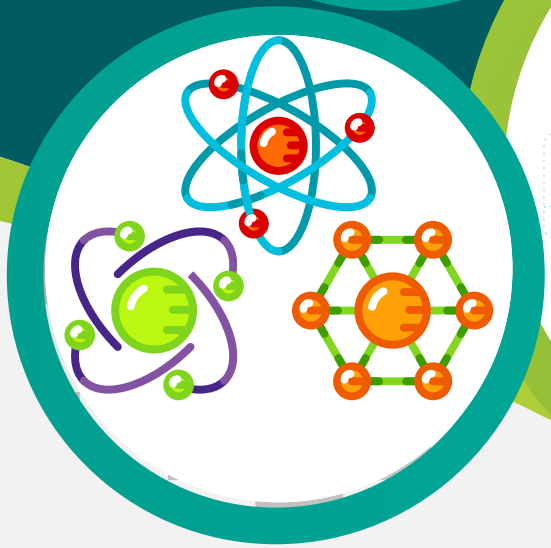






Curriculum Aligned Competency Based Test Items

Science

Class - 7

Central Board of Secondary Education

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Creating the Next Future

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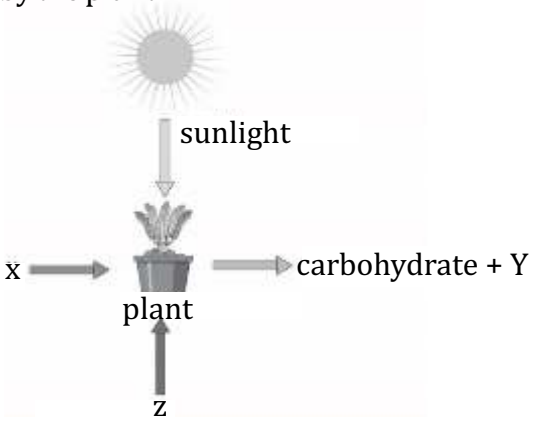
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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 1
Nutrition in Plants

The picture below shows the process through which green plants make their food.
X, Y and Z are three different components of the process.
The direction of arrows show what is absorbed and what is released by the plant.
For example, sunlight is absorbed by the plant.



SAS21S070101

1 The equation below shows how green plants make their own food.

$$\text{Carbon dioxide} + \text{water} \xrightarrow[\text{chlorophyll}]{\text{sunlight}} \text{Carbohydrate} + \text{oxygen}$$

What does X, Y and Z stand for in the picture above?

	X	Y	Z
A.	Carbon dioxide	Water	Oxygen
B.	Water	Oxygen	Carbon Dioxide
C.	Oxygen	Water	Carbon Dioxide
D.	Carbon Dioxide	Oxygen	water

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SAS21S070102

2 Radhika wants to find out whether a purple plant can make its own food. She keeps a purple plant in sunlight for four days.

Which other type of coloured plant should Radhika keep as part of her study to compare with the purple plant?



SAS21S070103

3 We often find green slimy layers on the surface of ponds. The layers are formed by tiny organisms that make their own food. Which of these is/are true about the organisms?
Circle 'Yes' or 'No' for each row.

Is the statement about the organisms true?	Yes or No
They contain chlorophyll.	Yes/No
They release oxygen.	Yes/No
They require sunlight for making food.	Yes/No

Jessy wanted to find out the conditions that best support the rotting of bread. The growth of coloured fluffy patches on the surface of bread confirms rotting. She kept four bread slices in different conditions for five days. The table below shows Jessy's findings after five days.

Bread slice	Where the slice is placed	Number of coloured fluffy patches after five days
Slice 1	On wet cotton at 5 °C	Two patches
Slice 2	On a dry plate at 30 °C	Six patches
Slice 3	On wet cotton at 30 °C	Ten patches
Slice 4	On a dry plate at 5 °C	No patch

SAS21S070104

4 Which microorganism forms the coloured fluffy patches on the bread?

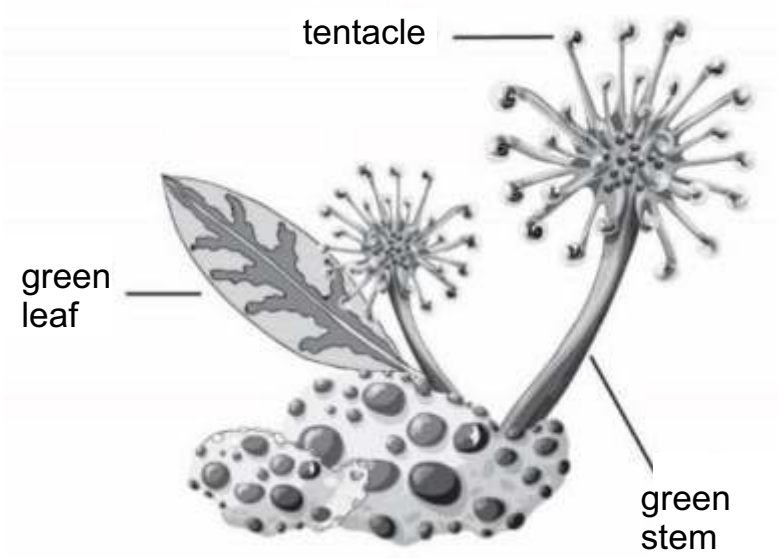
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SAS21S070105

5 Which condition can best prevent rotting for a long time?

A. Cold and Humid
B. Warm and Dry
C. Warm and Humid
D. Cold and Dry

Australian Sundew is a type of plant that has green stems and green leaves. It traps insects with its sticky tentacles. The plant sucks the nutrients from the body of its prey.



SAS21S070106

6 Australian Sundew is a part autotroph and part heterotroph.
Write two features of the plant that support this.

_____

_____

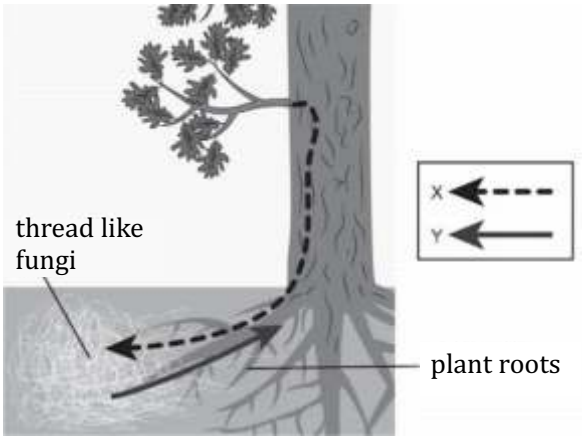
SAS21S070107

7 Which of the following organisms obtain nutrients from dead and decaying organisms?

A. Algae
B. Mushroom
C. Rose plant
D. Banyan tree

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The picture below shows thread-like fungi that live near some plants. The fungi wrap around and pierce the plant's roots. It helps the plant to get minerals and water from the soil. The plant provides carbohydrates to the fungi.



SAS21S070108

8 X and Y show the direction of flow of substances from one source to another.
Which substances move in:
- X direction
- Y direction

_____

_____

SAS21S070109

9 Parasite is an organism that lives in or on the body of another organism. It receives energy and nutrients from the host organism. Parasite does not give anything in return to its host. Is the group of fungi shown in the picture a type of parasite? Explain your answer.

_____

_____

SAS21S070110

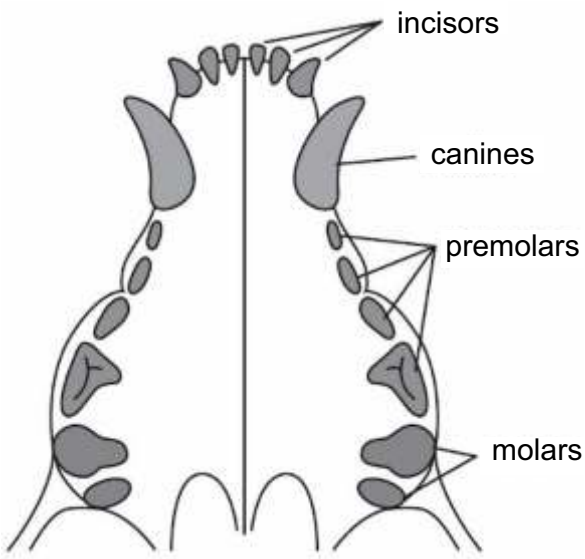
10 The sun provides energy for all living things. Gurmeet wrote two statements to explain the above fact.
Statement 1: All autotrophs prepare their own food in the presence of sunlight.
Statement 2: _____
What of the following should be Statement 2?

A. All autotrophs are plants
B. All heterotrophs are animals
C. All autotrophs contain chlorophyll pigment
D. All heterotrophs get energy directly or indirectly from autotrophs

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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 2
Nutrition in Animals

The picture shows arrangement of teeth in the upper jaw of an animal.



SAS21S070201

1 Which animal has a similar teeth arrangement?

A. Deer
B. Dog
C. Rabbit
D. Buffalo

SAS21S070202

2 Which set of teeth is used for biting into food?

A. Incisors
B. Canines
C. Premolars
D. Molars

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SAS21S070103

3 Which of these is a part of the digestive system?
Circle 'Yes' or 'No' for each row.

Is this a part of the digestive system?	Yes or No
Teeth	Yes/No
Liver	Yes/No
Rectum	Yes/No

SAS21S070204

4 A baby passed watery stool for two days. The doctor suggested oral rehydration solution (ORS) for the baby. How would the ORS help the baby?

A. It would help in digesting food
B. It would kill the bacteria that caused the infection
C. It would prevent water from moving out of the body
D. It would replace the fluids and minerals lost from the body

SAS21S070205

5 All bacteria present in the digestive system are not harmful. Explain how bacteria present in the digestive system of cows help in the digestion of food.

_____

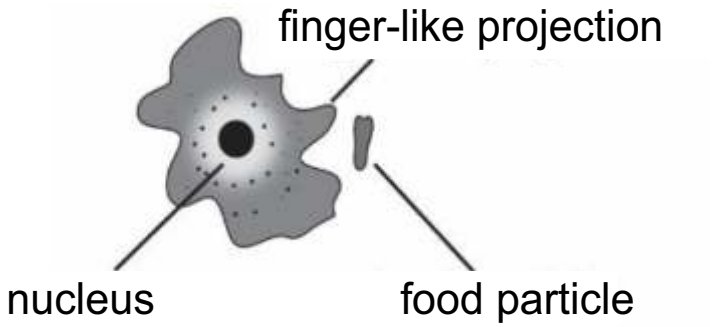
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SAS21S070206

6 Where does digestion of food start in the human digestive system?

A. Mouth
B. Stomach
C. Oesophagus
D. Small intestine

Amoeba uses finger-like projections to capture food particles.
The picture shows the first step of the process.



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SAS21S070207

7 Which of these is the next step of capturing food?

A. 

C. 

B. 

D. 

SAS21S070208

8 What are the finger-like projections called?

_____

_____

SAS21S070209

9 An amoeba ingests a food particle.
Which of these shows the correct sequence of nutrition in the amoeba?

A. Egestion ⟶ Digestion ⟶ Assimilation ⟶ Absorption

B. Digestion ⟶ Absorption ⟶ Assimilation ⟶ Egestion

C. Digestion ⟶ Assimilation ⟶ Absorption ⟶ Egestion

D. Egestion ⟶ Digestion ⟶ Assimilation ⟶ Absorption

SAS2SAS21S070210

10 What are proteins broken down into?

A. Glucose
B. Glycerol
C. Fatty acids
D. Amino acids

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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 3
Fibre to Fabric

The table shows the details of different steps in the production of wool from sheep.
The steps listed in the table are not in the correct order.

Steps	Details
Step W	Wash the sheep skin with hair in water tanks to remove grease, dust and dirt.
Step X	Straighten, comb and roll the fibres into yarns by machine.
Step Y	Shave a thin layer of skin with hair from the sheep.
Step Z	Remove small fluffy fibres from the washed hair by machine.

