

Exploring Life: The Biology Detective



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ← المناهج الإماراتية ← الصف الخامس ← علوم ← الفصل الأول ← ملفات متنوعة ← الملف

تاريخ إضافة الملف على موقع المناهج: 2026-08-21 18:25:21

ملفات اكتب للمعلم اكتب للطالب | اختبارات الكترونية | اختبارات | حلول | عروض بوربوينت | أوراق عمل
منهج انجليزي | ملخصات وتقارير | مذكرات وبنوك | الامتحان النهائي | للمدرس

المزيد من مادة
علوم:

إعداد: Adel Rania

التواصل الاجتماعي بحسب الصف الخامس



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الخامس والمادة علوم في الفصل الأول

ملخص أن تصبح عالماً - بريدج

1

The Matter Mystery: Identify Properties of Materials

2

حل اختبار مطابق لمخرجات الهيكل الوزاري الجديد منهج انسابير الجزء الموضوعي

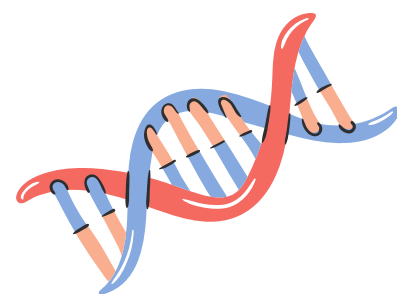
3

حل تجميعية نهائية وفق الهيكل الوزاري الجديد منهج انسابير

4

حل تجميعية مراجعة وفق الهيكل الوزاري الجديد منهج انسابير

5



Science zone



Science

Grade: six inspire

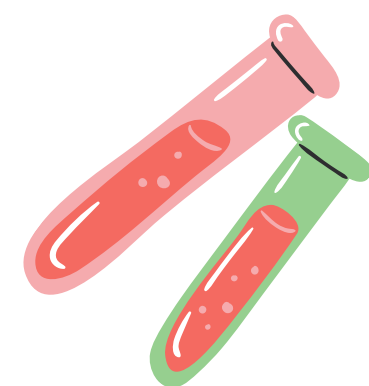
unit: 1

lesson:1

Teacher: Rania Adel

Learn .Explore . Discover

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مؤسسة رانيا عادل



Exploring Life: The Biology Detective

Booting up the Micro-Explorer Dashboard...

START INVESTIGATION

Case File #1: The Life Illusion



Looks like a dry rock. Four friends argued: is it alive before it's watered? Is it alive before it sprouts?

[Think & Answer] What do you think?



Fire moves. Fire consumes wood. Fire grows. Does that mean the campfire is alive?

[Observe] What traits does a flame share with you? What is it missing?

The Detective's Rulebook: 7 Badges of Life

To be considered "alive," an organism must collect **ALL 7** of these biological badges.



Flame Check!

A fire uses energy and grows, but it doesn't have cells or homeostasis. It fails the test!



Cells:

Made of one or more cells.



Organization:

Different structures perform specialized functions.



Growth:

Increases in size and develops over a lifespan.



Reproduction:

Creates new living things.



Stimuli:

Responds to internal and external environmental changes.



Homeostasis:

Maintains steady internal conditions.



Energy:

Uses energy (from the Sun or from food).



Badge #1 Deep Dive: The Scale of Cells

Unicellular (1 cell) ☒

Amoeba & Paramecium.

Note: One cell performs ALL necessary functions for living.

Multicellular (2+ cells) ☒

 Mouse: 12 Billion cells

 Human: 37.2 Trillion cells

 Blue Whale: 100 Quadrillion cells



In multicellular organisms, cells are grouped together to do specialized jobs, like muscle cells for movement or stomach lining cells for digestion!



Investigative Tools: A History of Lenses

1665 - Robert Hooke



Used an early microscope on cork. He saw empty spaces and named them "cells" because they looked like a "great many little Boxes."



