



# Life in a Living Pond

# Workshop Overview



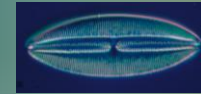
- Bring your Classroom to Life!

- Choosing the Scale of your Adventure!

# Correlation to the Next Generation Science Standards

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<ul style="list-style-type: none"> <li>Asking Questions and Defining Problems</li> <li>Developing and Using Models</li> <li>Planning and Carrying Out Investigations</li> <li>Analyzing and Interpreting Data</li> <li>Using Mathematics and Computational Thinking</li> <li>Constructing Explanations and Designing Solutions</li> <li>Engaging in Argument from Evidence</li> <li>Obtaining, Evaluating, and Communicating Information</li> </ul>	<p>LS1.A: Structure and Function</p> <ul style="list-style-type: none"> <li>All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). (MS-LS1-1)</li> <li>Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. (MS-LS1-2)</li> </ul> <p>LS2.A: Interdependent Relationships in Ecosystems</p> <ul style="list-style-type: none"> <li>Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. (MS-LS2-1)</li> <li>In any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with each other for limited resources, access to which consequently constrains their growth and reproduction. (MS-LS2- 1)</li> <li>Growth of organisms and population increases are limited by access to resources. (MS-LS2-1)</li> <li>Similarly, predatory interactions may reduce the number of organisms or eliminate whole populations of organisms. Mutually beneficial interactions, in contrast, may become so interdependent that each organism requires the other for survival. Although the species involved in these competitive, predatory, and mutually beneficial interactions vary across ecosystems, the patterns of interactions of organisms with their environments, both living and nonliving, are shared. (MS-LS2-2)</li> </ul>	<p>Scale, Proportion, and Quantity</p>