SAS21S070301

1 What is the correct order of the steps?

A. Step Y → Step X → Step W → Step Z
B. Step W → Step Z → Step X → Step Y
C. Step Y → Step W → Step Z → Step X
D. Step X → Step Y → Step W → Step Z

SAS21S070302

2 Before which step should the woollen fibres be colour dyed?

A. Step W
B. Step X
C. Step Y
D. Step Z

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SAS21S070303

3 Sorters in the wool industry are sometimes infected with anthrax disease.
Which statement correctly explains the reason for this?
Circle 'Yes' or 'No' for the correct response.

Statement	Yes or No
Clothes worn by sorters attract Anthrax bacteria.	Yes/No
Chemicals used in wool processing help in the growth of Anthrax bacteria.	Yes/No
Sheep hair is often infected by Anthrax bacteria.	Yes/No

SAS21S070304

4 Some types of sheep are commonly found in the Himalayas.
Herders shave their skin layers only in summers.
What could be the likely reason for doing this?

_____

_____

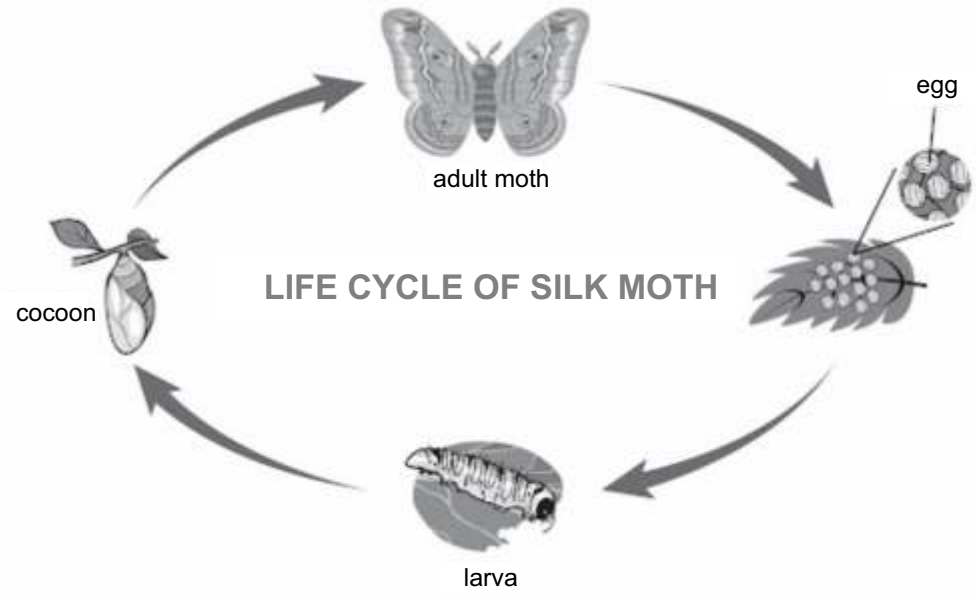
SAS21S070305

5 How do woollen clothes keep us warm in winters?
Explain your answer.

_____

_____

The diagram below shows the different stages in the life cycle of a silk moth.



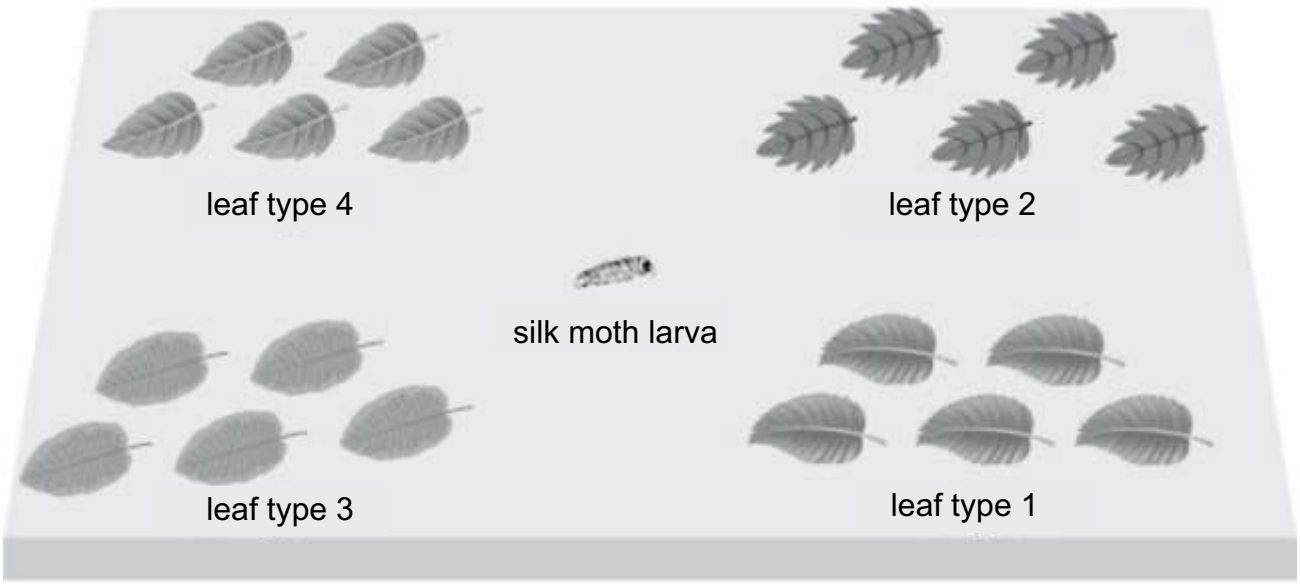
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SAS21S070306

6 Which statement can be concluded from the diagram?
Circle 'Yes' or 'No' for the correct response.

Statement	Yes or No
There are four stages in the life cycle of a silk moth.	Yes/No
The adult stage looks completely different from the younger stages.	Yes/No
Silk moth larva hatches from a cocoon.	Yes/No

Tanu has four types of plants in her garden.
She wanted to find out which plant a silk moth larva would prefer to eat the most.
Tanu placed a silk moth larva along with 5 leaves from each plant on a tray.



The table below shows what she found after a week.

	Leaf 1	Leaf 2	Leaf 3	Leaf 4
Number of leaves left on the tray	5	3	0	5

SAS21S070307

7 Which type of plant leaf did the silk moth larva prefer the most?

_____

_____

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SAS21S070308

8 How can Tanu be sure of the results of her activity?

A. By repeating the activity with larger leaves
B. By repeating the activity for a single day only
C. By repeating the activity with 4 silkworm larvae
D. By repeating the activity with new types of leaves

Joseph wanted to check how long silk moth larvae took to develop into cocoons.
He took 4 newly hatched larvae and plant leaves.
The table below shows how long each larva took to develop into a cocoon.

	Larva 1	**Larva 2**	**Larva 3**	**Larva 4**
Time taken by the larva to develop into a cocoon	34 days	30 days	32 days	31 days

SAS21S070309

9 Which larva took the longest time to develop into a cocoon?

A. Larva 1
B. Larva 2
C. Larva 3
D. Larva 4

SAS21S070310

10 Why are cocoons boiled before reeling silk threads in machines?

A. It strengthens the silk fibres.
B. It lightens the colour of silk fibres.
C. It increases the amount of silk fibres.
D. It separates the silk fibres from the cocoons.

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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 4
Heat

Reema pours hot water into two types of cups. One cup is made of ceramic and the other is made of paper. She records the temperature of water in the cups after 5 minutes.



	Temperature of the hot water	Temperature of water in the cup after 5 minutes
Ceramic cup	90°C	75°C
Paper cup	90°C	60°C

SAS21S070401

1 What is Reema testing?

A. Is paper a bad conductor of heat?
B. Does the shape of a cup prevent loss of heat?
C. Does the colour of a cup prevent loss of heat?
D. Is paper a better conductor of heat than ceramic?

SAS21S070402

2 Would there be a change in the temperature readings if both the cups were covered with a lid? Explain your answer.

_____

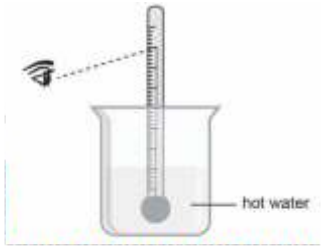
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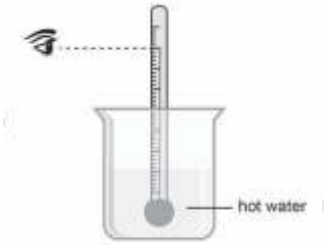
SAS21S070403

3 Which figure shows the correct way of reading the temperature on a thermometer?

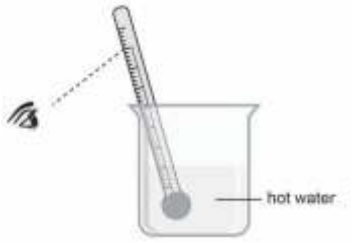
A.



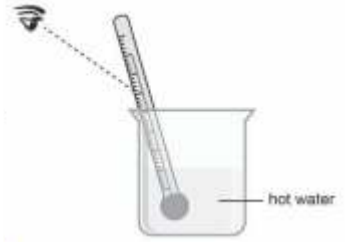
B.



C.



D.





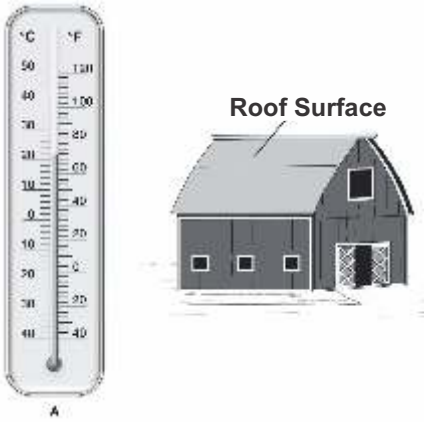
a cup of hot tea

SAS21S070404

4 Which process causes the air above the hot tea to get heated?

A. Conduction
B. Evaporation
C. Convection
D. Radiation

The thermometer shows the indoor temperature of a house.



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SAS21S070405

5 What is the indoor temperature of the house in degree Celsius?

_____

_____

SAS21S070406

6 What should be the colour of the roof surface to keep the house warm?

A. Silver
B. Yellow
C. Sky blue
D. Dark brown

Fatima keeps four boxes containing equal sized butter cubes under the sun.
The boxes are of the same shape and size but made of different materials.
Fatima notes how long the butter cubes in each box take to melt.

Box	Time the butter cubes take to melt
Box 1	12 minutes
Box 2	16 minutes
Box 3	7 minutes
Box 4	8 minutes

SAS21S070407

7 Which box is the best conductor of heat?

A. Box 1
B. Box 2
C. Box 3
D. Box 4

SAS21S070408

8 What can Fatima do to confirm the results of her activity?

A. Repeat the activity with boxes of different sizes
B. Repeat the activity keeping all conditions the same
C. Repeat the activity with boxes made of same material
D. Repeat the activity with boxes containing different sized butter cubes

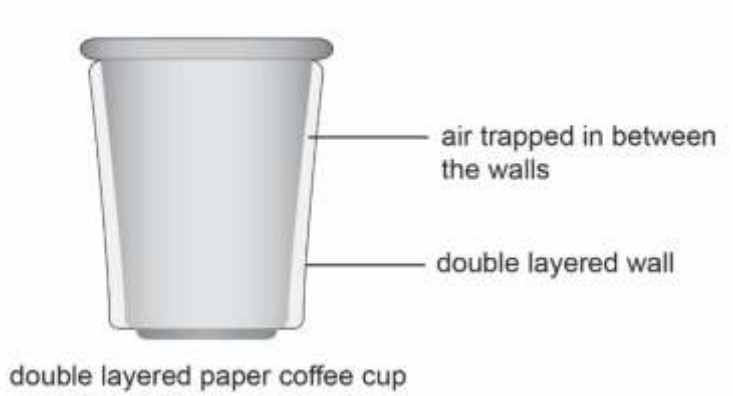
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SAS21S070409

9 Fatima repeated the activity with each box wrapped in a thick layer of newspaper. Which of the following is likely to have happened?

