

ITEM 1/4 SCIENCE GUIDE WhatsApp CEO 0789265871

1. Sterile bees specialized to collect food for the hive.
2. It's important to wash hands with soap and water after visiting a latrine to remove harmful bacteria, germs, and microorganisms that can cause diseases.
3. Causes of short circuits include overheating, frayed cords, loose connections, and moisture or water exposure.
4. Bacteria found in dead animals can be used for:
 - Decomposition and nutrient recycling
 - Forensic analysis (estimating time of death)
 - Medical research (studying disease progression)
5. Pouring insecticides or acidic substances in latrines is not advisable because they can:
 - Contaminate water sources and harm aquatic life
 - Damage latrine structures and infrastructure
 - Pose health risks to humans and animals
6. The government can control the spread of cattle disease by:
 - Vaccinating animals
 - Quarantining infected areas
 - Restricting animal movement
 - Conducting regular surveillance and monitoring
 - Providing education and training to farmers and animal handlers

7. Water is essential in our diet for:

- Hydration
- Digestion
- Nutrient absorption
- Waste removal
- Temperature regulation

8. The chemical in tobacco that readily combines with hemoglobin is Nicotine.

9. Clothes dry faster on a dry and windy day than on a cold day due to:

- Increased evaporation
- Improved airflow
- Reduced humidity

10. The gestation period of an ewe (female sheep) is approximately 145-150 days (5 months).

11. The chemical burning of food in the body is Respiration (or Cellular Respiration).

12. There is more carbon dioxide at night than during the day because plants undergo Respiration at night, releasing CO₂, whereas during the day, they undergo Photosynthesis, absorbing CO₂.

13. Intercropping is important to a farmer because it:

- Increases crop diversity
- Reduces pests and diseases
- Improves soil fertility

- Maximizes land use
- Enhances biodiversity

14. An earthworm is regarded as an invertebrate because it does not have a backbone (vertebral column).

15. Other ways the body can lose heat besides sweating are:

- Radiation (heat loss through skin)
- Conduction (heat loss through direct contact)
- Convection (heat loss through air movement)

16. Adolescence refers to the transitional stage of physical and psychological development between childhood and adulthood, typically occurring between ages 10-19.

17. The uses of a beak to a bird are:

- Eating and foraging
- Preening and grooming
- Defense and fighting
- Nesting and breeding

18. The property of air shown in the diagram is air contains weight/mass

19. A simple method to distinguish a bad egg from a good one is:

- Water test: a bad egg will sink, while a good egg will float
- Candle test: a bad egg will show cracks or darkness when held up to a candle

20. Crawling children often suffer from diarrhea because they may:

- Put dirty objects in their mouths

- Come into contact with contaminated surfaces or substances
- Not have developed proper hygiene habits yet

21. Soil exhaustion refers to the depletion of soil fertility and nutrients due to intensive farming, over-cultivation, or lack of soil conservation practices.

22. Effects of drug addiction include:

- Physical dependence
- Mental health problems
- Social and relationships issues
- Financial problems
- Increased risk of overdose and death

23. Transpiration is important to plants because it:

- Helps regulate temperature
- Maintains water balance
- Supports nutrient uptake
- Facilitates growth and development

24. If effort is increased in a system, the mechanical advantage also increases, making it easier to lift or move loads.

25. A monitor lizard belongs to the class Reptilia.

26. Electric wires are loosely attached on electric poles during installation to allow for expansion and contraction due to temperature changes, reducing the risk of damage or breakage.

27. Ways to reduce the spread of tuberculosis include:

- Vaccination

- Proper diagnosis and treatment
- Isolation of infected individuals
- Good ventilation and hygiene practices
- Education and awareness

28. Refer to text books

29. Primary colors are a set of three colors that cannot be created by mixing other colors together. They are the basic building blocks of colors and are the simplest and most fundamental colors in the color spectrum.

The three primary colors are:

1. Red
2. Blue
3. Yellow

These colors are called primary because they are:

- Fundamental: They cannot be created by mixing other colors together.
- Basic: They are the simplest colors in the color spectrum.
- Universal: They are recognized and used across different cultures and color systems.

30. Gaseous components of the water cycle include Water Vapor (Evaporation and Transpiration) and Carbon Dioxide (respiration and decomposition).

