



Dr. Bbosa Science

Sponsored by
The Science Foundation College
Uganda East Africa
Senior one to senior six

+256 778 633682 0753 143413

Based on, Best for Science

digitalteachers.co.ug



Nuture your dreams

P4 term 2

THEME: Human body

Topic 4/4: Sanitation



Sanitation is the process of keeping places around the house, schools and work places clean and healthy to prevent diseases caused by contact with human waste and dirty environment

Importance of sanitation

- (i) prevents spread of diseases
- (ii) makes home, school, organization look clean and attractive

- (iii) prevents bad smell
- (iv) prevents contamination of water sources
- (v) prevents contamination of food

Ways of promoting sanitation

- (i) sweeping compound
- (ii) mopping, houses, offices, kitchen, bedrooms
- (iii) cleaning and disinfecting latrine
- (iv) burning/control rubbish
- (v) Proper disposal of wastes
- (vi) Cleaning utensils

Exercise 1

- (a) State two roles of sanitation
- (b) List two ways of promoting sanitation

The following equipment can be used to keep the environment clean



Brooms



Rake



Cleaning rags



Dust pan

Things used for cleaning

- (i) Brooms
- (ii) Water
- (iii) Soap
- (iv) Slasher

- (v) Disinfectants
- (vi) Brush
- (vii) Brooms/twigs
- (viii) dust pan
- (ix) cleaning rug
- (x) rake

Exercise 2

List two cleaning materials

Latrines

They are two type latrine

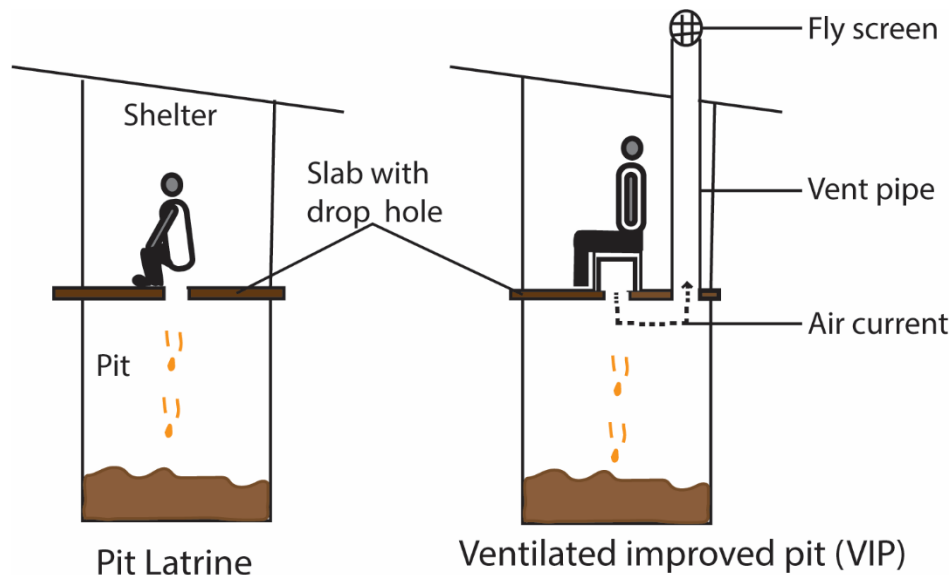
Pit latrine

A **pit latrine**, also known as **pit toilet** or **long drop**, is a type of toilet that collects human feces in a hole in the ground. Urine and feces enter the pit through a drop hole in the floor, which might be connected to a toilet seat or squatting pan for user comfort. Pit latrines can be built to function without water (dry toilet) or they can have a water seal (pour-flush pit latrine).

When properly built and maintained, pit latrines can decrease the spread of disease by reducing the amount of human feces in the environment from open defecation.

This decreases the transfer of pathogens (disease causing organisms) between feces and food by flies. These pathogens are major causes of infectious diarrhea and intestinal worm infections.