A. The butter cubes in the boxes would not have melted.
B. The butter cubes in the boxes would have melted faster.
C. The readings in the table would have remained the same.
D. The butter cubes in each box would have taken longer to melt.

Double-layered paper cups keep coffee hot for a longer time than single layered cups.



double layered paper coffee cup

SAS21S070410

10 Will the double-layered cups also keep ice cream shakes cold for a longer time? Explain your answer.

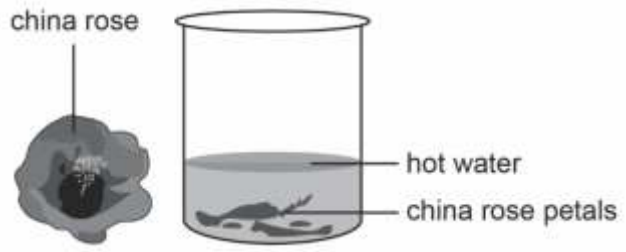
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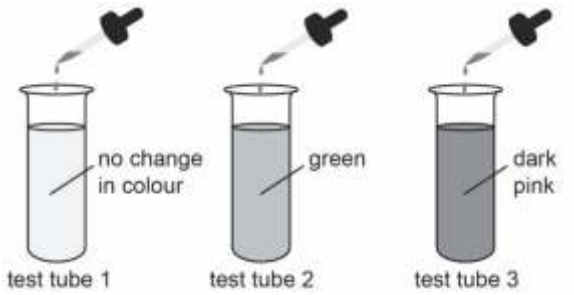
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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 5
Acids, Bases and Salts

China rose is a natural indicator of acids and bases.
The flower's petals are put in warm water for an hour.
The water, after one hour can be used as an indicator.
It is light pink in neutral conditions.
It turns green in basic conditions and dark pink in acidic conditions.



Zeenat takes 10 ml of three colourless liquids in separate test tubes.
She adds 5 drops of china rose indicator to each test tube.
The pictures show the colour of the liquid in each test tube after the addition of indicator.



SAS21S070501

1 Which test tube contains liquid soap?

_____

_____

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SAS21S070502

2 Why are china rose petals put in warm water to make the indicator?

A. To darken the colour of the petals
B. To keep the petals fresh for a long time
C. To destroy the germs present on the petals
D. To make the chemicals in the petals dissolve faster

SAS21S070503

3 Why did Zeenat add the same amount of indicator to the three test tubes?

_____

_____

Pema wants to do an activity with hydrochloric acid and lime water (base).
Most acids and bases can damage human skin.

SAS21S070504

4 Which step must she follow during the activity to ensure safety?

A. Untie her hair
B. Wear gloves
C. Remove her shoes
D. Wear a shirt with short sleeves

SAS21S070505

5 Lime water is a base.
Which of the following statements is true for lime water?
Circle 'Yes' or 'No' to mark your response.

Is the statement true for lime water?	Yes or No
Lime water is sour in taste.	Yes/No
Lime water is slippery to touch.	Yes/No
Lime water turns litmus paper blue	Yes/No

Soha mixed equal amounts of two colourless liquids in a test tube.
She observed the following:
- The colour of the liquids did not change.
- No residue was formed in the test tube.
- The test tube got hot.
- No gas bubbles were formed.

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SAS21S070506

6 Soha concluded that a chemical change took place in the test tube.
Which change confirms her conclusion?

A. The test tube got hot.
B. No residue was formed.
C. No gas bubbles were formed.
D. The colour of the liquids did not change.

SAS21S070507

7 Complete the following chemical reaction.

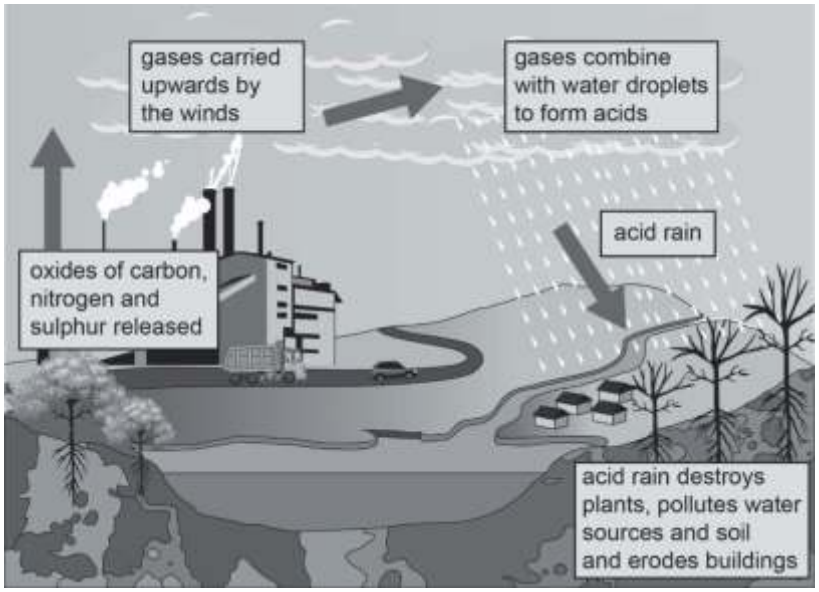
Acid+Base → X+Y

What does X and Y stand for?

X = _____ Y = _____

_____

The picture shows how acid rain occurs and what its effects are.



SAS21S070508

8 Which of these contributes to acid rain?
Circle 'Yes' or 'No' to mark your response.

Does this contribute to acid rain?	Yes/No
Emission by vehicles	Yes/No
Emission by factories	Yes/No
Photosynthesis by plants	Yes/No

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SAS21S070509

9 Which of the following is correct about the effects of acid rain?
Select the correct row.

Acid rain damages some crops	Acid rain kills some aquatic animals
No	No
No	Yes
Yes	No
No	Nes

SAS21S070510

10 Anu re-visited a historical monument after 10 years.
She noticed that the white monument had turned yellowish.
Which event is most likely to have caused the change in colour of the monument?

A. Flood
B. Drought
C. Acid rain
D. Thunderstorm

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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 6
Physical and Chemical Changes

An iron rod is heated till it becomes red-hot.



SAS21S070601

1 Is heating of the iron rod a chemical change?
Select the correct response with explanation.

A. No, because no new substance is formed.
B. No, because the rod does not change its state.
C. Yes, because the iron rod turns red when heated.
D. Yes, because heat is absorbed by the iron rod.

SAS21S070602

2 Which of these is a physical change?

A. A flower turning into a fruit
B. A lizard changing its skin colour
C. A plant making food in sunlight
D. A butterfly larva changing into a cocoon

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SAS21S070603

3 Iron gates are coated with a layer of zinc to protect them from rusting.
Which components in the air cause rusting?

_____

_____

SAS21M06N0304

4 Which of the following statements is true?
Circle 'Yes' or 'No' to mark your response.

Is this statement true?	Yes/No
All metals rust.	Yes/No
Rust is an oxide of iron.	Yes/No
Rusting is a reversible change.	Yes/No

Ramesh describes how roti is made in his house in 5 steps. Here are the 5 steps:

i Wheat grains are ground to make flour.
ii Flour is mixed with water to make soft dough.
iii Small balls of dough are flattened out with a rolling pin.
iv The flat round dough is cooked on a pan.
v The crisp roti is coated with a layer of butter.

SAS21S070605

5 In which of the above steps does a physical change take place and in which one does a chemical change take place?

Physical change:_____

Chemical change: _____

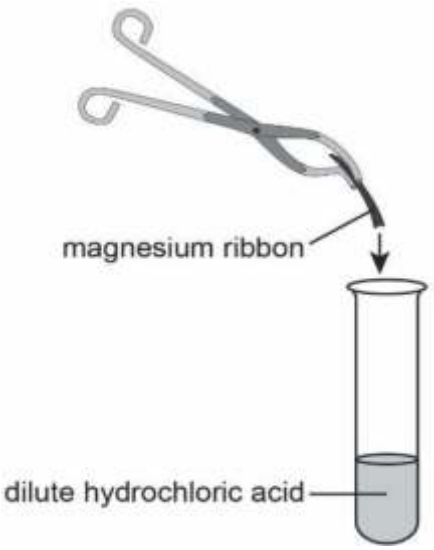
SAS21S070606

6 Which of these is a chemical change?
Circle 'Yes' or 'No' to mark your response.

Is this a chemical change?	Yes or No
Formation of clouds in the sky	Yes/No
Drying of leaves	Yes/No
A tadpole growing into a frog	Yes/No

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Sania adds a piece of magnesium ribbon to a test tube containing dilute hydrochloric acid.



She observes the following events.

i The test tube gets hot.
ii Gas bubbles are formed.
iii The magnesium ribbon dissolves in the acid.

SAS21S070607

7 Which observation(s) shows that a chemical change may have taken place in the test tube?

A. only i
B. only ii
C. i only ii
D. i only iii

After observing the above events, Sania adds a few more magnesium ribbons to the same test tube. This time she observes tiny pieces of magnesium ribbon floating in the test tube. Sania thinks that the reaction was not completed.

SAS21S070608

8 What does Sania need to do to complete the reaction?

A Heat the test tube
B Add more magnesium ribbons to the test tube
C Add more acid to the test tube
D Shake the test tube to mix magnesium ribbons and the acid

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SAS21S070609

9 Sania later repeats her activity using magnesium powder instead of magnesium ribbon. Will there be a change in her first three observations? Explain your answer.

_____

_____

SAS21S070610

10 Which of these can never happen in a physical change?

A. Change in the size of objects
B. Change in the state of matter
C. Change in the shape of object
D. Change in the composition of matter

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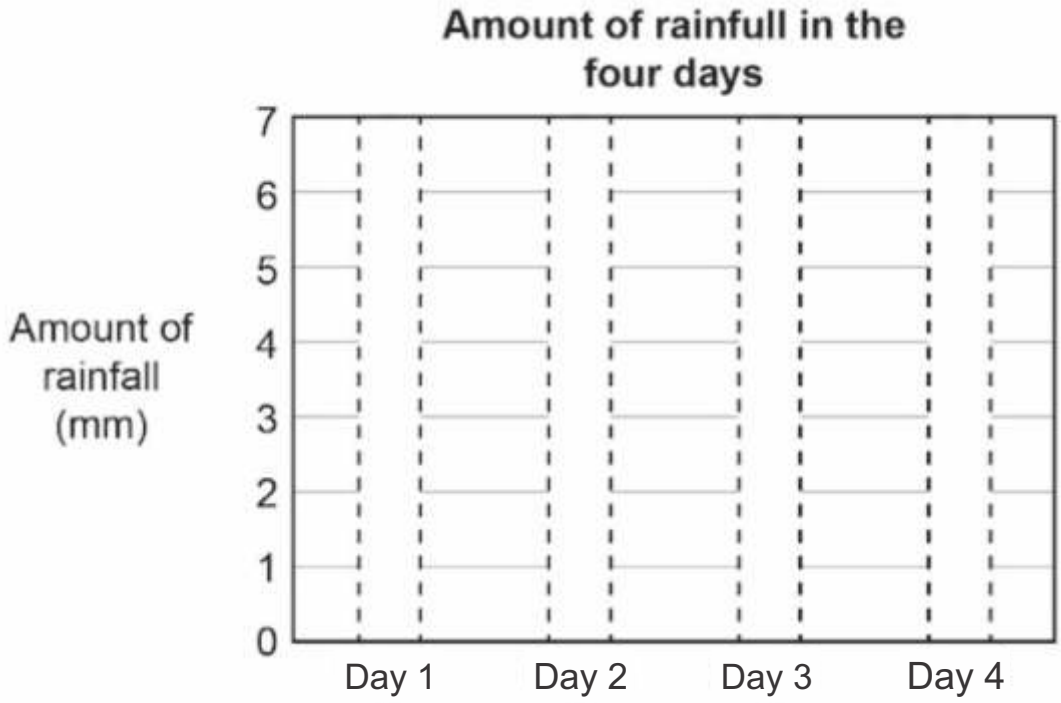
Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 7
Weather, Climate and Adaptations of Animals to Climate

The table shows the weather over four days in a week for a city.

