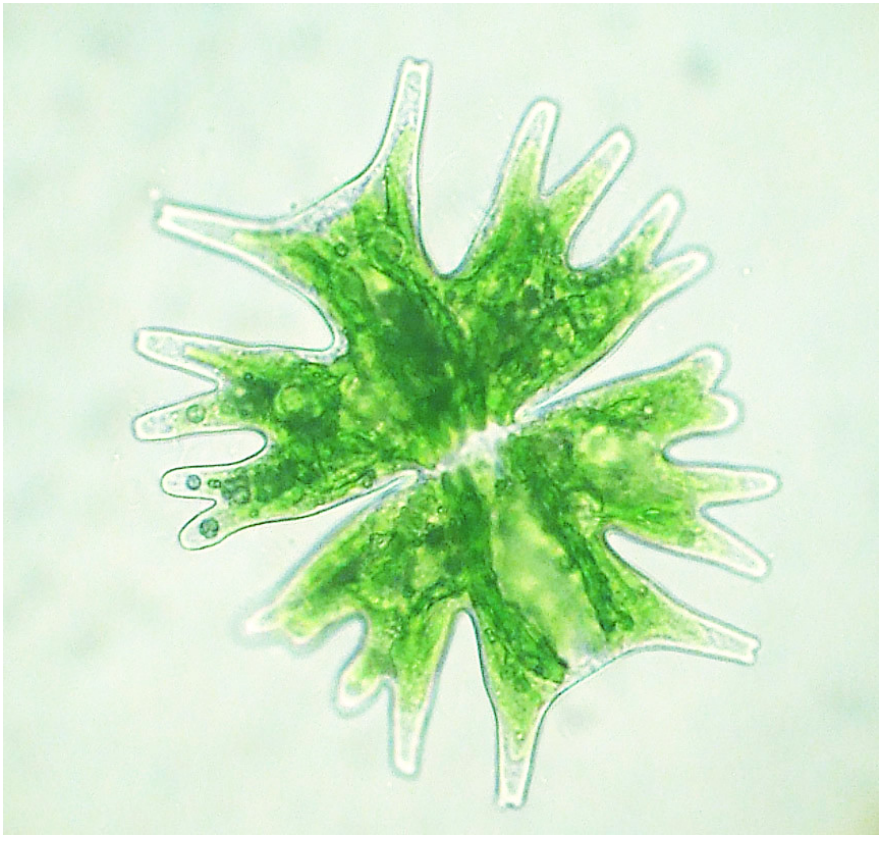
CONCEPT: LIGHT MICROSCOPE

- A **light microscope** uses light waves and magnification to view specimens
  - □ Can be used to visualize transparent _____, and some cellular components
    - Can visualize 10-20μm in diameter
    - **Limit of resolution** is the distance that you can tell two objects apart – is 0.2μm
    - **Resolving power** is the ability to see fine details of a structure (smaller resolution = greater resolving)
  - □ Light microscopes can be _____ to increase visualization of components
    - **Bright field microscopy** is when light passes directly through a specimen, but it needs to be fixed
    - **Phase contrast microscopy** improves the contrast of live cells
    - **Differential inference microscopy** can be used to visualize live cells
    - **Fluorescence microscopy** uses fluorescence to detect specific proteins or organelles
      - *FRAP* studies movement of fluorescently labeled proteins
      - *FRET* visualizes two interacting proteins within a cell

EXAMPLE:



PRACTICE:

1. Which of the following terms describes the smallest distance that you can tell two objects apart?
    a. Resolving power
    b. Limit of resolution
    c. Convex power
    d. Phase limit

2. Which type of fluorescence microscopy can visualize two interacting proteins in a cell?
    a. FRAP
    b. FRET
    c. FREP
    d. FRAT