The World Health Organization recommends the pits are built a reasonable distance (about 10m Or 32 feet) from the house, balancing issues of easy access versus that of smell.



VIP latrine

In addition to the pit, VIP latrine has a vent pipe.

The vent pipe should have an internal diameter of at least 110 mm and reach more than 300 mm above the highest point of the toilet superstructure. Wind passing over the top creates a suction pressure within the vent pipe and induces an air circulation. Air is drawn through the user interface into the pit, moves up carrying flies inside the vent pipe and escapes into the atmosphere.

The flies are trapped inside the vent pipes by a fly trap.

The drop hole of a VIP latrine should not be covered to enable air circulation.

Caring for latrines

- Cemented latrines should be kept clean by mopping with soap water and brush and then disinfecting to reduce germs and bad smell while Mud latrine should be smoked instead.
- Pit latrine should be covered to prevent houflies from carrying germs from the pit to the food.

- Pit latrine should be smoked to remove bad smell
- VIP latrines should not be covered to allow air circulation and flies to be trapped in the vent.

Exercise 3

List two ways of caring for latrines

Water

Safe water is one of the most essential commodity in a home, school and place of water.

Uses of water

- (i) Drinking
- (ii) Washing hands and clothes
- (iii) Agricultures
- (iv) Mopping
- (v) Industry

Water quality

The quality of water required depends on what it will be used for. Drinking water must be clean and safe to drink and protected from any contamination by pathogens or other pollutants. The primary concern must be to prevent the transmission of waterborne diseases. For other water uses such as for domestic washing or for agricultural or industrial uses, the quality is less critical.

Generally the quality of potable or water for drinking should

1. **not be contaminated**
2. **Mineral rich.** The natural occurring minerals in the source water are not removed through purification processes, such as reverse osmosis and distillation.
3. **Have alkaline pH (7-9.5);** showing that the water contains a healthy level of alkaline minerals such as calcium and magnesium.
4. **Have a good taste.**

Exercise 4

Suggest two qualities of drinking water

Sources of water

1. Tap water

Tap water is relatively safe treated water from sea, lakes or rivers

2. Rain water

Rainwater is also an important source of water, although on a relatively small scale due limited harvesting capacity such as availability of water tanks and its unreliability. Collecting rain from roofs or other hard-surfaced areas and storing it until it is needed can provide a valuable source of water for many purposes.

Rainwater has several advantages. It is free, relatively clean and usually reliable, even if it rains only once or twice a year, and a rainwater harvesting system can be easily constructed and maintained at low cost. However, it may be polluted by bird's dropping.

3. Spring and wells

Springs and wells are important sources of water for many families in rural areas. They should protected from contamination by domestic animals, from feces and dung.

Spring water and wells should be protected from contamination in the following ways:

- The water source is fully enclosed or capped and no surface water can run directly into it.
- People do not step into the water while collecting it.
- Latrines, solid waste pits, animal excreta and other sources of pollution are located as far away as possible from the water source and on ground lower in elevation than the water source.
- There is no stagnant water within 5 metres of the water source.
- The water collection buckets or hand pump at the source are kept clean.

4. Lakes and rivers

Lake and rive water may be contaminated with excreta

5. Bore hole

These have to be deep enough to extend below the water table so that water can be drawn up by bucket or by pumping.

Characteristic of water from borehole

- It likely to be free from pathogenic bacteria
- Often has a high mineral content

Exercise 5

- (a) Name two natural sources of water
- (b) Name artificial sources of water

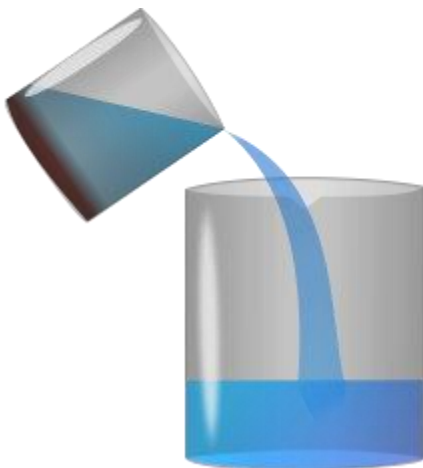
Methods of water treatment

Dirty water is made clean and safe by

1. Boiling
2. Decanting

Decantation is a process for the separation of mixtures of immiscible liquids or of a liquid and a solid mixture such as a suspension.

