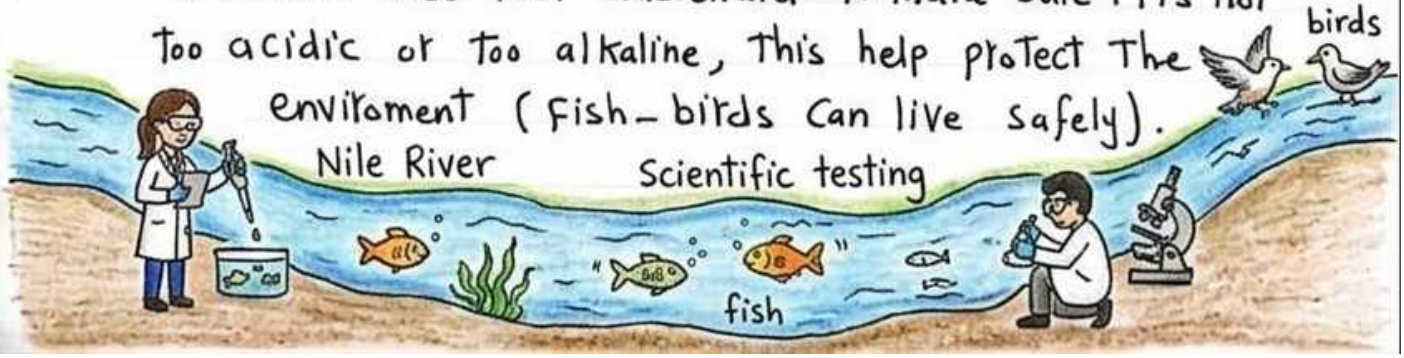
L4 In modern Egypt, testing the properties of Water solutions is an important Way To examine Soil and Nile River Water to make sure they are safe.



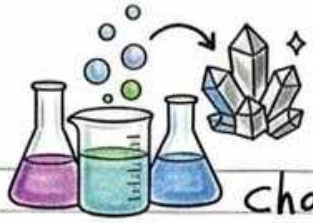
L5 Farmers Test the Soil to know if it is acidic or alkaline by adjusting The soil, The plant Can glow better such as Wheat and Cotton.



L6 The quality of Nile River is checked by scientific methods Scientists also test Wastewater to make sure it is not too acidic or too alkaline, This help protect The enviroment (Fish- birds Can live safely).



Zeinab Eldalchalchy

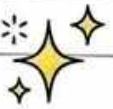


chapter 10

Aqueous solutions and metals

aqueous	مائى
Metals	معادن
react	يتفاعل
aluminum	الومنيوم
iron	حديد
dilute	مخفف
bubbles	فقاعات
shiny	لامع
properties	خصائص
appears	يظهر
dry powder	بودرة جافه



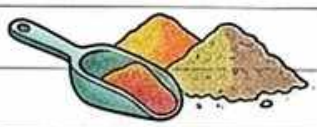


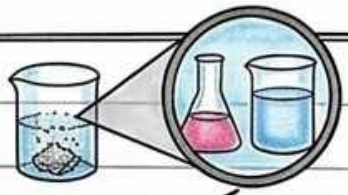
1- Metals:- they are shiny, very strong materials and most of them are solid.











L1 - Aqueous solution and metals

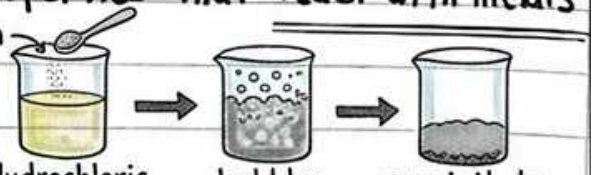
Aqueous solutions



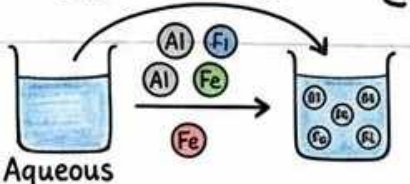
L1 لازم الأول تفهم يعني ايه aqueous solutions يعني محلول بيكون فيه ماء وحاجة دايبه في الماء ده.

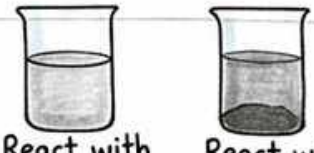
L2 Some aqueous solutions have properties that react with metals

L3 Hydrochloric acid has properties and iron

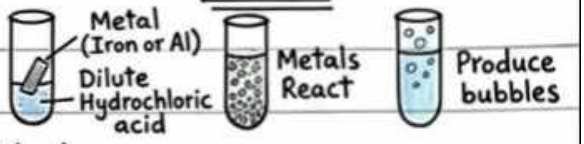


يعني حمض الهيدروكلوريك له خواص يقدر تتفاعل مع الحديد و الالومنيوم.

