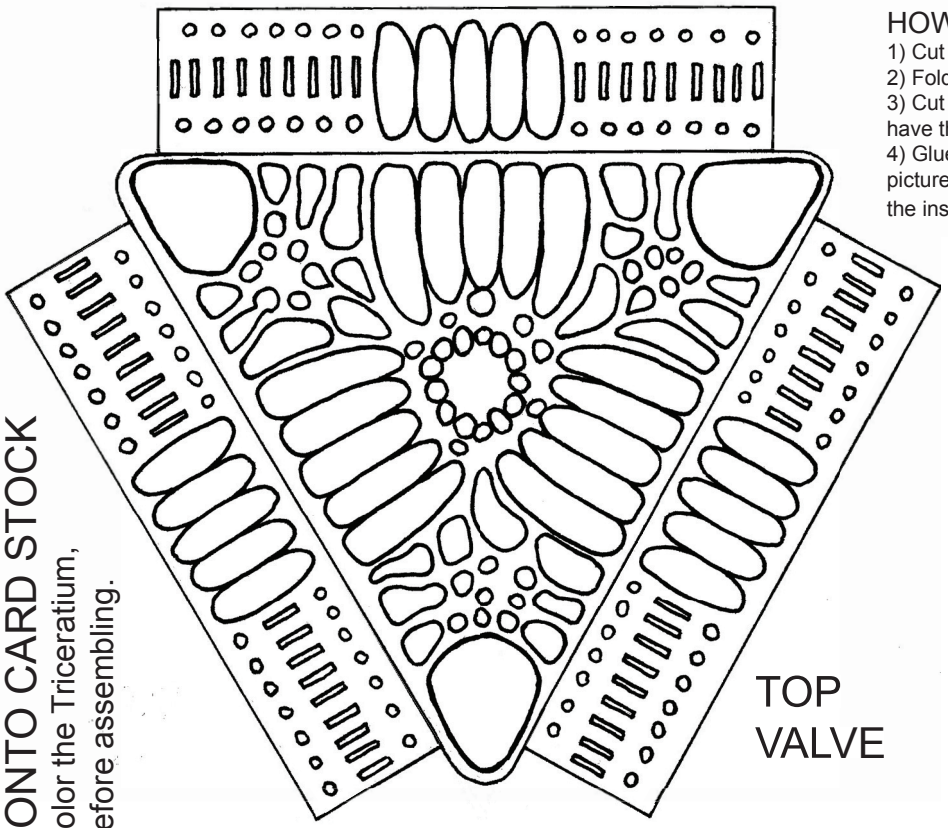
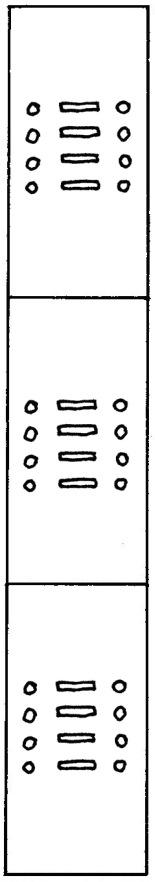
MAKE A DIATOM BOX

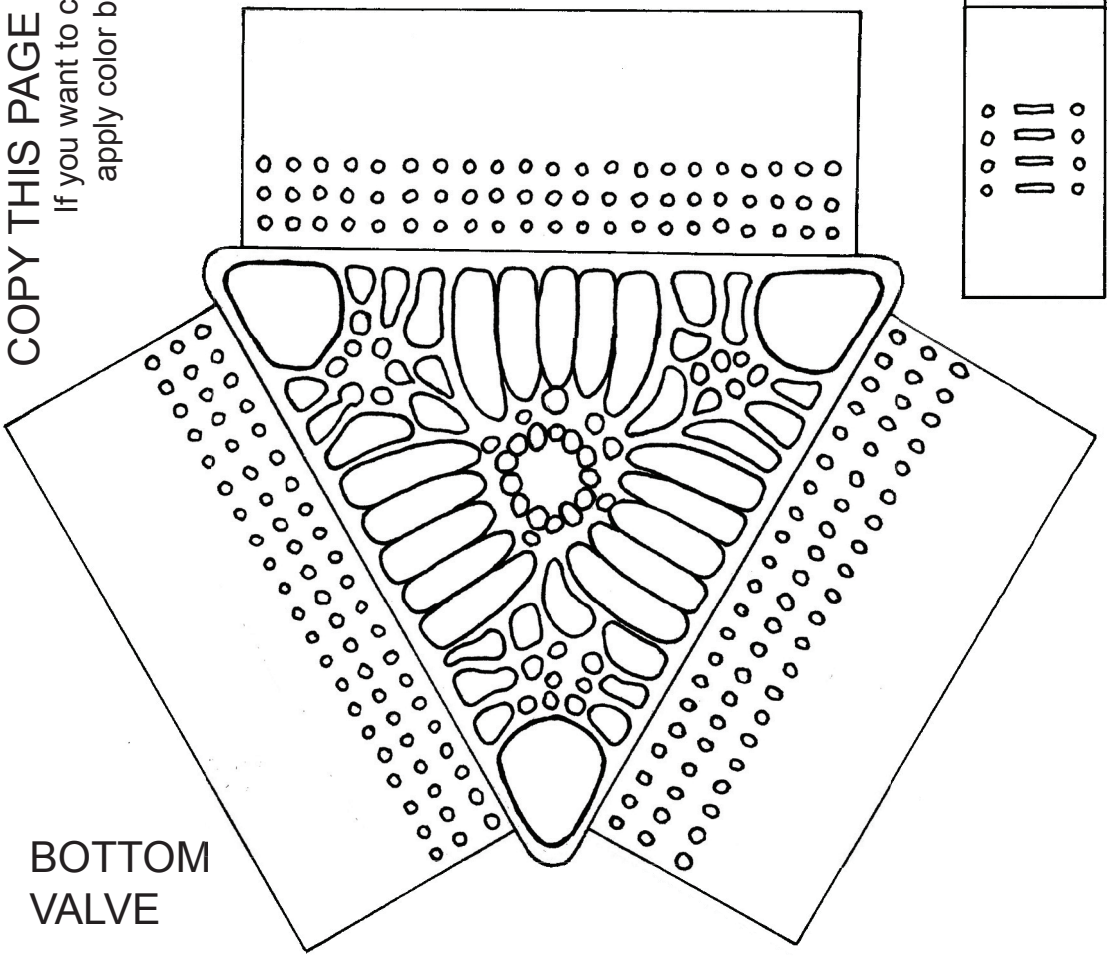
This box can hold whatever you want to put into it—paper clips, jewelry, coins, candy, etc. The name of this particular diatom is *Triceratium morlandii*. It is an extinct species found in deposits of diatomaceous earth in New Zealand. Other types of Triceratium have different patterns. (You can see lots of them if you type "Triceratium diatoms" into Google image search.)

COPY THIS PAGE ONTO CARD STOCK
If you want to color the Triceratium, apply color before assembling.



TOP VALVE

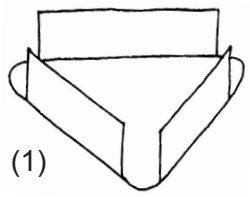


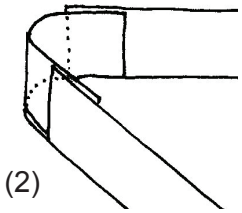


BOTTOM VALVE

HOW TO ASSEMBLE BOX:

1) Cut out the triangles with their flaps attached.
2) Fold the flaps as shown in picture (1).
3) Cut apart the two set of three corner tabs (so you will have three wide tabs and three narrow tabs).
4) Glue the tabs to the insides of the flaps, as shown in picture (2). (OPTIONAL: Run a thin bead of glue along the inside of the corners and let dry thoroughly.)





