

A microscopic view of various diatoms, showing a wide variety of shapes and sizes. The diatoms are arranged in a circular pattern, with some appearing as elongated, spindle-shaped structures, others as circular or oval shapes, and some as more complex, multi-lobed forms. The colors range from light brown to dark brown, with some showing distinct patterns or textures on their surfaces. The background is a light, neutral color, making the diatoms stand out.

DIATOMS

Chrysophyta

KINGDOM: PROTISTA



- Phylum: CHRYSOPHYTA
- This means GOLDEN PLANT
- Look at the color of many of the diatoms.
- What makes them golden?

Golden Color

- The characteristic golden color of diatoms is created by light passing through the porous shell to the pigments in the chloroplasts.
- These pigments are yellow & brown carotenoid (fucoxanthin) pigments & chlorophyll a & c (both brown)



Chloroplasts of diatom:

<http://hjs.geol.uib.no/diatoms/images/diatl2.gif>

FOUND:



- Diatoms are hearty. They are found in lakes, rivers, oceans, and often on roots or rocks.

COMPOSITION:

- Diatoms' cell walls are made of SiO_2 ...silicon dioxide...the same ingredient in GLASS!
- The cell wall is called a TEST or FRUSTULE

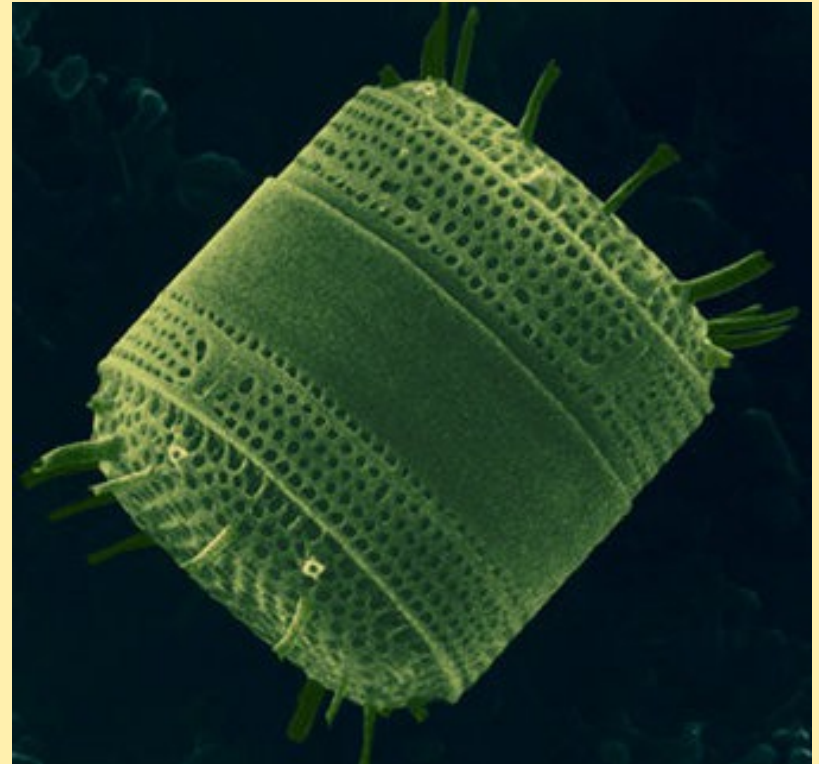
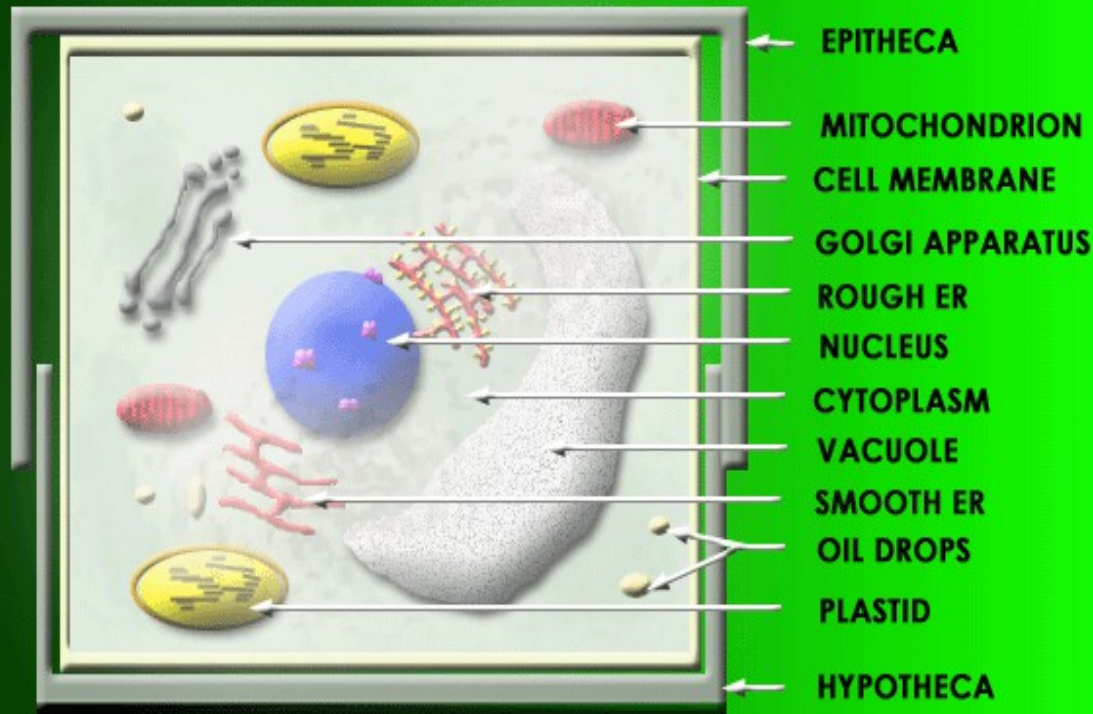


