
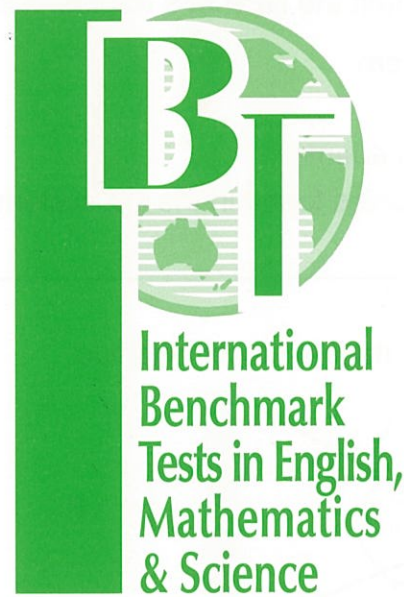




Student Name			
Gender		Date of Birth	
Subject	SCIENCE	Student ID	N0008
School Name	TOWHEED IRANIAN SCHOOL		
Grade	10	Section	
 168-S-N0008-10-1 3101			



Science

TEST INSTRUCTIONS

FILL IN YOUR DETAILS

Turn to your ANSWER SHEET and fill in your name, school, grade, section, today's date, your date of birth and gender.

ANSWERING QUESTIONS

Go to the SCIENCE ANSWER SHEET.



This test has **40 QUESTIONS**. Each question has four possible options.

Choose the BEST answer from the four options, **A, B, C** or **D**.

FILL in ONE circle on your answer sheet with a pencil.

If you make a mistake, erase the pencil mark and fill in a different circle.

You must colour the entire circle as shown below:

Correct response 	Incorrect responses 
	Line Very light pencil Pen Colored pencil

Marks are NOT deducted for incorrect answers.

ALL ANSWERS SHOULD BE MARKED ON YOUR ANSWER SHEET ONLY.

EQUIPMENT ALLOWED IN THIS TEST

You may use a 2B or B pencil for this test. You may NOT use a dictionary for this test.

TIME ALLOWED FOR TEST

The time allowed to complete this test is **60 minutes**

The chemical reaction of photosynthesis can be represented as a word equation.



1 Which types of organisms can carry out this reaction?

- A only plants
- B only animals
- C only plants and animals
- D all living organisms

2 Where does the energy needed for photosynthesis come from?

- A the Sun
- B other organisms
- C food consumed
- D energy in the surroundings

The chemical reaction of respiration can be represented as a word equation.



3 Which types of organisms can carry out this reaction?

- A only plants
- B only animals
- C only plants and animals
- D all living organisms

4 Which classification has the smallest number of organism types?

- A class
- B genus
- C species
- D phylum

38 Which aspects of agricultural systems best explain why they have a lower NPP than natural ecosystems?

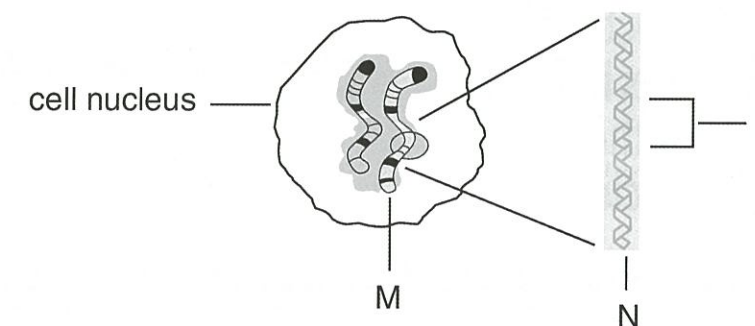
Choose the correct row.

	Application of herbicide to kill weeds	Bare soil between plants	Application of fertilizer
A	no	yes	no
B	yes	yes	yes
C	no	no	yes
D	yes	yes	no

39 Which factor is likely to limit the NPP in a tropical ecosystem?

- A size of the ecosystem
- B amount of sunlight
- C availability of soil nutrients
- D high number of species found in the ecosystem

The picture shows genetic material in a cell nucleus.

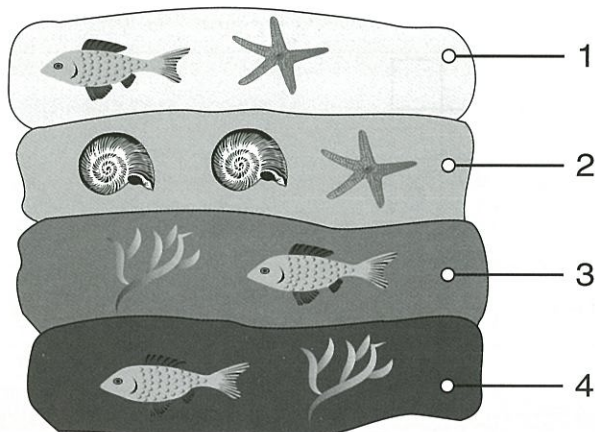


40 What do the labels M, N and P represent?





Choose the correct row.

