

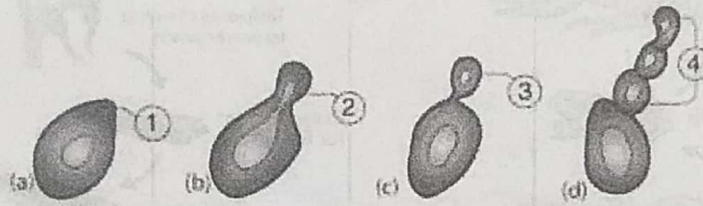
1. About 550 million years ago, at the bottom of the ocean near modern-day Newfoundland, organisms called rangeomorphs were reproducing in remarkably complex ways. The creatures could create clones as plants do, plus bud off progeny that could float away and produce their own clones. "Reproduction in this way made rangeomorphs highly successful, since they could both colonise new areas and rapidly spread once they got there," Emily Mitchell, a postdoc at the University of Cambridge who led the study, said in a press release. "The capacity of these organisms to switch between two distinct modes of reproduction shows just how sophisticated their underlying biology was, which is remarkable at a point in time when most other forms of life were incredibly simple."

a. do you mean by the term clone?

b. "Reproduction in this way to colonise new areas and rapidly spread once they got there." how reproduction help the organisms to colonise the area rapidly?

c. What are two different types of reproduction?

2. Observe the figures and answer the following question:



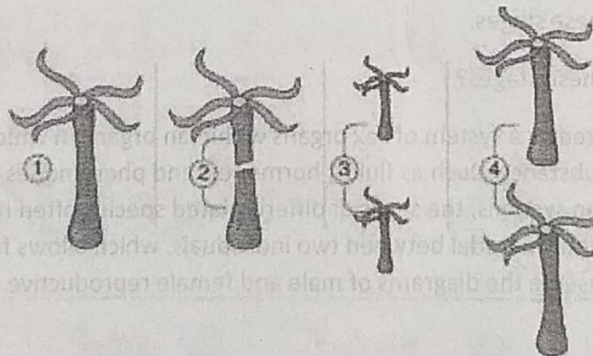
a. identify the organism shown here and the mode of reproduction depicted.

b. what kind of reproduction is it?

c. name the structure labelled as 3.

d. how is it different from the mode of reproduction followed in frog?

3. Observe the figures and answer the following question:



a. what kind of reproduction is taking place in hydra as sexual or asexual in this figure?

b. name the other mode of reproduction of same kind that takes place in hydra

c. how is the mode of reproduction shown here is different from binary fission in amoeba?

4. Rakesh and Mihir, students of Class XI, are walking home together from school. Rakesh begins to tease Mihir, saying that he speaks in a girl's voice. He also laughs at the fact that Mihir has got no hair on his upper lip. "Look at me", Rakesh says, "I am a real man. My voice is strong and my face is manly - I have so much facial hair. My father calls me 'sher.'" This really embarrasses Mihir. He recalls that his mother still calls him 'my sweet boy'. He decides to go home and ask his mother why he is so different from Rakesh and whether something is wrong with him. Discussion.

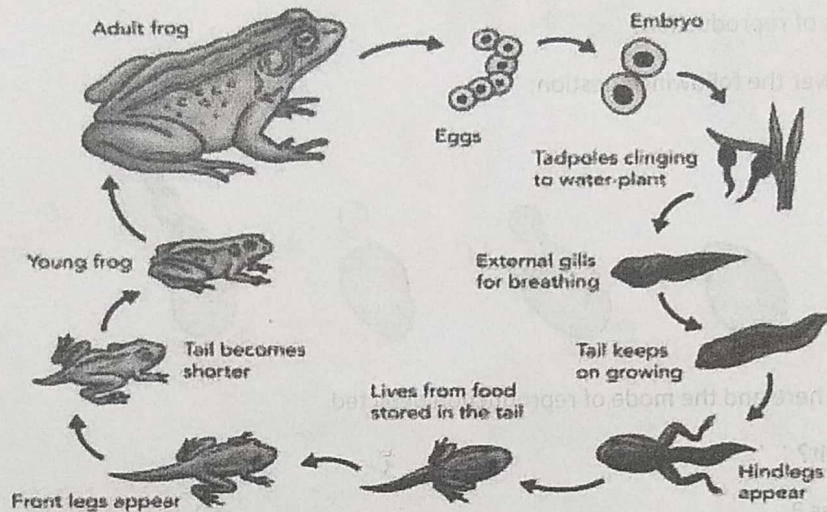
1. Although they are of the same age, why do Rakesh and Mihir look so different?