# Scale



Diatom *Spirillum*  
20  $\mu\text{m}$  10  $\mu\text{m}$

*Daphnia magna*  
2000  $\mu\text{m}$

*Paramecium caudatum*  
200  $\mu\text{m}$

# Learning Options: Local Organisms



# Learning Options: Succession



# Learning Options: Organisms Identification and Diversity



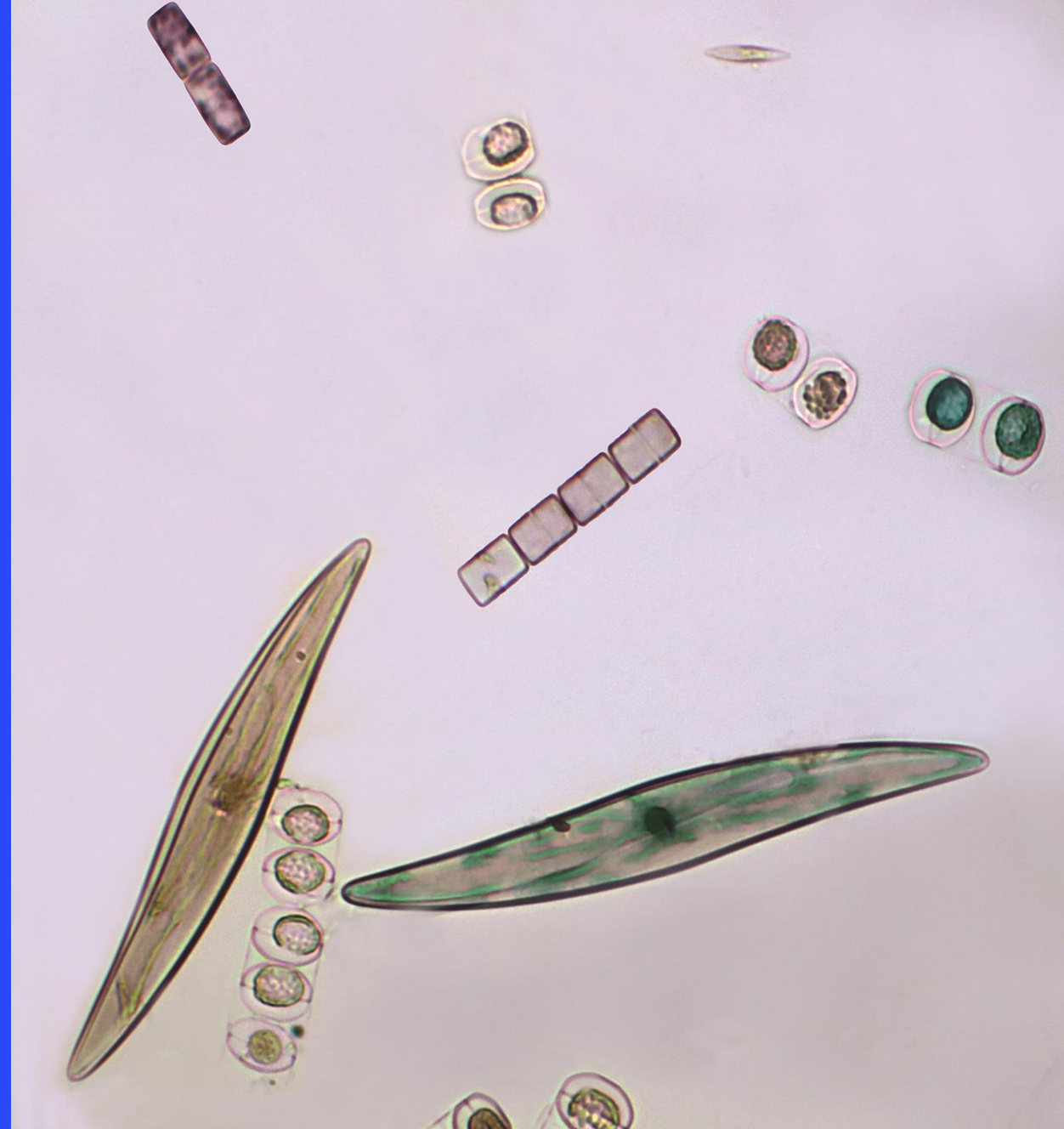
# Safety





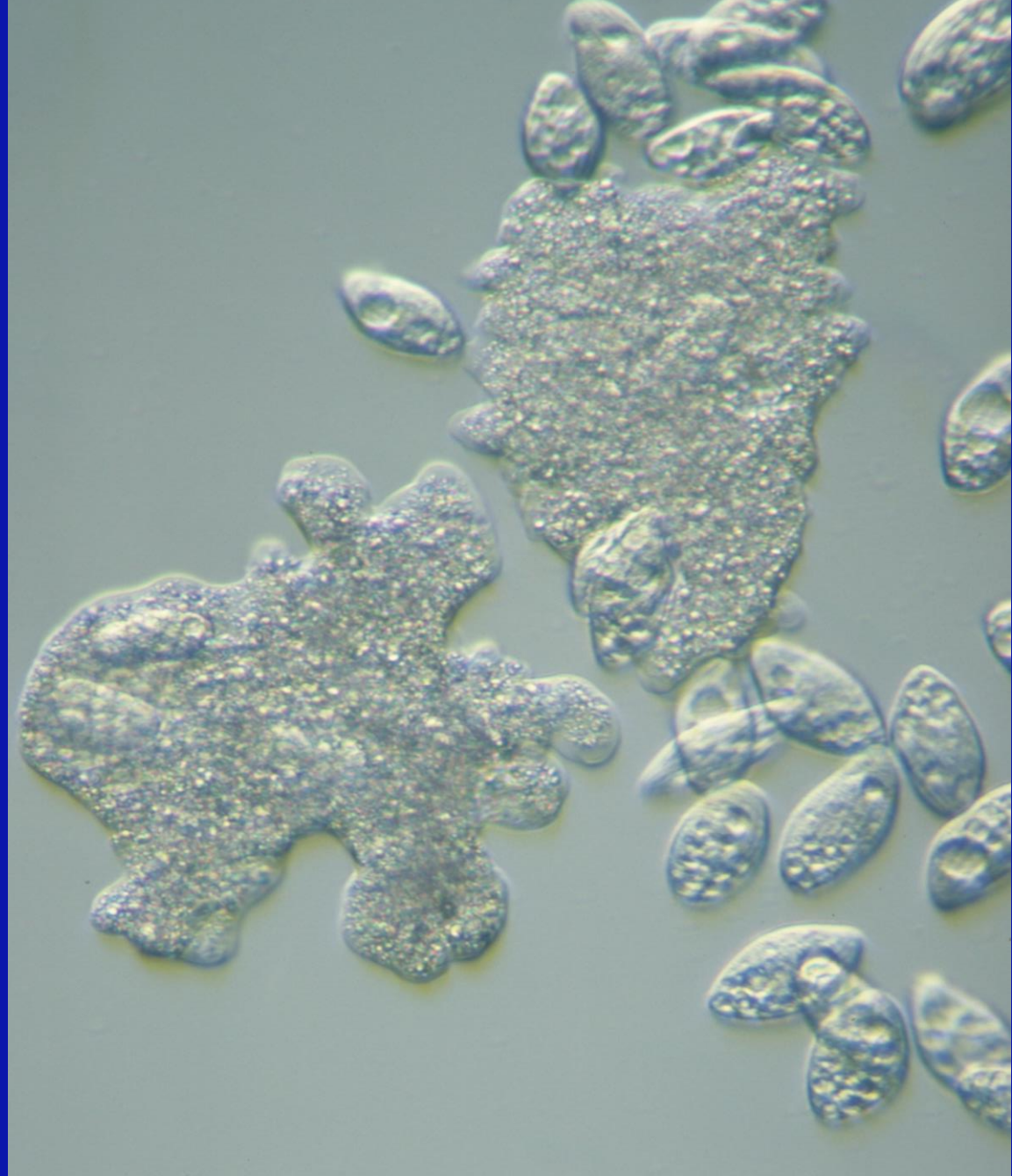
# Station 1: Identifying Algae

- Using a dichotomous key to identify algae