Dirty Water is placed in a container and time allowed for the solid particles to settle at the bottom of the container and then a clear liquid poured off gently so as not to disturb the sediment.



3. Distillation

Here dirty water is heated to the boiling point. It evaporates into steam. Steam is cooled to form pure water. Distilled water is not fit for drinking because it does not contain minerals like calcium and magnesium.

4. Filtration

This is a process used to separate solids from liquids or gases using a filter medium that allows the fluid to pass through but not the solid.

A simple filtration system that can be used in rural areas is shown below



Water obtained by the above filtration system may not be fit for drinking because filtration does not remove bacteria.

Exercise 6

(a) Name methods of purification of water

Water borne diseases

Waterborne diseases are conditions caused by pathogenic micro-organisms that are transmitted in water. These diseases can be spread while bathing, washing, drinking water, or by eating food exposed to contaminated water. They include

2. Typhoid

Symptoms include:

- A fever that increases gradually
- Muscle aches
- Fatigue
- Sweating
- Diarrhea or constipation

3. Cholera

Symptoms include:

- Nausea
- Vomiting
- Diarrhea
- Muscle cramps

4. Dysentery

Symptoms include:

- Stomach cramps and pain
- Diarrhea
- Fever
- Nausea
- Vomiting
- Dehydration

5. Bilharzia

Bilharzia, or “snail fever,” is a disease caused by a parasitic worm or river fluke genus Schistosoma

It is transmitted by water snail

Symptoms of bilharzia include

- fever
- headache
- breathing difficulties
- blood in the feces
- intestinal ulcers
- blood in the urine
- painful urination

