

# Free Living Protozoa

## Instructions

*This key will aid students in the identification of protozoa normally encountered in our cultures. Line drawings of each protozoan, along with designations of size range, are included inside this sheet. It is suggested that DETAIN, Science Kit and Boreal's protozoan slowing agent, be used to slow the faster-moving protozoa. A wet mount preparation should first be scanned under low power magnification to initially locate protozoa for observation and identification. In some cases, identification will be made easier if cells are examined under "high-dry" magnification (450X).*

*Identification of a protozoan may be made by either comparing the observed cell to the illustrations on this sheet or by using the key. The key gives the student two choices per number. Start at number 1, comparing the observed protozoan to each of the characteristics stated per number in the key. Proceed according to the key until it terminates in the name of the protozoan.*

1. White or colorless	2
Colored	8
2. Creeping (sliding) slowly or floating without apparent motion	3
Exhibits other motion	7
3. Spherically shaped with radiating "spines"	<i>Actinosphaerium</i>
Not spherical in shape	4
4. Shape remains constant	5
Shape constantly changes	6
5. Possesses flattened test or shell without embedded or attached material; pale to brown in color	<i>Arcella</i>
Possesses dome-shaped test or shell with attached particles, usually of sand	<i>Diffflugia</i>
6. Small; creeps using pseudopodia (false feet); single disc-shaped nucleus	<i>Amoeba</i>
Large; creeps using pseudopodia; many (100's) of small nuclei	<i>Pelomyxa</i>
7. Cell has hair-like structures (cilia)	16
Cell's organ of locomotion is long whip-like flagella (no cilia)	9
8. Green color	9
Color not green	23
9. Colony of many cells	11
Single, motile cells	10
10. One observed locomotor flagella	15
Two observed locomotor flagella	14
11. Colony flat, disc-shaped, usually containing sixteen cells	<i>Gonium</i>
Colony spherical in shape	12
12. Colony contains 32 cells or less.	13
Colony contains more than 32 cells	<i>Volvox</i>



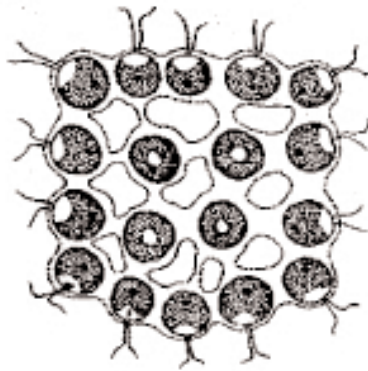
Top View

Side View



*Arcella*

45 - 100  $\mu\text{m}$  in diameter



*Gonium*

Colony up to 90  $\mu\text{m}$   
in diameter



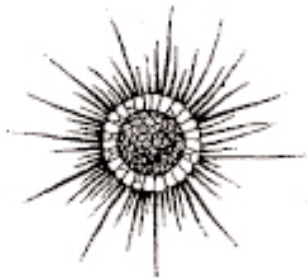
*Pelomyxa*

1-5 mm,  
monopodal length



*Spirostomum*

1-3 mm in length



*Actinosphaerium*

70 - 80  $\mu\text{m}$  in diameter



*Eudorina*

10-24  $\mu\text{m}$  in diameter



*Chilomonas* sp.

20-40  $\mu\text{m}$



*Pandorina*

colony from 20-250  $\mu\text{m}$   
in diameter



*Amoeba proteus*

up to 600  $\mu\text{m}$  or more,  
elongated



*Chlamydomonas*

5-12  $\mu\text{m}$  in length



*Colpidium* sp.

50-70  $\mu\text{m}$  in length



*Diffugia*

60-580  $\mu\text{m}$  by  
40-240  $\mu\text{m}$

illustrations not to scale



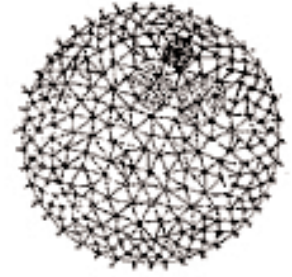
*Euplotes sp.*  
100 - 200  $\mu\text{m}$  in length



*Euglena*  
35 - 55  $\mu\text{m}$   
in length



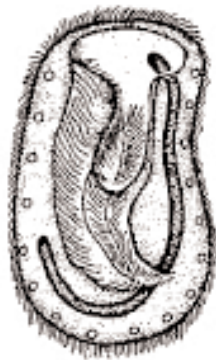
*Peranema sp.*  
20 - 70  $\mu\text{m}$  in length



*Volvox*  
colony from  
350 - 500  $\mu\text{m}$  in diameter



*Stentor coeruleus*  
1 - 2 mm, extended



*Bursaria truncatella*  
500 - 1,000  $\mu\text{m}$  in length



*Didinium*  
80 - 200  $\mu\text{m}$  in length



*Didinium Cyst*

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*Paramecium Species*



*Vorticella*  
5 - 15  $\mu\text{m}$  in length



*Blepharisma sp.*  
400 - 600  $\mu\text{m}$  in length



*Paramecium multimicronucleatum*  
200 - 300  $\mu\text{m}$  in length



*Paramecium aurelia*  
120 - 180  $\mu\text{m}$  in length



*Paramecium caudatum*  
180 - 300  $\mu\text{m}$  in length



*Paramecium bursaria*  
70 - 110  $\mu\text{m}$  in length

13. Colony contains 32 cells	<i>Eudorina</i>
Colony contains sixteen cells	<i>Pandorina</i>
14. Cell elongated with narrowed posterior	<i>Chilomonas</i>
Cell oval-shaped	<i>Chlamydomonas</i>
15. Cell elongated, green in color	<i>Euglena</i>
Cell elongated, colorless, with a broad, rounded or truncate posterior during locomotion; highly plastic when stationary, often appears to vibrate when in motion	<i>Peranema</i>
16. Body has specialized groups of cilia, or cilia in specific areas	17
Body entirely covered with cilia	19
17. Cell not on stalk	18
Cell on stalk; cells contract (stalk appears to contract like a spring)	<i>Vorticella</i>
18. Cell oval-shaped with two distinct ciliary bands, one anterior and one in the middle of the body; swims with spiral motion	<i>Didinium</i>
19. Body trumpet-shaped or elongated	20
Body oval-shaped	22
20. Body elongated; never attached to substrate	21
Body trumpet-shaped; usually attached to substrate	<i>Stentor</i>
21. Large cell with elongated, flattened body with blunt ends; contracts to 1/4 of its body length when stimulated	<i>Spirostomum</i>
Small cell with elongated body, "cigar-shaped," with rounded ends; swims rapidly in a corkscrew fashion	<i>Paramecium*</i>
22. Small body, oval shaped, with small mouth; fast swimmer	<i>Colpidium</i>
Extremely large body (visible with the naked eye), with large, wide mouth	<i>Bursaria truncatella</i>
23. Pink or rose-colored (ciliate)	<i>Blepharisma</i>
Dark bluish-green (ciliate)	<i>Stentor</i>

\*many species, see diagram