

Module 1 A Physics Toolkit



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ← المناهج الإماراتية ← الصف الأول ← فيزياء ← الفصل الأول ← ملفات متنوعة ← الملف

تاريخ إضافة الملف على موقع المناهج: 2026-09-21 19:49:51

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

المزيد من مادة
فيزياء:

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التواصل الاجتماعي بحسب الصف الأول



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الأول والمادة فيزياء في الفصل الأول

PHYSICS



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MODULE 1 A PHYSICS TOOLKIT



Module 1: A Physics Toolkit

Lesson 1: Methods of Science

Lesson 2: Mathematics and Physics

Lesson 3: Measurement

Lesson 4: Graphing Data

البدوي



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Definition of physics :

Physics: a branch of science which studies the physical world (energy, matter and the relation between them).

فرع من فروع العلم يُعنى بدراسة العالم الطبيعي: الطاقة والمادة وطريقة ارتباطهما

Question : what else do we study in physics ?

Scientific method :

A pattern of investigation procedures. (common steps used to solve any problem).

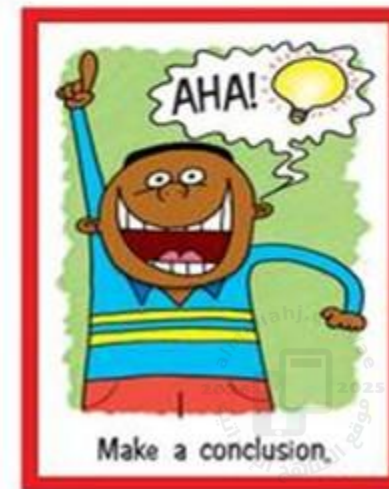
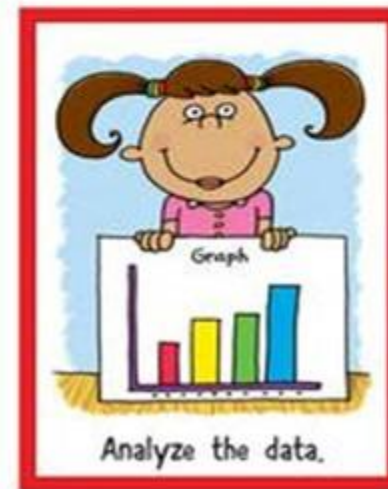
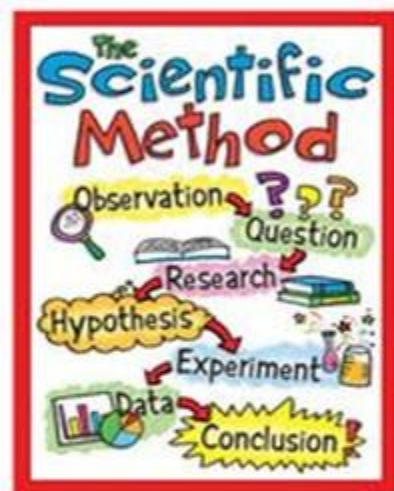
الطريقة العلمية هي أسلوب منظم يتبعه العلماء لدراسة الظواهر وتستخدم لحل أي مشكلة .