GLUING TIPS:

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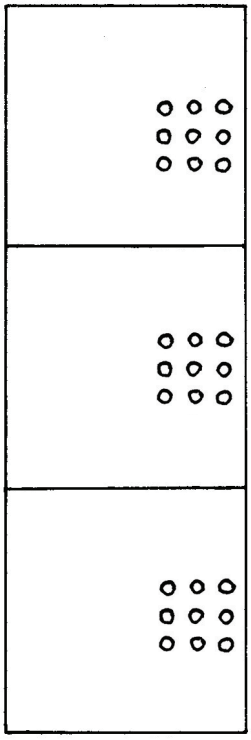

MAKE A DIATOM BOX ("design-it-yourself" version)

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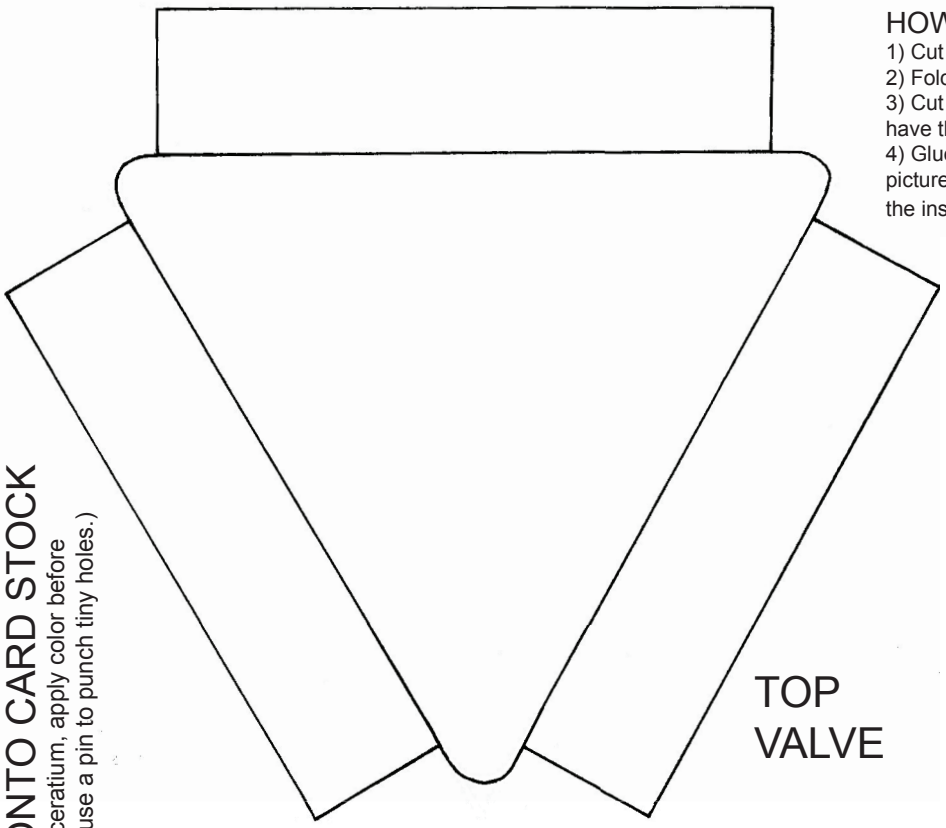
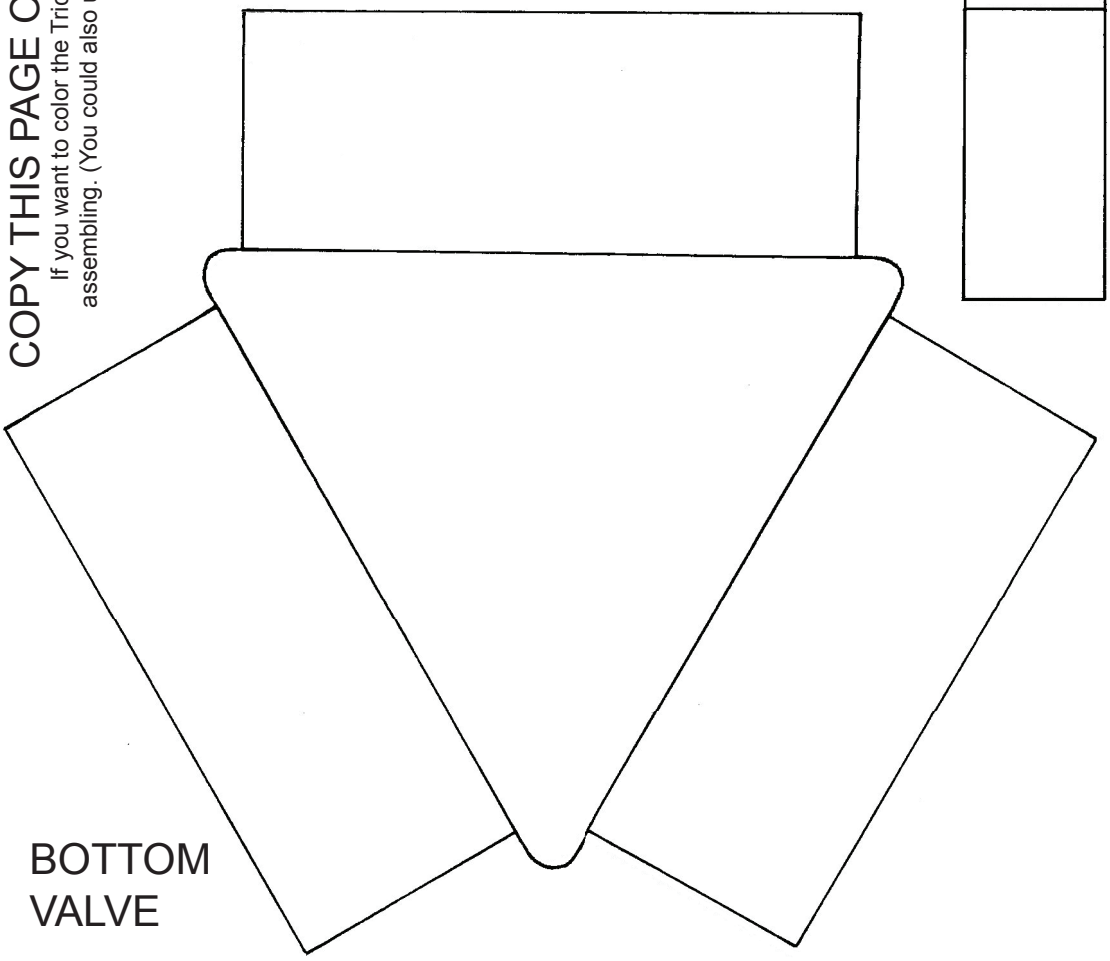
COPY THIS PAGE ONTO CARD STOCK

If you want to color the Triceratium, apply color before assembling. (You could also use a pin to punch tiny holes.)



