

Name: _____
Period: _____ Date: _____

Crayfish Pre-Lab



Resources: Mr. E Science Crayfish Dissection Guide and final Mr. E Science crayfish dissection video. Complete this pre-lab before dissecting. Use both resources and answer in your own words. Video timestamps show where the related explanation or structure appears.

1 Meet the crayfish

1. Give the crayfish's Kingdom, Phylum, Subphylum, Class, and Order.

2. What does Arthropoda mean? List three features that characterize arthropods. *(Video 0:09)*

3. What does Decapoda mean, and how does that name relate to the crayfish's thoracic walking appendages?

4. Why must a crayfish molt in order to grow? *(Video 0:49)*

5. Describe the typical habitat and feeding habits of a crayfish.

2 Prepare for the dissection

6. List the dissecting tools and protective equipment needed for this lab.

7. Define dorsal, ventral, anterior, and posterior as they apply to the crayfish. *(Video 1:23)*

8. Why should the carapace be lifted away from the organs while making a cut? *(Video 6:25)*

3 External examination

9. What is the external landmark? Describe where it is located and what body regions are fused to form it. *(Video 1:35)*

10. Name the two major body regions of the crayfish. *(Video 1:58)*

11. Locate the cervical groove. What boundary does it mark on the cephalothorax?

12. How do the antennae differ from the antennules? *(Video 3:08)*

13. How many pairs of chelipeds and ordinary walking legs are present? How many pairs of thoracic walking appendages are there altogether? *(Video 2:50)*

14. What structures form the tail fan? State the number of uropod pairs and the number of telsons. *(Video 2:16)*

15. Give one function for each: antennae/antennules, chelipeds, walking legs, and tail fan.

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4 Ventral surface and sex determination

16. What are swimmerets, and where are they located? *(Video 4:06)*

17. Compare the swimmerets of the female and mature male specimens shown in the Guide. What are gonopods? *(Video 3:56)*

18. According to the Guide, how many pairs of maxillipeds does a crayfish have, and what do they do? *(Video 5:01)* Use the video to observe the mouthparts; use the Guide for the number of pairs.

19. What do the mandibles do before food enters the digestive tract? *(Video 5:21)*

5 Open the branchial chamber

20. Where does the first carapace incision begin, and in what direction is the shallow cut made? *(Video 5:35)*

21. Where is the lateral cut made? *(Video 6:43)*

22. Why should the carapace be teased away with a blunt probe rather than pulled off? *(Video 5:48)*

23. What is the internal landmark? Describe its appearance and where it is located. *(Video 6:56)*

6 Respiratory system

24. What is the branchial chamber? *(Video 6:48)*

25. How does movement of nearby appendages help the gills perform gas exchange? *(Video 7:30)*

26. Describe the movement of oxygen and carbon dioxide across the gill surface. *(Video 7:56)*

27. Why can a crayfish sometimes survive briefly out of water if its gills remain moist? *(Video 8:22)*

7 Expose the internal organs

28. Why should organs be identified before tissue is lifted or cut?

29. Name the major internal structures labeled in the exposed cephalothorax photographs on page 6 of the Guide. *(Video 8:58-11:10)*

8 Digestive and circulatory systems

30. What is the function of the cardiac stomach? What is the function of the pyloric stomach? *(Video 9:55-10:22)*

31. Give three functions of the digestive gland (hepatopancreas). *(Video 9:45)*

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32. Trace food from the mouth through the digestive tract to the anus.

33. Why is the crayfish circulatory system described as an open circulatory system? *(Video 9:19)*

34. Trace the general path of hemolymph from the heart, through the body and gills, and back toward the heart. *(Video 9:22)*

35. What are ostia, and in which direction does hemolymph move through them? *(Video 9:15)*

9 Excretory, nervous, muscular, and reproductive systems

36. Where are the green (antennal) glands located, and what are their functions? *(Video 10:56)*

37. Where is the brain located? Describe the ventral nerve cord and ganglia. *(Video 11:09-12:08)*

38. What do the large abdominal flexor muscles do? *(Video 8:58)*

39. Where are the reproductive organs located? Why can they be difficult to identify in some preserved specimens?

40. How are eggs carried by a female crayfish? What structures are used by a mature male for sperm transfer? *(Video 3:56)*

10 Finish and clean up

41. List the three major cleanup responsibilities after the dissection.