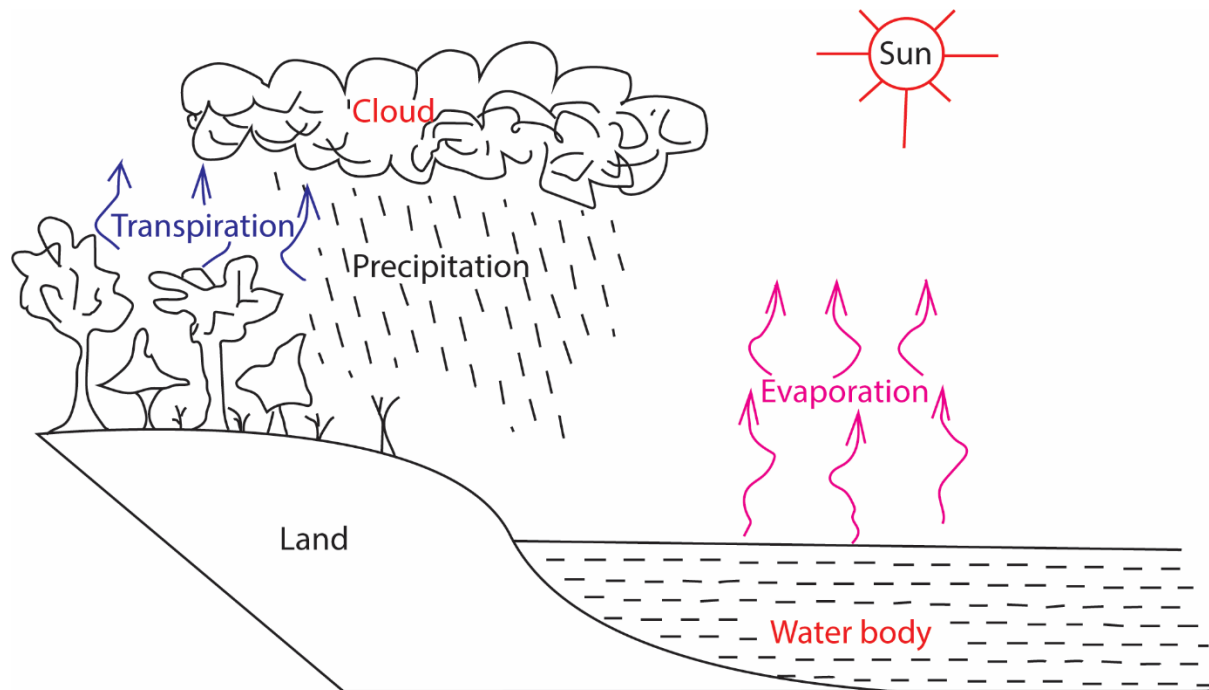
Exercise 7

(a) Give two examples of water borne diseases

Water cycle

The **water cycle** is the path that all water follows as it moves around our planet.

Of the many processes involved in the water cycle, the most important are evaporation, transpiration, condensation, precipitation, **and** runoff.



Evaporation is the change of a liquid into vapour below its boiling point.

Transpiration is the loss of water vapour from the plant through the stomata.

Condensation is process by which water vapor turns into a liquid.

Precipitation is any liquid or frozen water that forms in the atmosphere and falls back to the Earth in form of rain.

Runoff, is the waters that travel over the land surface and through channels to reach a stream.

Exercise 8

Name any 3 processes of a water cycle.

Water pollution

This is the release of substances into poisonous and pathogens into water bodies lakes, rivers and ocean that interfere with beneficial use of the water or with the natural functioning of ecosystems.

Sources of water pollutants

1. industries
2. sewage

Germs

Germs are microscopic organisms that cause diseases/sickness.

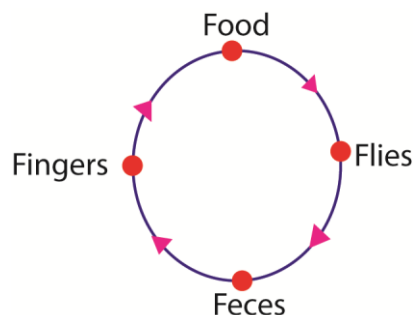
They include

- (i) **Viruses** cause diseases like flue, HIV, Polio, Covid -19
- (ii) Bacteria cause diseases for example cough, diarrhea, cholera, tetanus, trachoma
- (iii) Protozoa cause malaria, sleeping sickness,
- (iv) Fungi cause diseases like ringworm, and candida

How diseases are spread

- (i) Through air for example flue, measles
- (ii) By vectors for example trachoma by house fly, malaria parasites by mosquito.
- (iii) Through contaminated food for example dysentery
- (iv) Through sex for example HIV, Gonorrhoea, syphilis.
- (v) By contact with infected people for example scabies, leprosy
- (vi) From infected animals for example rabies, bird flue

The 4Fs germ path



How germs cause rotting

- They release enzymes that decompose/breakdown tissues.

How to prevent spread of germs

- Cleanness and sanitation
- Eating hot well boiled food
- Proper disposal of wastes
- Drinking boiled water
- Always cover stored food
- Wash hands after the toilets
- Sleeping under mosquito nets
- Destroying habitats of vectors like stagnant water, rubbish pit/heap

Exercise 9

- What is a germ
- Name two ways by which germs spread
- Name one way of controlling the spread of germs

Revision Questions

- (a) Give one way in which primary health care (PHC) is important to a community.

Promotes sanitization

Promotes immunization

- (b) State the elements of primary Health Care which is promoted by each of the following activities:

- Sweeping the kitchen.

Sanitation

- Putting drops of polio vaccine into the mouth of a child.

Immunization

- Eating a balanced diet.

Nutrition

2. State any one principle of Primary Health care

Promotes sanitization

What is the recommended minimum distance between a drinking water and VIP latrine?