TOP VALVE



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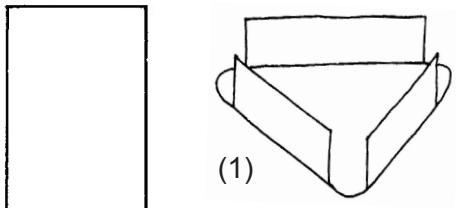
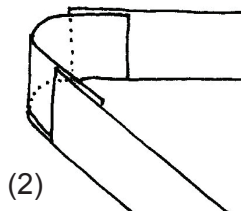


(1)



(2)

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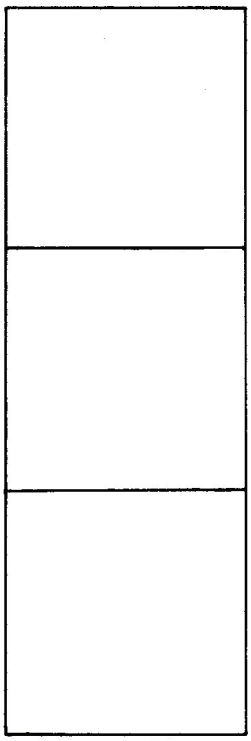
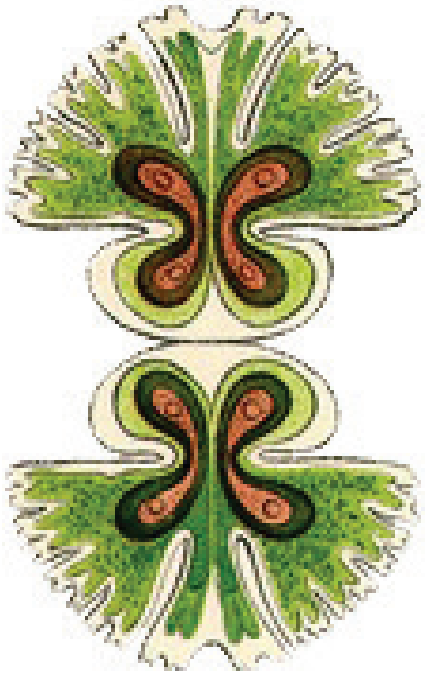
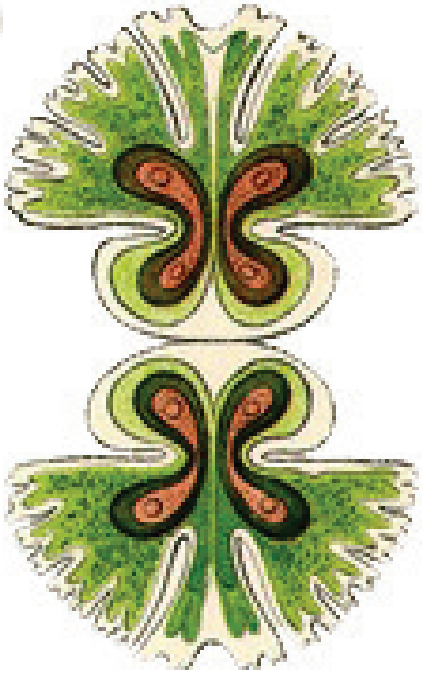
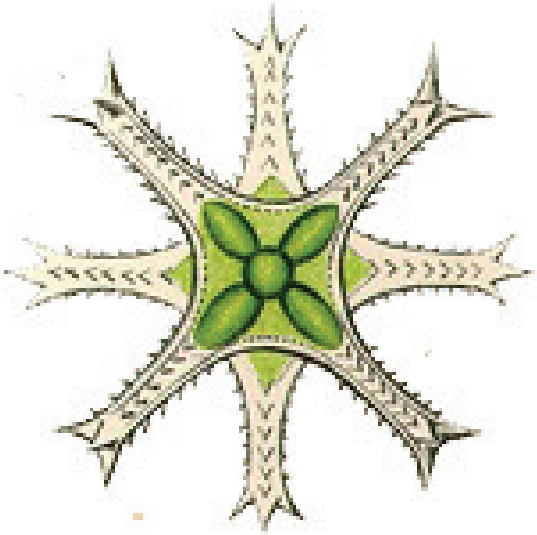
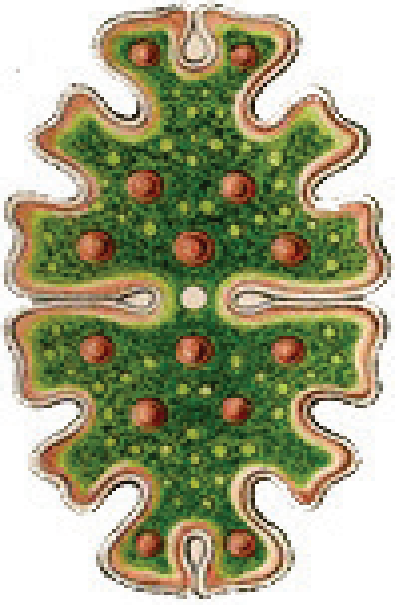
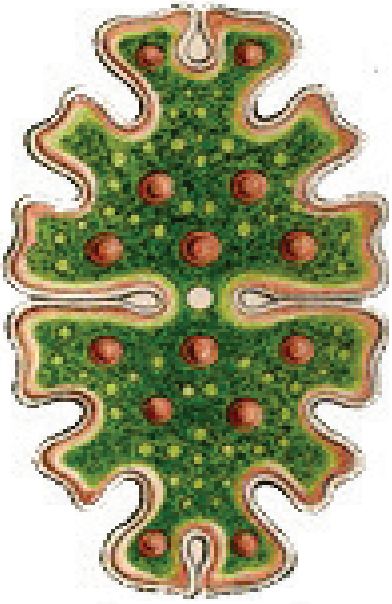


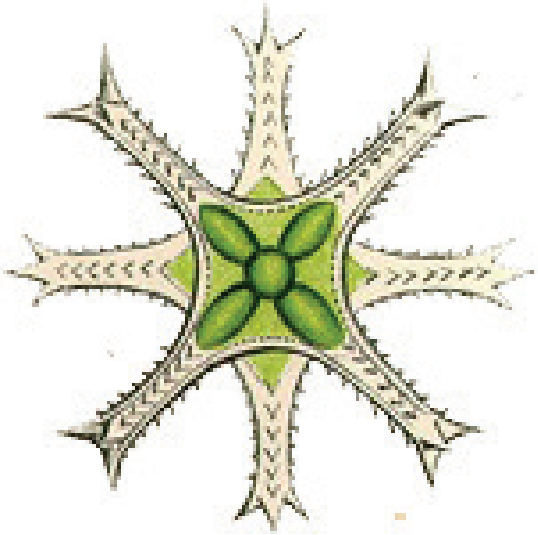


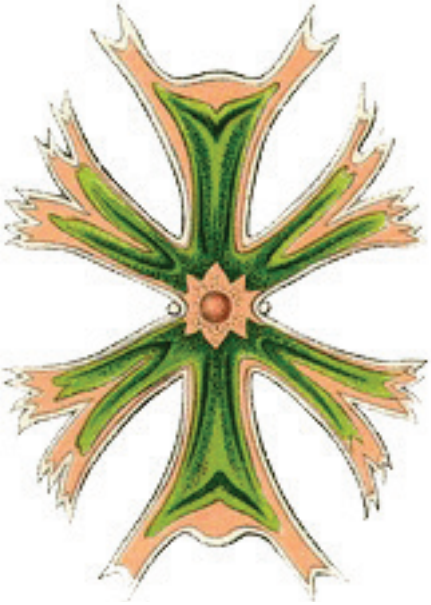


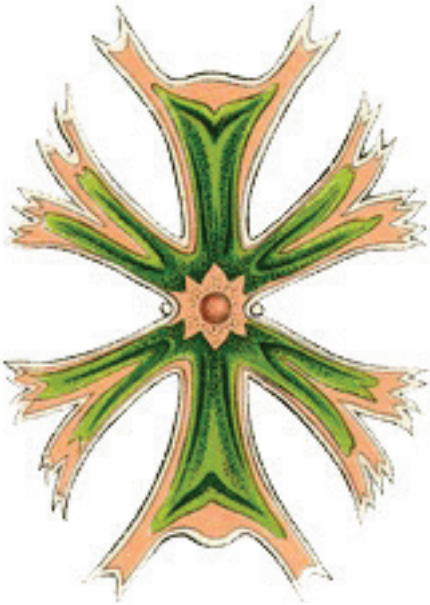












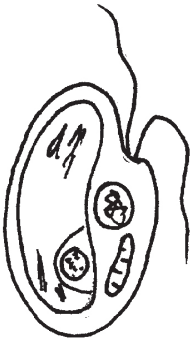
NOTE: All of these pairs are mirror images of each other, just in case you want to match the front and back precisely.

