شكراً لتحميلك هذا الملف من موقع المناهج الإماراتية

حل تجميعة أسئلة وفق الهيكل الوزاري انسباير

تاريخ نشر الملف على موقع المناهج: 2023-11-15 06:53:26

التواصل الاجتماعي بحسب الصف الخامس

روابط مواد الصف الخامس على تلغرام

التربية الاسلامية	اللغة العربية	اللغة الانجليزية	الرياضيات

المزيد من الملفات بحسب الصف الخامس والمادة علوم في الفصل الأول

1	مراجعة تجميعة أسئلة وفق الهيكل الوزاري
2	تجميعة صفحات وفق الهيكل الوزاري
3	نموذج الهيكل الوزاري الجديد بريدج
4	نموذج الهيكل الوزاري الجديد انسباير
5	مراجعة الدرسين الأول والثاني انسباير

مؤسسة الإمارات للتعليم المدرسي
EMIRATES SCHOOLS ESTABLISHMENT

Grade 5

EOT coverage Term 1 2023-2024

MCQ
% 60

Question* / السؤال*	Learning Outcome/Performance Criteria** / نتائج التعلم/ معايير الأداء**	Reference(s) in the Student Book (English Version) / المرجع في كتاب الطالب (النسخة الانجليزية)	
		Example/Exercise / مثال/تمرين	Page / الصفحة
1	S-PS1-3Make observations and measurements to identify materials based on their properties.		U1M1L1 page 10
2	S-PS1-3Make observations and measurements to identify materials based on their properties.		U1M1L1 page 11
3	S-PS1-3Make observations and measurements to identify materials based on their properties.		U1M1L1 page 13
4	S-PS1-3Make observations and measurements to identify materials based on their properties.		U1M1L1 page 13
5	S-PS1-4 Conduct an investigation to determine whether the mixing of two or more substances results in new substances.		U1M1L2 page 31
6	S-PS1-2Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.		U1M1L3 page 47
7	S-PS1-1 Develop a model to describe that matter is made of particles too small to be seen.		U1M1L4 page 58
8	S-PS1-3Make observations and measurements to identify materials based on their properties.		U1M1L4 page 56
9	S-ESS1-2Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.		U4M1L1 page 12
10	S-PS2-1Support an argument that the gravitational force exerted by Earth on objects is directed down.		U4M1L1 page 13
11	S-ESS1-2Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.	Figure page 14	U4M1L1 page 14
12	S-ESS1-2Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.		U4M1L2 page 28
13	S-ESS1-2Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.		U4M1L2 page 28
14	S-ESS1-1Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.		U4M2L1 page 57
15	S-ESS1-1Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.		U4M2L1 page 60

الأسئلة للعرض فقط - NON

VOCABULARY

Look for these words as you read:

- chemical property
- conductivity
- magnetism
- mass
- matter
- physical property
- reflectivity
- solubility
- volume

Matter

Matter is anything that has mass and takes up space. The water you drink, the air you breathe, and you are all made up of matter.

All matter is made of tiny particles. **Mass** is a measure of the amount of matter in an object. The more mass an object has, the more particles an object has. Think about holding a golf ball and a table tennis ball. The golf ball is made up of more particles. It has more mass. As you hold the golf ball and table tennis ball, you are also feeling their weight. Weight is how strongly gravity pulls on an object.

The amount of space an object takes up is its **volume**. Volume describes how large or small an object is. A golf ball and table tennis ball have roughly the same volume.

These rocks all have a different mass and volume.

1. Think about an inflated balloon with a small bag of marbles that is half its size. Which one has more volume? Explain your answer.

Sample answer: The balloon has more volume, because it takes up more space.

2. Which one has more mass? Explain your answer.

Sample answer: The bag of marbles has more mass, because it contains more matter.

مالحظة خاصية : يجب حفظ التعاريف باللون ألصفر و الكلمات و التميز بين كل

Mass : how heavy or light a matter " amount of matter in an object "

Volume: how large or small is a matter " space is taken by a matter"

MCQ examples

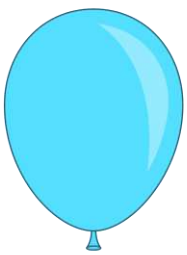
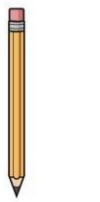
1) Which would have the most mass?

Which of the following is a property that describes how large or small is a matter

a. mass
b. volume
c. Reflectivity
d. Solubility

Which of the following have more volume?

a. marble
b. Inflated Balloon
c. pencil
d. Paper clip


Which of the following have more particles?

a. Group of Rock
b. Cup of water
c. bottle of Apple juice
d. Cup of Milk




Physical Properties

A characteristic of matter that can be observed and or measured is known as its **physical property**. These properties can be observed without changing the material. Some physical properties include the following:

Magnetism is the ability of a material to be attracted to a magnet, without needing to be a magnet itself. Some metals are magnetic.

Conductivity describes how energy, such as electricity or heat, can move through material. Metals such as iron, silver, and copper are good conductors of heat and electricity.

Reflectivity is the way light reflects, or bounces off, an object. Smooth, flat surfaces, such as mirrors and shiny pans, reflect light evenly.

Solubility is the ability of matter to dissolve in a liquid . Think about sugar in a glass of ice tea. The tiny sugar particles disperse evenly throughout the liquid. It might seem like the sugar disappeared, but it is easy to tell it is still there because the tea tastes sweet.

GO ONLINE Learn more about properties by watching the video *Using Properties of Matter*. Answer the question after you have finished.

1. How can we use the properties of matter to identify materials?

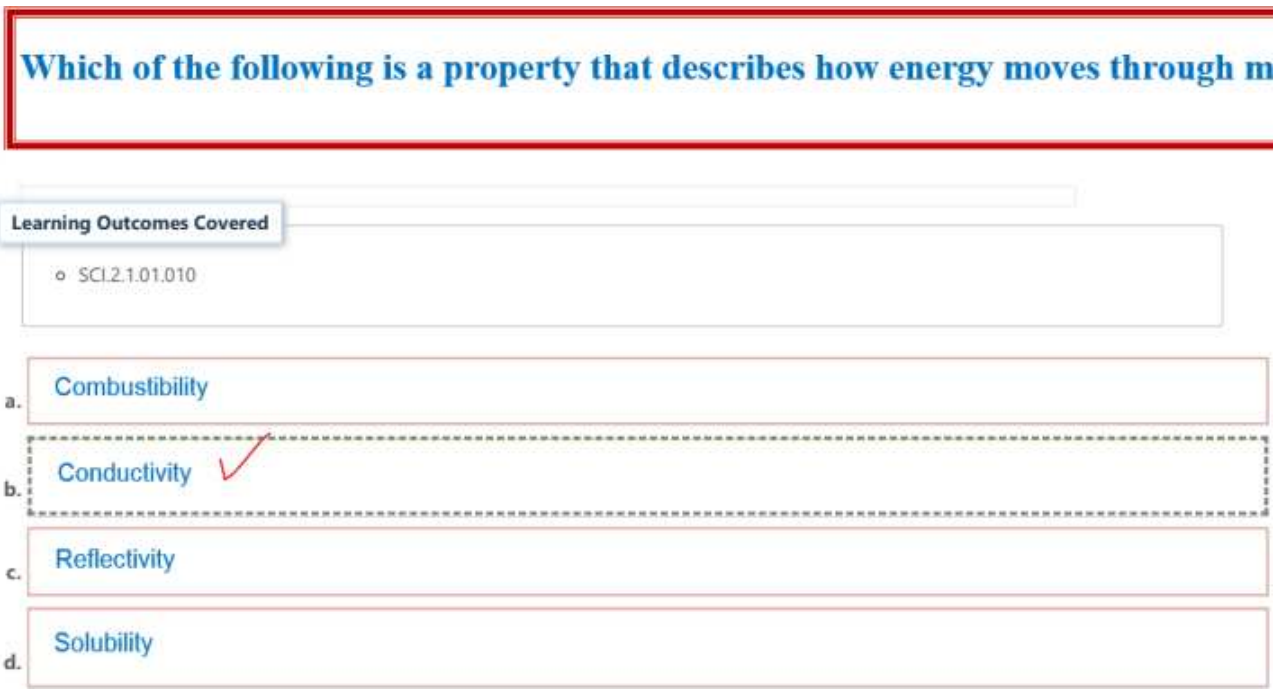
Sample answer: The physical properties of matter can help us identify matter. For example, we know most metals are reflective because light bounces off of them.

REVISIT Revist the Page Keeley Science Probe on page 5.

PAGE KEELEY SCIENCE PROBES

مالحظة : يجب حفظ التعاريف باللون ألصفر و الكلمات و حفظ أمثلة على كل خاصية و التميز بين كل خاصية

MCQ examples



Which of the following is a property that describes the way light reflects or bonuses off

a. Combustibility
b. Conductivity
c. Reflectivity
d. Solubility

Which of the matter able to dissolve in water?

a. Sugar
b. Sand
c. Soil
d. Oil

Which of the matter is NOT a good conductor?

a. Paper
b. Copper
c. Silver
d. iron

Which of the matter able to reflect the light ?

a. Paper
b. Mirror
c. Rubber eraser
d. Tooth picks

Which of following matter is a magnetic or able to attract by a magnet ?

A	B	C	D	E
				

a. A and B
b. C and B
c. B and D
d. D

When wood burns, it undergoes a change. Being able to burn means that the material is combustible. Some matter, such as food products, can change when they are heated or cooked.

Some materials have a chemical property that causes them to react with air. Some metals will react with air over time and cause it to rust or tarnish. These processes are also called corrosion.

Chemical properties: خواص كيميائية

1. Combustible: being able to burns قابلية االشتعال
2. Corrosion: metals will react with air over time cause it to rust or tarnish مثل الصدأ قابلية التفاعل مع الجو و التآكل

Three-Dimensional Thinking

1. Which property measures the space taken up by an object?

   A. hardness

   B. mass

   C. volume

   D. weight

2. Use information you have obtained to explain how properties of matter can be measured.

Sample answer: Magnetism can be measured by placing a magnet close to an object, mass can be measured with a balance, and the volume of a liquid can be measured with a beaker or a measuring cup.

3. Describe at least three physical properties that can help identify copper.

Sample answer: Copper has a reddish-brown color and can take on many different shapes because it is able to be formed. Copper can conduct electricity and reflect light.