	Maximum Temperature	Minimum Temperature	Humidity	Rainfall
Day 1	33°C	27°C	65°C	2 mm
Day 2	28°C	22°C	80°C	6 mm
Day 3	30°C	24°C	70°C	4 mm
Day 4	33°C	27°C	55°C	2 mm

SAS21S070701

1 Complete the graph to show the amount of rainfall in the four days.
Shade the dotted columns correctly.



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SAS21S070702

2 Which day was the most warm and humid?

A. Day 1
B. Day 2
C. Day 3
D. Day 4

SAS21S070703

3 The weather pattern of the four days continued over the next one month.
Which season does the weather indicate?

A. Summer
B. Monsoon
C. Autumn
D. Winter

The picture shows a newspaper cut-out.
The cut-out shows the climate of a city over a month.



SAS21S070704

4 Can we say that the city experiences a hot and wet climate throughout the year?
Explain your answer.

_____

_____

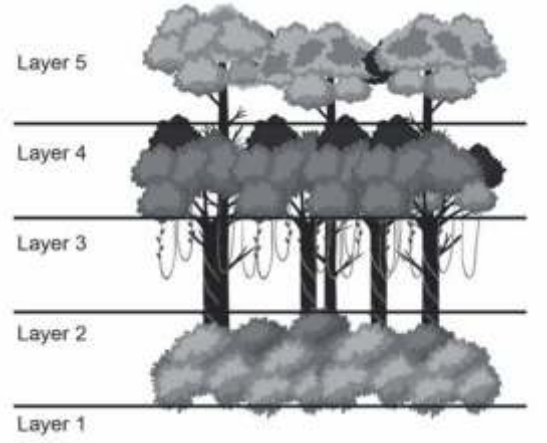
SAS21S070705

5 Which of the following places experiences a cold and dry climate for most of the year?

A. Mountain
B. Grassland
C. Desert
D. Sea coast

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A rainforest is a dense area of tall, evergreen trees and shrubs on the forest floor.
The picture shows the different layers in a rainforest.



SAS21S070706

6 Which of these statements is true about rainforests?
Circle 'Yes' or 'No' for the correct response.

Is the Statement True about Rainforests?	Yes or No
Very little amount of sunlight reaches the rainforest floor.	Yes/No
Only shrubs are found in rainforests.	Yes/No
Rainforests are found in warm regions of the earth.	Yes/No

SAS21S070707

7 Eagles are mostly found in Layer 4 and Layer 5 of rainforests.
How does living at this height help them?

A. They can build large nests
B. They can bask in the sunlight
C. They can fly high up in the sky
D. They can easily locate their prey

SAS21S070708

8 Which of the following features is common to the mammals living in a rainforest?

A. Padded feet
B. Short bushy tail
C. Short body hair
D. Thick layer of fat

SAS21S070709

9 How do large, thin ears help a spotted deer in hot and humid conditions?

_____

_____

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SAS21S070710

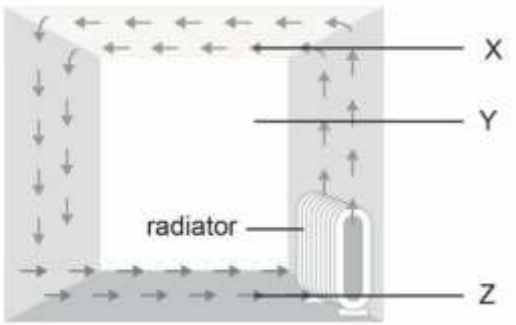
10 Mountain goats are found in the Himalayas.
Which of the following features helps them to survive the cold conditions?

A. Thick fur
B. Short tail
C. Sharp horns
D. Large hooves

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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 8
Winds, Storms and Cyclones

The diagram shows how a radiator heats a room.
The arrows show how the air circulates in the room.
Three layers of air X, Y and Z are shown in the diagram.



SAS21S070801

1 Which of the following statements is correct about the layers of air?
Circle 'Yes' or 'No' for the correct response.

Is This Statement Correct?	Yes or No
Layer X is less dense than Layer Y.	Yes/No
Layer Y is denser than Layer Z.	Yes/No
Layer Z is the densest layer.	Yes/No

SAS21S070802

2 What happens when air expands over the sea due to heating?

A. The air causes high waves in the sea.
B. The air moves from the sea to the land.
C. The air forms high pressure over the sea.
D. The air rises up carrying water vapour with it.

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SAS21S070803

3 Which of these is the safest action when caught outdoors in a thunderstorm?

A. Lie down on the ground
B. Take shelter under a big tree
C. Squat down and coil yourself
D. Stand in an open field away from trees

A sealed juice can has a tiny hole on its wall. No juice flows out from the can.
As soon as the can is opened, juice starts flowing out from the hole.



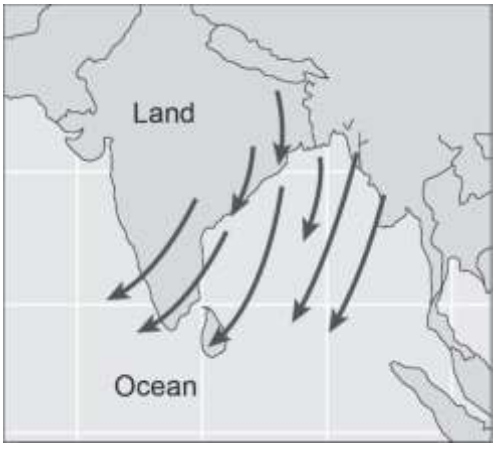
SAS21S070804

4 Why did the juice start flowing out of the can the moment the can was opened?

_____

_____

The picture shows the winds that blow from the land to the ocean.



SAS21S070805

5 In which month of the year are the winds likely to be blowing as shown in the given picture?

A. April
B. June
C. August
D. November

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The table shows the estimated wind speed and pressure at the centre of a cyclone over a few days.

Day	Wind speed (km/hr)	Pressure at the centre (hPa)
Tuesday	165	975
Wednesday	200	945
Thursday	240	940
Friday	210	950

SAS21S070806

6 On which day is the cyclone likely to be most destructive?

A. Tuesday
B. Wednesday
C. Thursday
D. Friday

SAS21S070807

7 What does the data in the given table show?

A. High speed winds always form a cyclone.
B. High speed winds cause the destruction of life and property.
C. The lower the pressure at the centre, the greater is the wind speed.
D. The greater the wind speed, the higher is the pressure at the centre.

SAS21S070808

8 How is low pressure created in the centre of a cyclone?

_____

_____

SAS21S070809

9 What helps weather experts to monitor the movement of cyclones?

_____

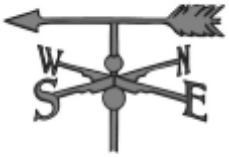
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SAS21S070810

10 Which of these instruments is used to measure the wind speed?

A. 

B. 

C. 

D. 

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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 9
Soil

SAS21S070901

1 Sudha collects 10 g of four different soil samples. What should she do to find out which sample contains the maximum moisture?

A. Add the soil samples in water and check which one mixes the best.
B. Heat the soil samples for an hour and check which one weighs the least.
C. Put the soil samples on paper sheets and check which one creates the smallest spot.
D. Squeeze the soil samples with fingers and check which one forms the smallest lump.

Pankaj studied the soil in four different locations.
The table shows the number of types of plants and insects he found in the soil at each place.

Soil from	Types of plants found	Types of insects found
Location 1	2	1
Location 2	3	3
Location 3	1	0
Location 4	2	2

SAS21S070902

2 In which location does the soil have the most number of livings things?

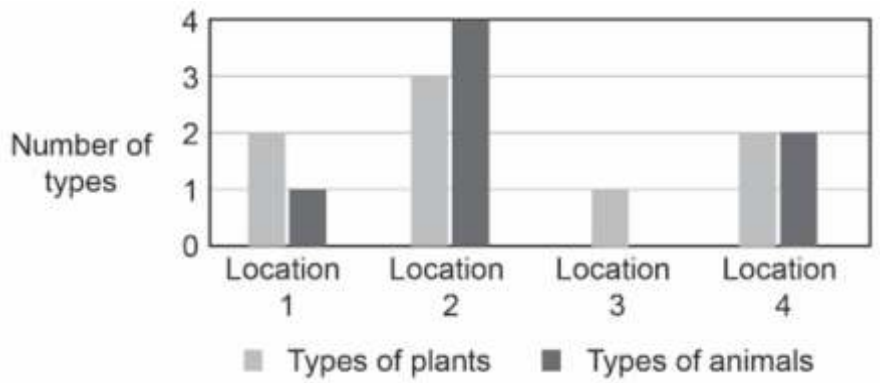
A. Location 1
B. Location 2
C. Location 3
D. Location 4

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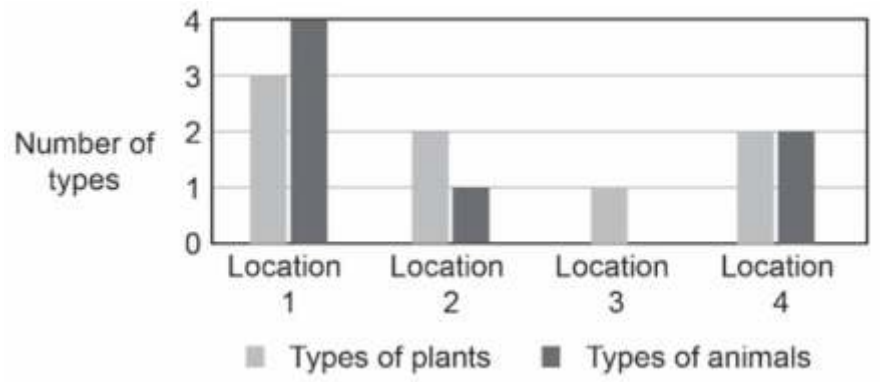
SAS21S070903

3 Which graph correctly shows the data in the table?

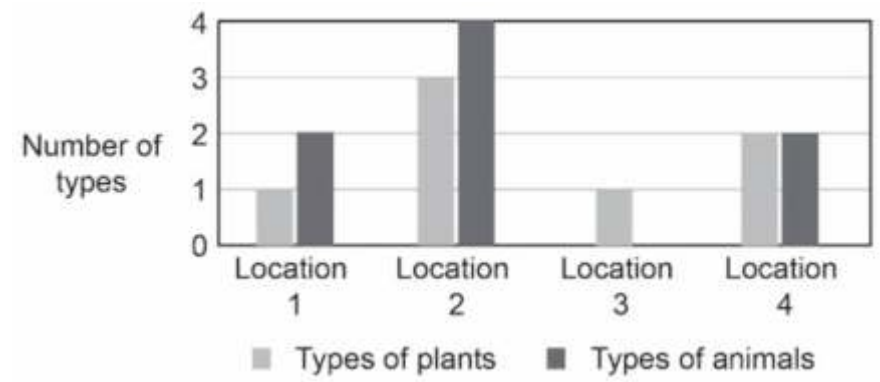
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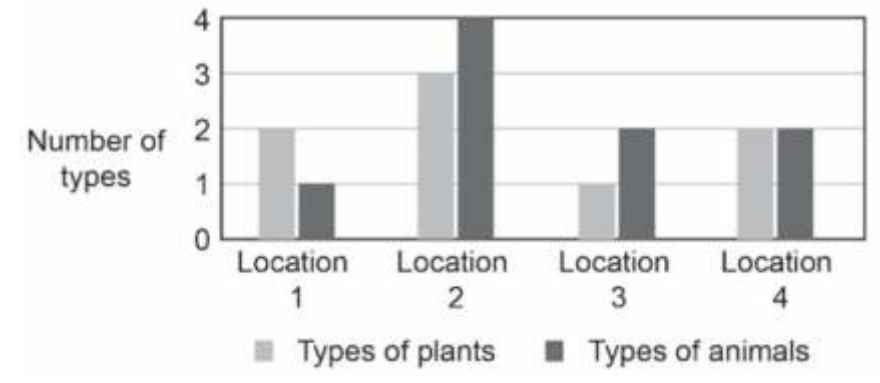
B.