31. Examples of contagious diseases include:

- Influenza (flu)
- Measles

- Chickenpox
- Tuberculosis (TB)

32. Crossbreeding is important in cattle keeping because it:

- Improves genetic diversity
- Increases resistance to diseases
- Enhances milk or meat production
- Improves fertility and reproduction

33. Stones fall back to the ground when thrown in the air because of:

- Gravity (the force of attraction between the Earth and the stone)

34. A ball-and-socket joint is a type of joint that allows for:

- Rotational movement
- Flexibility
- Wide range of motion (e.g., shoulder or hip joint)

35. Negative effects of population growth include:

- Resource depletion
- Environmental degradation
- Increased poverty and inequality
- Strain on infrastructure and services

36. Photosynthesis is maximum during midday because:

- Intense sunlight provides energy for photosynthesis
- Optimal temperature and light conditions

37. Ureter

88. Excretory system

39. Factors that affect the rate of digestion include:

- Food type and composition
- pH levels in the digestive system
- Enzyme activity and presence
- Temperature and moisture
- Hormonal regulation

40. Mushrooms exhibit saprotrophic feeding, which involves:

- Obtaining nutrients from dead and decaying organic matter

SECTION B

41. a) The diagram shows a cuboid with dimensions:

- Length (l) = 700 cm [converted 7m to cm]
- Width (w) = 5 cm
- Height (h) = 3 cm

b) The volume of the cuboid is:

$$- V = l \times w \times h = 700 \times 5 \times 3 = 10,500 \text{ cubic centimeters (or } 10,500 \text{ cm}^3)$$

c) To find the density of the cuboid, we need to know its mass and volume.
Given:

- Mass (m) = 315 g
- Volume (V) = 10,500 cm³
- Density (ρ) = $m / V = 315 \text{ g} / 10,500 \text{ cm}^3 = 0.03 \text{ g/cm}^3$

42. a) Two agents of pollination in flowering plants, apart from wind, are:

i) Bees

ii) Butterflies

b) Two parts of a plant that:

i) Manufacture food: Chloroplasts (during photosynthesis)

ii) Absorb dissolved mineral salts and water: Roots (through osmosis and active transport)

43. a) Functions of skeleton parts:

i) Rib cage: Protects the heart and lungs, and provides attachment points for muscles

ii) Tendon: Connects muscles to bones, enabling movement and transmission of forces

b)

- Exercise regularly (weight-bearing and resistance training)

- Maintain a balanced diet (rich in calcium and vitamin D)

- Avoid smoking and excessive alcohol consumption

- Manage stress (to prevent osteoporosis)

- Get enough sleep (for bone growth and repair)

- Practice good posture (to reduce strain on bones and joints)

44 a) The government of Uganda gives people mosquito nets free of charge to:

- Reduce the spread of mosquito-borne diseases like malaria, which is a major public health problem in the country

- Protect vulnerable populations like pregnant women, children, and the elderly from malaria

- Support the national malaria control strategy and achieve global health goals

b) Proper use of mosquito nets at home can control the following diseases:

i) Malaria

ii) Yellow fever

c) Draining away stagnant water affects the larval stage of a mosquito. Mosquitoes lay eggs in standing water, which hatch into larvae. By removing stagnant water, you can prevent the larvae from developing into adult mosquitoes, thereby breaking the disease transmission cycle.

45. a) The property of air that causes pressure difference is density

b) because of surface tension between cardboard particles and that of water

c) Here are brief points on how density is useful to farmers and doctors:

Farmers:

- Determines soil water-holding capacity and aeration
- Separates good seeds from bad ones
- Calibrates fertilizer and pesticide application

Doctors:

- Assesses body composition (fat percentage, muscle mass)
- Diagnoses and monitors osteoporosis (bone density)
- Enhances medical imaging (CT scans, etc.)

46. (a) The friction force that opposes a small stone thrown into a jerrycan of cooking oil is Viscous Friction.

(b) Advantages of friction:

(i) Allows us to walk or run without slipping

(ii) Enables objects to stay in place without sliding

(c) Ways to reduce friction in a machine:

- Use lubricants (like oil or grease)

- Use bearings or rollers

- Polish surfaces to reduce roughness

47. (a) Methods to get clean drinking water:

(i) Boiling

(ii) Filtration (using filters or purification tablets)

(b) Causes of water contamination:

- Industrial waste disposal

- Agricultural runoff

- Human activities (e.g., littering, sewage)

48. Definitions:

(a) Reflection of light: The change in direction of light when it bounces off a surface.

(b) Refraction of light: The bending of light as it passes through a medium with a different optical density.

(c) Spectrum: A range of colors produced by separating white light.

(d) Type of reflection from a rough shining surface: Diffuse Reflection.