2. Do you think that there is something wrong with Mihir? Why?

4. What should Mihir's mother tell him?

5. Robin is in Class XI. He is the smallest boy in his class. Although he likes to play football, he is never selected for his school team. He is quite swift and skilful, but the coach always rejects him saying that he will get pushed around by the other players, who are much bigger than him. One day, on the roadside, Robin sees an advertisement outside the tent of a travelling medicine-man (quack). It shows a thin, weak looking boy in one picture and a muscular glowing man in another. The advertisement claims that a magic drug can bring about this transformation. Robin wants to try this drug, but is scared.

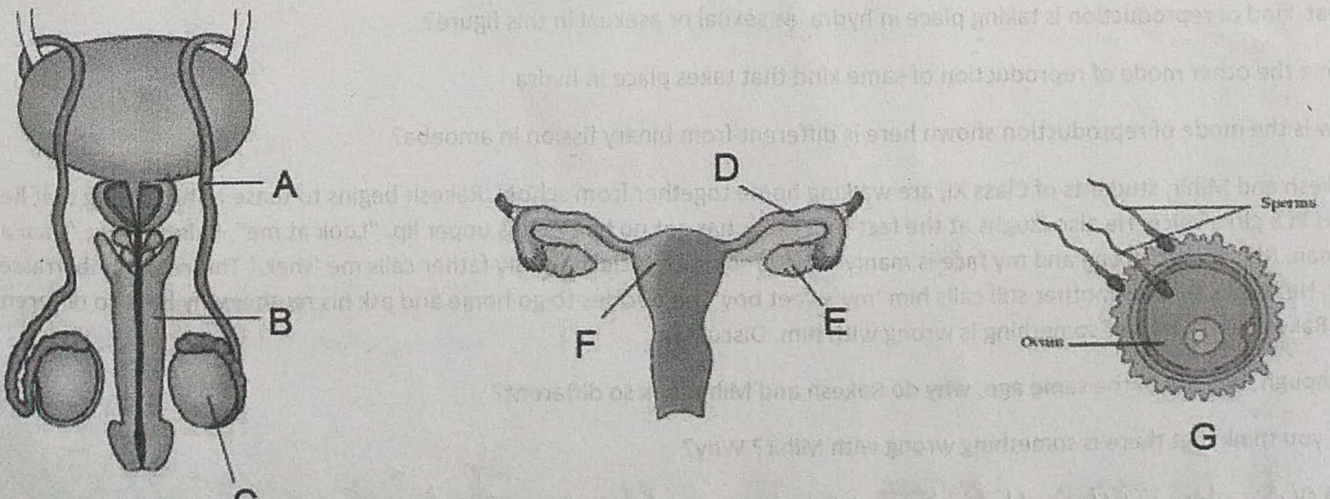
1. Why do you think that Robin is different from the other boys in his class?
2. Do you think that Robin can be a good football player and that the coach should give him a chance?
3. Do you think that Robin should take the magic drug which claims to make one muscular and strong? What are the possible effects of this drug?



6. Observe the diagram carefully and answer the following questions:

- a. name the three stages of life cycle of a frog.
- b. mention the major changes occurs in these stages.
- c. what do we call the transformation of these stages?

7. The **reproductive system** or **genital system** is a system of sex organs within an organism which work together for the purpose of sexual reproduction. Many non-living substances such as fluids, hormones, and pheromones are also important accessories to the reproductive system. Unlike most organ systems, the sexes of differentiated species often have significant differences. These differences allow for a combination of genetic material between two individuals, which allows for the possibility of greater genetic fitness of the offspring. Observe the diagrams of male and female reproductive systems in humans and answer the following questions:



- Identify the structures A to F
- name the process shown in figure G
- how would removal of C from system affect the process G?
- identify from A to F and name the structure where the process G takes place.
- write the function of E and F in reproductive process.

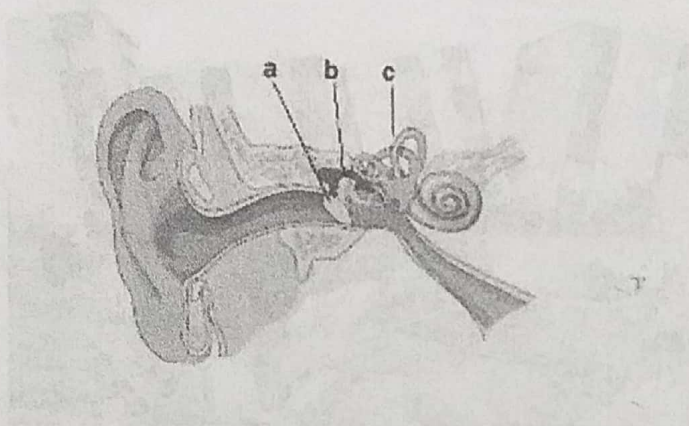
8. Two activities are given below read them carefully and answer the question followed:

A. Take 6-8 metal bowls or tumblers. Fill them with water up to different levels, increasing gradually from one end to the other. Now take a pencil and strike the bowls gently. Strike all of them in succession. You will hear a pleasant sound.