10 – 15 ft

3. How does a vent help to reduce smell in a VIP latrine?

Allows the air to flow through taking bad smell with it outside

4. (a) What is water pollution?

Adding substance to water which makes unsafe for drinking and inability to support life.

(b) Suggest any two ways in which a community can improve on water source.

(i) fence it to prevent stray animals from contaminating it

(ii) Digging around the water source

(c) Why is borehole water safer to drink than well water?

The borehole water is not exposed like a well's water

5. Why is it important to bathe with soap?

It removes dirt

It kills germs

6. As a pupil in a school, you are of the school health committee. What do you expect to do to make health improve in the school?

- **Regular cleaning and maintaining the latrine.**
- **regular checkup of hygiene**
- **proper disposal of waster**
- **mopping classes**
- **regular cleaning of compound**

7. Give any one reason why a latrine should be 10 metres away from the living house.

To prevent flies from carrying germs to the house

8. Give any one proper way of disposing off rubbish in a home.

Burning rubbish

Use a dust bin

9. Health Committee members in your school visited an old man's home and found out that **home did not have the main requirement for proper sanitation.**

Suggest any four activities that should carry out to ensure proper sanitation in the old man`s home.

- (a) Mop the house
- (b) Wash plate
- (c) Sweep around the house
- (d) Boil drinking water
- (e) Dig a pit latrine 30m from the house
- (f) Iron the clothes

10. What good health habit should be practiced after visiting a latrine or toilet?

Wash hands with soap and water

11. Why is a Ventilated Improved Pit latrine left without a cover?

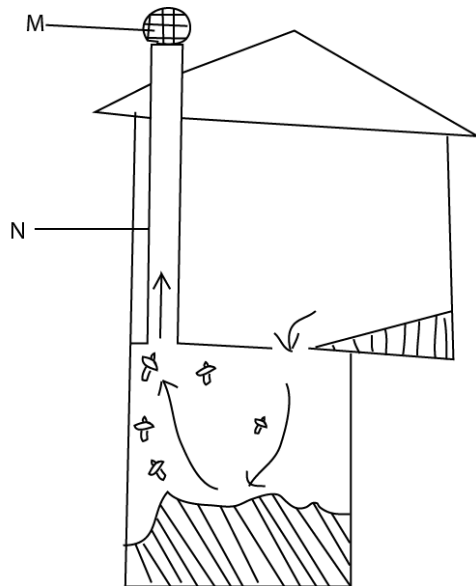
To allow free flow of air through the system

12. State any one way in which health parades are important in primary schools.

- (a) Educate the pupils about their body
- (b) Sensitize the pupils for cleanness
- (c) Educate the pupils how to avoid diseases.

The diagram below is of a ventilated improved Pit (VIP) latrine.

Use it to answer the question that follow.



(a) Name the parts marked m and n

(i) **M flies screen (wire gauze)**

(ii) **N Vent pipe**

(b) Give the function of the part marked **M**

Prevent flies from escaping from the latrine

(c) What do the arrows in the diagram show?

Direction of air through the latrine

13. State any one health reason why the building of industries should be limited in an area.

To prevent pollution in residential areas that would cause suffocation.

Reduce noise in residential area that may affect the ear drum

14. How does boiling of water help in the control of typhoid.

It kills typhoid germs

15. How are green plants important in the water cycle?

Produce water vapour through transpiration, the vapour condense to form rain

16. Write one reason why people working in dirty areas should wear gumboots.

To prevent cuts to the legs

The prevent entry of germs

To prevent acquisition of worms

17. The diagram below shows a method of making water clean.

Use it to answer the question that follows.



Name the method used above: **filtration**

18. Why should communities fence open spring wells?

To prevent contamination by animals

19. (a) Write two activities that help to promote good sanitation in a home

- **proper disposal of rubbish**
- **regular cleaning of toilets and latrines**
- **maintaining cleanness of a house**

(b) Name two diseases that may attack a family due to poor sanitation.