	M	N	P
A	cell	chromosome	DNA
B	chromosome	DNA	gene
C	DNA	chromosome	gene
D	chromosome	gene	DNA

This rock contains plant and animal fossils.

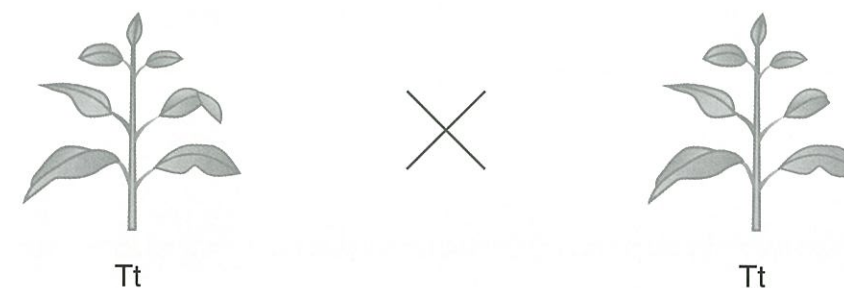


- 8** The rock contains four horizontal layers.
What caused the formation of the horizontal layers?
- A physical and chemical changes
 - B successive lava flows
 - C sediments gradually deposited over time
 - D rock melting and then solidifying

- 9** Each layer in the rock represents an equal geological time period.
Which organism existed for the shortest period of time on the Earth?
- A 
 - B 
 - C 
 - D 

A plant has a gene variation that controls its height.
The allele for the tall plant (T) is dominant over the allele for the small plant (t).

- 33** Two tall plants are cross bred.



The Punnett square shows the result.

	T	t
T	TT	Tt
t	Tt	tt

- What percentage of the plants are likely to be short?
- A 25%
 - B 50%
 - C 75%
 - D 100%

- 34** What causes variations in genes?
- A mutation
 - B pollination
 - C sexual reproduction
 - D asexual reproduction

A galaxy is a huge cluster of stars, dust and gases.

The table shows some of the properties of a number of different galaxies.

Galaxy	Shape	Type of stars in the galaxy	Distance from the Earth (million light-years)
Andromeda	spiral	new and old stars	2.5
Messier 60	elliptical	mostly cooler old stars	55
Sombrero	spiral	new and old stars	28
Sextans A	irregular	hot new stars	4.5
NGC 3379	elliptical	mostly cooler old stars	32

29 Which statement is supported by the data in the table?

- A Spiral galaxies contain only old stars.
- B Elliptical galaxies contain only new stars.
- C Irregular galaxies contain hot new stars.
- D The type of stars in a galaxy does not depend on its shape.

30 The galaxies move towards each other and sometimes collide.

The Milky Way contains our solar system.

Which galaxy is most likely to collide with the Milky Way in the future?

- A Andromeda
- B Messier 60
- C Sombrero
- D NGC 3379

31 What holds the stars of a galaxy together?

- A dust and gases
- B gravitational attraction
- C the high temperature of the stars
- D the high rotational speed of the stars

32 Scientists believe galaxies formed billions of years ago after the Big Bang.

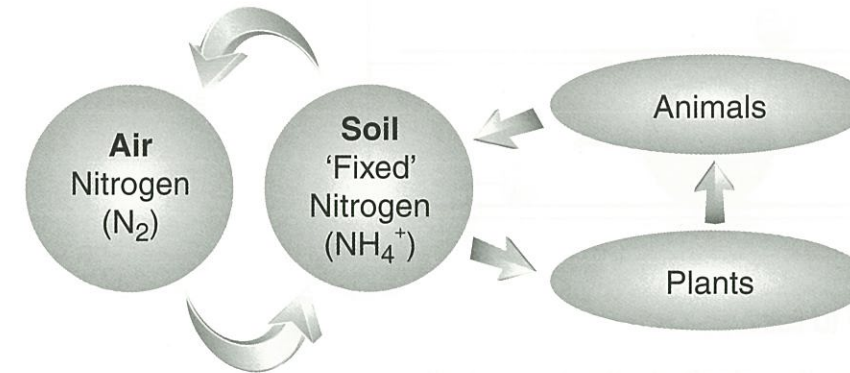
Which statement best describes the Big Bang?