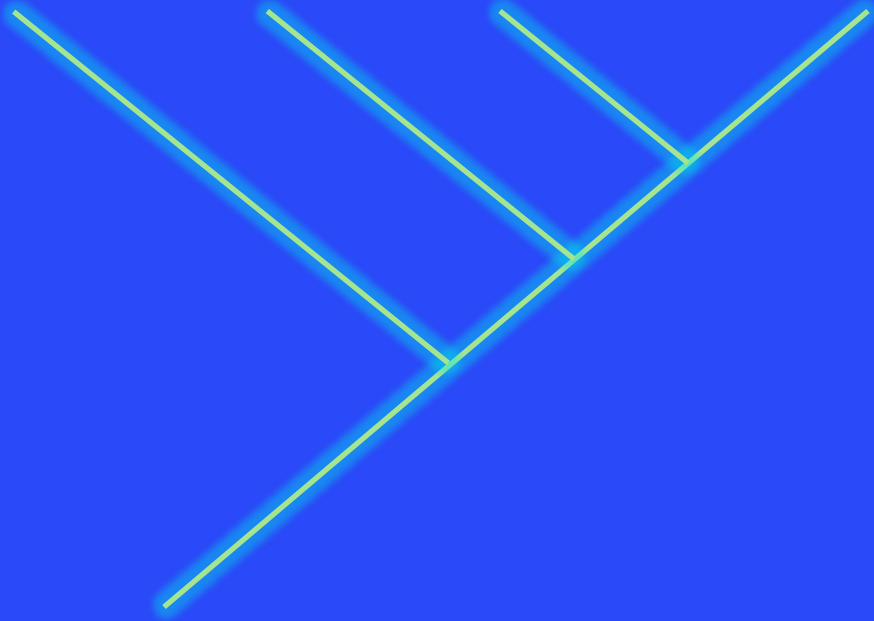
# Station 2: Preying Protozoa

- Feeding behavior in Amoeba



# Station 3: Constructing Cladograms

- Constructing a cladogram using Stereoscopes



# Station 4: Pondwater Macroinvertebrates

- Assessing the health of aquatic ecosystems using magnifiers



# First Station



10 minutes

# Second Station

10 minutes

# Third Station

10 minutes

# Fourth Station