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ANATOMY OF A DIATOM:

DIATOM CELL - SCHEMA

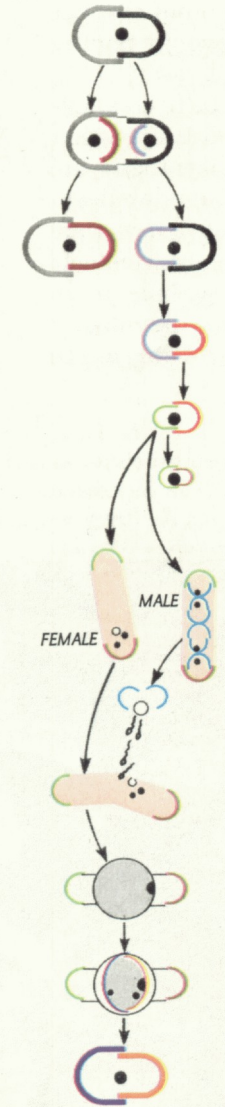


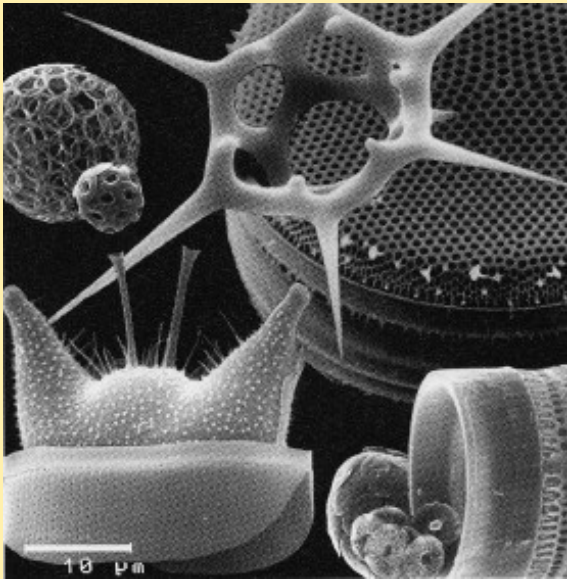
- Note the epitheca, the overlap part called the girdle, & the hypotheca

http://www.angelfire.com/ga/diatoms/images/Diatom_cell.gif

LIFE CYCLE:

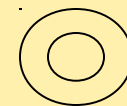
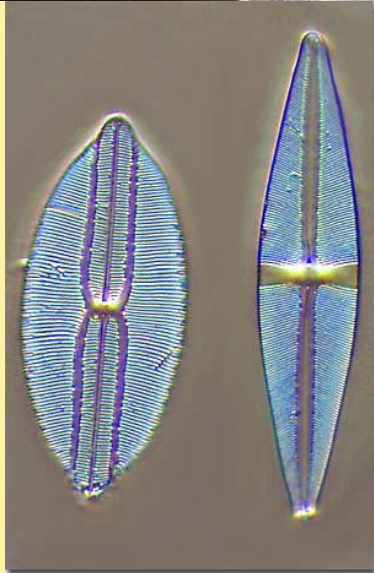
REPRODUCTION involves both sexual & asexual reproduction. Asexual reproduction by cell division is shown in the top part of the diagram...notice each new test (epitheca or hypotheca) is smaller than the half it compliments. When it gets small enough, diatoms may reproduce sexually by release of sperm & eggs to form an auxospore which will grow to full size. This is shown in the lower part of the diagram.





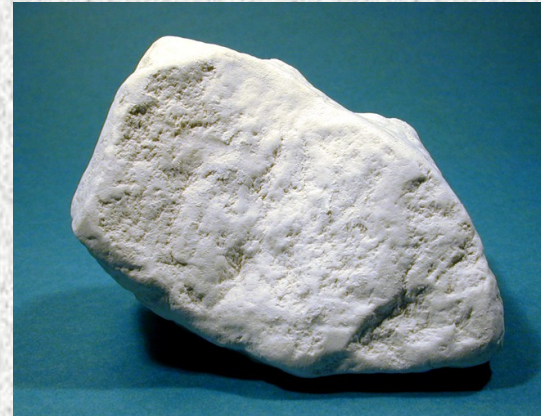
SHAPES:

- Various shapes of diatoms exist, but most are classified into two basic shapes...
- Pennate are like the lower picture ()
- Radial are the round ones like in the upper picture



DIATOMACEOUS EARTH

- Diatoms that die settle to the bottom and may, over thousands of years, be compressed into “rock” ... diatomaceous earth.
- Lompoc has hills of white diatomaceous earth once mined.



COMMERCIAL USES:



- Diatomaceous earth is used in filters for pools and alcohol, in paints, in dental care, and organic pest control as shown above. Diatoms over millennia form the oil deposits that are mined today!

DIATOMS REALLY ARE
IMPORTANT...and pretty too!