Cholera

Dysentery

Typhoid

Diarrhea

Worms

20. The table below shows information collected from five homes healthy survey. Study it to answer the questions that follow

Homes				
	Latrine	Rubbish pit	Bathing shelter	Drying rack
A	x	x	√	x
B	√	√	√	√
C	x	√	√	√
C	x	x	x	√
E	x	√	√	x

Key

x = Item missing

√ = item present

(a) Which home has all the sanitation items?

B

(b) Identify the sanitation items absent in all homes surveyed?

Latrine

21. Give any one way in which proper disposal of wastes is important in our environment.

Prevents spread of infections

22. (a) State two causes of diarrhea.

Eating contaminated food

Eating food without washing hands

Drinking contaminated water

(b) How can diarrhea be prevented?

- **Washing hands before eating food**
- **Washing fruits before eating**
- **Covering food properly**
- **By giving a patient with diarrhea plenty of fluids.**

(c) Why are people encouraged to drink boiled water?

It does not contain germs

23. Why should a pit latrine be smocked from time to time?

To remove bad smell and kill flies that spread germs

24. Bbosa shares his house with goats. State the disadvantage of this practice.

The goat may spread disease to the family

The goat competes for oxygen with the family

Let out bad air

25. Why is it not necessary for a VIP latrine to have a lid for the hole?

To allow air flow freely through the latrine.

26. Why is it not good to pour paraffin into a pit latrine?

It suffocates maggots that decompose feces.

27. (a) State two factors which should be taken into account when selecting site for building a house.

Be ear water source

Be near social service

There should be good drainage

It should be accessible by road

(a) How does a well-built house contribute to the health of a family?

- **Has enough room to accommodate members to reduce spread of infectious disease**
- **Is well ventilated to allow in good air and let out bad air**

- **It is protected from vectors to prevent spread of diseases.**
28. Why should a pit latrine be covered?
- To reduce bad smell**
 - To prevent house flies from carrying germs to food**
29. What is the use of a dustbin in a home?
- To dispose of rubbish.**
30. What happen when an industry releases a lot of smokes to the atmosphere?
- Pollutes air**
 - Lead to acid rain**
31. Explain why a borehole water safe to drink.
- It is not easily contaminated because it is not exposed**
32. Explain one way of keeping food safe and clean.
- By covering it**
 - By keeping in refrigerator.**
33. Why do you wash your hands before eating?
- To remove germs**
34. Name the difference between pit latrine and VIP latrine.
- VIP latrine has a vent pipe latrine lacks a vent pipe.**
35. Mention one reason why drinking water should be boiled
- To kill germs**
36. Mention one of the service of public Health Care (PHC)
- Sanitation**
 - Immunization**
 - Family planning**
 - Provision of essential drugs**
 - Personal hygiene.**
37. Why should we bathe daily?
- To remove germs from our bodies**
 - To remove bad odor.**
 - To prevent skin infections**
38. (a) State two conditions that are likely to a family ill?
- (i) poor sanitation in a home**
 - (ii) eating contaminated food**
 - (iii) Poor Family hygiene**
- (b) Mention two diseases that people who live in unhealthy conditions can suffer from.
- (i) cholera**
 - (ii) typhoid**
 - (iii) dysentery**

39. What is the importance of keeping clothes clean?

To prevent diseases like cholera

To prevent infestation of lice

40. (a) Name one practice which increases the spread of bilharzia.

Swimming

Urinate in water

Defecate in water

(b) Which vector is important in the spread of bilharzia.

snail

(c) Give any two ways of preventing the spread of bilharzia.

Avoid swimming in river and ponds

Proper disposal of wastes

Treatment of infected persons

Clearing stagnant water

41. (a) Write two activities that help to promote good sanitation in a home

- proper disposal of rubbish

- regular cleaning of toilets and latrines

- maintaining cleanness of a house

(b) Name two diseases that may attack a family due to poor sanitation.