الهدف من هذه الصفحة على الطالبة فهم أي خاصية راح تساعدها لمعرفة نوع المادة التي تدرسها

مثال: عرض علينا مادة مجهولة موصلة للكهرباء ،لونها أحمر مائل للبني و تعكس ضوء و لها قابلية أنها تنطوي

هذه المعطيات جميعها تتوافق مع خواص مادة النحاس إذا تأكدنا من وجود جميع هذه الخواص في المادة المطروحة لدراستها

فالمادة المجهولة راح تكون نحاس

نعكس السؤال : كيف تميز مادة النحاس النحاس

يتميز بهذه الخواص الثالث

Reflectivity , conductivity and flexibility

MCQ examples

- Which of the following is a property that
- describes ability of matter to be burn

a. Combustibility
b. Conductivity
c. Reflectivity
d. Solubility

4) Which does not represent a physical change?

- cutting
- burning
- folding

- Which of the following is a property that describes ability of metals to react with air over time and cause it to rust

a. Combustibility
b. Corrosion
c. Reflectivity
d. Solubility

- The graph below shows hamdan's Bicycle after left it outside for long time is turn to red color.
- Which kind of chemical properties does hamdan's bicycle have

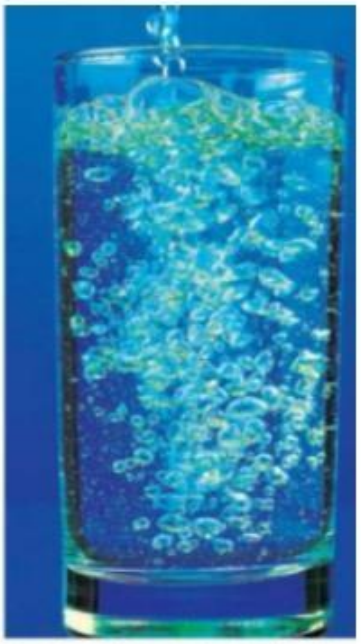
a. Combustibility
b. Corrosion
c. Reflectivity
d. Solubility

- The graph below shows wood burning
- Which kind of properties does wood represent in this graph

a. Corrosion
b. Physical property
c. Solubility
d. Chemical property

A **colloid** is a heterogeneous mixture in which the parts are so small that they do not settle out, like fog. Foam is a colloid that forms when gas bubbles are trapped in a liquid or solid. An example of foam is whipped cream. An aerosol is a colloid where small particles of liquid or solid material are trapped in air. Airborne dust is an example of an aerosol.

Homogeneous mixtures are uniform throughout. A type of homogeneous mixture is a **solution**. Tap water is a homogeneous mixture. It contains dissolved minerals and gases. Sugar water is also an example of a homogeneous mixture. Sugar that is placed in a glass of water dissolves, forming a solution.



A carbonated beverage is a solution of carbon dioxide gas in liquid water under pressure. When the pressure is released, the carbon dioxide gas bubbles out of the solution.

1. List different types of mixtures that you see every day or that you have made. Identify the type of each mixture you list.

Example of a Mixture	Type of Mixture
milk and cereal	heterogeneous
hand soap	homogeneous
spray paint	colloid
oil and water	suspension
drink mix and water	solution

A. muddy water

B. cranberry juice

C. potting soil

D. milk

2. How are mixtures formed and separated?

Sample answer: Mixtures are formed from the physical combination of materials such as stirring. They can be separated using different techniques depending on their physical properties. Some examples may include sorting materials by hand, using tools such as a sieve or magnet, or by the process of evaporation.

السؤال الخامس:
الطالب قادر أنه اذا يجري تحقيق نوع الخليط لمادتين مختلفتين ستعطي نفس نتيجة الخليط المعروض لذا على الطالب معرفة أنواع الخليط و أمثلة عليها

السؤال الخامس: الطالب قادر أنه يجري تحقيق لتأكد اذا نوع الخليط لمادتين
مختلفتين ستعطي نفس نتيجة الخليط المعروض
لذا على الطالب معرفة أنواع الخليط و أمثلة عليها

Mixture

a

Physical combination of two or more substances that are blended together without forming a new substance.

Heterogeneous

- Can see different parts
- Parts not uniformly

.....SUSPENSION

Can see ..... ITS particles

Examples : .....muddy water
.....salad...

Colloid

(we can see parts under microscope)

Can not see ..... ITS particles

Examples : .....milk.....
.....whipped cream

homogeneous

.....

- Can not see different parts
- Parts uniformly

happenes

.....

When substance dissolves in other substance

Examples : .....salt water.....
Air
.....

The graph shows Hamada's snack of raisins, nuts, and dried fruit.

Which kind of mixture was Hamada's snack?

Learning Outcomes Covered

- SCI.4.4.01.039

a. Solution

b. Colloid

c. Heterogeneous mixture ✓

d. Suspension

Which of the following best describes the whipped cream mixture?

Learning Outcomes Covered

- SCI.4.4.01.039

a. Solution

b. Colloid ✓

c. Suspension

d. Homogenous mixture

- Which of the following is a type of mixtures where all parts are uniformly

a. Water
b. Foam
c. Milk
d. Wiped cream

- Which of the following is a type of mixtures where all parts are uniformly

a. Solution
b. Colloid
c. Suspension
d. Heterogeneous

- Which of the following mixtures have same prosperities

A	B	C	D
			

a. A and D
b. A and B
c. A and C
d. B and D

- The graph shows Nouf's mixture water and sugar, the sugar dissolve in water what is your conclusion

a. New substances form and the kind of mixture still homogenous
b. No new substance form because no particles can be seen.
c. New substance form and kind of mixture change from homogeneous to heterogeneous
d. No new substances form because water still water

Three-Dimensional Thinking

Think about a scenario for an experiment. You combine 500 g of one material and 200 g of another in a closed container. A chemical reaction occurs. What can you say about the mass of the materials after they combine and go through the reaction? Choose a simple mathematical equation to support your answer.

A. 500 g − 200 g = 700 g

B. 500 g + 200 g = 700 g

C. 700 g − 500 g = 200 g

D. 500 g × 200 g = 700 g

Sample answer: The mass of the materials after they go through the reaction would be the same as the sum of the materials before they react. Since it is in a closed container, if there are any gases that are a result of the reaction, they will be part of the total mass.

على الطالب فهم قانون حفظ الكتلة :

أي تفاعل كيميائي او اتحاد فيزيائي المنتج النهائي يكون مجموع جميع العناصر التي ساهمت في حدوث التفاعل

Combine 150 g of water to 25 g of sugar

The final product mass= the total masses of all substances

150 +25 =175 g

الكتلة محفوظة ال تنشئ من العدم و ال تدمر

Conservation of mass= masses neither created nor destroyed through any chemical reaction or physical combined

As the picture shows, a spoonful of salt with a mass of 10 grams was added to water that has a mass of 300 grams. What do you predict will be the total mass saltwater when the salt is dissolved in the water?

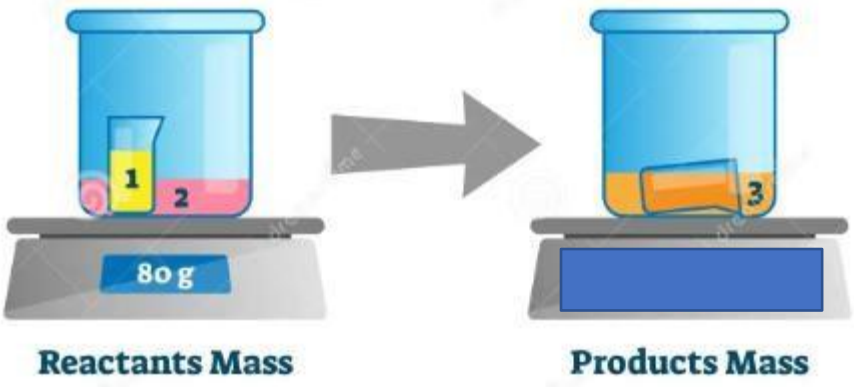
a. More than 300 grams ✓

b. Less than 300 grams

c. 300 grams

d. We cannot predict

The graph below shows chemical reaction where matter number 1 “yellow color” is combined with matter number 2” pink color” and heated to form matter number 3 “orange color”. What is the mass of matter number 3 “orange color”?

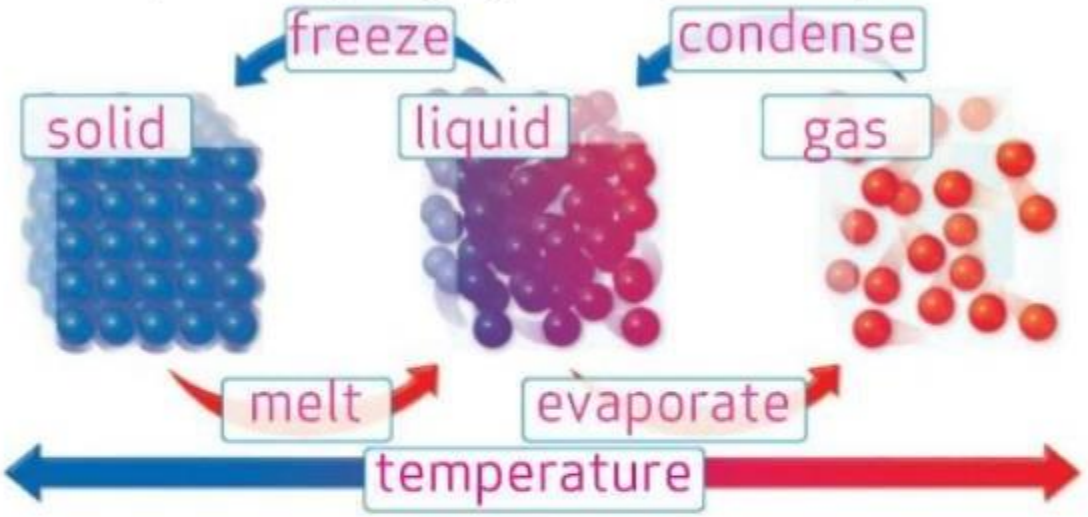


a) Less than 80
b) 80 grams
c) More than 80 grams
d) 75 grams

7	5-PS1-1 Develop a model to describe that matter is made of particles too small to be seen.		U1M1L4 page 58

Changing States of Matter

The average movement of particles in an object is determined by the amount of energy in the object. Temperature is a measurement of this movement. When energy is added, the particles move faster. When energy is lost, the particles move more slowly. When enough energy is gained or lost, there is a change of state.



Adding Energy When energy is added to a solid, the particles start to move more quickly. When the particles move quickly enough that they slide past each other, the solid becomes a liquid by melting. If even more energy is added to this liquid, the particles' speed continues to increase and they move away from each other. As the particles spread out enough, liquid evaporates, becoming a gas.

Removing Energy If a gas loses energy, its particles slow down and move closer together. They start to slide past each other again. A liquid forms through a process called condensation. If the liquid loses enough energy, freezing occurs and a solid forms.