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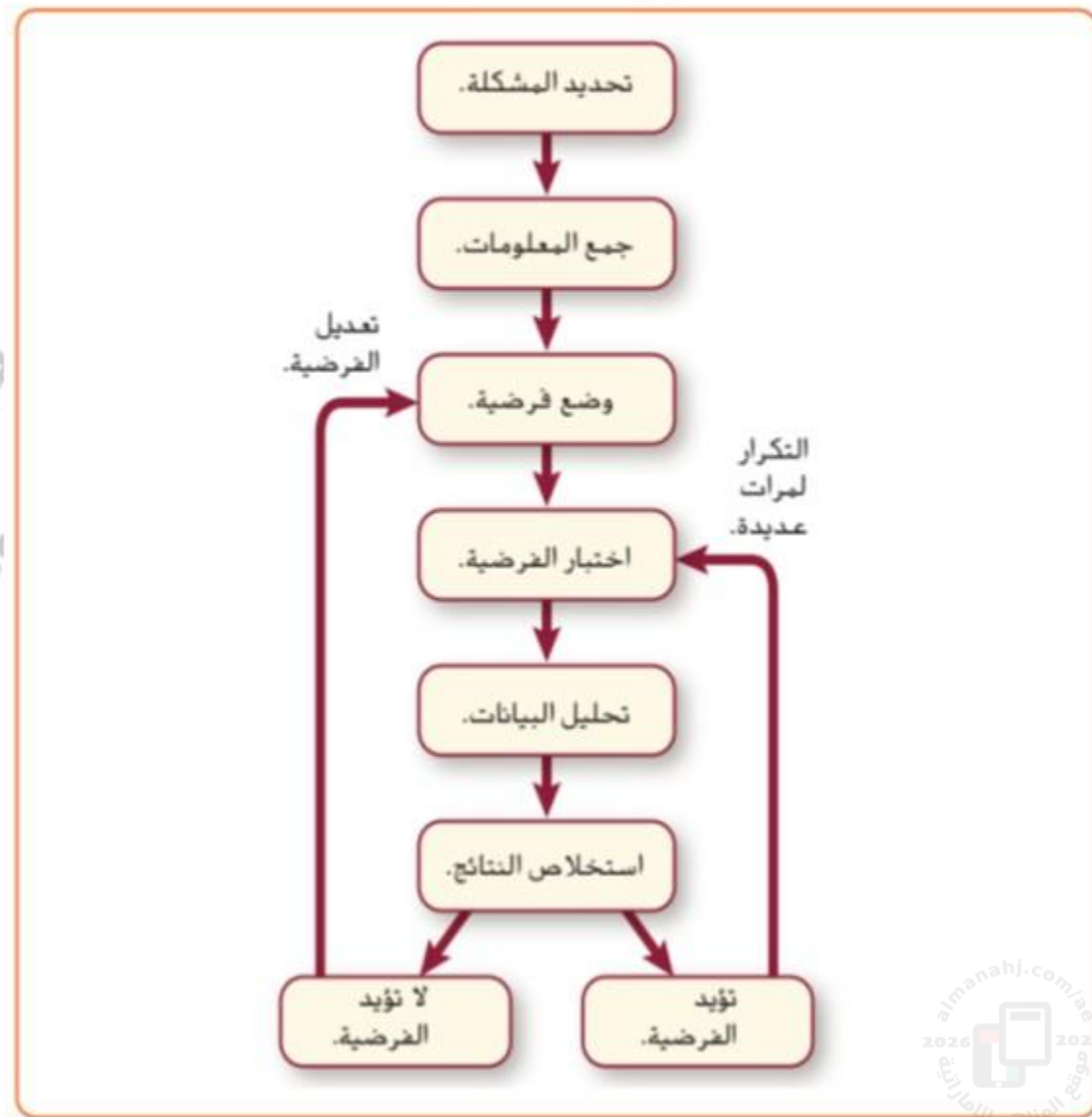
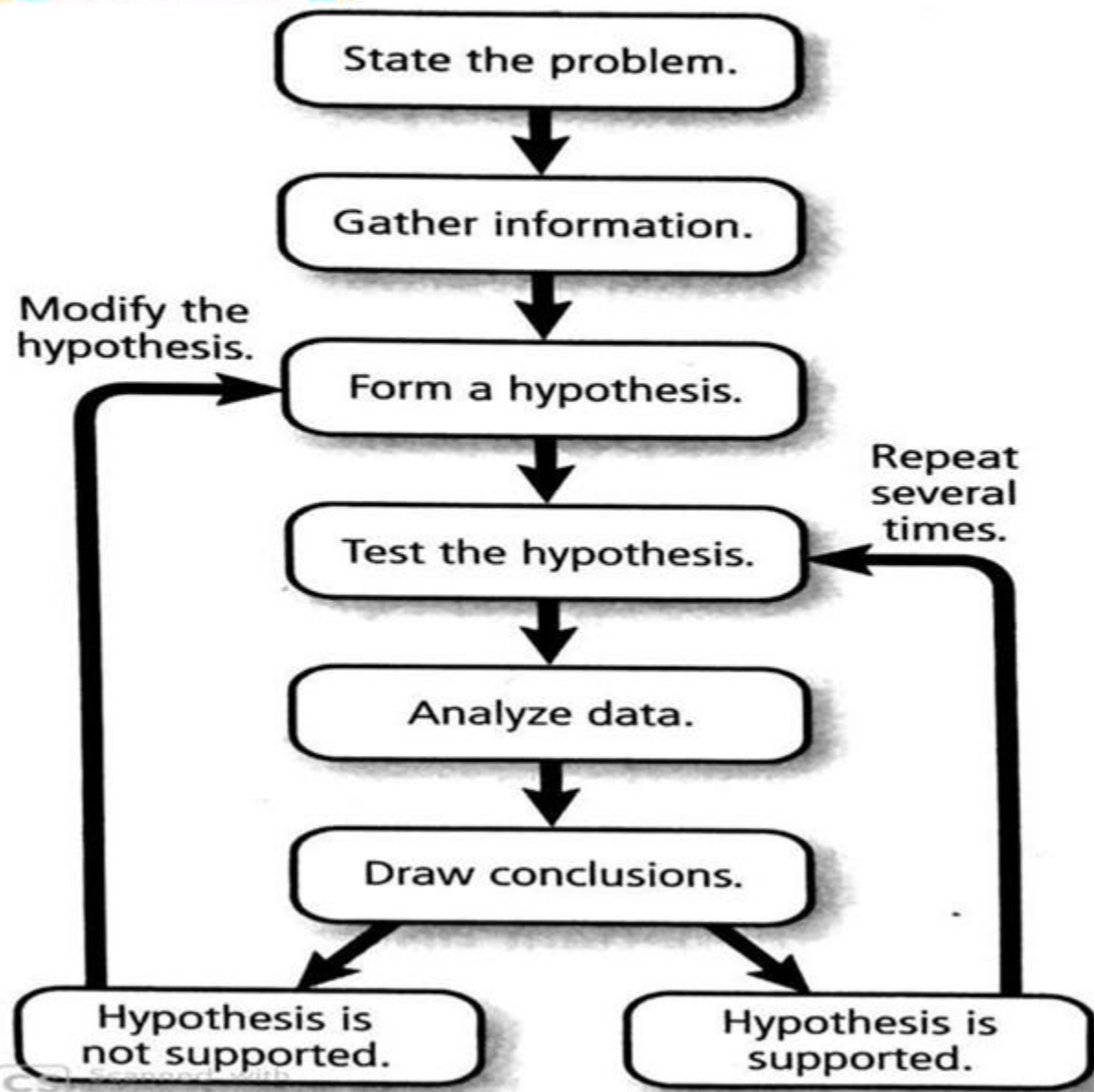
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Scientific method :