Chlorella

Size: 5-10 microns
Is a primary producer (photosynthesis).
Is a good source of nutrition for humans.

Chilomonas

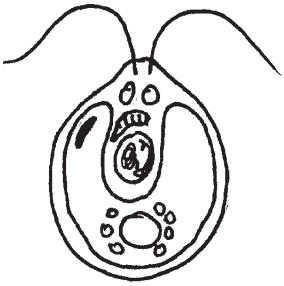
(KI-lo-MO-nass)



Size: 20-40 microns
Has very large chloroplast.
Is a primary producer (photosynthesis).

Chlamydomonas

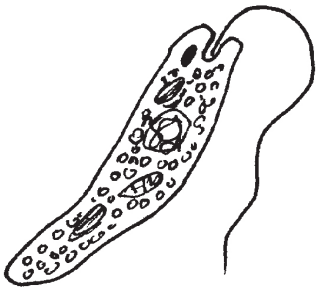
(KLAM-i-dp-MO-nass)



Size: 10-30 microns
Has large, bowl-shaped chloroplast.
Is a primary producer (photosynthesis).

Euglena gracilis

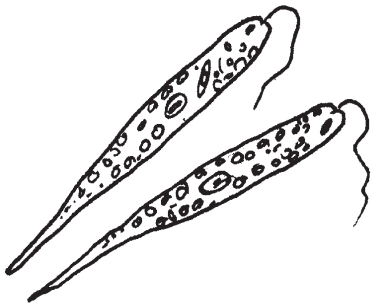
(Yu-GLEEN-ah gra-SILL-us)



Size: 100-200 microns
Can do photosynthesis but can also catch and eat bacteria and smaller protists.

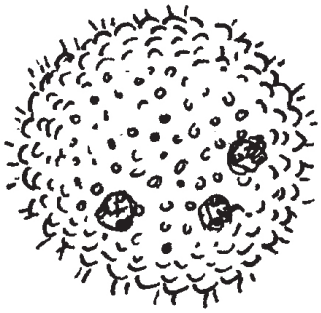
Euglena acus

(Yu-GLEEN-ah ay-kus)



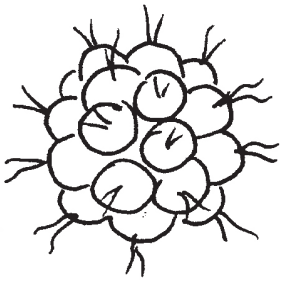
Size: 150-175 microns
Can do photosynthesis but can also catch and eat bacteria and smaller protists.

Volvox



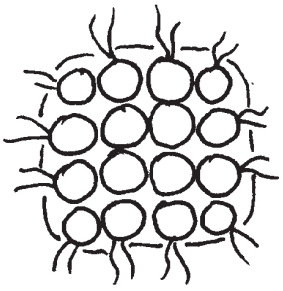
Size: 500-1000 microns
Colonies can be made of hundreds of cells.
Some cells specialize into reproductive cells.

Pandorina



Size: colonies can be up to 100 microns
Colonies stay small, usually no more than 32 cells. Likew Gonium and Volvox, a gel-like substance keeps the cells together.

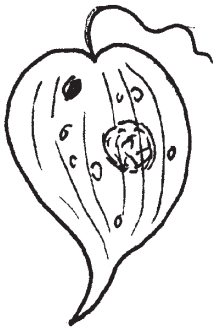
Gonium



Size: colonies can be up to 100 microns
Colonies stay small, usually no more than 16 cells. Like Volvox and Pandorina, a gel-like substances keeps the cells together.

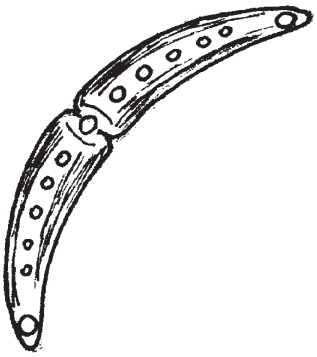
Phacus

(Fay-kus)



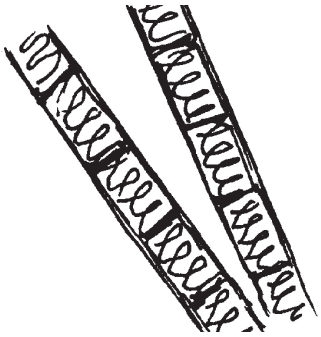
Size: 40 microns
Is rather flat, a bit like a leaf. Is a primary producer and does photosynthesis.

Closterium



Size: 100-400 microns
This desmid looks like a green banana. The dots along the center are pyrenoids that help collect carbon dioxide for photosynthesis.

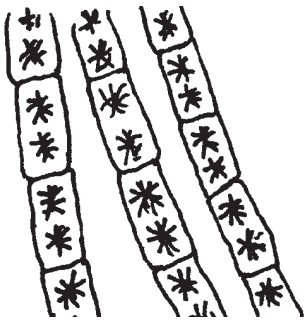
Spirogyra



Size: cells are 35-45 microns wide
This filamentous green algae is a primary producer, using photosynthesis.
Known for its spiral-shaped chloroplasts.

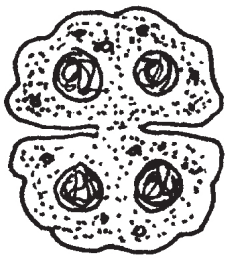
Zygnema

(zig-NEE-ma)



Size: 20-70 microns wide
This filamentous green algae is a primary producer, using photosynthesis.
Known for its star-shaped chloroplasts.

Cosmarium



Size: 30-70 microns
This is a desmid and is just one cell, not two. The skinny middle is called the isthmus. Those circles are pyrenoids that help collect carbon dioxide for photosynthesis.

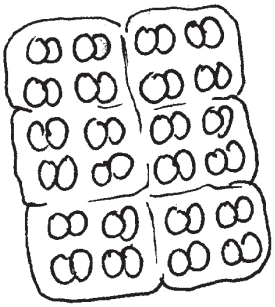
Anabaena

(An-ah-BANE-ah)
(CYANOBACTERIA)

Size: Each cell is 5-10 microns
Very common in ponds. Anabaena can make toxins that are harmful to people and animals. But it makes nitrogen accessible to plants so it is helpful to the environment.

Merismopedia

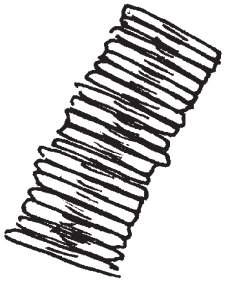
(Mare-iss-mo-pee-dee-ah)
(CYANOBACTERIA)



Size: each cell is 1-3 microns
Cells reproduce in such a way that they form a flat sheet, as shown. Very unique!

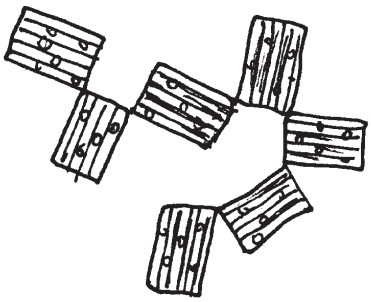
Fragilaria

(Fradj-ill-ARE-ee-ah
or
Fragg-ill-uh-REE-ah



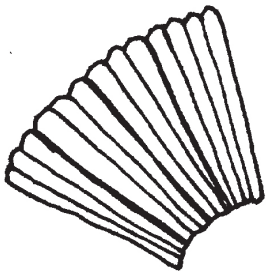
Size: 40-60 microns wide
Can contract its stalk very quickly, making it look like a spring. They can attach to a surface or float freely.