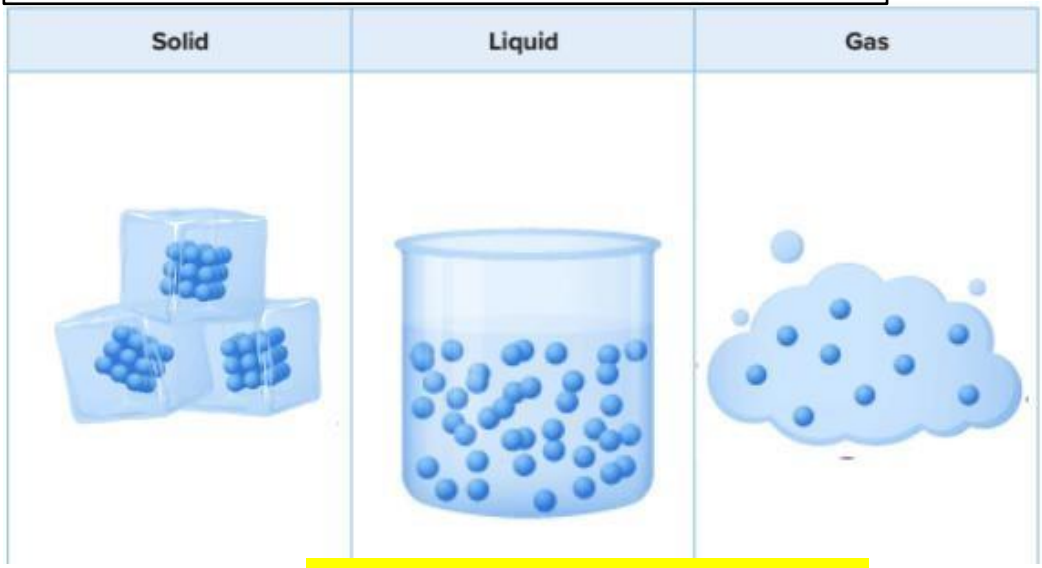
Label a Diagram Use information that you read to label the states of matter in the diagram above. Label the process of how each state of matter changes from one to the other.

على الطالب التمكن من فهم أن مادة تتكون من جزيئات صغيرة هذه الجزيئات مسؤولة
عن تغير شكلها من شكل إلى آخر عندما تكتسب طاقة أو تفقد طاقة
و الطاقة هنا هي الحرارة
يفضل حفظ الشكل الموجود في هذه الصفحة

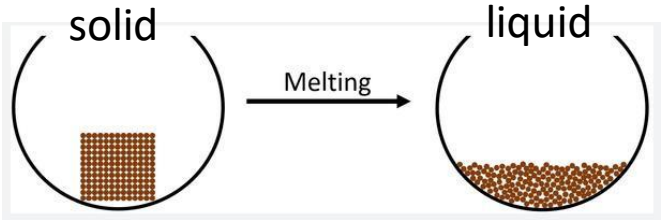
من فهم أن مادة تتكون من جزيئات صغيرة هذه الجزيئات مسؤولة عن تغير شكلها من شكل إلى آخر عندما تكتسب طاقة أو تفقد طاقة

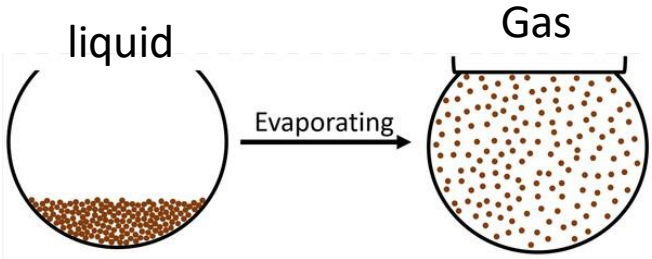
و الطاقة هنا هي الحرارة

Water particles in different state

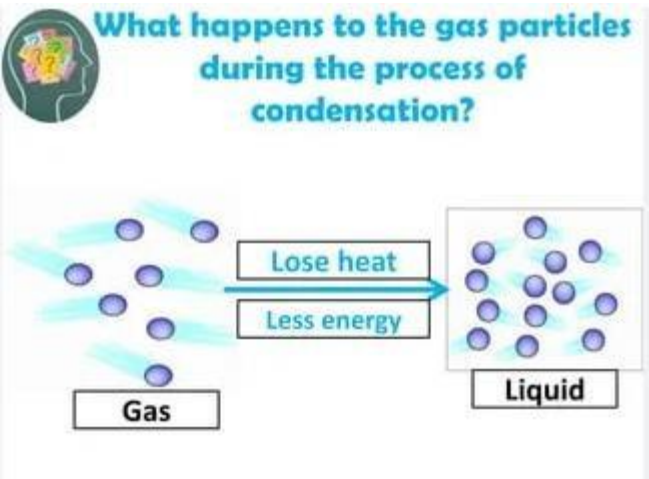


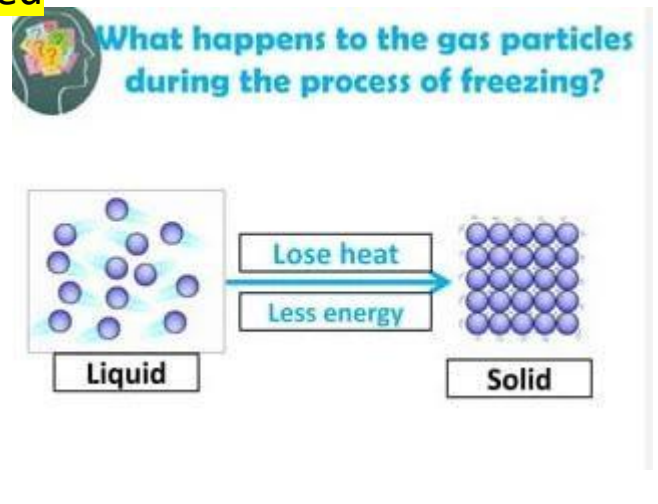
gain energy or adding energy
Temperature increased



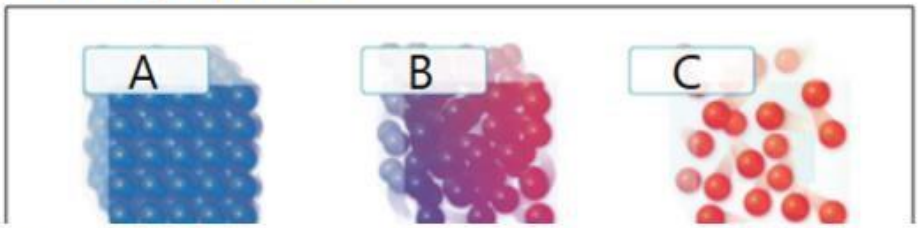


Lose energy or removing energy
Temperature decreased





The graph below represents states of matter change due to energy change. Duri experiment, you add heat energy to a liquid. Which letter of the following repre state of matter of the liquid particles?



Learning Outcomes Covered

- SCI.4.4.01.040

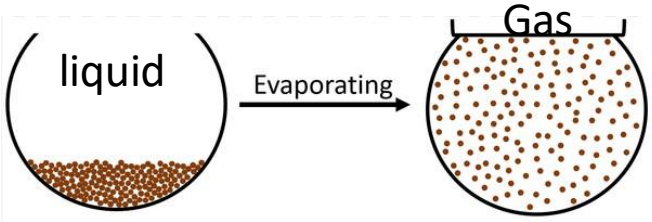
a. A

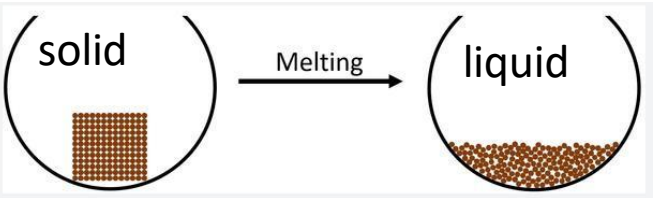
b. B

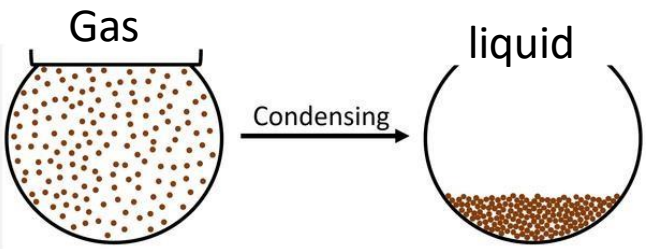
c. C ✓

d. A and B

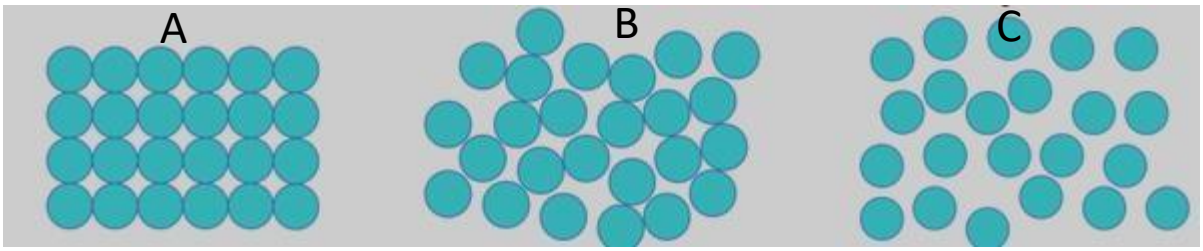
which of the following is NOT a process of adding energy?







Graph below shows arrangements of particles that define different state of matter which of the models represent solid particles



a. A
b. B
c. C
d. B and C

States of Matter

VOCABULARY

Look for these words as you read:

gas

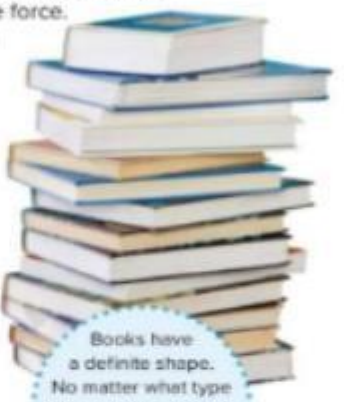
liquid

solid

State is another physical property of matter. Solids, liquids, and gases are common forms that matter can take. Each state has specific characteristics.

GO ONLINE Watch the video *States of Matter* to learn more about matter.

A **solid** has a definite shape and takes up a definite amount of space. A solid stays in its definite shape with a definite volume unless it is changed by an outside force. The particles in a solid are tightly packed together and vibrate in place. They are often packed in a regular pattern.



Books have a definite shape. No matter what type of container you put them in they will still keep that shape.

A **liquid** has a definite volume, but it does not have a definite shape. It can be poured from one container to another. The liquid fills the shape it is poured into from the bottom up. The particles in a liquid are usually less tightly packed than those in a solid and can move and slide past one another. One example in which this is not true is water. Water is actually more dense than ice!