SCIENTIFIC METHODS





Step1: state the problem

- observing an event in nature then wondering why or how it occurs.
➤ example: Isaaq newton and the apple (why do objects fall?) what causes day and night?
other examples???

Step 2: gather information

- Research what is already known about the problem from reliable sources.

Step 3 : form a hypothesis

- **Hypothesis**: a possible explanation for a problem using what you know and observed.

Step 4: test the hypothesis

- The hypothesis can be tested (if true or false) through:
 - observation: looking and recording data
 - building a model
 - making experiments (the common way).
- Experiments: test the effect of one thing on another using a **control**
- **Control**: the standard by which test results in an experiment can be compared to.

Step 5: analyze data

- Recording observations and **organizing** data in tables/graphs/charts.
(if they are not organized, it could lead to wrong conclusions)

Step 6: draw conclusions

- For a hypothesis to be correct, the results of the experiment must be the same every time it's repeated.
- If not, the hypothesis and/or the experimenting method must be changed.



Being objective

- **Being objective**: expressing or dealing with facts or conditions as perceived **without distortion by personal feelings**, biases or interpretations.
- Scientists and researchers are required to **be objective** about the outcomes of their research.

How to be objective

1. Peer review :

- A process by which the procedures and results of an experiment are evaluated by peer scientists.
- If the results are widely agreed upon between peer scientists, the results can be made public.

2. Avoiding Bias :

Bias: the event that occurs when scientists' expectations effect how the results are analyzed, or how conclusions are made.

Bias can occur when :

- choosing only one trial from several trials
- advantages of a product are displayed but the disadvantages are not displayed

Reduce bias by:

- running as many tests as possible and including all the test results.
- keeping accurate notes of each observation.



Answer the following questions.

1. Put the following steps in order, please number 1-6.

—3— Hypothesis

—6— Draw Conclusion

—4— Experiment

—1— Ask a Question

—5— Analyze data

—2— Collect Observations



Models :

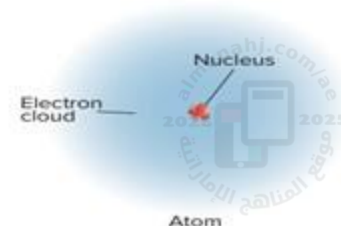
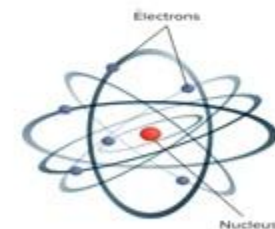
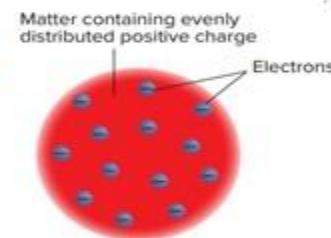
- **Model:** representation of an idea, event, structure, or object that helps people better understand it.
- Models are used for:
 - Things that are too big or too small to see, like: _____
 - Things that are Too fast or too slow to see completely Or before mankind. Like: _____
 - Things that are Hazardous. Like: _____
 - Training and computer simulation. Like: _____

Read paragraph 2 in page 7 and match the correct atom model with each statement

1904 : Jj Thompson created a model of the atom that consisted of electrons embedded in a ball of positive charge

1911 : Ernest Rutherford created a model of the atom it stated that the atom consists of a nucleus with electrons orbiting around it in defined orbits

Today, the model of the atom is a nucleus made of protons and neutrons surrounded by an electron cloud





Comparison Between Scientific Theory and Scientific Law

Aspect of Comparison	Scientific Theory	Scientific Law
Definition	A scientific explanation supported by extensive evidence for natural phenomena.	A scientific description of a pattern or relationship that occurs in nature.
Question Answered	Answers: Why and how does it happen?	Answers: What happens?
Purpose	Explains the causes and mechanisms behind phenomena.	Describes phenomena and relationships between them.
Evidence	Based on observations, experiments, and extensive scientific evidence.	Based on repeated observations and experiments.
Development	Can be refined as new scientific evidence becomes available.	Its wording or formulation can be refined when new evidence appears.
Example	Theory of Evolution.	Law of Universal Gravitation.
Relationship	Explains why and how a phenomenon occurs.	Describes what happens in a phenomenon.