Tabellaria



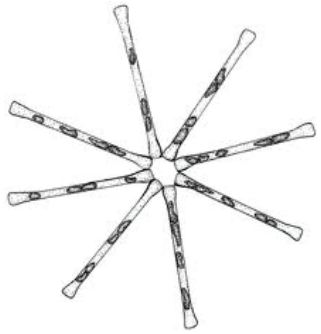
Size: each cell is 40-50 microns long
Their name means “litte tablets.” Often found stuck to rocks or plants in a pond.

Meridon



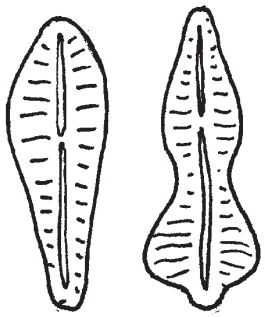
Size: each cell is 40-50 microns long
To the naked eye, Meridon would look like a brown scum on the bottom of a ditch or pond.

Asterionella
(Ast-eer-ee-on-ell-ah)



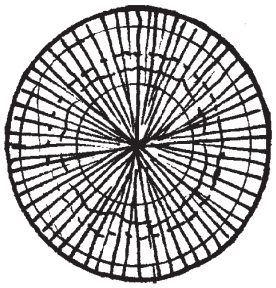
Size: each cell is 40-80 microns long
Name means “little star.” Each arm of the star is an individual cell.

Gomphonema
(Gomf-oh-NEE-mah)



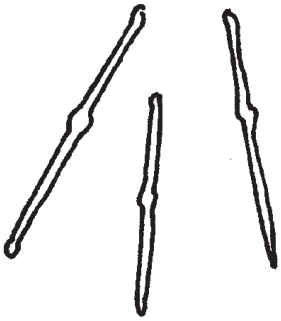
Size: 20-80 microns
Has H-shaped chloroplast.
Tolerates pollution well.

Stephanodiscus
(Stef-AN-oh-DISK-us)



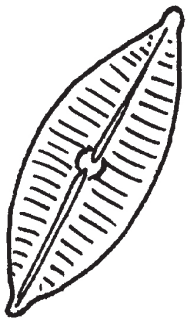
Size: 60-70 microns
Very common, and found floating freely, not attached to anything.

Synedra
(Sin-ED-rah)



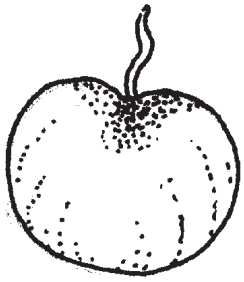
Size: 100-120 microns
Similar to Fragilaria except that they do not form colonies.

Navicula
(Na-VICK-u-lah)



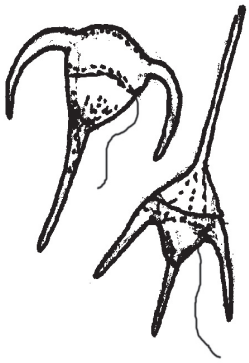
Size: 100-200 microns
Name means “little boat” because the shape is similar to the hull of a boat.

Noctiluca
(Nok-tee-LUKE-ah)



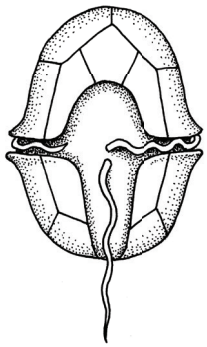
Size: 200-2000 microns (up to 2 mm!)
The thing sticking out is not a flagella, but is a tentacle used for feeding. Glows when disturbed. Name means “night light.”

Ceratium
(Sare-ah-SHEE-um)



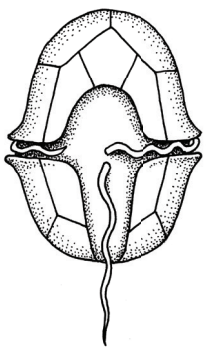
Size: 100-500 microns
This dinoflagellate can either do photosynthesis, or capture small prey. They can cause blooms but are not as toxic as others.

Gonyaulax
(Go-nee-ALL-ax)



Size: 30-50 microns
This dinoflagellate can reproduce very quickly when conditions are good, causing a “bloom.” Gonyaulax is often responsible for “red tides.”

Gonyaulax
(Go-nee-ALL-ax)



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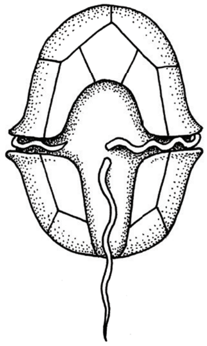

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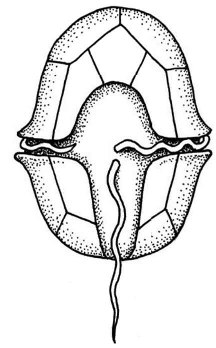

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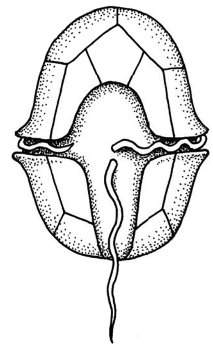
Gonyaulax
(Go-nee-ALL-ax)



Size: 30-50 microns
This dinoflagellate can reproduce very quickly when conditions are good, causing a "bloom." Gonyaulax is often responsible for "red tides."

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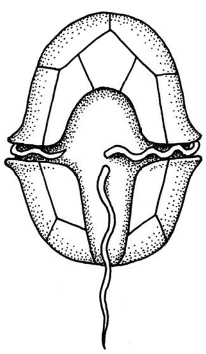
(Go-nee-ALL-ax)



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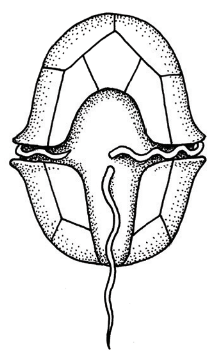

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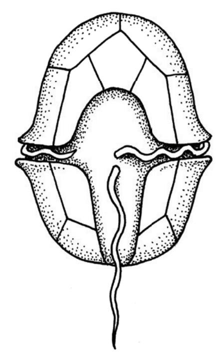

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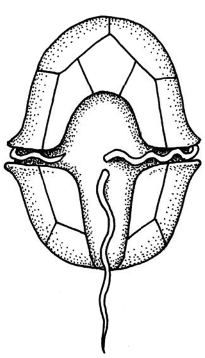

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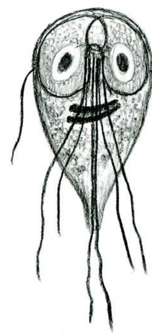
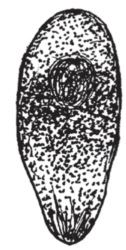
Giardia
(Jee-AR-dee-ah)



Size: 20 microns
This protist is a parasite that lives in the intestines of mammals, including humans. You catch it by drinking contaminated water.