Cholera

Dysentery

Typhoid

Diarrhea

Worms

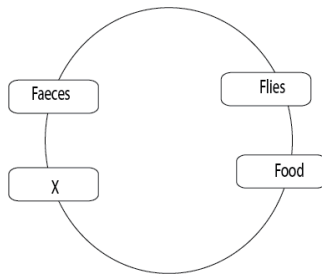
42. Give one item used for cleaning hands after visiting a latrine or toilet.

- Water

- Soap

The diagram below shows how disease can be spread through the 4Fs

Use it to answer question 42.



43. (a) Give the word which should be in the box marked X

Finger

(b) Name two activities which can be done to avoid the spread of diseases through food.

- (i) covering food**
- (ii) boiling**
- (iii) washing hand before handling food**
- (iv) cooking**
- (v) washing fruits before eating them**

(c) What structure on the body of fly makes it spread diseases?

Hair on its body

44. (a) State one primary health care activity children can do to help their mothers when cooking.

Sweeping kitchen, washing utensils, fetching water, drying containers, whipping utensils

(b) Write down three health care activities that can be provided to the elderly in our homes.

- | | | |
|-----------------------------|-----------------------------------|------------------------------|
| (i) Bathing him/her | (ii) cutting finger nail | (iii) cleaning room |
| (iv) washing clothes | (v) feeding them | (vi) giving treatment |
| (vii) beddings | (viii) cleaning their room | (ix) iron |

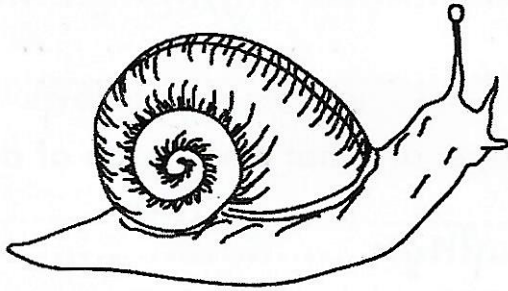
45. State any one method used to make dirty water clean.

- **Filtration**
- **Distillation**
- **Decanting**

46. Give any one effect of poor disposal of human wastes in the environment.

Spreads diseases like cholera

The diagram below is of a common animal. Use it to answer question 47



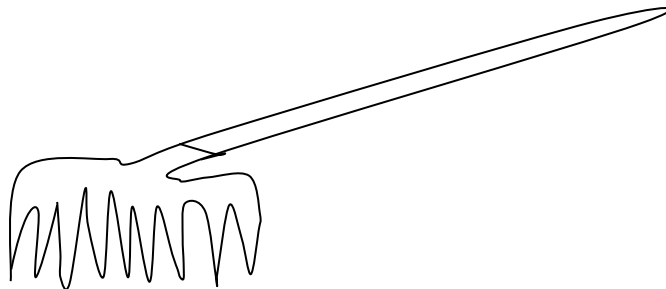
47. Which disease does the above animal spread humans?

Bilharzia or schistosomiasis

Symptoms of bilharzia

Fever, Abdominal pain (liver/spleen area), Bloody diarrhea or blood in the stools, Cough, Malaise; Headache, Rash, Body aches

The diagram below shows a garden tool. Use it to answer questions 48 and 49



48. Name the garden tool above.

Rake

49. How is the garden tool above important to farmers?

For collecting rubbish

For levelling soil in a nursery bed

50. Why is it a devisable to leave the pit of a VIP latrine open?

To allow fresh air drives out bad smell

To allow flies to enter

51. (a) Name any two water –borne diseases

Polio, cholera, dysentery, hepatitis A, dysentery, typhoid, bilharzia

(b) In which two ways can water –borne diseases be preventing in the community?

