



Primary 7 Integrated Science

Term 2

Theme: Human Body

Topic 2/3 – Excretory System

Learning Outcomes: The learner:

- appreciates the importance of the excretory system to people.
- acquires the necessary scientific knowledge, principles and skills for maintaining the efficiency of the system.

Excretion

This is the removal of metabolic waste products from the body

Example of excretory product

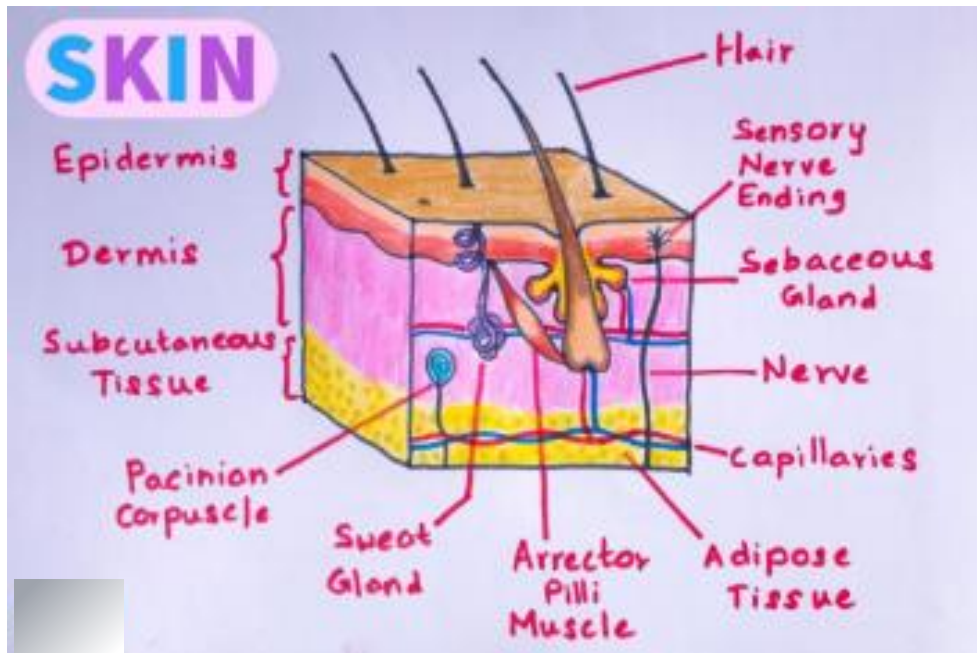
1. Carbon dioxide
2. Ammonium excretory product (ammonia, urea and uric acid)

Table of excretory organs and their excretory product

Excretory organ	Products of excretion
Lungs	Carbon dioxide
Skin	Urea, ammonia
Kidney	Urea, ammonia and uric acid

Exercise 1

Giving one example each of excretory product list any three excretory organs.



Functions of the Skin

- (i) **Protection** – The skin covers the body and protects internal organs from injury, germs, and harmful substances.
- (ii) **Excretion** – Through sweat glands, the skin removes waste products like water, salts, and small amounts of urea.
- (iii) **Temperature control** – Sweating and blood vessels in the skin help keep the body cool or warm.
- (iv) **Sensation** – The skin has nerve endings that allow us to feel touch, pain, heat, and cold.
- (v) **Vitamin D production** – When exposed to sunlight, the skin helps the body make vitamin D, which strengthens bones.
- (vi) **Waterproofing** – The skin prevents too much water from entering or leaving the body.
- (vii) **Storage** – It stores fat and water, which provide energy and help cushion the body.

Common Skin Diseases



Acne

Ringworm

Athlete's foot

Scabies

Sunburn

Boil

- (i) **Acne** – Small pimples or spots caused when oil blocks the skin pores.
- (ii) **Eczema** – Red, itchy, and dry patches of skin.
- (iii) **Ringworm** – A fungal infection that causes round, itchy patches on the skin.
- (iv) **Athlete's Foot** – A fungal infection that affects the skin between the toes.
- (v) **Scabies** – Caused by tiny mites that burrow into the skin, leading to itching and rashes.