وجه المقارنة	النظرية العلمية	القانون العلمي
التعريف	تفسير علمي مدعوم بأدلة كثيرة للظواهر الطبيعية.	وصف علمي لنمط أو علاقة تحدث في الطبيعة.
السؤال	تجيب عن: لماذا وكيف يحدث؟	تجيب عن: ماذا يحدث؟
الهدف	تفسير أسباب وآليات حدوث الظواهر.	وصف الظواهر والعلاقات بينها.
الأدلة	تعتمد على الملاحظات والتجارب والأدلة العلمية.	تعتمد على الملاحظات والتجارب المتكررة.
التطور	يمكن أن تتطور مع ظهور أدلة علمية جديدة.	يمكن تعديل صياغته عند ظهور أدلة جديدة.
مثال	نظرية التطور.	قانون الجاذبية.
العلاقة بينهما	تفسر لماذا وكيف تحدث الظاهرة.	تصف ما يحدث في الظاهرة.



Limitations of science :

1. Limitations due to technologies not being available. Like: _____
2. Things that lie beyond our thinking capabilities. like: _____
3. Differences in opinions cannot be justified by science.
Like: _____

Mministry : newton provided an explanation for why objects fall, he proposed that the objects fall because the object and earth are attracted by a force. Which of the following represents what newton said?

1. A scientific model
2. A scientific hypothesis
3. Sscientific theory
4. Sscientific law

Mministry : which of the following terms represent the series of steps or the procedure that the scientists follow to investigate or solve a problem?

1. Scientific method
2. hypothesis
3. theory
4. scientific law

Ministry: computer simulation for a nuclear reactor is an example of :

1. Model
2. hypothesis
3. scientific law
4. scientific theory

Ministry: the shown is the atom structure as pictured by Thomson , what does the figure represent?

1. A hypothesis of the atom
2. a model for the atom
3. a law of the atom
4. a theory of the atom

Mministry : according to the scientific method, if the conclusions do not support the hypothesis , which step should be repeated?

1. Modify the hypothesis and form a new one
2. Tests the hypothesis again
3. Aanalyse data
4. Draw different conclusion



Term	Definition
Scientific method	A pattern of investigation procedures. (common steps used to solve any problem).
Model	A representation of an idea, event, structure, or object that helps people better understand it.
Theory	Is an explanation of things or events based on knowledge gained from many observations and investigations.
Law	A statement about what happens in nature and seems to be true all the time
Hypothesis	A possible explanation for a problem using what you know and have observed.



KEY VOCABULARY.

SI Units

Derived Units

Dimensional Analysis

Conversion Factors

Significant Figures



What units do you use to measure the following quantities ?



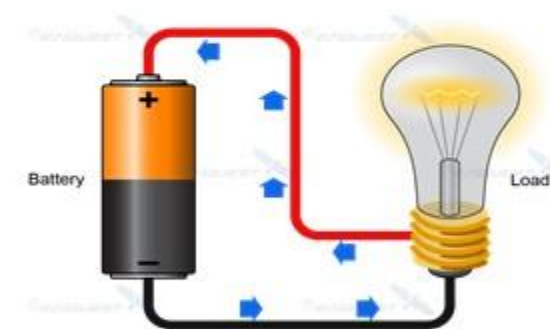
SI units : (**S**ystem **I**nternational for units) is a system of seven base units that are unified and used to measure quantities all over the world.

Why is it important to unify units?

To communicate results, it is helpful to use units that everyone understands



*Electric Charge : Measure in
Ampere-Seconds ($A*s$), which
also called Coulombs (C)*



*Velocity : Measure in meters per
seconds (m/s)*



Derived Units

Table 1 SI Base Units

Base Quantity	Base Unit	Symbol
Length	meter	m
Mass	kilogram	kg
Time	second	s
Temperature	kelvin	K
Amount of a substance	mole	mol
Electric current	ampere	A
Luminous intensity	candela	cd



Derived Units

Quantity	Formula	Units		
Area	Length x Width	m x m	m ²	
Volume	Length x Width x Height	m x m x m	m ³	
Density	Mass / Volume	kg / m ³	kg/m ³	
Velocity	Displacement / Time	m / s	m/s	
Acceleration	Change in Velocity / Time	(m / s) / s	m/s ²	
Force	Mass x Acceleration	kg x m/s ²		N (Newton)
Pressure	Force / Area	[kg x m/s ²] / m ²	kg / (s ² .m)	Pa (Pascal)
Power	Force x Velocity	[kg x m/s ²] x m/s	kg.m ² /s ³	W (Watt)
Energy	Power x Time	[kg.m ² /s ³] x s	kg.m ² /s ²	J (Joule)

The derived unit can be found by **substituting the base units in the quantity equation.**