(i) by boiling water for drinking

(ii) by proper disposal of wastes

(iii) by proper hygiene

52. (a) Give two ways in which Primary Heathy care (PHC) is an important program in the community

- Controls population growth
- Helps prevent malnutrition in babies
- Promotes safe water and sanitation
- Ensure care for the disadvantaged

(b) State any two roles of school healthy committee.

- -organizes pupils to clean the environment
- conducts health parades
- identify and finds a solution to healthy problem

53. Why is water obtained by distillation method not good for drinking?

Lacks useful ions such as calcium for strengthening bones.

54. Give any one way in which a VIP latrine is different from an ordinary pit latrine.

A VIP latrine has - a screen which traps flies

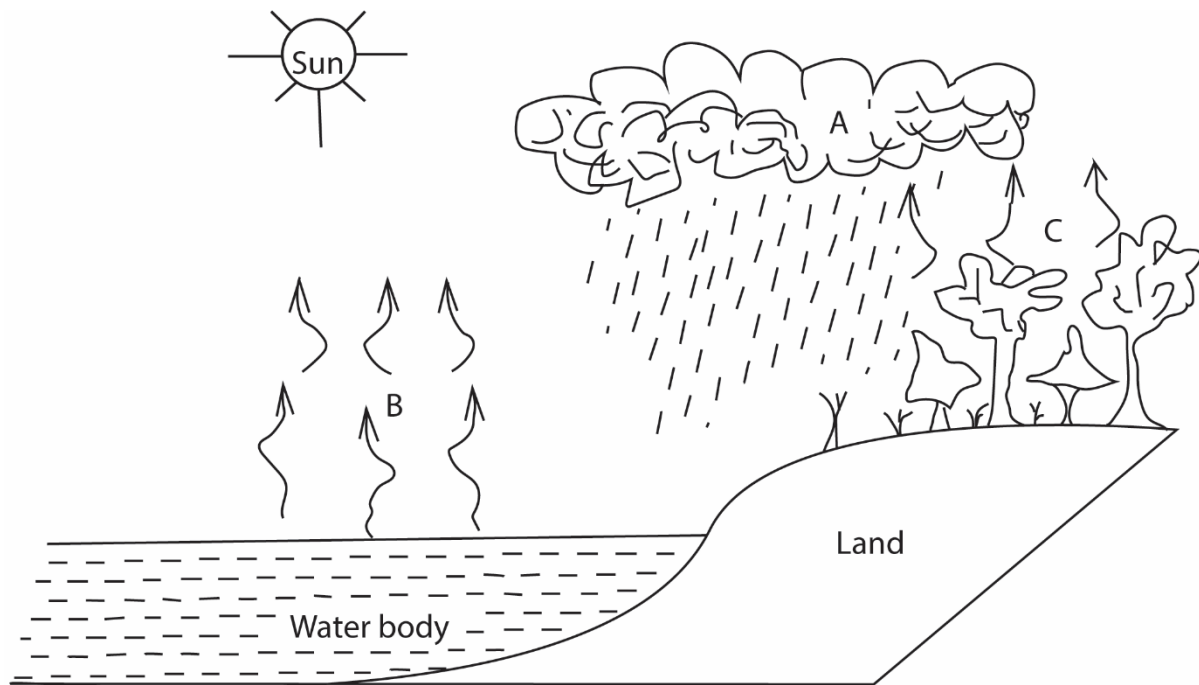
- vent pipe

- no lid

55. Give one way in which bacteria in pit latrine are useful

They decompose feces

The diagram below shows the water cycle. Study and use it to answer the questions that follow.



(a) Name the type of cloud represented by letter A

Nimbus cloud

(b) State the processes taking place at B and C

(i) **B: evaporation**

(ii) **C: Transpiration**

(c) What is the importance of sun in the above diagram?

Sun provides heat for evaporation and transpiration

56. Most of our problems can be solved without use drugs. Suggest any four ways in which this can be done.

- **Maintaining proper hygiene**
- **Feeding on balanced food**

- Regular exercises
- Keeping proper sanitation

Thank You

Dr. Bbosa Science