- (vi) **Boils** – Painful lumps filled with pus caused by bacterial infection.
- (vii) **Sunburn** – Red and painful skin caused by too much exposure to the sun.

How to Care for the Skin

- (i) **Keep the skin clean** – Wash regularly with clean water and mild soap to remove dirt, sweat, and germs.
- (ii) **Bathe daily** – Bathing helps prevent bad smell and skin diseases.
- (iii) **Eat a balanced diet** – Foods rich in vitamins (like fruits and vegetables) keep the skin healthy.
- (iv) **Drink enough water** – Water keeps the skin fresh and prevents dryness.
- (v) **Avoid too much sun** – Protect the skin from strong sunlight to prevent sunburn.
- (vi) **Wear clean clothes** – Dirty clothes can carry germs that cause skin infections.
- (vii) **Do not share personal items** – Towels, razors, and clothes should not be shared to avoid spreading skin diseases.
- (viii) **Treat wounds properly** – Clean and cover cuts or scratches to prevent infection.
- (ix) **Avoid harmful substances** – Stay away from harsh chemicals or strong soaps that can damage the skin.

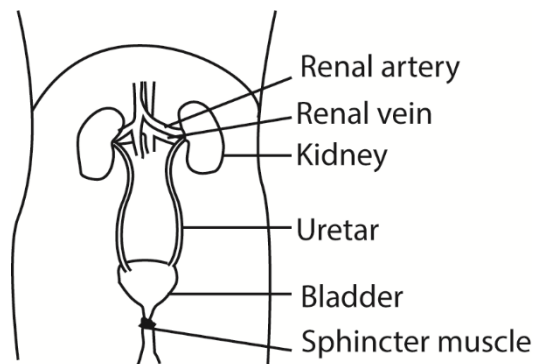
Exercise 2

- (a) State any two functions of human skin
- (b) Give any two diseases of the skin
- (c) Suggest any two ways of caring for the skin

The kidney

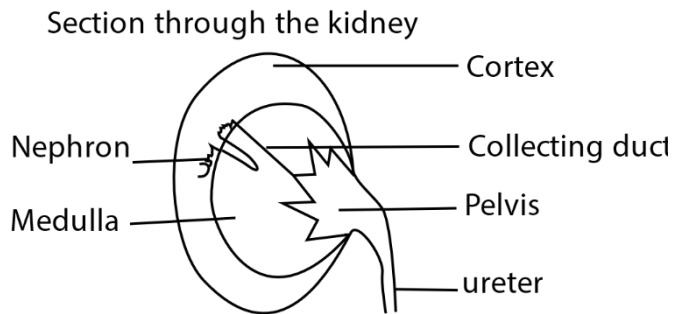
This is an excretory organ of the body

Kidneys are situated in the abdominal cavity. They are two dark red bean shaped organ on each side of the abdomen.



Functions of the kidney

- (i) Filter blood
- (ii) The remove nitrogenous wastes (urea, ammonia and uric acid) from the body in form of urine
- (iii) They regulate water in the body



Function of other parts of urinary system

- (i) Ureter carries urine from the kidney to bladder
- (ii) Bladder temporarily stores urine before passed out of the body
- (iii) Sphincter releases urine from the bladder

Exercise 3

- (a) Name any two parts of human urinary system.
- (b) Give one function of each of the parts in (a)

Diseases and disorders of the Urinary system

- (i) Bilharzia
- (ii) Kidney failure
- (iii) Kidney stone
- (iv) Kidney cancer
- (v) Enlarged prostate
- (vi) Infections

Signs and symptoms of urinary system

- (i) Frequency of urination
- (ii) Difficult in passing urine
- (iii) Fever

Good habit of promoting urinary system health

- Eat balanced diet
- Avoid smoking
- Drink a lot of water each day
- Regular exercise
- Avoid excessive consumption of alcohol

Natural Environmental Systems similar to excretory system

- (i) **Rivers** – Carry away waste and dirt from land into lakes and oceans, just like kidneys remove waste from blood.
- (ii) **Trees and Plants** – Take in carbon dioxide and release oxygen, similar to how lungs remove carbon dioxide from the body.
- (iii) **Rainfall** – Washes away dust and dirt from the air and land, like sweat glands remove waste and cool the body.
- (iv) **Soil** – Filters dirty water as it passes through, just like kidneys filter blood.
- (v) **Wind** – Blows away smoke and bad air, similar to how lungs expel waste gases.