Late 1600s - Anton van Leeuwenhoek



Built a better lens that magnified 270 times! First to observe living organisms swimming in pond water.

Because cells are so small, it took hundreds of years of engineering to finally see them!

Modern Tech: The Microscope Match-Up

Light Microscope



- ✱ Power: Up to 1,500x.
- ✱ How it works: Uses light and lenses.
- ✱ Best for: Viewing living things or dyed samples.

TEM (Transmission Electron)



- ✱ Power: 100,000x or more.
- ✱ How it works: Electrons pass through the object.
- ✱ Best for: Seeing tiny structures inside a cell.

SEM (Scanning Electron)



- ✱ Power: 100,000x or more.
- ✱ How it works: Electrons bounce off the surface.
- ✱ Best for: Creating highly detailed 3-D images of an object's surface.

The Master Rules: The Cell Theory

Thanks to powerful microscopes, three different scientists combined their discoveries into one major theory.

ALL LIVING THINGS

All living things are made of cells.

Cells are the smallest unit of life.

All cells come from preexisting cells (through cell division).

[Did You Know?] Just like all matter is made of atoms, all living matter is made of cells!

Suspect Profiling: The Cell Showdown

Prokaryotic Cells



- **Genetic Material:** Floating free (not surrounded by a lining).
- **Organelles:** Few parts, no lining around organelles.
- **Size:** Very small (You can fit about 10 of these inside one Eukaryotic cell!).
- **Organisms:** Always Unicellular.

Eukaryotic Cells



- **Genetic Material:** Protected inside a lining (Nucleus).
- **Organelles:** Highly specialized structures with linings.
- **Size:** Much larger.
- **Organisms:** Plants, animals, fungi, and protists.

The Sorting Room: Domains & Kingdoms

Domain Bacteria



Simple, unicellular
prokaryotes.

Domain Archaea



Simple, unicellular
prokaryotes that
often live in extreme
environments.

Domain Eukarya

Complex organisms made of eukaryotic cells.
Contains 4 Kingdom Folders:



Protista

Unicellular or
multicellular;
more complex
than bacteria.



Fungi

Absorb their
food (e.g.,
mushrooms).



Plantae

Multicellular,
make their
own food.



Animalia

Multicellular,
take in their
food.

The Ultimate Cold Case: The Virus Dilemma

Have you ever had a cold or the flu? Viruses are highly organized and cause huge impacts, but are they alive? Let's check their badges.

Virus Life Checklist

Organized? Yes



Made of cells? NO. They lack the parts required for homeostasis



Grow? NO



Use Energy? NO. They steal energy from a host



Reproduce? ONLY by invading a living host cell



Verdict: Because they aren't made of cells and fail multiple badges of life, most scientists agree: Viruses are NOT living things.

Case Closed: Can You Spot the Fakes?

Use your Detective rules! Which of these are living, and which are nonliving?

1



Uses energy, responds to stimuli... but has NO cells and NO reproduction.

(Nonliving)

2



Grows in size, moves... but has NO cells and NO homeostasis.

(Nonliving)

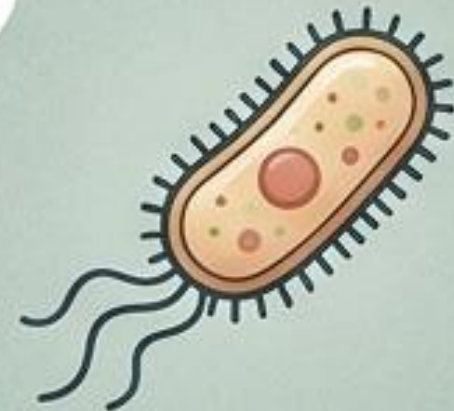
3



Made of trillions of eukaryotic cells, grows, reproduces.

(Living!)

4



Only one single prokaryotic cell, but it does it all!

(Living!)



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مؤسسة تعليمية

Teacher Rania Adel