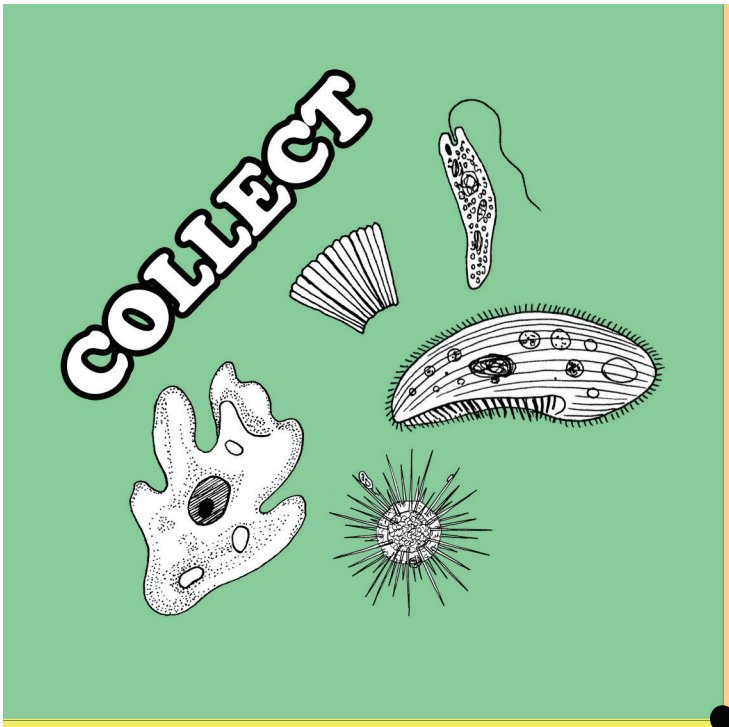
Plasmodium falciparum

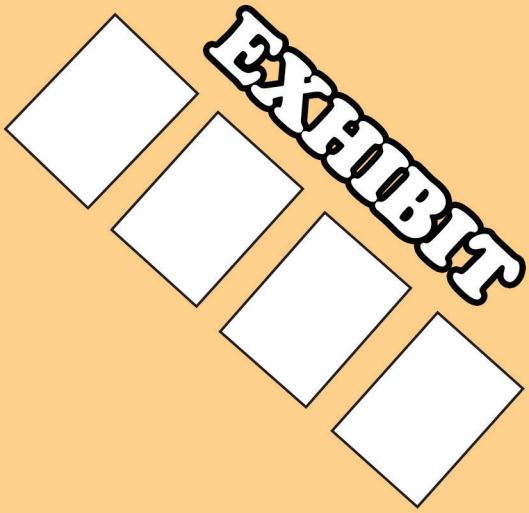


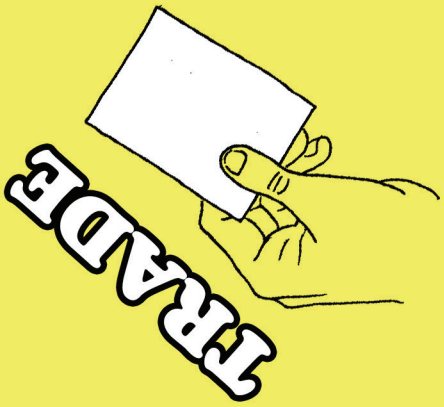
Size: 10-15 microns
Causes the disease malaria. Belongs to the class called Apicomplexans (also known as Sporozoans). Lives in the liver and in red blood cells. Mosquitoes transmit the disease.

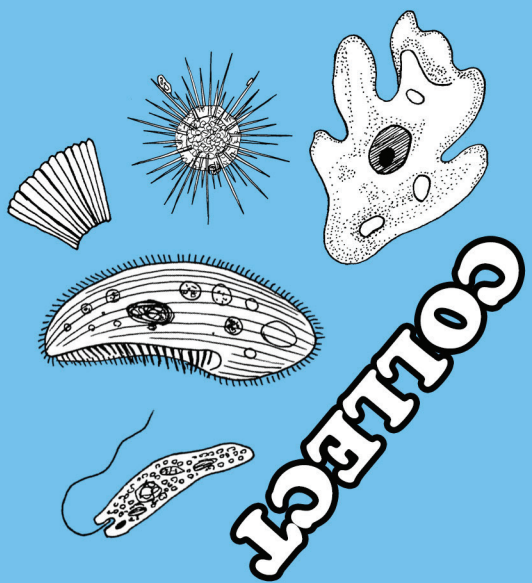
These two cards are for the game at the end of chapter 5. Set them aside for now.

GLUE THIS PAGE TO A PIECE OF THIN CARDBOARD

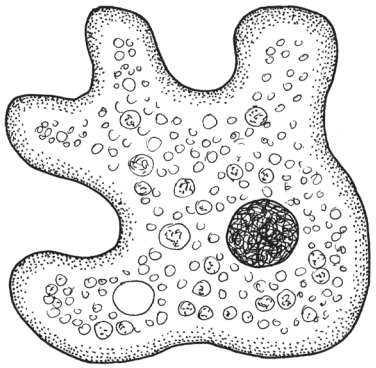








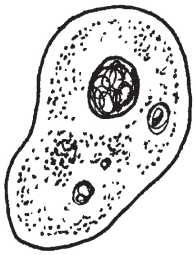
Amoeba proteus



Size: 300-600 microns
Captures anything it can catch with its pseudopods. Changes shape constantly.

Entamoeba histolytica

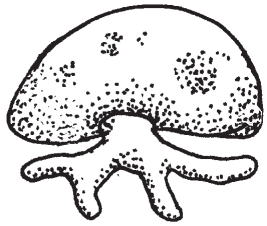
(ENT-a-MEE-bah Hist-o-LIT-i-cah)



Size: 15-60 microns
Lives inside the intestines of animals, including humans.

Arcella

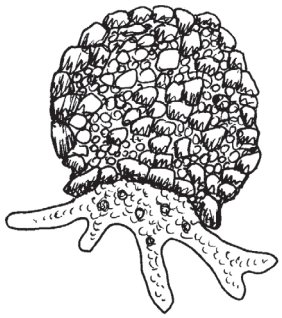
(Ar-SELL-ah)



Size: 30-100 microns
This ameba makes a shell out of a protein called “chitin.” The pseudopods catch prey.

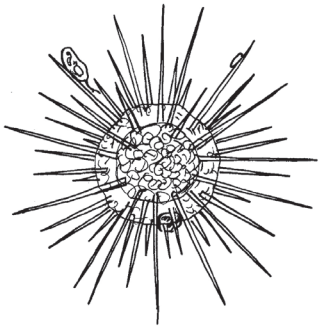
Difflugia

(Di-FLU-gee-ah)



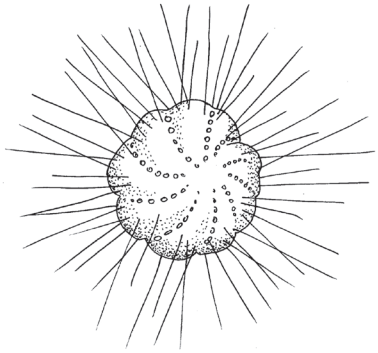
Size: 100-150 microns
This ameba makes a shell out of bit of debris that it finds, such as sand, dirt, or broken shells. It catches prey with its pseudopods.

Heliozoans



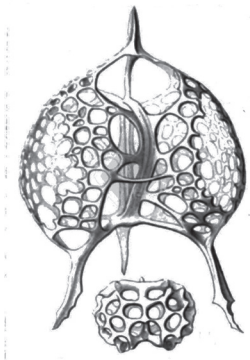
Size: 200-300 microns
They can catch prey with their stiff axopods. A jelly-like cytoplasm flows around axopods.

Foraminiferans



Size: 100-1000 microns
Shell is made of calcium carbonate with added bits of debris. Forams vary greatly in size and feeding behaviors. Generally, they eat anything smaller than themselves.

Radiolarians



Size: 150-300 microns
Most live in the ocean. They take silicon out of the water and use it to build their skeletons of glass (SiO_2). They are predators, using pseudopods or axopods.