Man-Made Systems similar to excretory system

- (i) **Artificial kidney** – cleans blood just like the nature kidney
- (ii) **Water Treatment Plants** – Clean dirty water, just as kidneys clean blood.
- (iii) **Sewage Systems** – Carry away human waste, like the urinary system removes urine.
- (iv) **Chimneys** – Release smoke and gases from factories, similar to lungs removing carbon dioxide.
- (v) **Air Conditioners/Fans** – Control temperature, just like the skin regulates body heat through sweating.

Exercise 4

Name one natural system and one artificial system that works like excretory system and explain how?

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Revision questions

1. (a) Name materials excreted by the lungs in human
Carbon dioxide
- (b) State one way through which shivering helps to regulate body temperature.
Generates heat when the body feels cold
- (c) Explain how each of the following practices help in caring for the skin:
 - (i) Wearing clean loose clothes
Prevent spread of diseases
Prevents bad odor.
 - (ii) Smearing with Vaseline
Prevents drying of the skin
2. Name the excretory organ that removes water and carbon dioxide from human body.
Lungs
3. State any **one** way in which the spread of tuberculosis can be controlled.
 - (i) **Early treatment** – People with TB should go to hospital and take medicine regularly until they are cured.
 - (ii) **Covering the mouth and nose** – When coughing or sneezing, use a handkerchief or tissue to stop germs from spreading.
 - (iii) **Good ventilation** – Keep windows open so fresh air can flow, because TB germs spread easily in crowded, closed places.
 - (iv) **Avoid overcrowding** – Living in crowded rooms makes it easier for TB to spread.
 - (v) **BCG vaccination** – Children should be immunized with the BCG vaccine to protect them from TB.
 - (vi) **Healthy living** – Eating a balanced diet and resting well helps the body fight diseases.
 - (vii) **Regular check-ups** – People who live with TB patients should be tested to make sure they are safe.
4. Name any excretory product by the lungs
Carbon dioxide
5. State one way of controlling ringworm among children
 - (i) **Keep the body clean** – Children should bathe daily with clean water and soap.
 - (ii) **Wear clean clothes** – Clothes should be washed and dried properly to avoid fungal growth.
 - (iii) **Do not share personal items** – Towels, combs, hats, and clothes should not be shared because ringworm spreads easily.
 - (iv) **Keep the environment clean** – Bedding, mats, and classrooms should be kept clean and dry.
 - (v) **Treat infected children quickly** – Children with ringworm should be taken to a health center for treatment.
 - (vi) **Avoid playing with infected animals** – Ringworm can spread from pets like cats and dogs, so children should avoid sick animals.

- (vii) **Educate children** – Teach them about the importance of hygiene and not scratching or touching infected areas.
6. (a) Name the outermost layer of the human skin
Epidermis
- (b) State any one waste product removed by the skin
Urea
- (c) Apart from removing waste, mention two other functions of the skin.
- (i) **Protects the body from dangers**
- (ii) **Reduce water loss from the body**
- (iii) **Stores fats**
- (iv) **Control body temperature**
- (v) **Produce Vitamin D**
7. Name the organ that regulates body temperature.
Skin
8. One way of caring for the lungs.
- (i) **Avoid smoking** – Smoke damages the lungs and makes breathing difficult.
- (ii) **Stay in clean air** – Keep away from dusty or smoky places to protect the lungs.
- (iii) **Exercise regularly** – Activities like running, walking, or playing games help the lungs stay strong.
- (iv) **Eat healthy food** – A balanced diet gives the body energy and keeps the lungs healthy.
- (v) **Practice good hygiene** – Wash hands often to prevent infections that can affect the lungs.
- (vi) **Get fresh air** – Spend time outdoors in clean environments to help the lungs work well.
- (vii) **Seek medical care early** – If you have coughs or breathing problems, visit a health center quickly.
- (viii) **Vaccination** - immunizations like BCG protect children from lung diseases such as tuberculosis.
9. Name the human body system to which the lungs, kidneys and skin belong.
Excretion system
10. Name the human body system which eliminates wastes.