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- If you know that **velocity** is calculated using the following equation: $velocity = \frac{distance}{time}$
what is the unit of speed?
- If you know that the electric charge is calculated using the following equation:
 $charge = current \times time$, What is the unit of the electric charge?
- If you know that acceleration is calculated using the following equation: $acceleration = \frac{velocity}{time}$,
what is the unit for acceleration .
- If you know that force is calculates using the following equation:
 $force = mass \times acceleration$, what is the unit for force?
- if you know area of a rectangle is calculated using the following equation : $area = L \times W$ what
is the unit of area.
- If you know that pressure is calculated by: $P = \frac{Force}{area}$ what is the unit of pressure?
- If you know that volume of a cube is calculated by: $V = L \times W \times H$ what is the unit of
volume?
- If you know that density is calculated by: $density = \frac{mass}{volume}$ what is the unit of density

Prefixes

Prefixes are used to change SI base units by powers of 10



$$1 \text{ nanometer (nm)} = 1 \times 10^{-9}$$

Derived units are created by combining the base units in various ways.

Derived units are given special names.

Prefix	Symbol	Multiplier	Scientific Notation	Example
tera-	T	1,000,000,000,000	10^{12}	terahertz (THz)
giga-	G	1,000,000,000	10^9	gigameter (Gm)
mega-	M	1,000,000	10^6	megagram (Mg)
kilo-	k	1000	10^3	kilometer (km)
deci-	d	0.1	10^{-1}	deciliter (dL)
centi-	c	0.01	10^{-2}	centimeter (cm)
milli-	m	0.001	10^{-3}	milliamps (mA)
nano-	n	0.000000001	10^{-9}	nanometer (nm)
pico-	p	0.000000000001	10^{-12}	picometer (pm)

Prefixes



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10^{-15}	10^{-12}	10^{-9}	10^{-6}	10^{-3}	10^{-2}		10^3	10^6	10^9	10^{12}
Fs	Pm	nm	μm	mm	cm	m	km	MG	Gg	Tm

مثال 17m: الي km

$$17m = 17 \times 10^{-3} km$$

مثال 12Gm: الي m

$$12Gm = 12 \times 10^9 m$$

مثال 18m: الي nm

$$18m = 18 \times 10^9 nm$$

قاعدة

من الصغير إلى الكبير بنقسم
من الكبير للصغير بنضرب

مثال m: الي 5km

$$5km = 5 \times 10^3 m$$

مثال 12m: الي Gm

$$12m = 12 \times 10^{-9} Gm$$

مثال 8nm: الي m

$$8nm = 8 \times 10^{-9} m$$



Transfers

Example 1

Convert 1.34 **kg** of iron ore to **grams**

Example 2

Convert 43 **km/h** to **m/s**

Example 3

Convert 77.4 **cm** to **k/m**

الرقم	السؤال	معامل التحويل	عملية التحويل
1	حول 3500mm إلى m	$\frac{10^{-3}m}{1mm}$	$\frac{3500mm \times 10^{-3}m}{1mm} = 3.5m$
2	كم MHZ في 340HZ	$1MHZ=10^6HZ$	$\frac{340HZ \times 1MHZ}{10^6HZ} = 340 \times 10^{-6}MHZ$
3	حول 5×10^4ms إلى min	$10^{-3}s/ms$ $1min/60s$	$5 \times 10^4ms \times 10^{-3}s/ms \times 1min/60s = 0.83min$
4	حول $7m^3$ إلى cm^3	$\frac{1cm^3}{10^{-6}m^3}$	$7m^3 \times \frac{1cm^3}{10^{-6}m^3} = 7 \times 10^6cm^3$



- **Scientific notation** is a representation of very large or very small numbers using a **mantissa** and an **exponent** as a power of 10.
- How to convert to standard notation to scientific notation:
 1. Move the decimal point (right or left) until you get a number between 1 and 10
 2. Multiply the new number by 10 to the power of the number of places moved
 3. If you move the decimal point left, the exponent is positive, if you move it to the right, exponent is negative.

mantissa $\times 10^{\text{exponent}}$

$$234123 \rightarrow 2.34 \times 10^5$$

Write the following in the scientific notation form (up to 2 decimals)

- 708000342005
- 0.000056237
- 57000000
- 0.0054



Significant Figures

Is a figure or a digit that contributes to how accurately something can be measured.

The numbers in a measurement that actually mean something.

The more significant figures are available to us when measuring , the more exact the measurement will be.





Counting Significant Figures

1) All Non Zero Digits Are Significant (1- 9)

1.5 has 2 Significant Figures.

