

Comparative physiology Answers

They are larger, they are loosely packed.

2. Complete the table.

Factor	Decrease	Increase
pH	Right	Left
Co ₂	Left	Right
Temperature	Left	Right
2,3-DPG	Left	Right

- The increase in oxygen levels when placed in soil could be due to _____ stimuli.
A tactile
- At the end of the results section, the authors state that lowering the pH to 6.5 (from 7.5) had only minor influence on the t_{50} value (this value is not explained, but it seems to be the partial pressure of oxygen at which the haemoglobin is 50% saturated). Is this interesting? What might you have expected? Does this say anything about the physiology of the worm vs. the physiology of a mammal?
Expected a rise in oxygen but maybe they are tolerant of lower pH.

Viscosity and Boundary layers

- What is the reynold's formula?
 $Re = \text{velocity} \times \text{linear dimensions} \times \text{density} / \text{viscosity}$
- High viscosity = _____ reynold's number and low viscosity = _____ reynold's number.
Low, high
- What happens when a reynold's number is high?
When it is high, there is turbulent vortices due to pressure difference and increases drag.
- What is the velocity of the fluid at the boundary layer?
0
- State Bernoulli's principle
Faster velocity means lower pressure; this is why the flight lifts.
- What are the most abundant animals in the world?
Copepods
- Bigger creatures are dominated by _____ while smaller ones are dominated by _____.
Inertia, Viscosity
- How do the copepods gain high velocity?
By flicking their tails.
- What are the two boundary types?
Lamina flow and turbulent flow.

Kidneys

- Do invertebrates have kidneys?
Yes
- State the three major functions of the kidneys.
Diffusion, excretion and filtration
- How much fluid is filtered per minute?
12L per minute
- What is a nephron?