The liquid being poured from this bottle is able to flow because it does not have a definite shape.

Because the basketball is a sphere, the air inside of it will be sphere-shaped too.

Gases have no definite shape or volume. The particles in a gas are much farther apart than particles in solids or liquids. They can move around each other very easily. Gases spread out and completely fill a closed container. If you make the container bigger, the same amount of gas will expand to fill it.

على الطالب فهم أشكال المادة و حاالتها الثالث :صلب ، سائل و غاز و خواص كل منها

حفظ المفاهيم باللون أألصفر و التميز بينها

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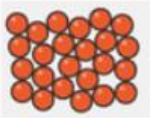
Properties	Solid	Liquid	Gas
Shape	Definite shape	No definite shape	No definite shape
Volume	Definite volume	Definite volume	No definite volume
Arrangement of particles	Tightly packed together, Regular pattern	Less tightly packed, Random arrangement	Much farther apart, Random arrangement
Movement of particles	Vibrate in the place	Can move and slide past one another	Move around in all directions
Diagram			

The graph below shows three different states of water. Which one of the followin describes the state of water, which has a definite shape, a definite volume and it particles are tightly packed and vibrate in place?

Learning Outcomes Covered

- 2.3.04.006

a. Solid state ✓

b. Liquid state

c. Gas state

d. Density

Which of the following matter has definite volume and no definite shape

a. Book
b. Pencil
c. Ball
d. water

Which of the following matter can fill the container and the particles move in all direction

a. Book
b. Oxygen gas
c. Water
d. Watch

Which of the following state of matter has no definite shape and volume?

a. Solid state
b. Liquid state
c. Gas state
d. mass

Which of the following is NOT a liquid state?

A	B	C	D
			

a. A
b. B
c. C
d. D

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توجيه السؤال مختلف عن توجيه الصفحة
المذكور في السؤال:

رسمة توضح أنماط الظل المختلفة خالل اليوم و أنماط النجوم المختلفة خالل الفصول و عالقتها بدوران االرض حول نفسها و حركة االرض حول الشمس

كربط للمعلومات في السؤال مع الصفحة المذكورة يتكون الظل
بسبب حركة االرض حول نفسها

Rotation causes shadows changes during day

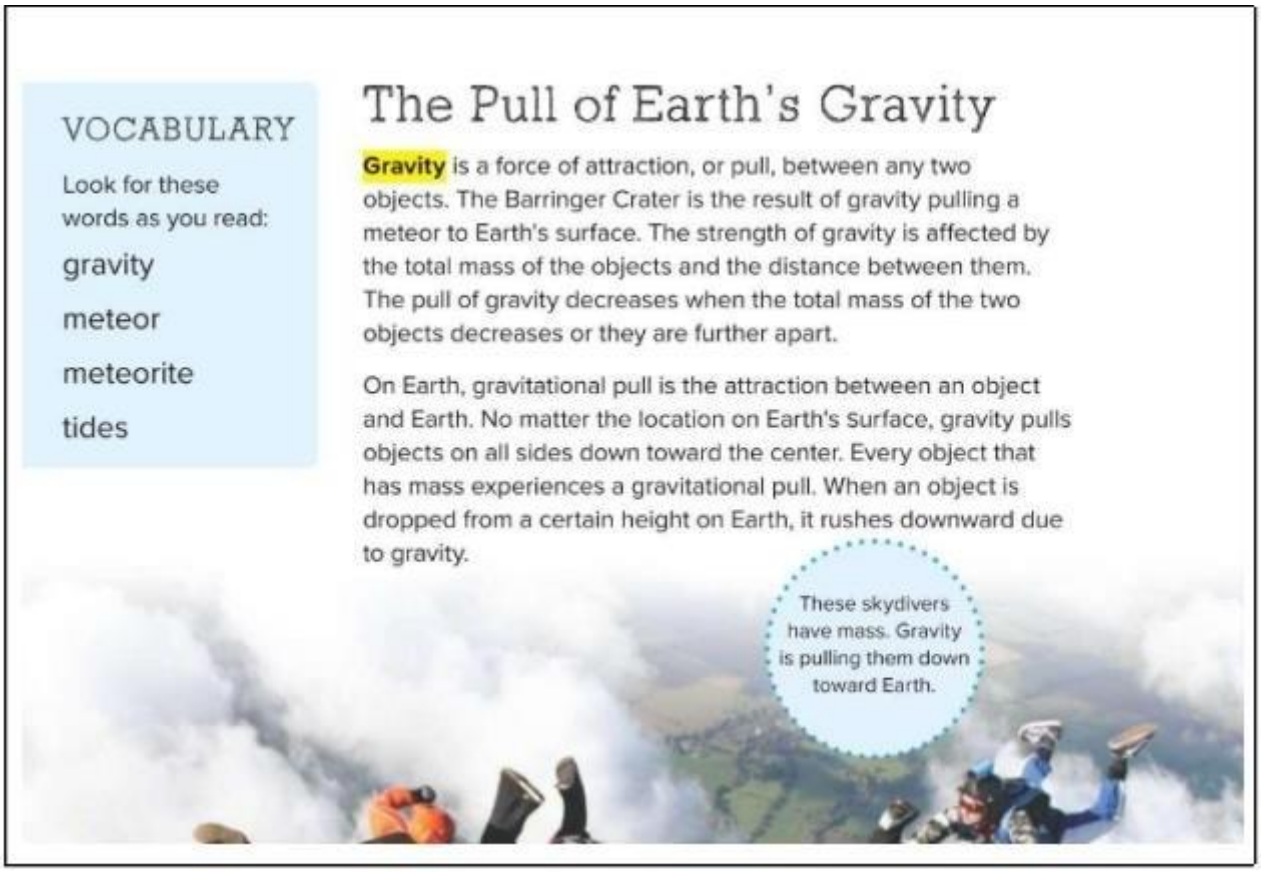
تتكون الفصول بسبب حركة االرض حول الشمس

Seasons happen when earths revolve around the sun this motion called revolution

و كلتا الحركتين تحدث بسبب الجاذبية بين االرض و الشمس

Both rotation and revolutions occurs because earth's and sun gravity

Gravity : is a force of attraction or pull between any two objects



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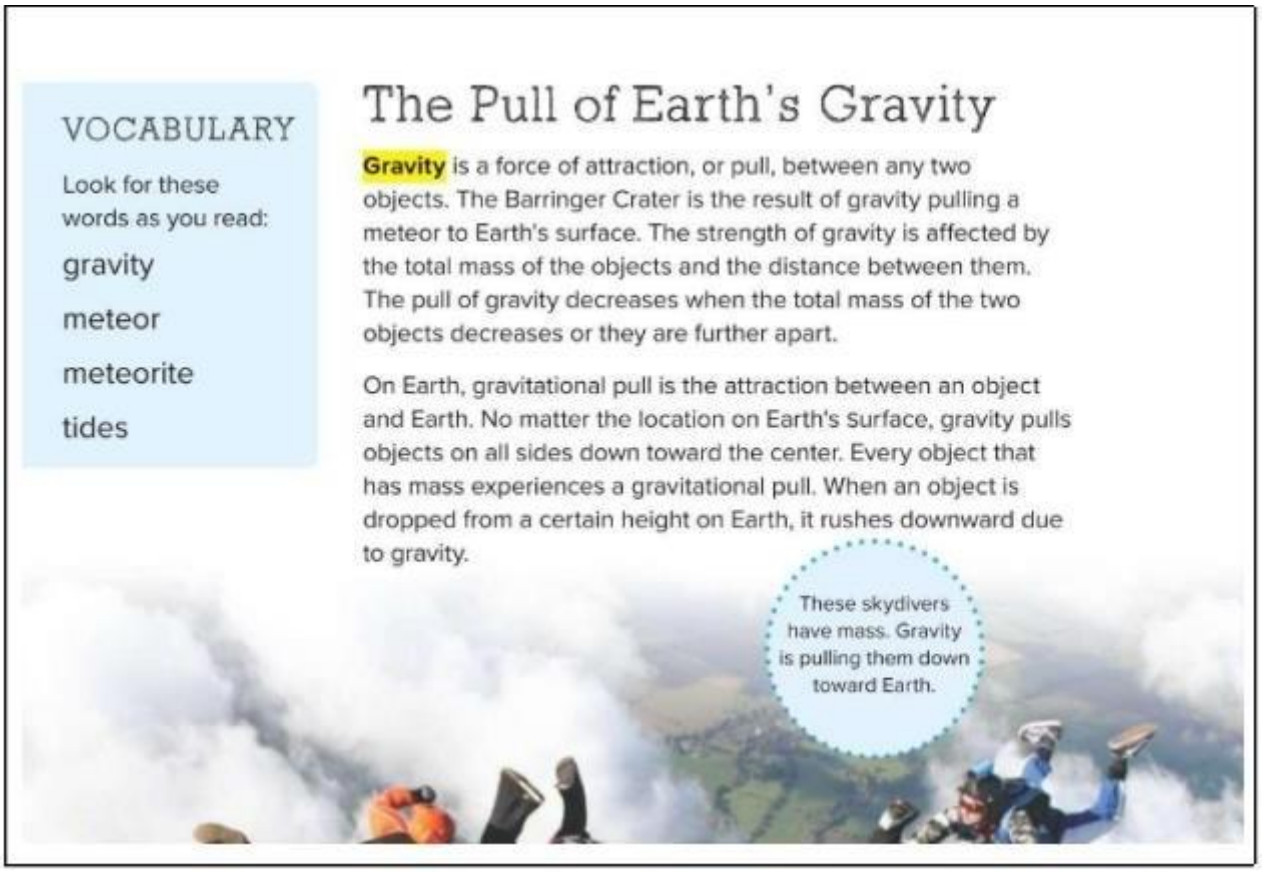

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Meteors and Meteorites

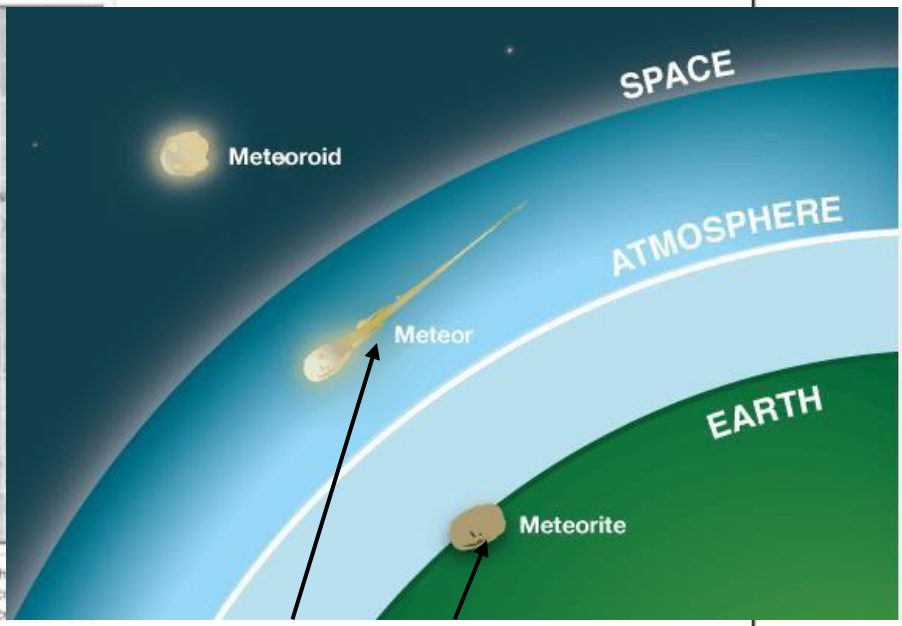
Objects other than the Sun and planets are found in our solar system. Sometimes, Earth's gravity will pull these objects into Earth's atmosphere.