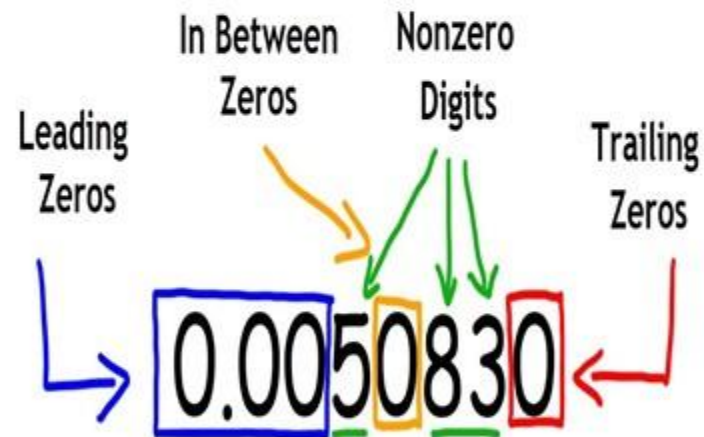
26981 has 5 Significant Figures.

2) Interior (Sandwich) Zeros (Between Two Digits) Are Significant

1.05 has 3 Significant Figures.

1023 has 4 Significant Figures.

Significant Figures





3) Trailing Zeros After A Decimal Point Are Significant

1.050 has 4 Significant Figures.

4) Leading Zeros (On The Left Of A Number) *Are NOT Significant.*

0.001050 has 4 Significant Figures.

5) Zeros That Do Nothing But Set The Decimal Point (To The Right Of A Number) Are NOT Significant:

542,000 has 3 Significant Figures



How many Significant Figures are in each of the following numbers ?

4 أرقام معنوية	13.90 g
5 أرقام معنوية	200.00 mm
3 أرقام معنوية	5.08 s
5 أرقام معنوية	16032 m
رقمين معنويين	0.0041 m
رقم معنوي واحد	30000 cm
3 أرقام معنوية	$7.03 \times 10^6 m$
رقمين معنويين	$3.9 \times 10^{-9} m$

a) 0.0035

b) 1.080

c) 2371

d) 2.97×10^5



Rules for rounding numbers

If the digit immediate right of the last significant figure is:

- a) greater than 5 – Round up the last sig. figure:

2.536

2.54

- b) lesser than 5 – Do NOT round up:

2.532

2.53



Rules for rounding numbers

c) equal to 5:

1) followed by a non-zero –ROUND UP:

2.5351

2.54

2) followed by zero:

If the last significant figure:- is an odd digit – ROUND UP:

2.5350

2.54

- is an even digit– Do NOT round up:

2.5250

2.52



Arithmetic with Significant figures

$$1) \underline{3.86} \text{ m} + 2.\underline{4} \text{ m} = 6.26 \text{ m}$$

6.3 m

To add or subtract measurements, first perform the operation then **ROUND OFF** the result to the **least** number of **digits after the decimal point**.

If the digit immediate right of the last significant figure is:

a) greater than 5 – Round up the last sig. figure:

2.536

2.54



Arithmetic with Significant figures

$$1) \underset{4 \text{ SF}}{409.2 \text{ km}} \div \underset{3 \text{ SF}}{11.4 \text{ L}} = 35.\underline{8}9473684$$

35.9 km/ L

To multiply or divide measurements, first perform the operation then **ROUND OFF** the result to the **least** number of **significant figures**.

If the digit immediate right of the last significant figure is:

a) greater than 5 – Round up the last sig. figure:

2.536

2.54



Solve the following problems , using the correct number of significant figures each time.

التحليل البعدي

$$1) 5.74 + 0.832 + 2.651 = 9.2\textcolor{red}{2}3$$

2 Decimal Places

3 Decimal Places

2 Decimal Places

9.22

$$8.\textcolor{red}{7}65$$

1 Decimal Place

3 Decimal Places

8.8

$$3) 5.02 \times 89.665 \times \textcolor{red}{0.10} = \textcolor{red}{45}.0118$$

3 Significant Figures

5 Significant Figures

2 Significant Figures

45



Example 1

Using Distance and Time To Find Speed. When a car travels 434 km in 4.5, what is the car's average speed ?

The Problem

Known

Unknown

Analyze and Sketch the Problem

Distance = 434 km

Speed = ? Km/h

Time = 4.5 h

Solve for the Unknown

Distance = Speed x Time

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

Evaluate the Answer

$$\text{Speed} = \frac{434 \text{ km}}{4.5 \text{ h}}$$

$$\text{Speed} = 96.4 \text{ km/h}$$

$$\begin{aligned} \text{Distance} &= \text{speed} \times \text{time} \\ &= 96.4 \text{ km/h} \times 4.5 \text{ h} \\ &= 434 \text{ km} \end{aligned}$$



SECTION 2- REVIEW ANSWER KEY

أوجد الأرقام المعنوية

a. 2.5 g

b. 4.33 m

c. $3.2 \times 10^2 \text{ cm}^2$

d. 1.22 g/mL

e. 26.3 cm

f. 1203 km

Practice Questions



Q1. The following units are all SI base units, except one:

A. Mole	B. Candela	C. Ampere	D. Celsius
---------	------------	-----------	------------

Q2. Which of the following is a unit of the International System (SI)?

A. Volt	B. Joule	C. Newton	D. Ampere
---------	----------	-----------	-----------

Q3. Which of the following is NOT one of the SI base units?