C.

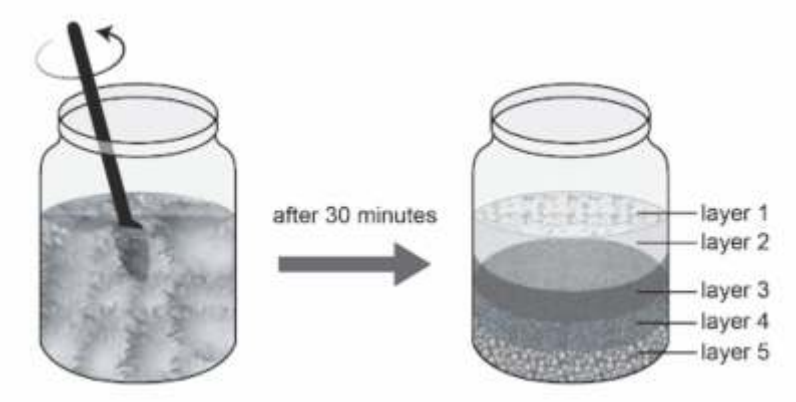


D.



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The diagram shows how a radiator heats a room.
The arrows show how the air circulates in the room.
Three layers of air X, Y and Z are shown in the diagram.



SAS21S070904

4 On what basis did the layers separate in the jar?

A. Size of the particles
B. Mass of the particles
C. Shape of the particles
D. Volume of the particles

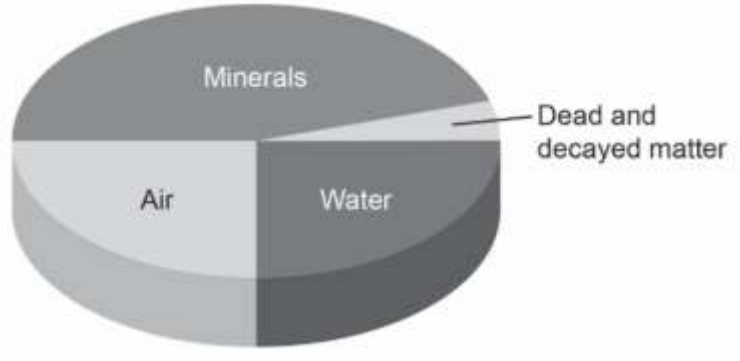
SAS21S070905

5 Which layer contains the dead matter present in soil?

_____

_____

The chart shows the proportion of components in a soil sample



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SAS21S070906

6 Which of these statements can be concluded from the chart? Circle 'Yes' or 'No' for the correct response.

Can this statement be concluded?	Yes or No
The soil is found in hilly regions.	Yes/No
The soil contains large amounts of minerals.	Yes/No
The soil contains equal amounts of water and air.	Yes/No

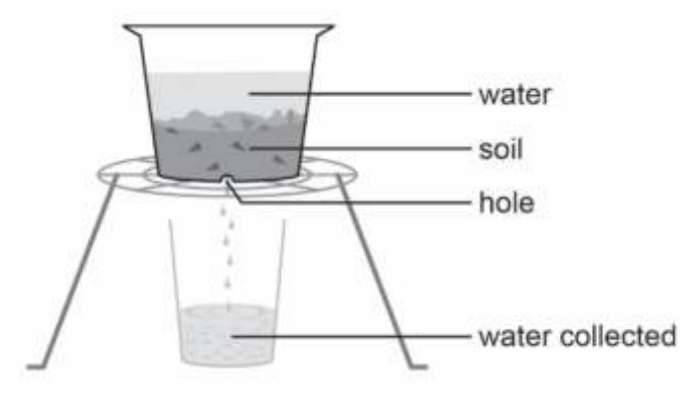
SAS21S070907

7 Sand, clay and loam are the three types of soil. Which type of soil is shown in the chart?

_____

_____

Rizwan added 1 kg of four different types of soil in separate pots.
Each pot has a small hole at the bottom.
Rizwan then poured water in each pot.
He noted how much water is collected in the beaker below the pot after an hour.



	Pot 1	Pot 2	Pot 3	Pot 4
Amount of water collected after an hour	200 mL	250 mL	300 mL	150 mL

SAS21S070908

8 Which pot contains soil that best retains water?

A. Pot 1
B. Pot 2
C. Pot 3
D. Pot 4

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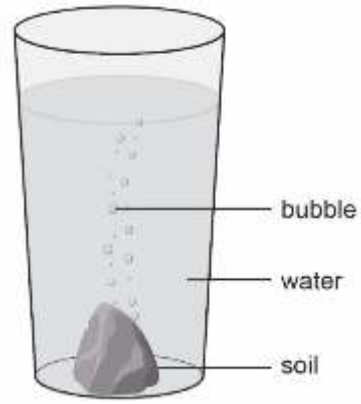
SAS21S070909

9 Rizwan put equal amounts of soil in each pot. Which other thing must Rizwan keep the same in his activity?

_____

_____

A lump of soil is dropped in a glass of water.
Some tiny bubbles appear on the surface of the soil.



SAS21S070910

10 What does the activity prove?

A. Soil contains air
B. Soil contains water
C. Soil contains minerals
D. Soil contains dead matter

Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 10
Respiration in Organisms

Pankaj studied the soil in four different locations.
The table shows the number of types of plants and insects he found in the soil at each place.

	Breathing rate (times per minute)
Sleeping	15
Cycling	30
Jogging	45
Reading	20

SAS21S071001

1 Complete the graph below to show the data in the table.
Shade the columns in the graph correctly.



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SAS21S071002

2 For which activity does the girl require maximum energy?

A. Sleeping
B. Cycling
C. Jogging
D. Reading

SAS21S071003

3 Joggers often develop cramps in calf muscles. Which of these chemicals, when produced, causes muscle cramps?

A. Glucose
B. Alcohol
C. Lactic acid
D. Carbon dioxide

The reactions below show two types of respiration.

i. $\text{glucose} \xrightarrow[\text{oxygen}]{\text{with}} \text{carbon dioxide} + \text{water} + \text{energy}$

ii. $\text{glucose} \xrightarrow[\text{oxygen}]{\text{without}} \text{carbon dioxide} + \text{alcohol} + \text{energy}$

SAS21S071004

4 Name the types of respiration shown in reaction (i) and (ii).

_____

_____

SAS21S071005

5 What causes the reactions to be different?

A. Release of energy
B. Production of a gas
C. Breakdown of glucose
D. Presence or absence of oxygen

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SAS21S071006

6 Which of these animals breathes through its skin?

A. Fish
B. Bird
C. Snake
D. Earthworm

Pankaj studied the soil in four different locations.
The table shows the number of types of plants and insects he found in the soil at each place.

	Chest measurement			
	Student 1	**Student 2**	**Student 3**	**Student 4**
Inhalation	62 cm	58 cm	60 cm	65 cm
Exhalation	45	54 cm	55 cm	56 cm

SAS21S071007

7 Chest expansion is the difference in chest sizes during inhalation and exhalation. Which student's chest expanded the most?

A. Student 1
B. Student 2
C. Student 3
D. Student 4

SAS21S071008

8 What should be done to confirm the chest measurements of the four students?

A. Repeat the chest measurements with four new students.
B. Repeat each student's chest measurement for inhalation only.
C. Repeat the chest measurements using a different measuring tape.
D. Repeat each student's chest measurement for both inhalation and exhalation.

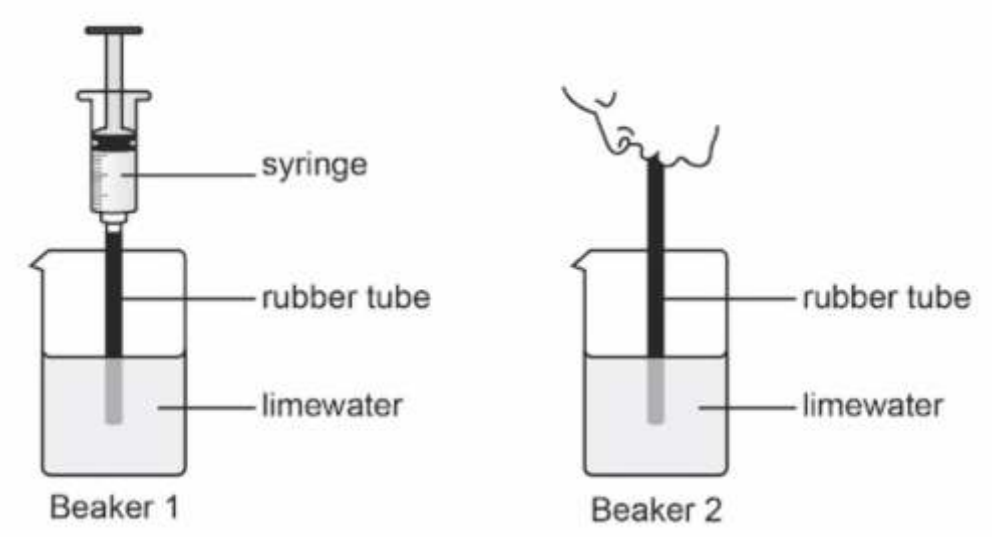
SAS21S071009

9 Which of these statements is correct for the respiratory system?
Circle 'Yes' or 'No' for the correct response.

Is this statement correct?	Yes or No
The ribs move in during exhalation.	Yes/No
The lungs constrict during inhalation.	Yes/No
The diaphragm expands during exhalation.	Yes/No

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Carbon dioxide reacts with lime water and turns it milky.
Asha pumps natural air into the lime water in Beaker 1.
She blows air from her mouth into the lime water in Beaker 2.



SAS21S071010

10 In which beaker will the limewater turn milky first? Explain your answer.

_____

_____

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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 11
Transportation in Animals and Plants

Geeta measured the pulse rate of four students.
The table below shows her findings.

	Pulse rate of the student (beats per minute)		
	1st Reading	2nd Reading	3rd Reading
Student 1	74	73	74
Student 2	80	78	79
Student 3	72	72	78
Student 4	72	71	72

SAS21S071101

1 Which student has the highest pulse rate?

A. Student 1
B. Student 2
C. Student 3
D. Student 4

SAS21S071102

2 Why did Geeta measure the pulse rate of each student thrice?

_____

_____

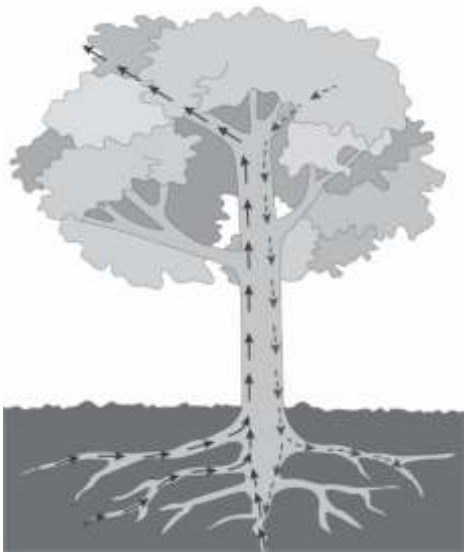
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SAS21S071103

3 Geeta made an error in one of the readings. Which one is it **most likely** to be?

A. Student 1 reading 3
B. Student 2 reading 1
C. Student 3 reading 3
D. Student 4 reading 2

The picture shows the directions of movement of two different substances in plants.