Meteors You may have heard meteors be called shooting stars but a meteor is not a star at all. A **meteor** is a space rock that enters Earth's atmosphere. It appears as a bright streak in the sky. If a meteor does not break apart and burn up in the atmosphere, it can hit Earth's surface.

Meteorites A meteor that strikes Earth's surface is called a **meteorite**. Many places on Earth, like the Barringer Crater on page six, show evidence of meteorite impacts.

PRIMARY SOURCE

This is a map of the Moon's surface made by NASA. It was used to h
prepare for the *Apollo 10* mission. As you can see, there are many c
These craters were caused by meteoroids hitting the Moon's surfac
are small rocky objects that orbit the Sun.



على الطالب التمييز بين المفاهيم باللون ألأصفر

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VOCABULARY

Look for these words as you read:

moon phases

orbit

revolution

rotation

Earth in Space

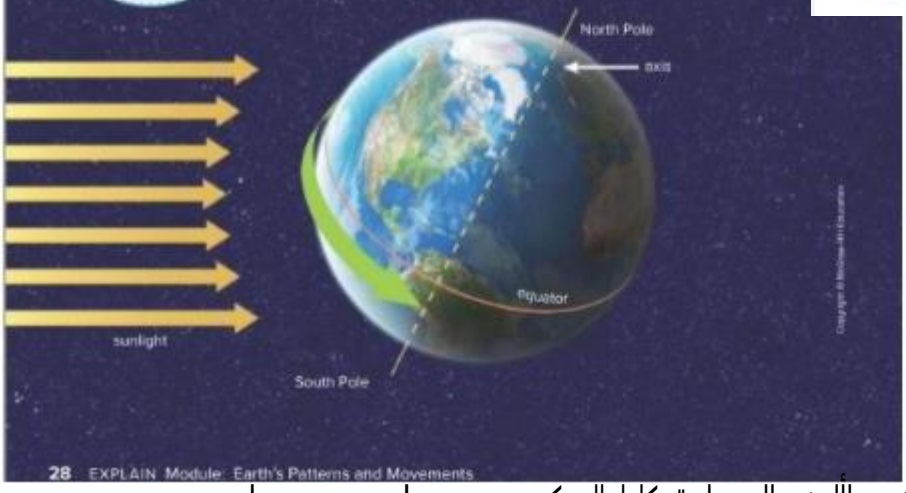
Earth is moving at 30 kilometers/second (19 miles/second) as it orbits the Sun. A **revolution** is a complete pass around the Sun, taking 365 ¼ days, or one year. Earth is also spinning on its axis at about 1,600 kilometers/hour (1,000 miles per hour). The dotted line through the center of Earth in the image below is its axis. One **rotation** is a complete spin on the axis. Earth makes one rotation every day or every twenty-four hours. Living things do not feel these movements because they are moving with Earth.

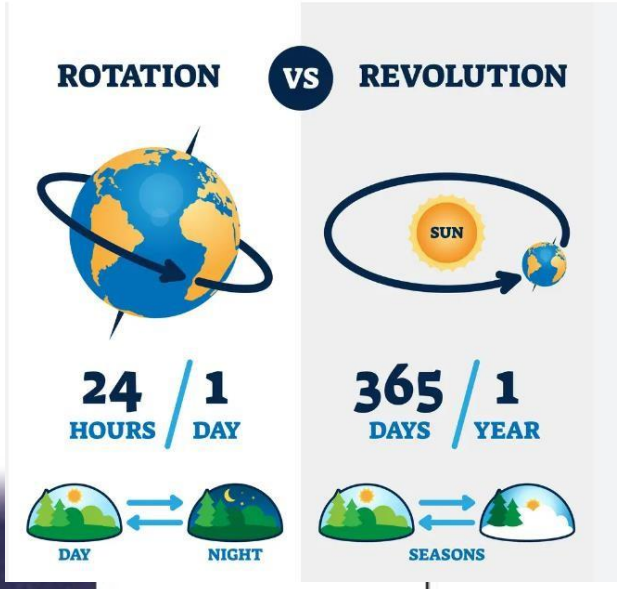
Earth's Rotation

At any point in time, half of Earth's surface faces the Sun and is in daylight. The other half of Earth's surface faces away from the Sun and is in darkness.

The tilt of Earth's axis affects the length of the day. If the axis were not tilted, day and night would each be twelve hours long. Instead, there are more hours of daylight and fewer hours of darkness during the summer. In the winter, the amount of daylight is shorter.

This diagram shows Earth's rotation and axis. The green arrow represents the direction of Earth's rotation, while the dotted line shows Earth's tilt, or axis.





على الطالب التمييز بين حركتي الأرض المختلفة .كلتا الحركتين و ما ينتج عنها سببها الجاذبية

Both these two motion of earths are caused by gravity

يحدث أطوال مختلفة من ساعات الليل و النهار على مدى أيام السنة و في مختلف الفصول بسبب

1. Earth rotation دوران الأرض حول نفسها
2. Earth revolution حركة الأرض حول الشمس
3. Earth tilted around 23.5 degree ميالن الأرض بزاوية 23.5

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Earth's Revolution—Seasons and the Sun

The Sun's position in the sky appears to change from season to season. Although the Sun does not move, the diagram below shows the Sun's apparent path across the sky during the day as Earth rotates. Each yellow circle represents the Sun's position at midday. The Sun rises much higher in the sky during a summer day. The day on which the Sun appears highest in the sky is known as the summer solstice. In the Northern Hemisphere, the summer solstice occurs around June 21 each year. During this time of year, the Northern Hemisphere tilts more toward the Sun.

In winter, the Sun appears much lower in the sky. In the Northern Hemisphere, the winter solstice occurs around December 21. This is the day on which the Sun appears lowest in the sky. At this time, the Northern Hemisphere tilts away from the Sun.

Halfway between the solstices, neither hemisphere is tilted toward the Sun. The noon Sun is almost directly overhead. Each of these days is known as an equinox. During an equinox, day and night are each about twelve hours long. In the Northern Hemisphere, the spring, or vernal, equinox occurs around March 21. The fall, or autumnal, equinox occurs around September 22.

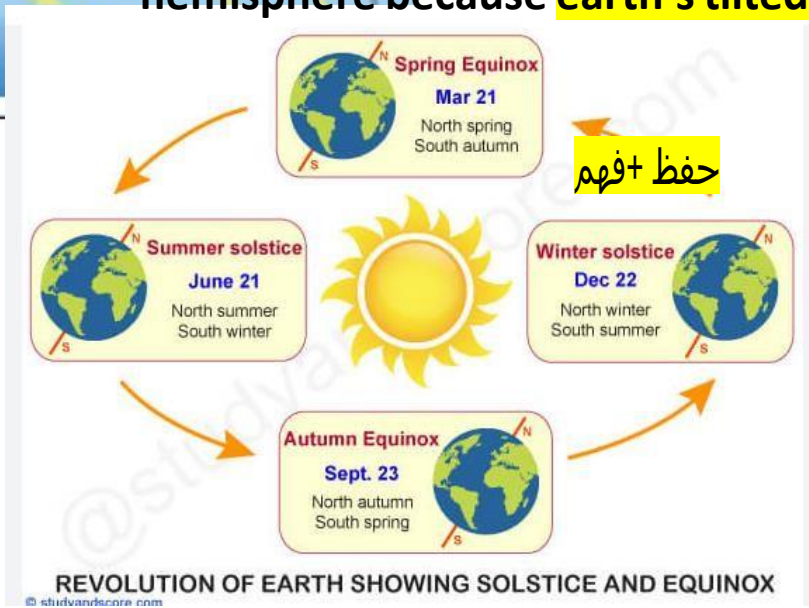
GO ONLINE Explore *Daylight and Seasons* to analyze data of the amount of daylight throughout the year.

Apparent Path of the Sun

Label the season in which the Sun follows each path.

1. **Different seasons happen during same time of the year in both hemispheres**
2. **Always northern hemisphere is <u>opposite</u> than southern hemisphere because earth's tilted**

الفصل في الجزء الشمالي من الكرة الأرضية يكون عكس الفصل في الجزء الجنوبي من الكرة في الوقت نفسه من السنة بسبب ميالن الأرض الذي ال يسمح لألرض بالحصول على القدر نفسه من حرارة الشمس



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Apparent Motion of Stars

The stars in the northern sky seem to circle around Polaris, which is also known as the North Star. **Apparent motion** is the way something appears or seems to move. The stars appear to move because of Earth's rotation and revolution. Although the stars appear to change position, their position in the universe sky does not change.

Different stars are visible at different times of the year depending on the location of an observer on Earth's surface. This is due to Earth's revolution around the Sun. The stars that are visible in a certain location on Earth's surface changes slowly throughout the year. Each night, the position of most stars shifts slightly to the west. As the stars once visible in the west leave our view, other stars appear in the east.

Summarize It

Explain Earth's location in space and how its location affects what we see in the night sky.

Sample answer: Earth is located third from the Sun in the solar system. The solar system is in the Milky Way galaxy. Earth's location determines what is visible in the night sky because of its orbit around the Sun.