- A hot stars colliding to form the universe
- B hot dense matter exploding to form the universe
- C moving planets colliding to create gas, dust and stars
- D a large planet exploding to form the solar system

Nitrogen is an important chemical in ecosystems.

Bacteria take nitrogen gas (N_2) from the air and convert it into soluble compounds (including NH_4^+). This is called 'nitrogen fixing'.

Other bacteria convert fixed nitrogen back to N_2 which returns to the atmosphere.



10 What happens to fixed nitrogen after it has been returned to the soil by animals?

- A It is all used by other animals.
- B It is all used by plants.
- C It is either used by plants or returned to the atmosphere.
- D It is all returned to the atmosphere as N_2 .

11 Which of the following happen in the nitrogen cycle?

- A fixed nitrogen \rightarrow plants \rightarrow bacteria $\rightarrow N_2$
- B fixed nitrogen \rightarrow plants \rightarrow animals $\rightarrow N_2$
- C fixed nitrogen \rightarrow animals \rightarrow bacteria $\rightarrow N_2$
- D $N_2 \rightarrow$ fixed nitrogen \rightarrow bacteria $\rightarrow N_2$

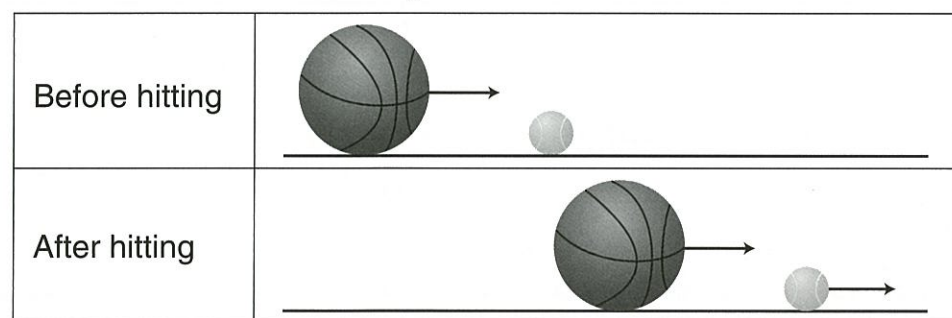
12 Converting N_2 to fixed nitrogen takes a lot of energy.



What happens when fixed nitrogen is turned back into N_2 ?

- A energy is used
- B energy is released
- C no energy is used or released
- D equal amounts of energy are used and released

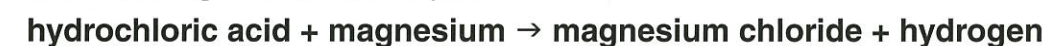
A basketball hits a tennis ball that is not moving. The two balls then roll in the same direction. The basketball has a much greater mass than the tennis ball.



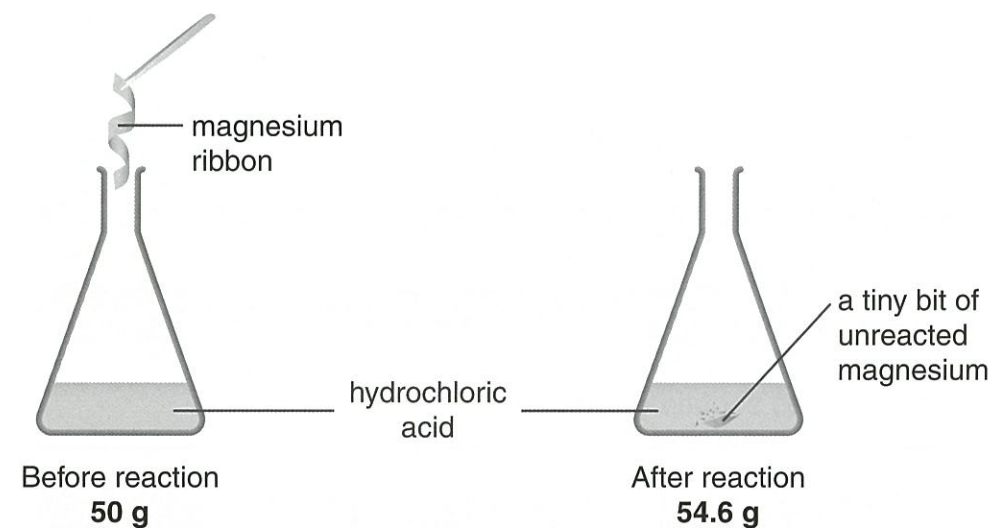
- 13** What causes the tennis ball to roll?
- A** The basketball transfers its velocity to the tennis ball.
B The basketball transfers some kinetic energy to the tennis ball.
C The basketball transfers all its potential energy to the tennis ball.
D The potential energy of the tennis ball is converted into kinetic energy.
- 14** After a short time, both balls stop moving. Why does this happen?
- A** The balls have lost all their energy.
B Gravity has increased on the balls.
C Friction forces have acted on the balls.
D The balls have converted all their kinetic energy into potential energy.
- 15** Which of these events is a likely outcome of an increased greenhouse effect on Earth?
- A** more melting of glaciers
B volcano eruptions will increase
C greater movement of tectonic plates
D the hole in the ozone layer will increase in size