SAS21S071104

4 What do the two types of arrows in the picture show?

	——→	- - - - - - - - →
A.	Movement of air	Movement of water
B.	Movement of food	Movement of air
C.	Movement of water	Movement of food
D.	Movement of air	Movement of minerals

SAS21S071105

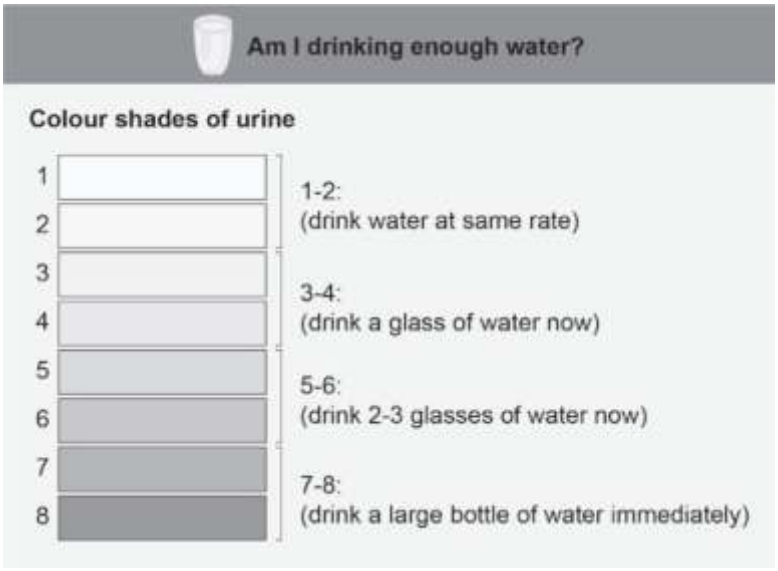
5 Name the process that helps plants to regulate their temperature.

_____

_____

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The picture shows the directions of movement of two different substances in plants.



SAS21S071106

6 Which colour shade indicates that the body is well hydrated?

A. Shade 1
B. Shade 4
C. Shade 6
D. Shade 8

SAS21S071107

7 Under normal conditions, human urine contains 95% water and 5% waste products. What would be the percentage of waste products in a darker shade of urine?

A. 0%
B. Less than 5%
C. 5%
D. More than 5%

SAS21S071108

8 Which of these statements is correct?
Circle 'Yes' or 'No' for the correct response.

Is this statement correct?	Yes or No
All arteries carry oxygen-rich blood.	Yes/No
All veins are thin walled.	Yes/No
Capillaries originate from veins.	Yes/No

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The table shows the heart rate of a student before and after different types of exercise.

	Number of heart beats per minute	
	Before exercise	**Just after exercise**
Exercise 1	92	135
Exercise 2	88	105
Exercise 3	90	155
Exercise 4	92	115

SAS21S071109

9 Which exercise resulted in the maximum change in heart rate?

A. Exercise 1
B. Exercise 2
C. Exercise 3
D. Exercise 4

SAS21S071110

10 The normal heart rate for an adult human is 60-100 beats per minute. Why does the heart rate vary among individuals?

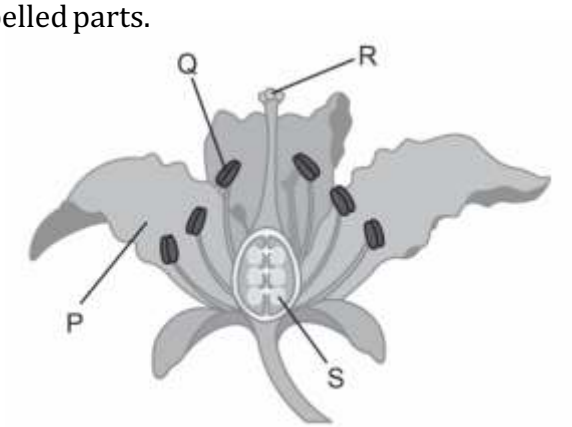
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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 12
Reproduction in Plants

The picture shows parts of a flower.
P, Q, R and S are the four labelled parts.



SAS21S071201

1 Removal of which part of the flower will **not** stop reproduction in the plant?

A. P
B. Q
C. R
D. S

SAS21S071202

2 Why is part P brightly coloured in most flowers?

A. To repel animals
B. To attract insects
C. To help the plant make food
D. To help the plant retain water

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The picture shows parts of a flower.
P, Q, R and S are the four labelled parts.

Type of seed	Picture	Features
Seed 1		very light weight, has feathery hairs
Seed 2		hard, has tiny hooks
Seed 3		hard, has spikes
Seed 4		light weight, hard and hollow

SAS21S071203

3 Which seed is most likely to be dispersed by water?

A. Seed 1
B. Seed 2
C. Seed 3
D. Seed 4

The picture shows the scattering of seeds when a fruit bursts.



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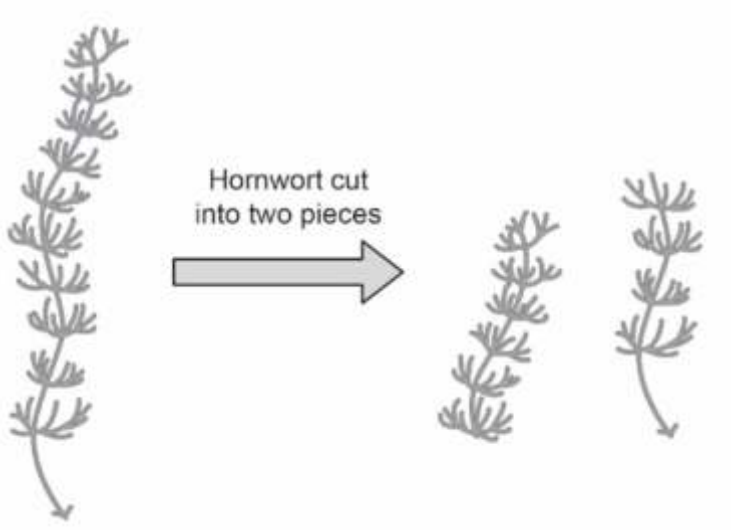
SAS21S071204

4 How does the bursting of fruit help in the germination of seeds?

_____

_____

Shekhar cut the stem of a hornwort plant into two pieces.
He placed both the pieces under water.
After a week, Shekhar found both the pieces growing as new plants.



SAS21S071205

5 What can be concluded from the activity?

A. Hornworts can survive only under water.
B. Hornworts can absorb nutrients through leafs.
C. Hornworts bear spores that help it to reproduce.
D. Hornworts can reproduce by vegetative propagation.

SAS21S071206

6 How can Shekhar confirm the result of his activity?

_____

_____

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SAS21S071207

7 Which of these statements is true about the two new hornworts?
Circle 'Yes' or 'No' for the correct response.

Is this statement correct?	Yes or No
They are exact copies of each other.	Yes/No
They will grow differently than the original plant.	Yes/No
They will have a different life span than the original plant.	Yes/No

SAS21S071208

8 Which question will help answer if a plant reproduces sexually?

A. Does the plant bear seeds in its fruit?
B. Does the plant have buds on its leaf?
C. Does the plant bear nodules on its root?
D. Does the plant have nodes on its stem?

SAS21S071209

9 In which part of a flower are pollens deposited?

A. Style
B. Ovary
C. Anther
D. Stigma

SAS21S071210

10 Name three vegetative parts of a plant.

_____

_____

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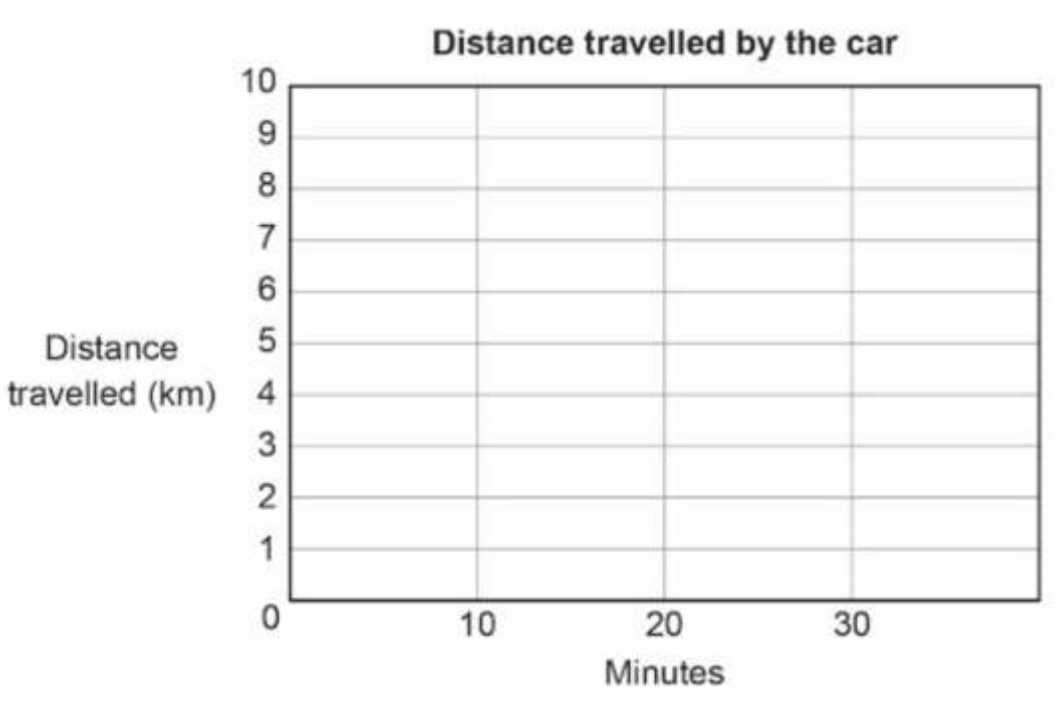
Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 13
Motion and Time

The table shows the distance travelled by a car in half an hour.

	0 – 10 mins	10 – 20 mins	20 – 30 mins
Distance travelled by the car	62 cm	58 cm	60 cm

SAS21S071301

1 Draw a line in the distance-time graph to show how the car travelled.



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SAS21S071302

2 What can be concluded about the car from the table?

A. It stopped moving after 30 minutes.
B. It had a uniform motion throughout the journey.
C. It travelled with increasing speed throughout the journey.
D. It travelled at the highest speed between 10 and 20 minutes.

SAS21S071303

3 What was the average speed of the car during its journey?

A. 3 km/h
B. 5 km/h
C. 10 km/h
D. 20 km/h

The timetable of a train is shown below.

Station	Arrival	Departure
New Delhi		06.45 AM
Meerut	08.03 AM	08.05 AM
Muzaffarnagar	08.45 AM	08.47 AM
Saharanpur	09.50 AM	09.55 AM
Roorkee	10.30 AM	

SAS21S071304

4 What is the total travel time of the train?

A. 3 hours 30 minutes
B. 3 hours 45 minutes
C. 4 hours 15 minutes
D. 4 hours 45 minutes

SAS21S071305

5 The distance between Meerut and Muzaffarnagar is about 60 km. Calculate the average speed of the train (km/h) while travelling between the two stations.

_____

_____

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SAS21S071306

6 The maximum speed of a car is 180 km/h. What is the maximum speed in m/s?

A. 20 m/s
B. 30 m/s
C. 50 m/s
D. 60 m/s

SAS21S071307

7 Which of these actions is an example of circular motion?

A. A child riding a see-saw
B. A child pumping air in a tyre
C. A player bowling a cricket ball
D. A player serving a tennis ball with racket

Three students start running from the starting point at the same time.
The picture shows the position of the students on the path after a minute.



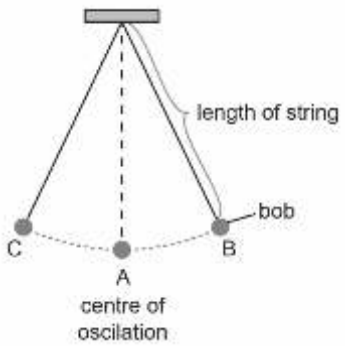
SAS21S071308

8 Which student ran the fastest? Explain your answer.

_____

_____

The diagram shows a pendulum in periodic motion.
The time period of a pendulum is the time taken by the bob to make one complete oscillation.



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SAS21S071309

9 What would be the movement of the bob for one complete oscillation of the pendulum?

A. C to B
B. C to A
C. B to C to A
D. B to C to B

The table shows the distance travelled by a car in half an hour.