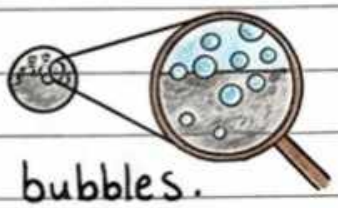




L4 → When dilute hydrochloric acid is poured on metals like iron or aluminum, the metals react and produce bubbles.

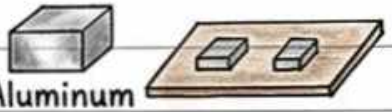


W.h.if Dluite hydrochluric acid is poured on iron or aluminum.



→ the metals will react and produce bubbles.

L5 → let's observe changes in metals:-



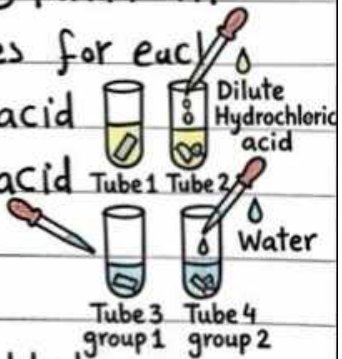
step1:- Cut aluminum into small pieces and put them in Tube.

step2:- Tear off small amount of steel wool 

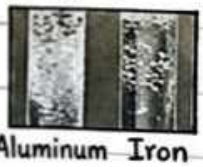
step2:- Tear off small amount of steel wool, roll it, put it in another test tube. (prepare 2 Tubes for each)

step3:- Use pipette to add dilute hydrochloric acid

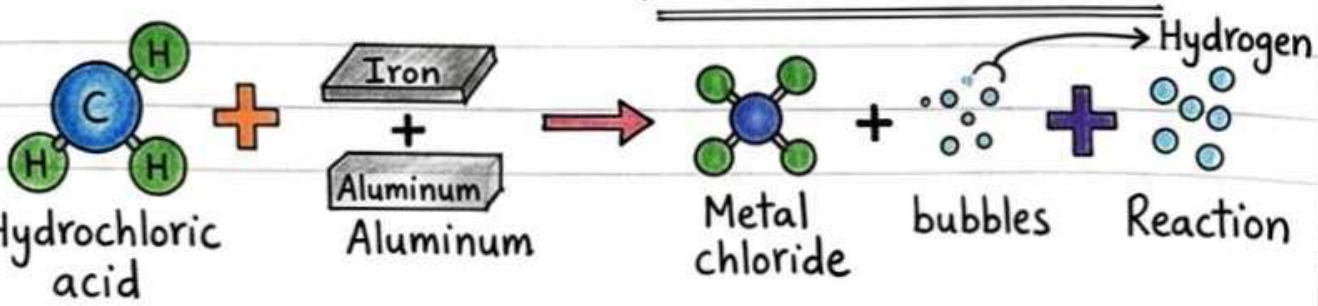
step4:- Use pipette to add dilute hydrochlaric acid first group of Tubes



Observation:- Wher pipette to add water to added to aluminum aluminum and iron, bubbles are produced.



Coservation:- When dilute hydrochloric acid is added to aluminum and iron, bubbles are produced.



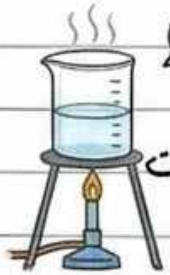
Cautions:-



- Don't let the liquid touch your skin. if it happen, you should Wash it with running water.



- Make Sure to VenTilate the  and Wear safety googles.



L2_What is left after evaporation?



طولتي اخدنا ان لما الحديد تفاعل مع حمض الهيدروكلوريك عمل فقاعات
تعالى نسخن ونبخر السائل ده ونشوف هيظهر ايه؟

L2→ What happen when you evaporate the liquid of aluminum that reacted with dilute hydrochloric acid?





→ White solid appears, it is dry powder and not shiny.

L3→ If you put this solid powder to dilute hydrochloric acid, it will not react and don't produce bubbles Like original metal.





No Bubbles→



Bubbles→

For Comparison

L4→ G.R The substance left after evaporation is diffrent from the original metal.