لماذا نرى نجوم مختلفة خالل ليالي السنة و بصيغة أخرى لماذا كل فصل له نجومه الخاصة و أنماط نجوم خاصة فيه

أوال النجوم ال تتحرك إنما االرض تتحرك حول الشمس ما يجعل لنا أن نرى نجوم مختلفة كل فصل

Earth revolution

Earth rotation

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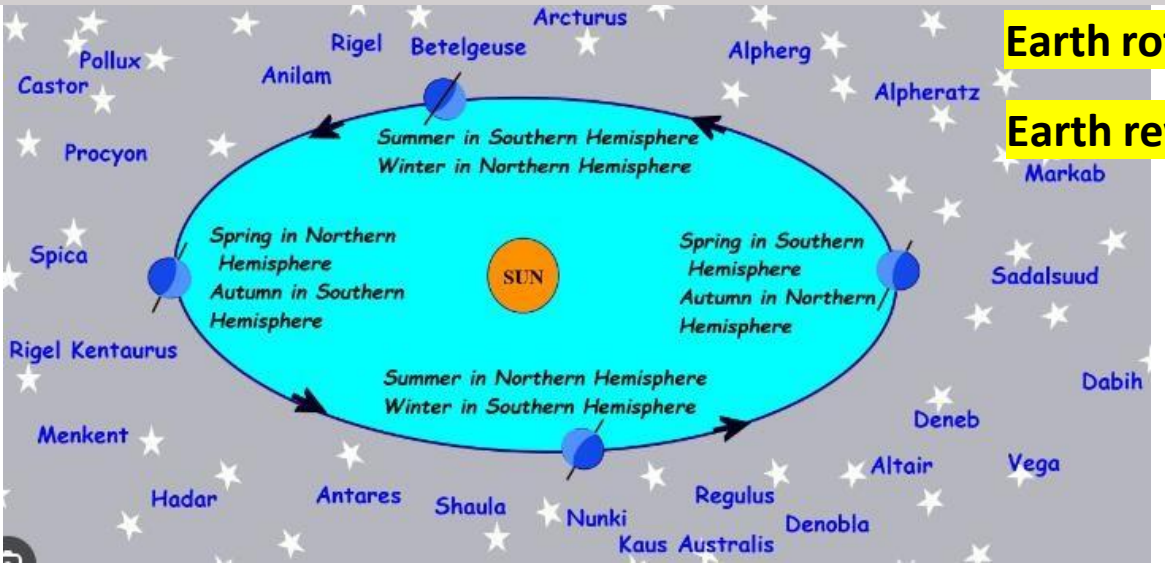


Earth rotation

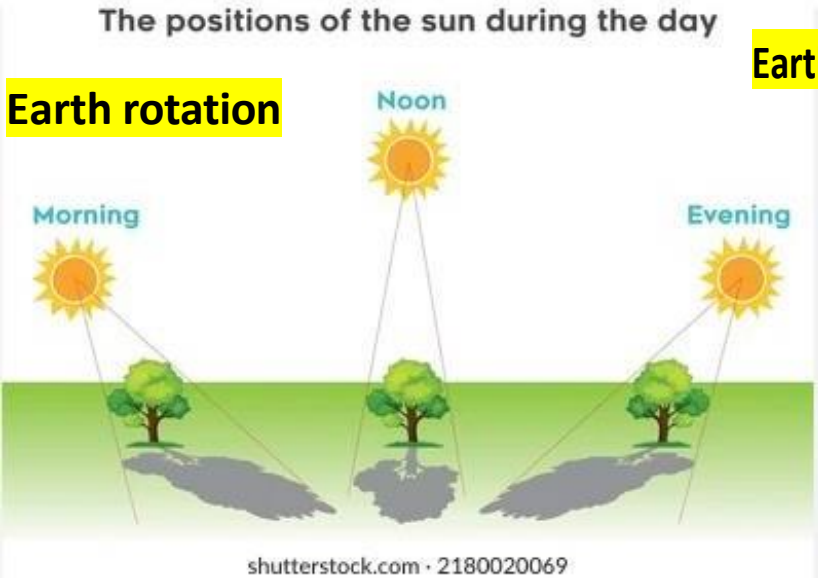
Earth revolution

Stars position are stable, never change but along one year we can see many types of stars because of :

1. **Earth rotation**
2. **Earth revolution**

النجوم ثابتة في الفضاء ال يتغير موقعها لكن نحن نرى أنماط و أشكال كثيرة مختلفة من فصل لفصل بسبب انه ألارض تمتلك حركتين

1. حركة حول نفسها **earth rotation**
2. حركة حول الشمس **earth revolution**



Earth rotation

1. الظل يدل على **Earth rotation**
2. أن ألارض تدور و تتحرك حول نفسها لتواجه مره الشمس في النهار و تبتعد عن الشمس في الليل
3. دوران ألارض يحدث بسبب الجاذبية بين الشمس و ألارض

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Planet	Length of Day (hours)	Length of Year (Earth years)	Distance from the Sun (AU)
Mercury	1,408	0.2	0.4
Venus	5,832	0.6	0.7
Earth	24	1.0	1.0
Mars	25	1.9	1.5
Jupiter	10	11.9	5.2
Saturn	10	29.4	9.5
Uranus	17	84.0	19.2
Neptune	16	164.8	30.0

A. The farther a planet is from the Sun, the longer its day.

B. The farther a planet is from the Sun, the longer its year.

C. A day on Earth is longer than a day on Venus.

D. Uranus is the coldest of all the planets.

2. A planet is a large, round space object that _____ the Sun.

A. attracts

B. orbits

C. follows

D. reflects

3. Circle all that apply.

Stars appear to move in the sky because of Earth's _____.

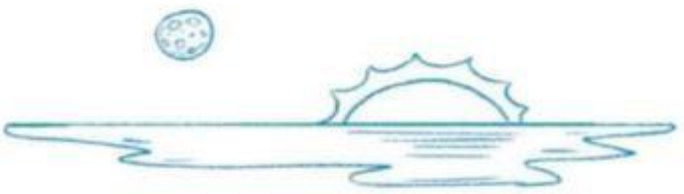
A. axis

B. rotation

C. poles

D. galaxies

E. revolution



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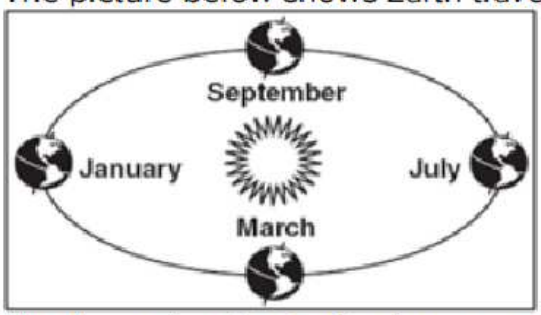
2) The picture below shows Earth travelling around the Sun.



How long does it take Earth to complete one revolution around the Sun?

- one day
- one week
- one month
- one year

1) Which is of the following describes a planet?

- a swirling ball of gases
- a star
- a huge ball made out of rock
- a large object that orbits a star

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Time	Length	Angle	Comments
6:00 am	No shadow	No shadow	Sunrise at 6:23 am
7:00 am	6.2 meters	282°	
8:00 am	3.1 meters	275°	
9:00 am	1.8 meters	261°	
10:00 am	No shadow	No shadow	Cloudy
11:00 am	.6 meters	232°	
12:00 noon	.5 meters	207°	
1:00 pm	.3 meters	186°	Sun at highest point at 1:10 pm
2:00 pm	.5 meters	141°	
3:00 pm	.6 meters	123°	
4:00 pm	1.1 meters	110°	
5:00 pm	1.7 meters	95°	
6:00 pm	2.3 meters	82°	
7:00 pm	5.1 meters	76°	
8:00 pm	No shadow	No shadow	Sunset 7:39 pm

Based on the data in the table above, shadow changes during daylight because of

a. Earth's Rotation
b. Earth's Revolution
c. Gravity
d. Earth's Rotation and gravity

Based on the data in the table above , the smallest shadow happen at

a) When sun is the highest in the sky
b) When the sun is the lowest in the sky
c) In early morning
d) In evening

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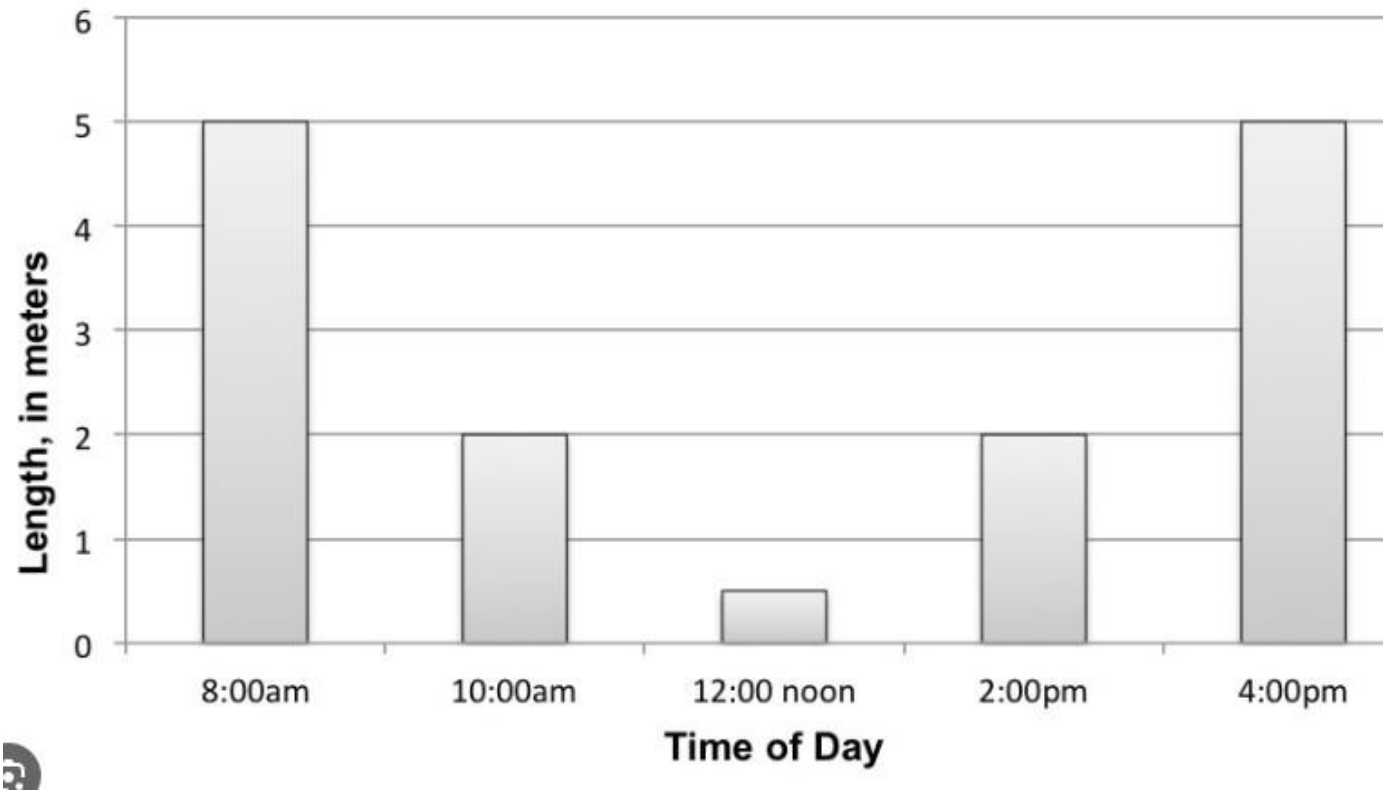

Based on the data in the graph above, shadow changes during daylight because of

a. Earth's Rotation
b. Earth's Revolution
c. Gravity
d. Earth's Rotation and gravity

Based on the data in the graph above , the smallest shadow happen at

a) Morning
b) Evening
c) Noon
d) Night

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As the illustration below shows, the Moon has less mass than the Earth. If you k the moon's gravity is one-sixth of Earth's gravity. How much higher can you thr on the Moon compared to the Earth?