Fuligo

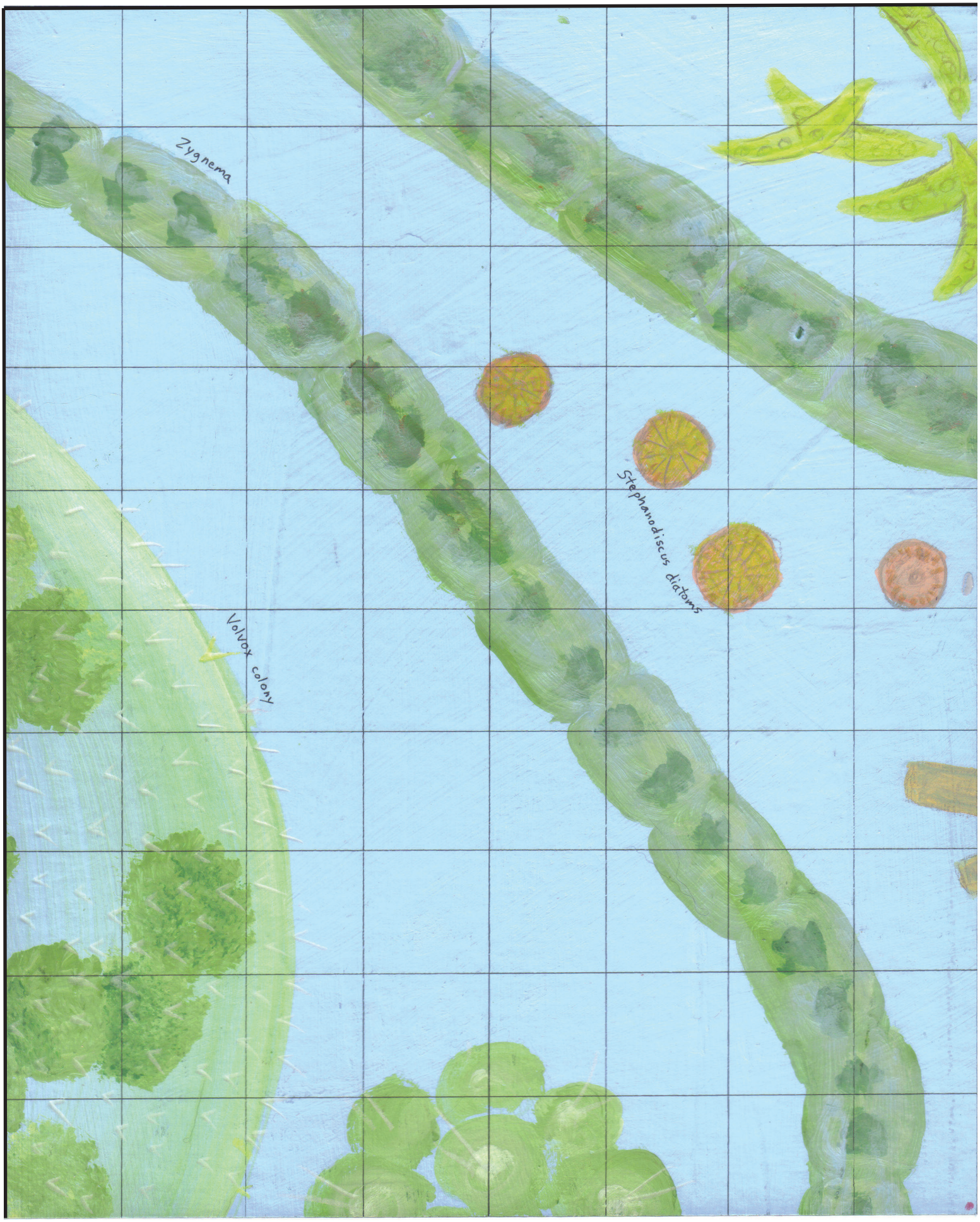
Size: colonies can be up to 20 cm
Colony is made of individual ameboid cells joined together to make a huge “mega-cell.” Fuligo is often bright yellow.