B. Take a metallic tumbler and a tablespoon. Strike the tablespoon hard at the brim of the tumbler. Hear the sound produced. Now suspend a small thermocole ball touching the rim of the tumbler. Vibrate the tumbler by striking it. See how far the ball is displaced.

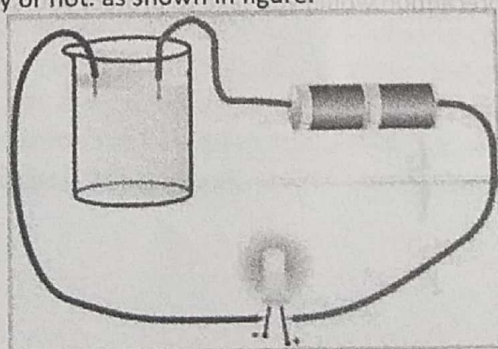
- Is the sound louder when the tumbler is struck hard in activity B?
- How is the sound produced in activity A different that is produced in activity B?
- what does the displacement of thermocol ball indicate?

9. Study the diagram given below and answer-



- label part a, b and c
- We must NEVER put a sharp, pointed or hard thing into our ear. why?
- what is the role of a in hearing?

10. Take about two teaspoon full of distilled water in a clean and dry plastic or rubber cap of a bottle. Use the tester to test whether distilled water conducts electricity or not. as shown in figure:



- Does distilled water conduct electricity? Why?
- does addition of a pinch of common salt in distilled water affect the results? How?
- what happens if we take alcohol in place of distilled water?

11. A brand new bicycle has shiny handlebar and wheel rims. However, if these are accidentally scratched, the shiny coating comes off revealing a not so shiny surface beneath. You might have also seen women using ornaments, which appear to be made of gold. However, with repeated use, the gold coating wears off, revealing silver or some other metal beneath.

- how a layer of one metal can be deposited on top of another?
- how is this process is useful in industries?
- what are the advantages of this technique?

12. read the paragraph carefully and answer-

It was a drizzly, dark January morning but James Church grabbed his fishing pole and tackle box anyway, hopped in his Jeep and headed for the jetty, eager to get in some fishing as an antidote to a hard week of work.

Wearing his brown rubber waders and a yellow rain jacket to keep out the 6 a.m. cold, Mr. Church, 55, cast back his pole and let loose the line and sinker. He saw lightning on the horizon far away and felt safe. Then a bolt struck. He remembers a deafening boom and a flash so bright he felt his eyes burn. He woke up against a metal railing six feet away. Lying on his back, alone, in the dark, his body felt paralyzed. He knew he had to reach his cellphone to get help but it was locked in the tackle box.

- Was carrying a fishing pole a good idea at all during thunderstorms? Why?
- is it safe to go outside during a thunderstorm? Why?
- is using cellphone to get help during a thunderstorm safe?
- what harms lightning may cause?
- what precaution can we take to protect ourselves from striking from lightning?
- is this phenomena is same as a crackling sound is heard while taking off sweater during winters? explain how?

13. My sister was walking up to me, shaking the whole room. (BOOM!), I woke up suddenly. I shouted out, "Stop shaking the bed would you?", to my older sister above me.

In the meantime she was saying 'It's not me, it's you.' Seconds later Mum rushed into our room with an extra worried face and a crying baby in her arms, telling us to get under the door frame. By then I was sitting up thinking "WHAT'S HAPPENING?"

The noise was deafening, as the timber of the walls swayed and cracked. Photo frames could be heard crashing and smashing to the floor.



- what was the possible reason of shaking everything?
- can we predicted this phenomena to some extent?
- what measures can we follow to protect ourselves from the damage caused by these phenomena?
- how does a sudden shaking or trembling of the earth lasting for a very short time occur?
- what do you understand by seismic zone, epicentre, focus and richter scale related with the phenomena?
- suppose you are outside your home. What precaution would you take to protect yourself?