	Pendulum 1	Pendulum 2	Pendulum 3	Pendulum 4
Time taken for 30 oscillations	48 s	54 s	45 s	52 s

SAS21S071310

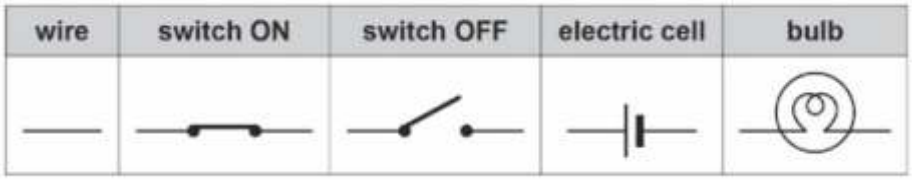
10 Which pendulum has the **shortest** time period?

A. Pendulum 1
B. Pendulum 2
C. Pendulum 3
D. Pendulum 4

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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 14
Electric Current and its Effects

The symbols for different components of an electric circuit are shown below.



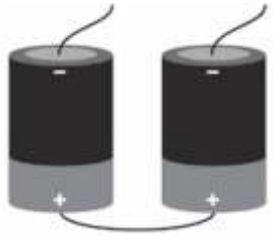
SAS21S071401

1 Draw an electric circuit with symbols that has the following conditions.

- Battery contains three electric cells.
- Switch is turned OFF.
- Two electric bulbs are in series.

SAS21S071402

2 Which of these is the correct arrangement of electric cells in a battery?

A. 

B. 

C. 

D. 

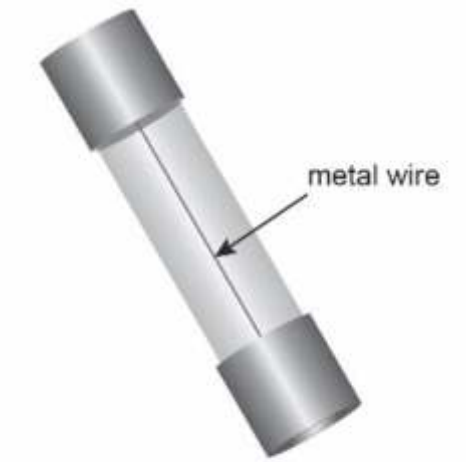
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SAS21S071403

3 Which of these devices work due to the heating effect of electric current?

A. Electric fan
B. Electric bell
C. Electric kettle
D. Electric torch

An electric fuse consists of a metal wire.
The wire breaks the electric circuit when the electricity load is too high.



Electric Fuse

SAS21S071404

4 What makes the wire break when the electricity load is too high?

A. It is made of metal.
B. It has a low melting point.
C. It is a good conductor of heat.
D. It is a good conductor of electricity.

SAS21S071405

5 Why does the filament of a bulb glow when connected to an electric circuit?

_____

_____

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SAS21S071406

6 Which of these can cause a fire in an electric circuit?
Circle 'Yes' or 'No' for the correct response.

Can this cause a fire in an electric circuit?	Yes or No
Use of multiple electric fuses	Yes/No
Flow of a very high electric current	Yes/No
Direct touching of two uncovered wires	Yes/No

SAS21S071407

7 Which of these labels on an electric device confirms standard quality?

A. 

B. 

C. 

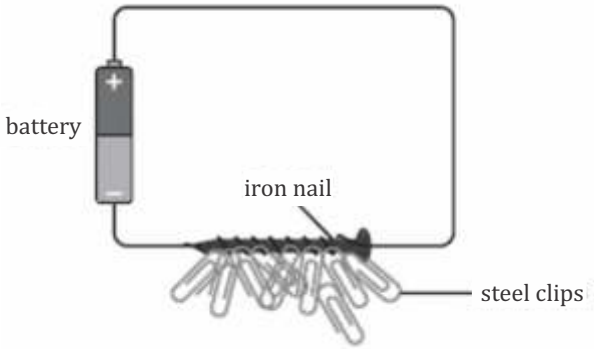
D. 

SAS21S071408

8 Which of these consumes the least electricity for producing the same amount of light?

A. CFL
B. LED
C. Filament bulb
D. Fluorescent tube

The picture shows steel clips being attracted to an iron nail in an electric circuit.



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SAS21S071409

9 Which effect of electric current attracts the steel clips to the iron nail?

_____

_____

SAS21S071410

10 In which of these devices is an electromagnet used?
Circle 'Yes' or 'No' for the correct response.

Is an electromagnet used in this device?	Yes or No
Electric fan	Yes/No
Electric bell	Yes/No
Electric heater	Yes/No

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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 15
Light

SAS21S071501

1 Which letter's image on a plane mirror will **not** be inverted sideways?

A. L
B. P
C. M
D. B

The picture shows a glass bowl.



SAS21S071502

2 What should be done to make the glass bowl act as a mirror?

A. Fill the bowl completely with water
B. Break the bowl into smaller pieces
C. Wrap the bowl fully with a plastic sheet
D. Cover the bowl's outer side with aluminium foil

SAS21S071503

3 Microscopes are used to view microorganisms.
What type of lens is used in a microscope?

_____

_____

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Seema dropped a water droplet on a newspaper.
She found that the letters are appearing larger through the droplet.



SAS21S071504

4 Why are the letters appearing larger through the droplet?

_____

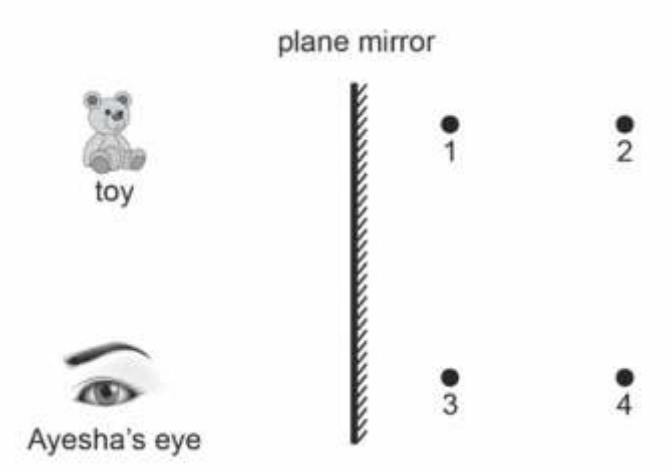
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SAS21S071505

5 Which of these is true about the image formed by a concave lens?

Is this true about the image formed?	Yes or No
It is real.	Yes/No
It is erect.	Yes/No
It is larger than the object.	Yes/No

Ayesha keeps a toy in front of a plane mirror.
She then looks at the mirror to see the image of the toy.



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SAS21S071506

6 At which point will the image of the toy be formed in the mirror?

A. Point 1
B. Point 2
C. Point 3
D. Point 4

SAS21S071507

7 What type of image is formed in the mirror?

A. Real and upright
B. Virtual and upright
C. Real and upside down
D. Virtual and upside down

Alice looks inside a round steel bowl very closely.
She sees her image on the inside of the bowl.



SAS21S071508

8 What type of image is formed inside the bowl?

A. Real and small
B. Virtual and small
C. Real and enlarged
D. Virtual and enlarged

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SAS21S071506

6 At which point will the image of the toy be formed in the mirror?

A. Point 1
B. Point 2
C. Point 3
D. Point 4

SAS21S071507

7 What type of image is formed in the mirror?

A. Real and upright
B. Virtual and upright
C. Real and upside down
D. Virtual and upside down

Alice looks inside a round steel bowl very closely.
She sees her image on the inside of the bowl.



SAS21S071508

8 What type of image is formed inside the bowl?

A. Real and small
B. Virtual and small
C. Real and enlarged
D. Virtual and enlarged

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Alice inverted the steel bowl and then looked at it closely.

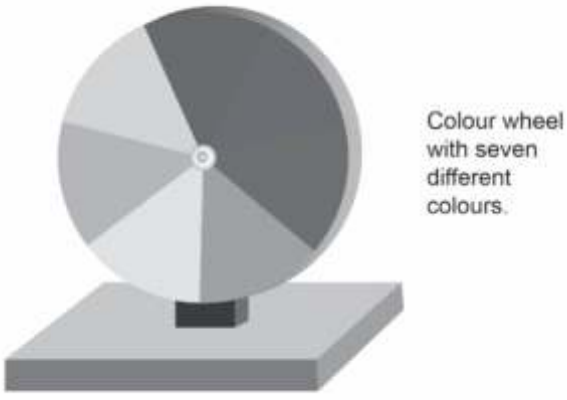


SAS21S071509

9 What will be the nature of her image formed?

A. Real and small
B. Virtual and small
C. Real and enlarged
D. Virtual and enlarged

Shreya spins a multicoloured wheel rapidly.



Colour wheel with seven different colours.

SAS21S071510

10 What colour will the rapidly spinning wheel appear to be?

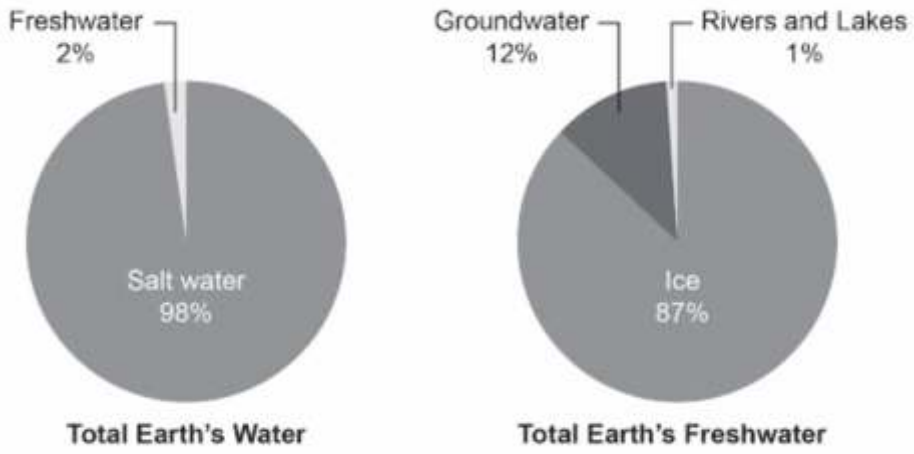
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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 16
Water: A Precious Resource

The charts show the different sources of water present on Earth.



SAS21S071601

1 What percentage of Earth's freshwater is present as ice?

A. 1%
B. 2 %
C. 12 %
D. 87 %

SAS21S071602

2 Which of these statements can be concluded from the charts?

A. About 12% of Earth's total water is freshwater
B. About 12% of Earth's total water is freshwater
C. About 2% of Earth's total water is present in rivers and lakes
D. About 98% of Earth's total water is present in oceans and seas

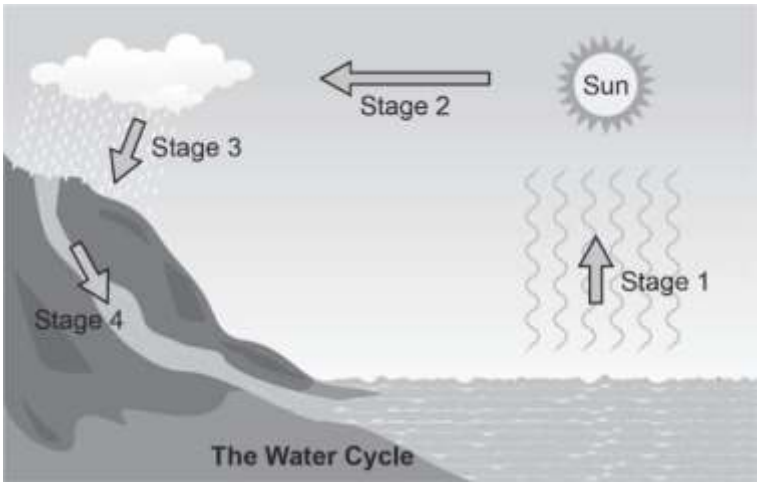
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SAS21S071603

3 Which of these will help to save water?

A. Use water hose to clean vehicles
B. Use running tap water to wash utensils
C. Use a high- flow shower head for bathing
D. Use water collected from washing clothes to flush toilets

The diagram shows the different stages of water cycle.