Learning Outcomes Covered

- 2.3.4.019
- SCI.1.1.01.013

a. The ball will go 2 times higher on the Moon than the Earth

b. The ball will go 12 times higher on the Moon than the Earth

c. The ball will go to the same height on the Moon and the Earth

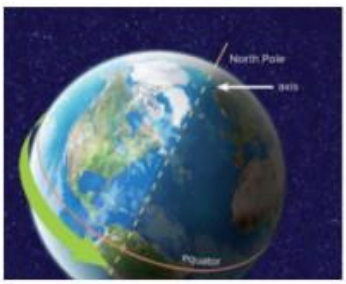
d. The ball will go 6 times higher on the Moon than the Earth

9	5-ESS1-2Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.		U4M1L1 page 12
11	5-ESS1-2Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.	Figure page 14	U4M1L1 page 14
12	5-ESS1-2Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.		U4M1L2 page 28
13	5-ESS1-2Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.		U4M1L2 page 28

The graph below shows the tilt of Earth's axis which always points in the same d

What would be the seasons in the Northern Hemisphere compared to the Southe

Hemisphere?



Learning Outcomes Covered

- SCI.1.1.01.013

a. The seasons will be the same

b. The seasons will be opposite ✓

c. The seasons will be three months apart

d. The seasons will be two months apart

10	5-PS2-1Support an argument that the gravitational force exerted by Earth on objects is directed down.		U4M1L1 page 13

The Moon, Earth's closest neighbor, is greatly affected by Earth's gravity. Moons orbit planets for the same reason that planets orbit the Sun—because of gravitational attraction.

GO ONL
Tides to he
about how

The Moon has less mass than Earth, so the Moon's gravitational pull is weaker. In fact, the Moon's gravity is about one sixth of Earth's gravit
Think about how high you can throw a ball on Earth. On the Moon, you could throw it about six times higher because the force of gravity is not as strong.

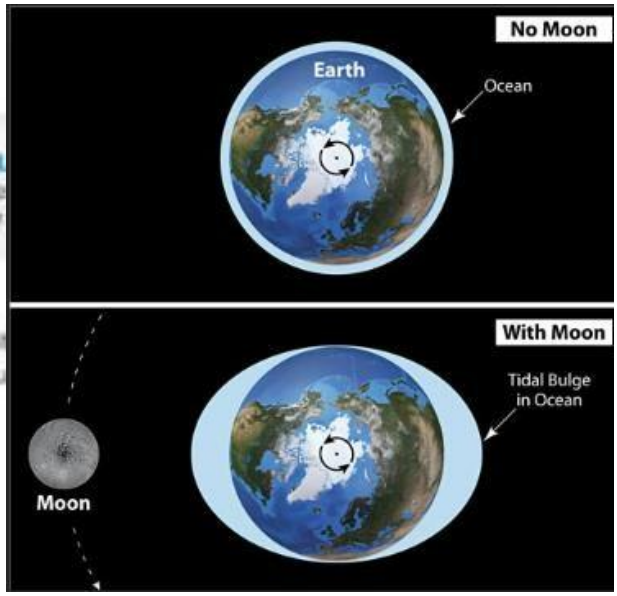
Earth's gravity affects the Moon. The Moon's gravity also affects Earth. The Moon's gravitational force causes Earth's **tides**, or the regular rise and fall of water along the shore. Earth's water bulges on the Moon-facing side of Earth. A bulge also forms on the side facing away from the Moon. The water level rises where the bulge is and the level lowers where it is not. This bulge of water causes changing tides as the Moon travels around the Earth.

MATH Connection The Moon's gravity is $\frac{1}{6}$ that of Earth. If an astronaut weighs 79 kilograms (175 pounds) and his space suit weighs 50 kilograms (110 pounds), how much would the astronaut and his sui weigh on the Moon?

21.5 kilograms (47 $\frac{1}{2}$ pounds)

PRIMARY SOURCE

In this photo, Astronaut Buzz Aldrin sets up an experiment on the Moon. Astronauts study the effects of gravity on Earth as well as in space.



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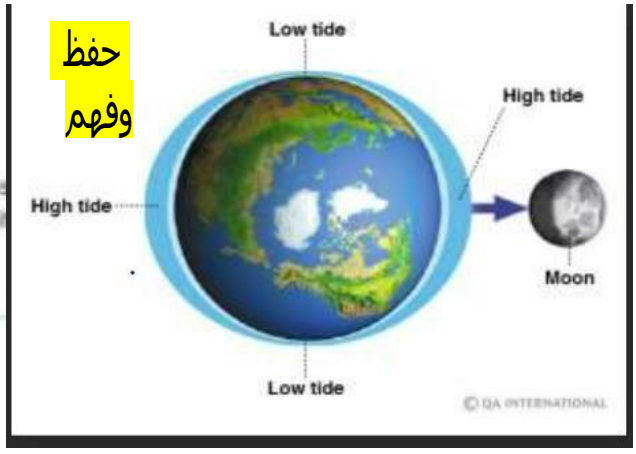


على الطالب يدرك أن القمر له جاذبية أقل من ألارض ألن كتلته أقل من كتلة ألارض

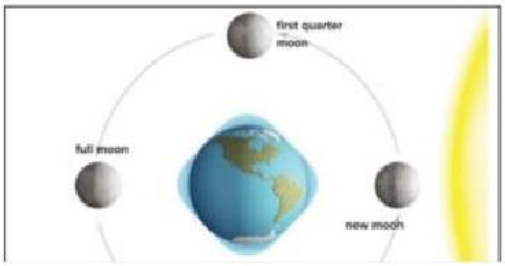
تعادل جاذبية القمر 1\6 جاذبية ألارض

أدلة على جاذبية القمر:

1. moon orbit around earthدوران القمر حول ألارض
2. المد و الجزر tides

10	S-PS2-1Support an argument that the gravitational force exerted by Earth on objects is directed down.		U4M1L1 page 13

The below chart shows the Moon orbits around Earth. Throughout the Moon's or there appears to be changes in Earth's water level. What causes the tides to bul the side of Earth facing the Moon?



Learning Outcomes Covered

- SCI.1.1.01.014

a. Tides are caused by tropical storms

b. Earth's water bulges on the side facing the moon because of the pull of gravity

c. The Moon reverses its orbit and causes the tides to change

d. The moon and Earth are moving very fast and are far apart

1) Juanita is standing on the ground located at the North Pole. Clara is standing on the ground located at the South Pole. Explain how both can stand with their feet on the ground.

Explanation

Sample answer: Gravity pulls things down and down means toward the center of Earth.

2) Fill in the blanks using the available answer choices.

Things we drop fall to the ground because _____ pulls them down.
(Blank 1)

Blank 1 options

- friction
- gravity

3) Which explains how gravity works to assist the flight of an airplane?

- ○ It pushes up on the wings of the airplane to create lift.
- ○ It helps to propel the plane forward as its speed increases.
- ○ It pushes the airplane from all directions to help it stay in the air.
- ○ It pulls the airplane downward when the pilot slows the engine's speed.

5) What force makes an apple fall to the ground?

- ○ gravity
- ○ air resistance
- ○ size
- ○ weight

7) Fill in the blanks using the available answer choices.

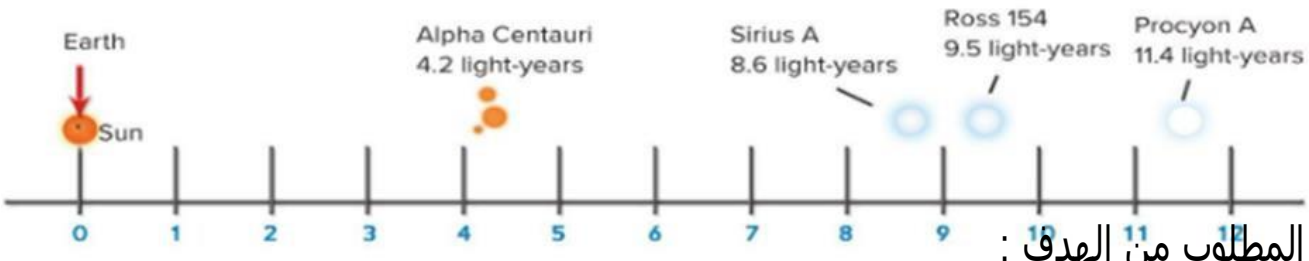
Earth's water levels _____ on the side of Earth facing the moon.
(Blank 1)

Blank 1 options

- rise
- fall

8) Which would be the most likely outcome of a meteorite's encounter with Earth?

- ○ The meteorite orbits around Earth.
- ○ The meteorite flies past Earth.
- ○ The meteorite hits Earth and makes a crater.
- ○ The meteorite burns in Earth's atmosphere.