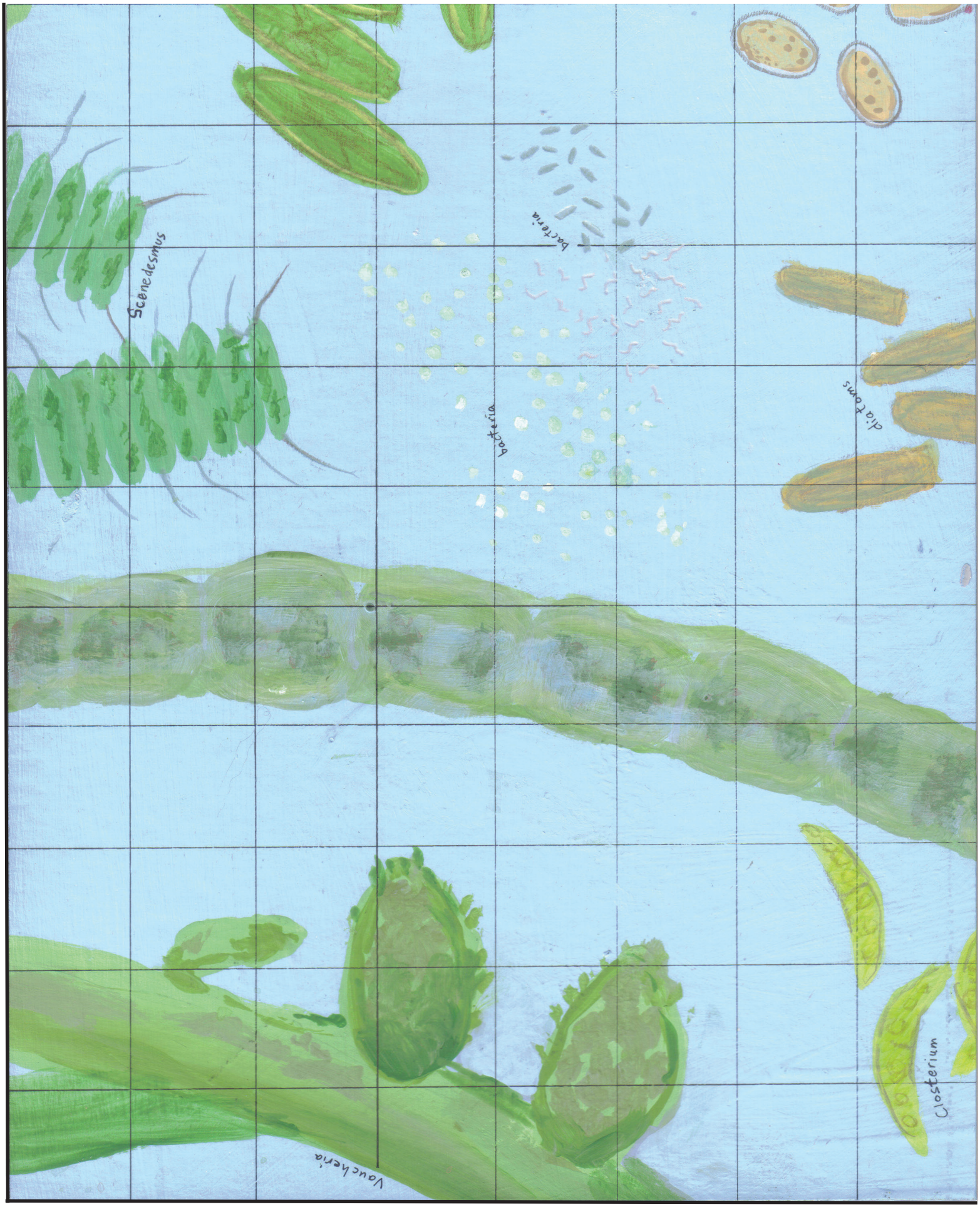
Physarum

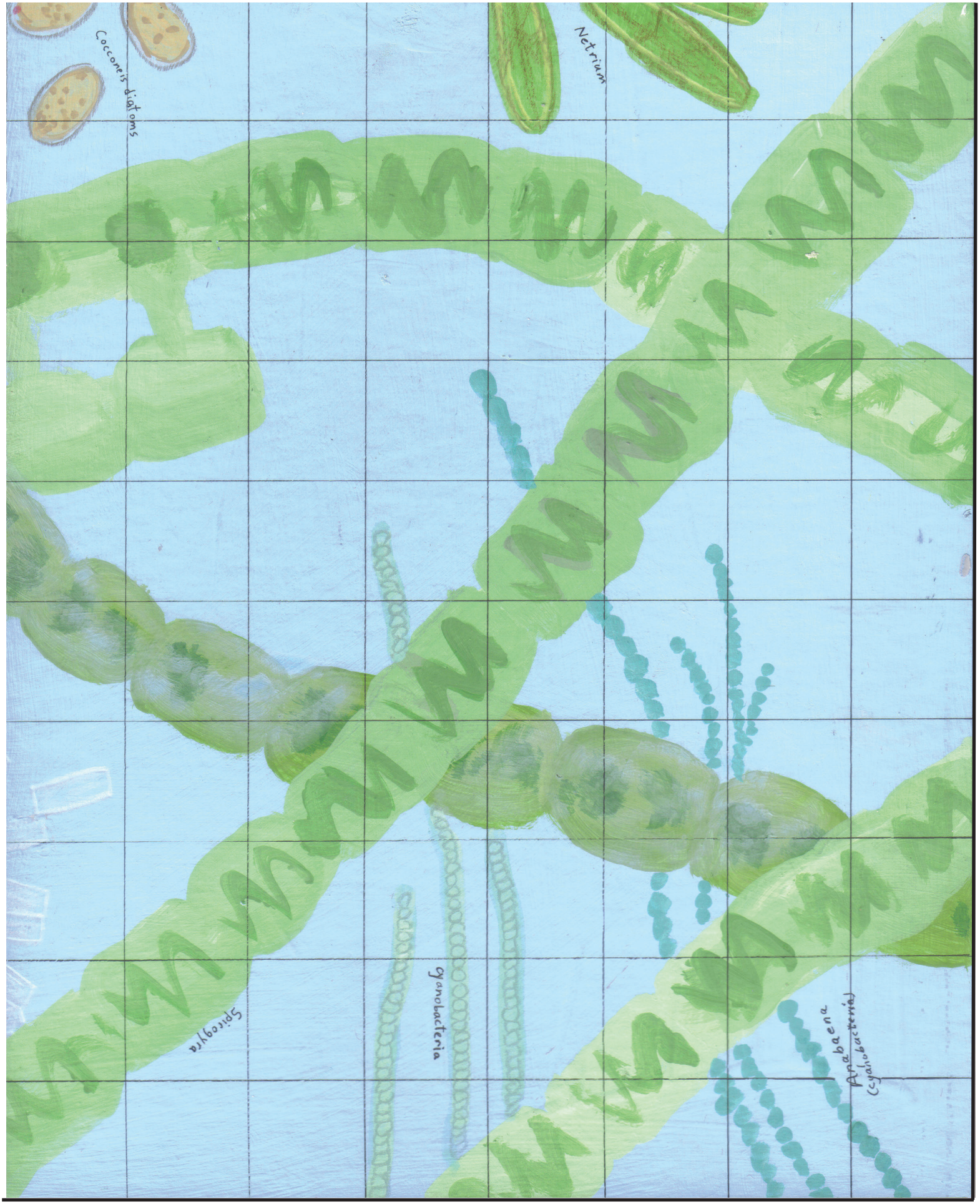
(Fi-SAR-um)

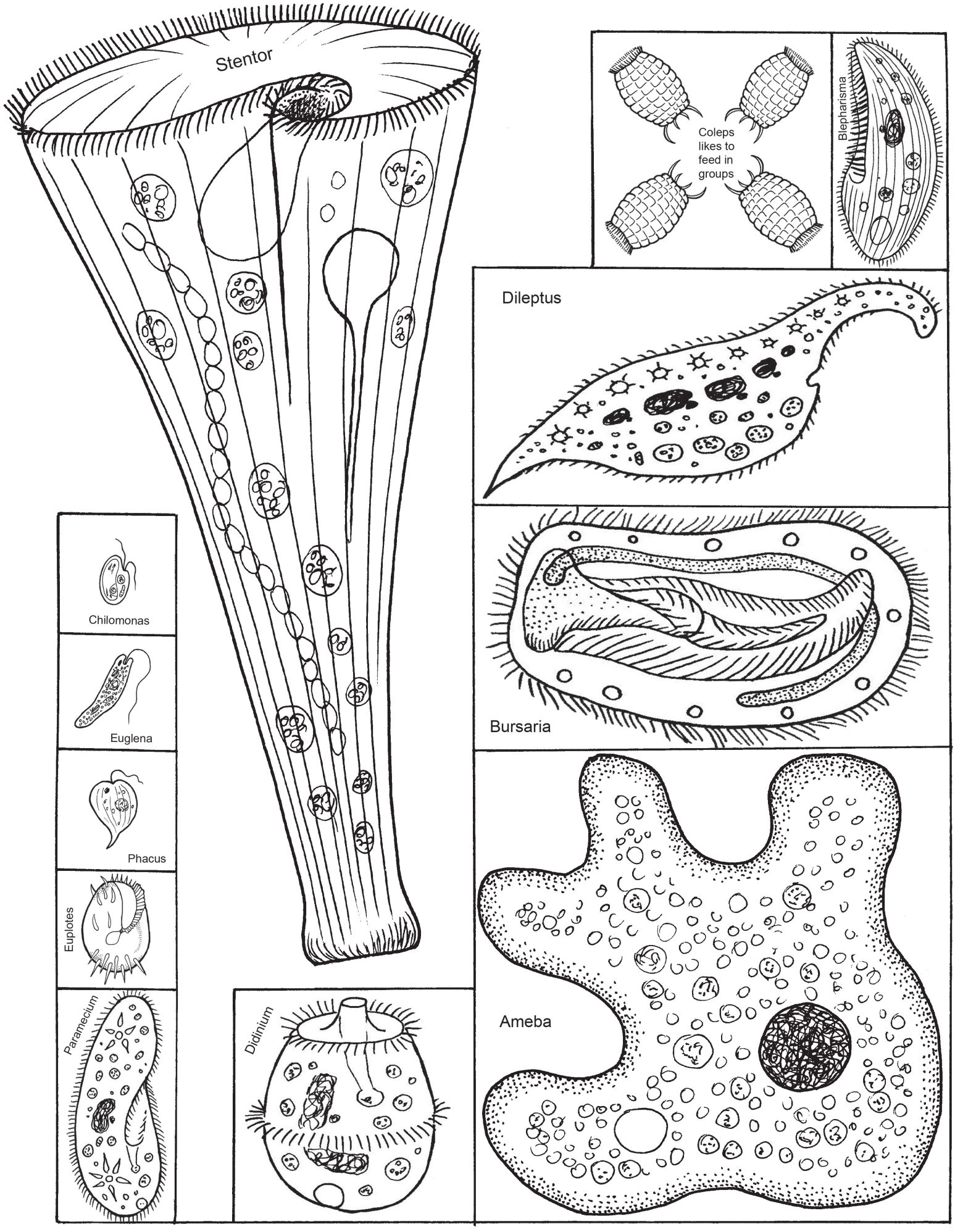
Size: Colonies can be up to 20 cm.
Like all slime molds, it can creep. It puts up little fruiting bodies, like all molds do, which is why it is a fungus-like protist.

POND SCUM board, page 1


Zygnema
Stephanodiscus diatoms
Volvox colony


Scenedesmus
bacteria
bacteria
diatoms
Closterium
Vaucheria


Cocconeis diatoms
Netrium
Spirogyra
cyanobacteria
Anabaena
(cyanobacteria)


Stentor
Coleps likes to feed in groups
Blepharisma
Dileptus
Bursaria
Chilomonas
Euglena
Phacus
Euplotes
Paramecium
Didinium
Ameba