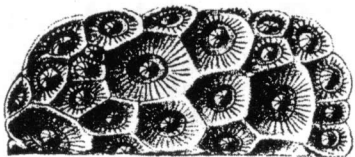


KEY TO IDENTIFYING MAJOR INVERTEBRATE FOSSIL PHYLA

The use of morphologic characteristics to classify animals or plants is termed “use of a dichotomous key.” To follow the keying process is to unlock the identity of the plant or animal.

To use this key, start with the first statement. If the fossil in question is colonial, go to statements 16, 17, 18, and 19. If the fossil is not colonial, go to statement 2. Follow the directions given in the subsequent statements, which contain characteristics of the group being investigated. Eventually the key will lead to the proper name for the phylum to which the fossil belongs. For your convenience, definitions and sample illustrations are provided.

1. Colonial—Go to 16, 17, 18, or 19.



Animals that live in close association with others and usually cannot live as separate individuals (many grow as an attached group).

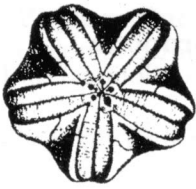
2. Noncolonial (solitary)—Go to 3, 4, 5a, or 5b. If none of these fits, go to 7, 10, 13, or 16.



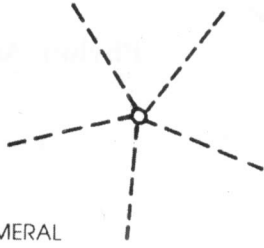
NON-COLONIAL
(solitary)

Usually refers to an organism that lives as an individual and not as part of a colony.

3. Pentamerous symmetry—Go to 14 or 15.

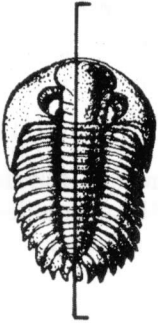


PENTAMERAL

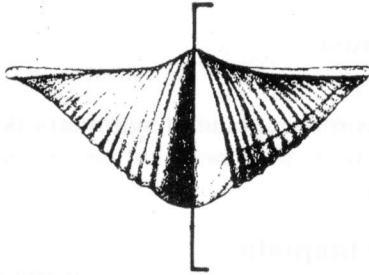


Arrangement of the organs or shape to give the organism a five-rayed appearance (like a starfish).

4. Bilateral symmetry—Go to 6, 7, 8, 9, or 10.



BILATERAL



Arrangement of the organs or shape of an organism such that when divided in half, the opposite sides share equal or mirror images.

5. Coiled either in a *nonchambered* (hollow) cone-shaped spiral (conispiral) or in a flat coiled (planispiral) shell.

Phylum Mollusca

Class Gastropoda (snails) (pp. 112–113)

- a. Coiling of whorls in a cone-shaped spire and not in a single plane.
- b. Coiled in a planispiral manner without chambers or sutures.

6. Coiled in a planispiral manner with suture markings on the shell. Go to 13.

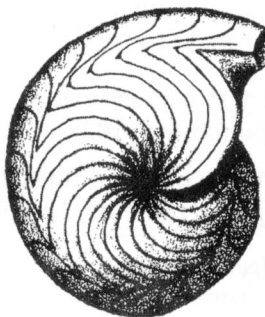


CONE-SHAPED SPIRAL

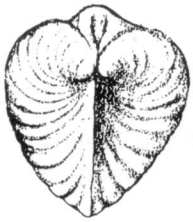
7. Cigarlike shape. Go to 13.

8. Bivalved. Go to 11 or 12.

An animal that has a shell composed of two similar or nearly similar valves that can open and shut.



PLANISPIRAL COIL



SIMILAR



DISSIMILAR

9. Tri-lobed, chitin-covered, insect-like organism; many segments in between visible head and tail.

Phylum Arthropoda

Class Trilobita (trilobites) (p. 118)

10. Cup-or-horn-shaped mass with many vertical partitions (septa) radially projecting inward into the life cavity.

Phylum Cnidaria

(solitary corals) (p. 103)

11. Two valves (shells) similar and mirror images; crenulations or other teeth along hinge line on inside; no openings near beak.

Phylum Mollusca

Class Bivalvia (pelecypods) (clams, oysters, etc.) (pp. 109, 110)

12. Two valves dissimilar; plane of symmetry is through middle of shell, perpendicular to hinge line; pedicle opening near beak for fleshy stalk used for attachment.

Phylum Brachiopoda

(brachiopods) (pp. 106, 107)

13. Straight partitions creating chambers within life cavity, or straight, cigar-like with radiating crystals (belemnites).

Phylum Mollusca

Class Cephalopoda (pp. 114, 115)

14. A stem attachment or fragments of a stem; body cavity covered by calcareous plates; attachments for arms at top of body cavity (assuming the fossil is not deformed).

Phylum Echinodermata

Attached types
(crinoids, cystoids, blastoids) (p. 120)

15. No stem or stem attachment visible; no calcareous arms as in 14, globular or dislike.

Phylum Echinodermata

Unattached types (starfish, sea urchins, etc.) (p. 121)

16. No visible divisions for individual's life cavities; usually appears as an irregular mass (or with slight radial symmetry) with lines or spicules visible.

Phylum Porifera

(sponges) (p. 102)

17. Microscopic (or at least very small) openings in large calcareous mass; no septa in these life cavities.

Phylum Bryozoa

(p. 105)

18. Larger openings (larger than one millimeter), touching or separated, distributed over a colonial mass; vertical partitions (septa) radially projecting inward that divide the life cavity.

Phylum Cnidaria

(colonial corals) (p. 103)

19. Usually found as thin carbonaceous films in black shale, long, narrow, or interconnecting colonies with microscopic (or very small) cavities for individuals.

Phylum Hemichordata

(graptolites) (p. 123)