SAS21S071604

4 In which stage is water transformed from liquid to gas?

A. Stage 1
B. Stage 2
C. Stage 3
D. Stage 4

SAS21S071605

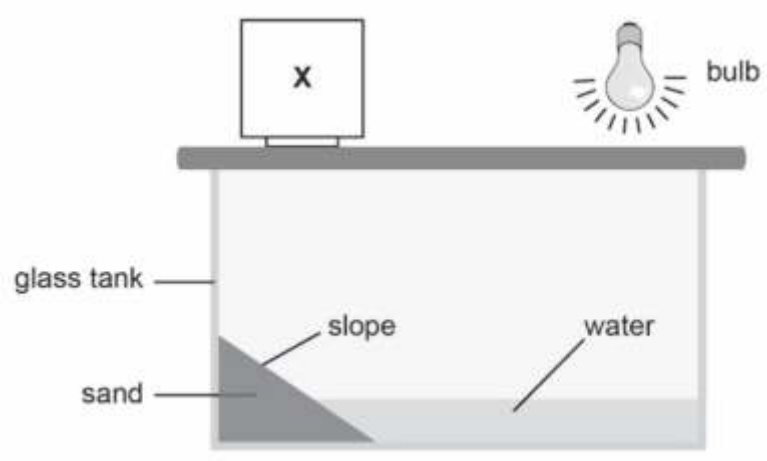
5 What is the source of energy for the water cycle?

_____

_____

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The picture shows a model of the water cycle.
X is an empty box.



SAS21S071606

6 What should be placed in box X to make the model work?

A. Ice cubes
B. Clay lumps
C. Electric bulb
D. Cotton plugs

The table shows the average annual rainfall received by four states.

	State 1	State 2	State 3	State 4
Average annual rainfall (cm)	278 cm	355 cm	64 cm	205 cm

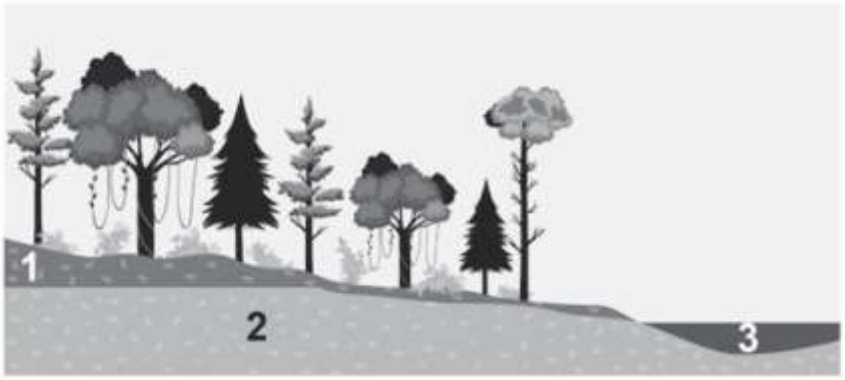
SAS21S071607

7 Which state needs to harvest rainwater the **most**?

A. State 1
B. State 2
C. State 3
D. State 4

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The diagram shows different levels of the Earth's surface.
1, 2 and 3 are the different levels.



SAS21S071608

8 Which level contains groundwater?

_____

_____

SAS21S071609

9 Why does groundwater contain less impurities than surface water?

_____

_____

SAS21S071610

10 What percentage of the Earth's surface is covered with water?

A. 25%
B. 50%
C. 70%
D. 90%

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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 17
Forests: Our Lifeline

The picture shows the different layers of a forest.



SAS21S071701

1 Which is the canopy layer of the forest?

A. Layer 1
B. Layer 2
C. Layer 3
D. Layer 4

SAS21S071702

2 In which layer of the forest are decomposers present?

A. Layer 1
B. Layer 2
C. Layer 3
D. Layer 4

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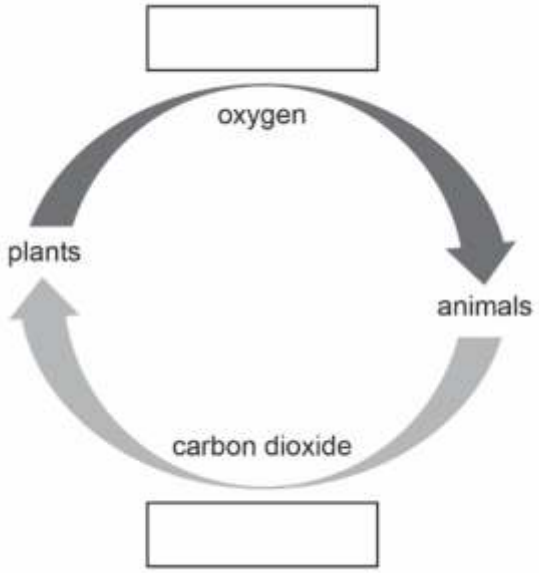
SAS21S071703

3 Which type of plant is found in layer 4 of the forest?

A. Herbs
B. Shrubs
C. Tall grass
D. Big trees

The picture shows how oxygen and carbon dioxide are balanced in a forest.
Fill in the empty boxes correctly using the following labels.

- photosynthesis
- respiration



SAS21S071704

4 The table lists some animals of a forest and what they eat.

Animal	What does it eat?
Frog	Grasshopper
Snake	Frog
Grasshopper	Grass

SAS21S071705

5 Complete the food chain with the animals listed in the table.



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SAS21S071706

6 How many carnivores are listed in the table?

A. One
B. Two
C. Three
D. Four

Sudha dumped vegetable waste in a pit in her garden.
She then added a layer of soil and covered the pit tightly.
The picture shows what Sudha found after a year.



SAS21S071707

7 What is the name of the dark substance formed at the bottom of the pit?

_____

_____

SAS21S071708

8 How can she use the dark substance **most** effectively?

A. Use it as fuel for cooking food
B. Mix it in water and use as ink
C. Use it to seal leakages in water pipes
D. Mix it with the garden soil to make it fertile

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SAS21S071709

9 Which of these is a forest product?

A. Salt
B. Honey
C. Wheat
D. Sponge

SAS21S071710

10 Which of these are the effects of deforestation?
Circle 'Yes' or 'No' for the correct response.

Is this an effect of deforestation?	Yes or No
Increase in the Earth's temperature	Yes / No
Decrease in the occurrence of floods	Yes / No
Increase in the oxygen level in atmosphere	Yes / No

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Curriculum Aligned Competency Based Test Items
Science
Class 7 – Chapter 18
Wastewater Story

SAS21S071801

1 What is wastewater released from homes commonly known as?

_____

_____

SAS21S071802

2 Which of these is a **safe** practice to find out if a water sample is polluted?
Circle 'Yes' or 'No' for the correct response.

Is this a safe practice?	Yes or No
Check for odour in the water sample	Yes/No
Check the taste of the water sample	Yes/No
Check the colour of the water sample	Yes/No

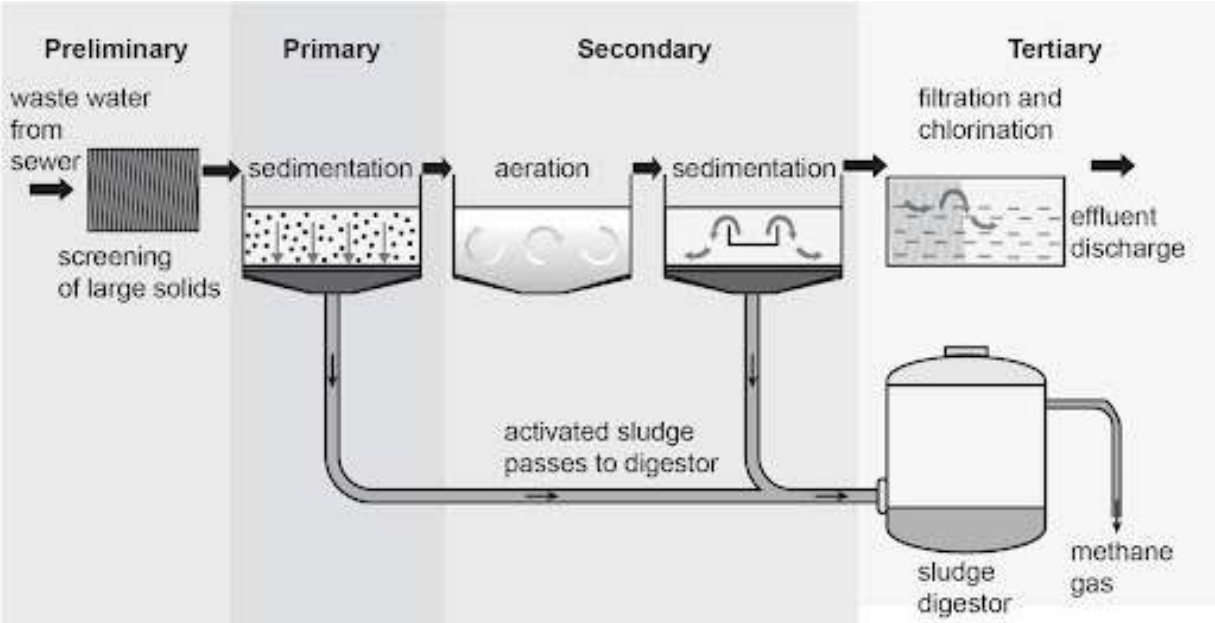
SAS21S071803

3 Why should we **not** use detergents while washing clothes in ponds and rivers?

A. Detergents contain chlorine
B. Detergents have an odour
C. Detergents contain phosphates
D. Detergents absorb dissolved oxygen

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The diagram shows a typical wastewater treatment process



SAS21S071804

4 What can be concluded about wastewater treatment process from the diagram?

A. Sedimentation occurs at the preliminary stage
B. Aeration of wastes occurs at the primary stage
C. Removal of solid substances occurs at the tertiary stage
D. Sedimentation occurs in both primary and secondary stages

SAS21S071805

5 What is the purpose of chlorination in the wastewater treatment process?

A. Removal of large solids
B. Killing of microorganisms
C. Addition of dissolved oxygen
D. Removal of suspended particles

SAS21S071806

6 What makes the residue from the sludge digestor suitable as organic manure?

_____

_____

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SAS21S071807

7 Which of these actions can cause water pollution?
Circle 'Yes' or 'No' for the correct response.

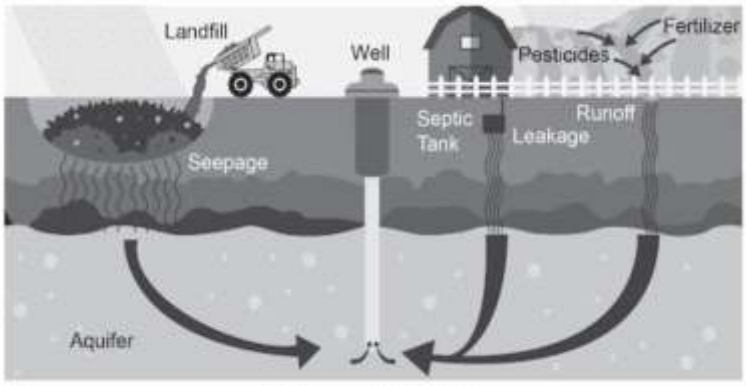
Will this cause water pollution?	Yes or No
Dumping of car battery in drains	Yes/No
Catching fish from rivers	Yes/No
Swimming in ponds and lakes	Yes/No

SAS21S071808

8 Which of these diseases can be caused by polluted water?

A. AIDS
B. Cancer
C. Cholera
D. Influenza

The picture shows how human activities can pollute groundwater An aquifer is a huge reservoir of groundwater.



Groundwater Pollution

SAS21S071809

9 Which of these measures can **reduce** groundwater pollution?

A. Keep all wells covered
B. Construct large septic tanks
C. Grow crops in farms away from water bodies
D. Make sure that landfill wastes do not contain toxic substances

SAS21S071810

10 How does defecating in the open cause groundwater pollution?

_____

_____

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