A flask contains 50 g of hydrochloric acid. A student drops 5 g of magnesium ribbon into the flask.

The following reaction takes place:



After the reaction the flask weighs 54.6 g.



- 27** Why does the flask weigh less than 55 g?
- A** The hydrogen produced has no mass.
B All the magnesium did not react with the acid.
C The hydrogen produced escaped during the reaction.
D Dissolved magnesium has less mass than solid magnesium.
- 28** The student thinks that some magnesium did not react because there was not enough acid. What can the student do to check if all the acid in the flask has reacted?
- A** Shake the flask gently.
B Add more acid to the flask.
C Add more magnesium to the flask.
D Cover the mouth of the flask with a stopper.

A singer is able to break a glass using her voice.



24 What form of energy breaks the glass?

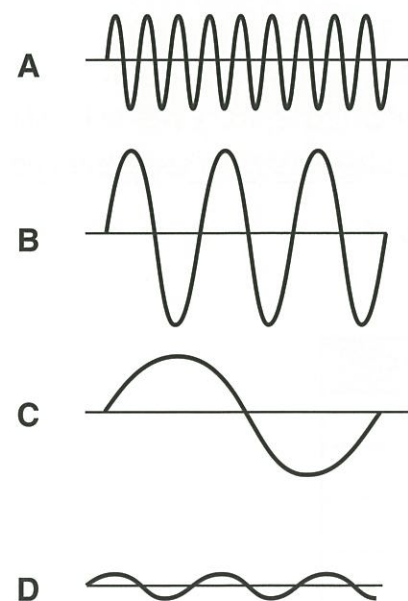
- A thermal
- B kinetic
- C electromagnetic
- D chemical

25 How does the energy from the singer's voice reach the glass?

- A Air molecules travel in a line from the singer to the glass.
- B Air molecules move along a wave from the singer to the glass.
- C Pressure between air molecules is transferred to the glass.
- D Energy moves up and down along a wave from the singer to the glass.

26 The sound of four musical notes was graphed on the same scale.

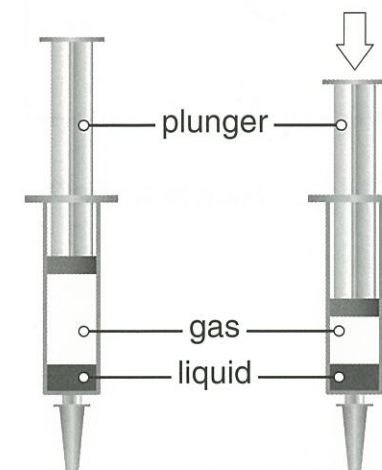
Which note is the loudest?



The syringe in these diagrams contains both a gas and a liquid.

The end of the syringe is closed.

In the second diagram the plunger is pushed down.



16 Which property of a gas is being shown by the second diagram?

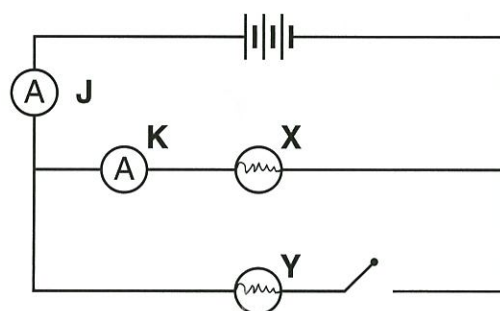
- A Gases do not have a fixed shape.
- B Gases do not have a fixed mass.
- C The particles in one gas can mix rapidly with the particles of another gas.
- D There is more particle movement in a gas than a liquid at the same temperature.

17 The volume of liquid in the syringe does not change as the plunger is pushed downwards.

Which property of the liquid best explains this?

- A The particles in the liquid have no fixed pattern.
- B There are no spaces between the particles in the liquid.
- C The liquid absorbs the air as the plunger is pushed down.
- D The size of each individual liquid particle is reduced as the plunger is pushed.