A. Kilometer	B. Kilogram	C. Second	D. Meter
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Q4. All the following physical quantities are derived quantities, except one:

A. Mass	B. Acceleration	C. Density	D. Speed
---------	-----------------	------------	----------

Q5. Which of the following quantities represents a base quantity?

A. Temperature	B. Force	C. Pressure	D. Speed
----------------	----------	-------------	----------



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Q6. Which of the following quantities represents a derived quantity?

A. Speed	B. Amount of substance	C. Length	D. Temperature
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Q7. The base SI unit for electric current is:

A. Mole	B. Candela	C. Kelvin	D. Ampere
---------	------------	-----------	-----------

Q8. A worker in a steel factory needs to record the temperature of steel rods using the base unit. Which of the following units should be used?

A. Fahrenheit	B. Kelvin	C. Rankine	D. Celsius
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Q9. Which of the following prefixes is the largest?

A. Kilo	B. Deci	C. Milli	D. Centi
---------	---------	----------	----------

Q10. Which of the following prefixes is the smallest?

A. Kilo	B. Deci	C. Milli	D. Centi
---------	---------	----------	----------

Q11. The prefix that indicates a multiplier of (10^6) is called:

A. Giga	B. . Mega	C. Kilo	D. Micro
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Q12. The prefix that indicates a multiplier of (10^{-6}) is called:

A. Giga	B. Mega	C. Kilo	D. Micro
---------	---------	---------	----------

Q13. Which of the following values is equal to 0.0485 kg?

A. 48.5 g	B. 4850 g	C. 485 g	D. 4.85 g
-----------	-----------	----------	-----------

Q14. How many kilohertz are in 750 megahertz?

Q15. How many seconds are there in a year?

Q16. Which of the two speeds is greater: (140 km/h) or (40 m/s)?

Q17. A time interval is $(4.0 \times 10^{-3} \text{ s})$. Which of the following correctly expresses this interval using prefixes?

A. 4.0 ks	B. 4.0 ns	C. 4.0 ms	D. 4.0 ms
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Q18. Which of the following values is equal to 86.2 cm?

A. 8.62×10^{-4} km	B. 862 dm	C. 0.862 mm	D. 8.62 m
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Q19. The speed of an object is the distance it travels per unit time. What is the SI unit for measuring speed? Is the unit of speed a base or a derived unit?

Q20. Which of the following formulas is equivalent to the kinetic energy equation $E = \frac{1}{2}mv^2$ (solved for m)?

A. $m = 2v^2/E$	B. $m = 2Ev^2$	C. $m = 2E/v^2$	D. $m = \frac{1}{2}Ev^2$
-----------------	----------------	-----------------	--------------------------

Q21. What is the equivalent formula for the law $D = m/V$, solved for V?

A. $V = mD/V$	B. $V = Dm$	C. $V = D/m$	D. $V = m/D$
---------------	-------------	--------------	--------------



Q25. What is the number of significant figures in the measurement 0.005041 m ?

A. 5	B. 4	C. 3	D. 2
------	------	------	------

Q26. What is the number of significant figures in the measurement 2.002 m ?

A. 5	B. 4	C. 3	D. 2
------	------	------	------

Q27. What is the number of significant figures in the measurement 0.0021 m ?

A. 5	B. 4	C. 3	D. 2
------	------	------	------

Q28. What is the number of significant figures in the measurement 0.005041 m ?

A. 5	B. 4	C. 3	D. 2
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Q29. Mariam used a graduated cylinder to measure the volume of an unknown liquid in the physics lab, and the volume was (46.00 mL) . The teacher then asked her to add (1.20 L) of water to it. What is the final volume of the mixture, in liters?

A. 47.2 L	B. 5.8 L	C. 1.66 L	D. 1.25 L
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Q30. What is the sum $(0.5643 + 2.15 + 56)$, considering the correct number of significant figures in the answer?

A. 58.71	B. 58.7143	C. 58	D. 59
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Q31. Find the result of the following operation using significant figures: $139 \text{ cm} \times 2.3 \text{ cm}$

Q32. Find the result of the following operation using significant figures: $13.79 \text{ g} / 11.3 \text{ mL}$

Q33. What is the area of a square sheet of paper with sides $3.6 \text{ cm} \times 3.6 \text{ cm}$, considering the correct number of significant figures?

A. 12.96 cm^2	B. 12.9 cm^2	C. 13.0 cm^2	D. 13 cm^2
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8. الفكرة الرئيسة لماذا يُعبر عن مفاهيم الفيزياء باستخدام الصيغ؟
لأن الصيغ موجزة ويمكن استخدامها لتوقع بيانات جديدة.

9. النظام الدولي للوحدات اذكر إحدى مزايا استخدام النظام الدولي للوحدات في العلوم. وحدات النظام الدولي تساعدنا على التواصل بشأن النتائج التي توصلنا إليها. أو أن وحدات النظام الدولي هي المستخدمة في معظم البلدان حول العالم. أو أن وحدات النظام الدولي يسهل التعامل معها لأنها تقوم على أساس مضاعفات العدد عشرة.