49. (a) Environmental degradation: The deterioration or damage to the natural environment, caused by human activities or natural factors, leading

to loss of biodiversity, pollution, and ecosystem disruption.

b). Human activities leading to environmental degradation:

- Deforestation and land degradation
- Pollution (air, water, soil)
- Overexploitation of resources (water, minerals, forests)
- Climate change
- Industrial waste disposal
- Agricultural runoff and pesticides
- Urbanization and infrastructure development

c) NEMA (National Environment Management Authority) in Uganda tackles environmental degradation through:

- Policy formulation and implementation
- Monitoring and enforcement of environmental regulations
- Public awareness and education
- Collaboration with stakeholders (government, NGOs, communities)
- Conservation and restoration of natural resources

50. (a) Agents of seed dispersal:

- Wind
- Water
- Animals (birds, insects, mammals)
- Humans
- Gravity

(b) Advantages of seed dispersal:

- Increases species diversity
- Allows for colonization of new areas
- Enhances genetic variation
- Reduces competition among plants

51. (a) Accidents that can happen at school:

- Cuts and lacerations
- Head injuries
- Poisoning
- Choking
- Electrical shock

(i) Reasons why accident victims should receive first aid:

- Prevents further injury
- Reduces pain and suffering
- Promotes recovery
- Saves lives

52. Types of changes:

- (a) Cloud formation: Physical change (condensation of water vapor)
- (b) Digestion of food in man: Chemical change (breakdown of nutrients)
- (c) Germination: Biological change (growth and development of a seedling)
- (d) Rusting in metallic objects: Chemical change (oxidation of metal)

53 a) Ligament (joins a bone to a bone)

b) Sprain (injury of a ligament)

c) Here are the signs of a sprain

I. Pain: Sudden, severe, or aching pain in the affected area

II. Swelling: Rapid swelling or bruising around the joint

III. Limited mobility: Reduced range of motion or difficulty moving the joint

IV. Instability: Feeling of instability or weakness in the joint

V. Bruising: Discoloration or bruising around the affected area

VI. Redness: Increased redness or inflammation

VII. Warmth: Increased warmth or tenderness to the touch

VIII. Difficulty bearing weight: Pain or discomfort when putting weight on the affected limb

IX. Popping or snapping sound: A audible sound during the injury

X. Muscle spasms: Painful muscle contractions or spasms

d).

First Aid for Sprains

1. ***R*est** - Stop moving the hurt area

2. ***I*ce** - Put ice on the hurt area for 15 minutes

3. ***C*ompression** - Wrap a bandage around the hurt area

4. ***E*levation** - Lift the hurt area up high

Remember

- Don't move the hurt area too much

- Take medicine to help with pain
- See a doctor if it hurts too much or gets worse

This outline uses simple language and short sentences to make it easy for a primary seven child to understand and remember.

54 (a) The bone that joins the pelvis and tibia is the Femur (thigh bone). However, the femur connects to the pelvis through the hip joint and connects to the tibia through the knee joint.

(b) Brief explanations:

(i) Voluntary muscles: Muscles that can be controlled consciously, such as skeletal muscles, which move bones and facilitate movement.

(ii) Involuntary muscles: Muscles that cannot be controlled consciously, such as smooth muscles (found in organs like the digestive tract) and cardiac muscles (found in the heart), which function automatically.

(c) Uses of muscles in the body:

- Movement and locomotion
- Maintaining posture and balance
- Regulating body temperature
- Facilitating digestion and circulation
- Enabling speech and communication
- Supporting respiratory functions (breathing)
- Allowing for facial expressions and emotions

55. (a) How each animal protects itself from enemies:

(i) Porcupine: The porcupine protects itself by:

- Having sharp, barbed quills that deter predators from attacking

- Rolling into a ball to expose its quills in all directions
- Warning predators with a strong, unpleasant odor

(ii) Wasp: The wasp protects itself by:

- Having a painful sting that deters predators
- Building paper-like nests that provide protection
- Being highly social and defending its colony with other wasps

(b) Reproductive strategies that enable frogs to succeed:

(i) Rapid reproduction: Frogs can lay hundreds or thousands of eggs at a time, increasing the chances of survival for their offspring.

(ii) Adaptation to aquatic environment: Frogs have evolved to thrive in aquatic environments, with strategies like tadpole stages, webbed feet, and permeable skin, allowing them to exploit resources and escape predators.

Note: Additional strategies include camouflage, mimicry, and toxic secretions in some frog species.