This circuit contains two identical bulbs (X and Y), two ammeters (J and K) and a switch.



18 What will happen to the brightness of bulb X when the switch in the circuit is closed?

- A The bulb will shine at the same brightness.
- B The bulb will shine more brightly.
- C The bulb will shine less brightly.
- D The bulb will not shine at all.

19 An ore is a rock that contains a mineral.

Which properties make a rock a suitable ore for extracting a mineral?

Choose the correct row.

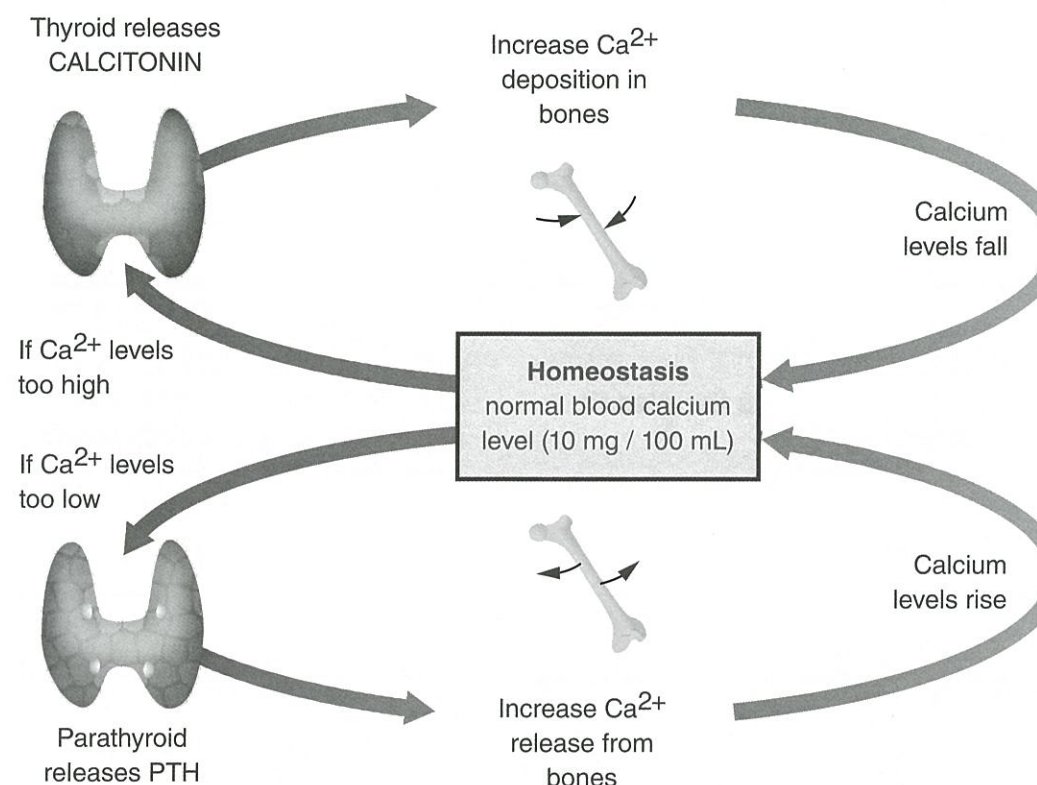
	The rock contains a high percentage of the mineral	The rock does not contain any other mineral	The mineral can be extracted easily from the rock
A	no	no	yes
B	no	yes	yes
C	yes	no	yes
D	yes	yes	no

20 The first step in extracting the mineral from the ore is crushing.

Why is this step important?

- A The crushed ore is safer for workers to handle.
- B The ore reacts faster once it has been crushed.
- C The crushed ore is more stable at windy mine sites.
- D The crushed ore contains more mineral than large pieces of ore.

The human body regulates the blood calcium level through a process called 'homeostasis'. The diagram shows the details of the process.



21 What would be the most likely blood calcium level of a person before the release of calcitonin?

- | | | | |
|---------------|---------------|----------------|----------------|
| A | B | C | D |
| 1 mg / 100 mL | 5 mg / 100 mL | 10 mg / 100 mL | 15 mg / 100 mL |

22 What can be concluded from the diagram?

- A Vitamin D inhibits the uptake of calcium in the intestines.
- B Absorption of calcium from the blood takes place only in the kidneys.
- C Parathyroid hormone and calcitonin have opposite effects on calcium levels.
- D Calcium deposition in bones occurs when blood calcium level is lower than normal.

23 What can contribute to a low calcium level in the blood?

Choose the correct row.

	High PTH levels	Low calcium in diet
A	no	no
B	no	yes
C	yes	no
D	yes	yes