Excretory system
11. Why does blood go to the kidneys during circulation?
To remove metabolic wastes and excess water
12. Name the human body organ where filtration of blood takes place

Kidney

13. Apart from the skin and lungs name any one other excretory organ.

Kidney

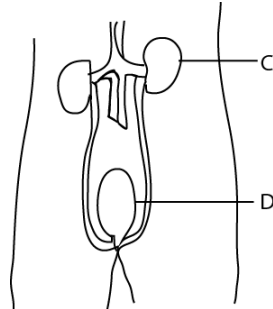
14. State any one function of human kidney.

Regulates body water

Removes urea and ammonia from blood

Controls pH of blood

15. The diagram below is one of the systems of human being



(a) Name parts labelled:

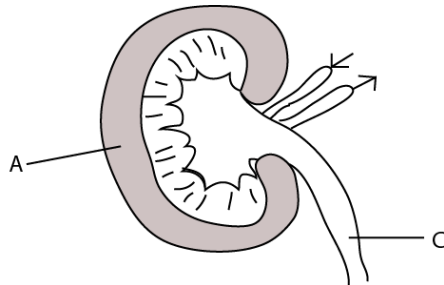
(i) C: **kidney**

(ii) D: **urinary bladder**

(b) What is the function of structure C?

It removes waste products, excess water and salts from the body

16. The diagram below shows the structure of a kidney. Use it to answer question (a) and (b)



(a) Name the part labelled with letter A.

Cortex

(b) What substance goes through the part labeled C?

Urine

(c) State any two function of the kidney that are similar to those of a skin.

- (i) **Removal of urea**
- (ii) **Remove excess water**

17. (a) Which organ removes urine from the body?

Kidney

(b) To which body system does the organ that removes urine from the body?

Excretory system

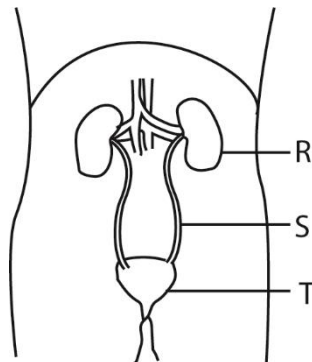
(c) Where does urine collect before it is removed from the body?

Urinary bladder

(d) Name one substance found in urine.

Urea, water, uric acid, salts

18. The diagram below is of human urinary system. Study and use it to answer the questions that follow



(a) Name the parts marked S and T

- (i) S - Ureter
- (ii) T – urinary bladder

(b) What is the function of the part marked R?

Regulates body water
Removes urea and ammonia form blood
Controls pH of blood

(c) Give any one disease that affects the above system

Bilharzia
 Kidney stones
 Kidney cancer

19. Use the diagram X and Y below to answer the questions that follow.



(a) Name the organ shown in diagram X.

Kidney

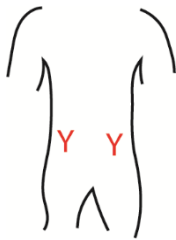
(b) What is the function of the organ shown in diagram X?

To remove waste metabolic products from the blood

To regulate amount of water in the body

To regulate body pH

(c) Mark on the drawing Y the position of the organ shown in drawing X.



(d) Name another organ in a mammal that carries out a similar function as the organ shown in the drawing X.

lungs

skin

20. What system is responsible for the removal of waste materials from our bodies?

Excretory system

Thank You

Dr. Bbosa Science