المطلوب من الهدف :

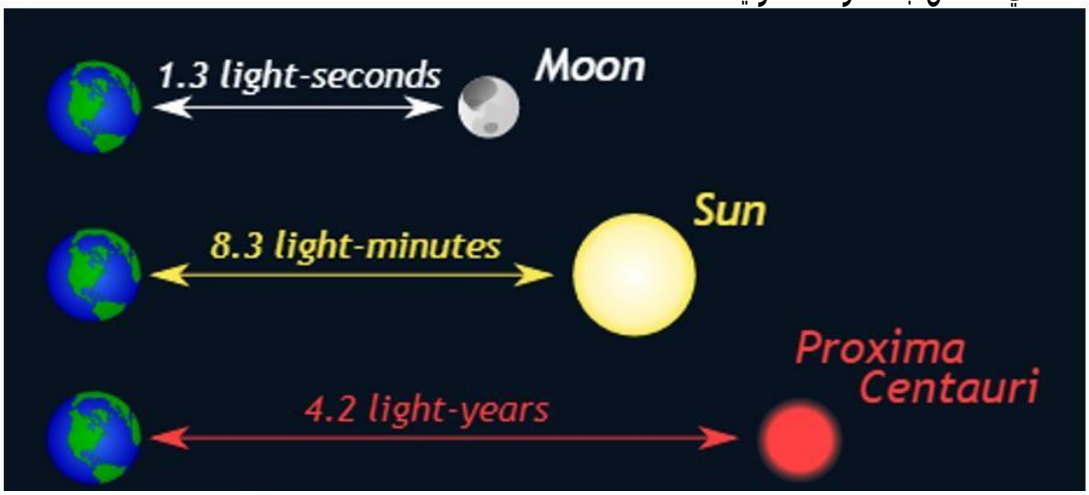
كلما كانت المسافة قريبة بين النجم و االرض كلما كان شعاعها أكبر

الشمس أقرب نجم لألرض لذلك هو أكبر نجم نراه كل نهار

بينما النجوم االخرى نعم هي أكبر من الشمس لكنها بعيدة جدا عن االرض لذلك نراها فقط في الظالم و نراها جدا صغيرة

من خالل المخطط: أكبر نجم يمكن رؤيته بالعين المجرد هو الشمس النه جدا قريب من االرض

النجوم االخرى بالرغم من قوة حرارتها و قوة إضائتها إال أنه ال يصلنا اال اشعاع بسيط جدا و ذلك نظرا للمسافات الكبيرة الذي يقطعها الضوء للوصول الى االرض و التي تقاس بالسنوات الضوئية



Star Distances The Sun is about 150 million kilometers (93 million miles) from Earth. It takes about eight minutes for its light to reach Earth. Most stars are much farther away. Writing their distances in kilometers becomes difficult to understand. To simplify the writing of such large distances, astronomers use a unit called a light-year. A **light-year** is the distance light travels in one year, which is nearly 10 trillion kilometers (6 trillion miles). When you observe a distant star, you are actually seeing what it looked like in the past. A star you see today may have stopped glowing many years ago. However, it is so far away that its light is still traveling through space.

2. The table shows the distance of five different stars from Earth.

Star	Distance from Earth (light-years)
Star A	8.6
Star B	11.4
Star C	6.0
Star D	4.2
Star E	7.7

Based on what you learned about star distances, choose the correct order of the stars as they appear from brightest to dimmest, based on their distance from Earth.

A. Star B, Star A, Star E, Star C, Star D

B. Star A, Star B, Star C, Star D, Star E

C. Star D, Star C, Star E, Star A, Star B

D. Star E, Star D, Star C, Star B, Star A

Use what you have learned to explain what stars are and why some appear brighter than others when we look at the night sky.

Sample answer: Stars are spheres of hot gas that give off heat and light. Some stars appear brighter than others due to their size or their relative distance from Earth. For example, the Sun is the closest star to Earth, which is why it is brighter than all of the other stars and visible during the day.

1) Which of the following statements **best** explains why some stars appear brighter than others?

- ○ Some stars absorb more energy from the Sun.
- ○ Some stars are closer to Earth than others.
- ○ Some stars are closer to the Moon than others.
- ○ Some stars have a better position in the sky.

2) VY Canis Majoris is the largest known star in the galaxy. It is a thousand times bigger and brighter than the Sun. Why doesn't VY Canis Majoris appear brighter than the Sun to people on Earth?

- ○ VY Canis Majoris is much farther away from Earth.
- ○ VY Canis Majoris is only visible in the Southern Hemisphere.
- ○ VY Canis Majoris can only be seen from the Moon.
- ○ VY Canis Majoris can only be seen during rare astronomical events.

6) If you didn't have use of a telescope, which question might help you determine the distance of a star from Earth?

- ○ What time does the star appear?
- ○ In which hemisphere is the star located?
- ○ What is the shape of the star?
- ○ What is the brightness of the star?

Our Galaxy

Our location in space is part of a larger group of stars called a galaxy. A **galaxy** contains billions of stars, dust, and gas that are held together by gravity. Astronomers estimate there are 100 billion galaxies in the universe. Our galaxy is known as the Milky Way. It gets its name from the ancient Greeks, who called the streaks of light they saw in the sky "milky circle." Ancient Romans called the streaks "road of milk."

Stars in the Milky Way are grouped into four arms that spiral out from the center.

The Milky Way contains more than 200 billion stars. The dust and gas in the galaxy are enough material to make billions of more stars. Astronomers believe the galaxy creates up to seven new stars each year. Even so, the Milky Way is not the largest galaxy.

It is not possible to photograph the entire Milky Way. Astronomers calculate the size and structure of our galaxy using what they know about other galaxies. Just like Earth travels around the Sun, the Sun travels around the center of the Milky Way. It takes 250 million years for the Sun to make one complete trip around the center of the galaxy.

15	5-ESS1-1Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.		U4M2L1 page 60

The Solar System

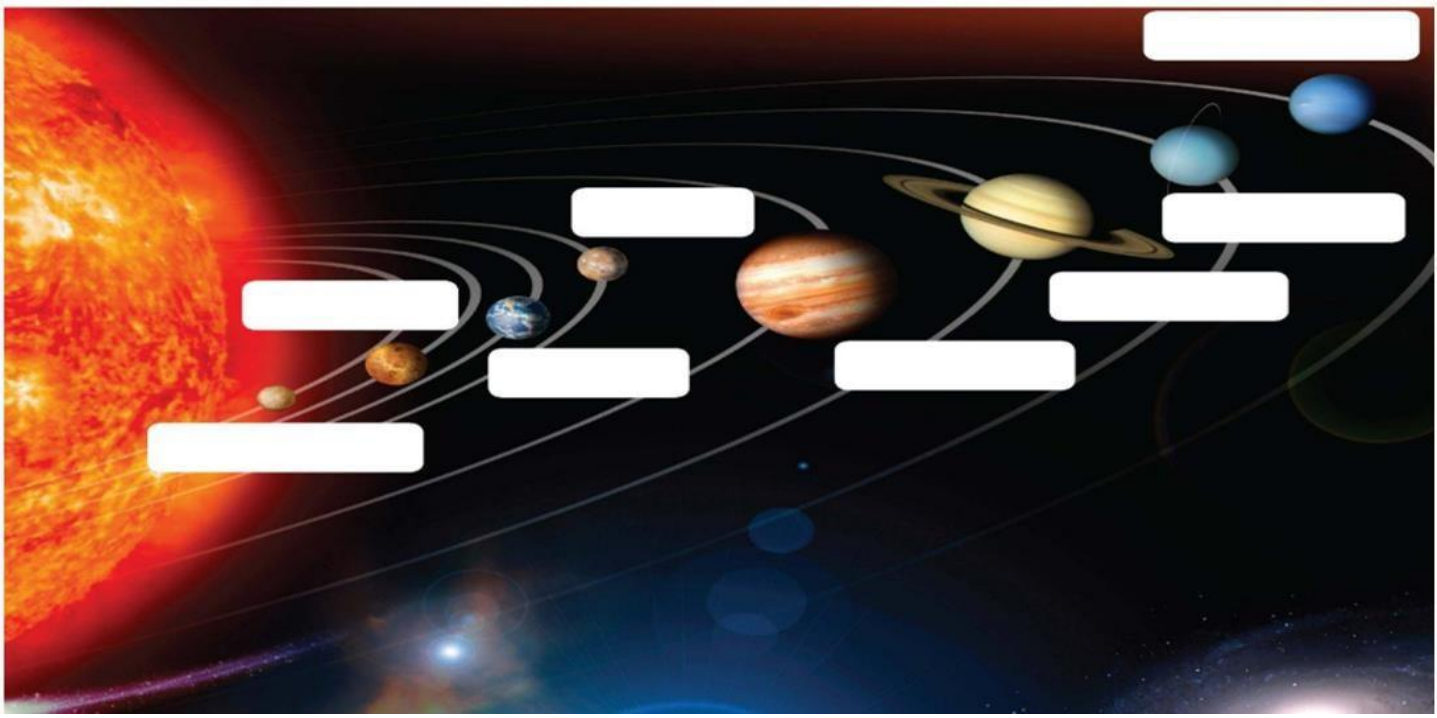
Page : 60

Within the Milky Way galaxy is our solar system, which consists of the Sun and all of the objects that orbit around it. One type of object that orbits the Sun are planets. A **planet** is a large, round object in space that orbits a star.

Planets of the Solar System From nearest to farthest from the Sun, the planets in our solar system are Mercury, Venus, Earth, and Mars, or the inner planets. Next are Jupiter, Saturn, Uranus, and Neptune, or the outer planets. The planets revolve in elliptical, or nearly circular, orbits around the Sun. Several planets are visible in the night sky from Earth from time to time, even without a telescope. Visible planets include Mercury, Venus, Mars, Jupiter, and Saturn. Planets do not make their own light, but reflect the light from the Sun.

Between the inner and outer planets is a belt of space rocks called asteroids. These are rocky or metallic objects that also orbit the Sun within the solar system.

Page : 60

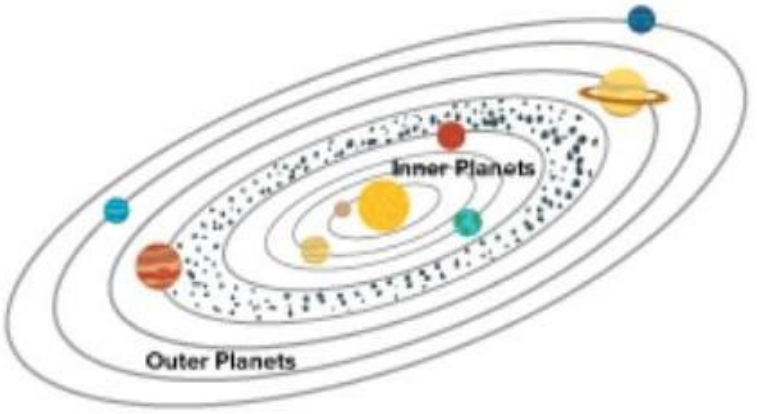


4) A _____ contains billions of stars, dust, and gas that are all held together by gravity.

- ○ planet
- ○ star
- ○ moon
- ○ galaxy

5) The Milky Way is a _____ that contains more than 200 billion stars.

6) This diagram shows the eight planets and one dwarf planet in the solar system.



Between the inner and outer planets, there is a belt of space rocks called ___.

- ○ asteroids
- ○ meteors
- ○ comets
- ○ stars

Which of the following best describes a planet?

Learning Outcomes Covered

- 2.3.4.019
- SCI.1.1.01.013

a. A swirling ball of gases

b. A star

c. A sphere that gives off light and heat

Which of the following best describes an asteroid?

Learning Outcomes Covered

- 2.3.4.019

a. A star

b. A huge ball made out of rock

c. A rocky or metallic object that orbits the sun

d. A swirling ball of gases