10. التحليل البُعدي كم كيلو هرتز في 750 ميغا هرتز؟

$$750 \text{ MHz} \times \frac{1 \text{ Hz}}{10^6 \text{ MHz}} \times \frac{10^3 \text{ KHz}}{1 \text{ Hz}} = 750,000 \text{ KHz}$$



11. التحليل البُعدي كم ثانية في السنة الكبيسة؟

$$366d \times 24h \times 60 \text{ min} \times 60s = 31,622,400s$$

12. الأرقام المعنوية حل المسائل التالية باستخدام عدد الأرقام المعنوية الصحيح في كل مرة.

$$3.2 \times 10^2 \text{ cm}^2$$

$$139 \text{ cm} \times 2.3 \text{ cm} \text{ .a}$$

$$1.22 \text{ g/mL}$$

$$13.78 \text{ g} / 11.3 \text{ mL} \text{ .b}$$

$$93.6 \text{ cm} \quad 6.201 \text{ cm} + 7.4 \text{ cm} + 0.68 \text{ m} + 12.0 \text{ cm} \text{ .c}$$



13. حل المسائل أعد كتابة $F = Bqv$ لإيجاد v بدلالة F و q و B .

$$v = \frac{F}{Bq}$$

14. **التفكير الناقد** باستخدام القيم المعطاة في المسألة ومعادلة المسافة = السرعة × الزمن، حسبت سرعة السيارة بأنها 290 km/h. هل الإجابة مقبولة؟ لم أو لم لا؟ ما الظروف التي يمكن أن تكون فيها هذه الإجابة مقبولة؟

في معظم السيارات، الإجابة غير منطقية لأن 290 km/h تعادل 81 m/s لكن قد تكون الإجابة منطقية لسيارة سباق.

السؤال الاول / عرف كل ما يلي:

ورقة عمل :



المنهج العلمي	
الموضوعية	
الفرضية	
النموذج	
النظرية العلمية	
القانون العلمي	

أي من المصطلحات التالية تمثل خطوات يقوم بها **العلماء** لإجراء تحقيق أو حل مشكلة معينة؟

Which of the following terms represent the series of steps or the procedure that **scientists** follow to investigate or solve a problem?

1	المنهج العلمي Scientific methods
2	الفرضية Hypothesis
3	النظرية Theory
4	القانون العلمي Scientific law

إعداد الأستاذ | عمرو البدوي

0563949152

أي من الأرقام التالية يساوي 72.5 cm ؟

Which of the following numbers equals 72.5 cm?

1

0.725 m

2

7.25×10^{-4} km

3

725 dm

4

0.725 mm

إعداد الأستاذ | عمرو البدوي

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ما الوحدة الأساسية (SI – unit) لدرجة الحرارة؟

What is the basic (SI – unit) of **temperature**?

1	كلفن Kelvin
2	جول Joule
3	سيليزي Celsius
4	فهرنهايت Fahrenheit

إعداد الأستاذ | عمرو البدوي

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Below is a data table produced by four groups of students who were measuring the mass of a paper clip which had a known mass of **1.04 g**, which group got a properly **accurate and precise** measurement of the mass of the paper clip?

قامت أربع مجموعات من الطلاب بقياس كتلة مشبك ورق له كتلة معروفة تساوي **1.04 g**. إذا دون الطلاب نتائجهم في الجدول التالي، فأَي المجموعات كان قياسها **دقيقًا ومضبوطًا** لكتلة مشبك الورق؟

		Group 1	Group 2	Group 3	Group 4
Trial 1	محاولة 1	1.03 g	1.13 g	1.04 g	0.99 g
Trial 2	محاولة 2	1.05 g	1.10 g	1.41 g	1.00 g
Trial 3	محاولة 3	1.02 g	1.11 g	1.52 g	1.19 g

1

Group 1

71.79%
[4200]

2

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Group 2

3.78%
[221]

3

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Group 4

2.97%
[174]

21.45%

What is the number of **significant figures** in the number 0.0004020?

ما عدد الأرقام المعنوية في العدد 0.0004020؟

Question Type:

Difficulty Level:

Question Lesson(s):

Question Marks:

Multiple Choice

Easy

No specific lesson

5

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Question Options

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#	Answer Option
1	4
2	8
3	2
4	7

A worker in steel factory needs to write down the **temperature** of the steel rods using the **SI unit**, **which one of the following units he should use?**

يحتاج عامل في مصنع الفولاذ الى تسجيل درجة حرارة قضبان الفولاذ باستخدام الوحدة الأساسية، أي من الوحدات التالية يتوجب عليه استخدامها؟

Type:

Choice

Difficulty Level:

Easy

Question Lesson(s):

No specific lesson

Question Marks:

5

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#	Answer Options
1	Kelvin كلفن
2	Celsius درجة مئوية
3	Fahrenheit فهرنهايت
4	Rankine رانكين

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مع تمنياتي لكم بالتوفيق