→ Because it is not shiny and doesn't react with dilute hydrochloric acid to produce bubbles.



Original Metal

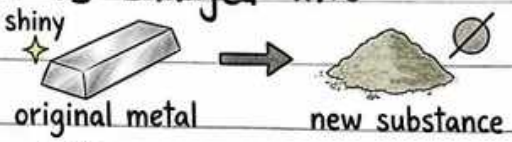
≠



Substance Left After Evaporation

SCAN AnyScanner

L5 (G.R) We can say that the metal is changed into diffrent substance.



↳ Because the new substance has diffrent properties comparised with diffrent metal properties. ✓

L6 let's Test what the powder really is ?



step 1:- put the liquid in which the metal reacted into evaporation dish.



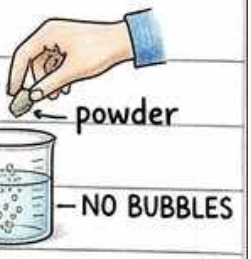
step 2:- heat it gently on low heat.



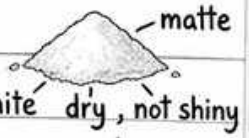
step 3:- Turn off the heat while there is still liquid left, and let the remaining heat dry it.



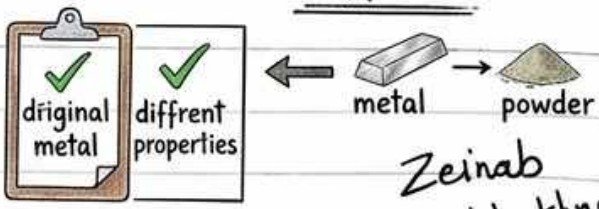
step 4:- put the powder into dilute hydrochloric acid check the bubbles come out.



observation:- White, dry, not shiny solid remain.



Conclusion:- The remaining substance is diffrent from the original metal because it has diffrent properties.



Zeinab Eldakhakhny

Question of chap 10

1- When a piece of aluminum is placed in diulite hydrochlorc acid, gas bubbles are observed.

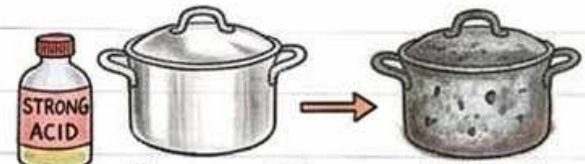
H_2 (Hydrogen)



↳ Because aluminum reacts with dilute hydrochloric and produce gass bubbles.

2- We shouldn't use strong acid to clean aluminum pots.

↳ Because acidic solution reacts with aluminum and produce new sub properties.



Aluminum Pot — Pitted & Damaged

3- When white powder resulting from reacting of aluminum with dilute hydrochloric acid is placed in acid again, it doesn't react like original metal.

↳ Because the white powder has diffrent properties from the original metal (aluminum).



Original Aluminum Metal — Acid | White Powder — Acid

Zeinab Elalakhy

Coloumn 10

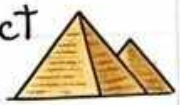




(iron & copper)

Metals → 1 The chemical reaction where strong, hard metals react with an acid and produce gas bubbles. give us an important clue about Egypt's proud golden history.







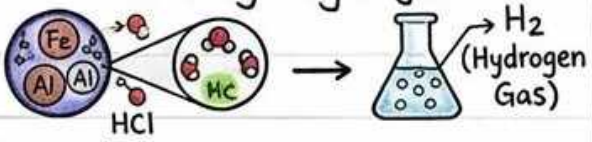
2 Tutankhamun's golden mask is still beautiful today because gold has stable property - it doesn't react with strong solution like hydrochoric acid.





Stable, no reaction

3 The bubbles that are produced when iron or aluminum reacts with hydrochloric acid are actually hydrogen gas



3 The process where a metal reacts with a solution and then left behind in a diffrent form after solution evaporates prove that the substance has not dissappear from the world. This ability to understand "invisible change" is incredibley useful in modern factories and in the world of recycling where we use the Earth limited resource over and over.

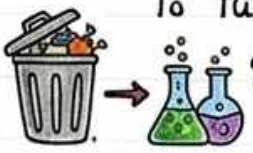



Solid residue remains


Useful



4 Instead of throwing metals, we can use the power of chemistry to turn them into clean materials green and clean.





Egypt's future



أخيراً خلصنا يا أبطال ...

أشوفكم بخير التزم الشاف

Zeinab Mohamed Eldakhakhny



Future is green and clean.