Clam Dissection

Life Science

Read through these directions entirely before beginning:

1. Thoroughly inspect and identify each of the external structures listed in Figure 1.

2. Insert a scalpel between the two valves in the anterior end and sever (cut) the anterior adductor muscle. Be careful not to damage the other organs while doing this procedure.

3. Insert a scalpel between the two valves in the posterior end and sever the posterior adductor muscle.

4. Carefully use your scalpel and sever the ligament at the hinge.

5. Carefully remove the clam's left valve. Be delicate and leave the left mantle intact while removing it from the inner surface of the left valve. The left valve can now be removed. Your clam should now look like Figure 3.

6. Identify all structures listed in Figure 2.

7. Carefully use scissors to help remove the left mantle exposing the internal structures listed in Figure 4.

8. Locate the structures listed in figure 4.

9. Drawings required: 1. Draw external view of the left valve. Label parts you've located. 2. Draw internal view of the left valve. Label parts you've located. 3. Draw internal view of organs listed in Figure 4. Label parts you've located.

Clam (External)

Label the following:

1.This is the clam's left valve. In the dissection you performed, this valve was removed for you.

2. This indicates the anterior or head end of the clam.

3. This indicates the posterior or tail end of the clam.

4. This indicates the dorsal or upper surface of the clam.

5. This indicates the ventral or lower surface of the clam.

6. This indicates the hinge or umbo of the clam.

7. This faint line indicated on the surface of the shell is a growth ring. Notice how all growth rings emanate from the umbo.

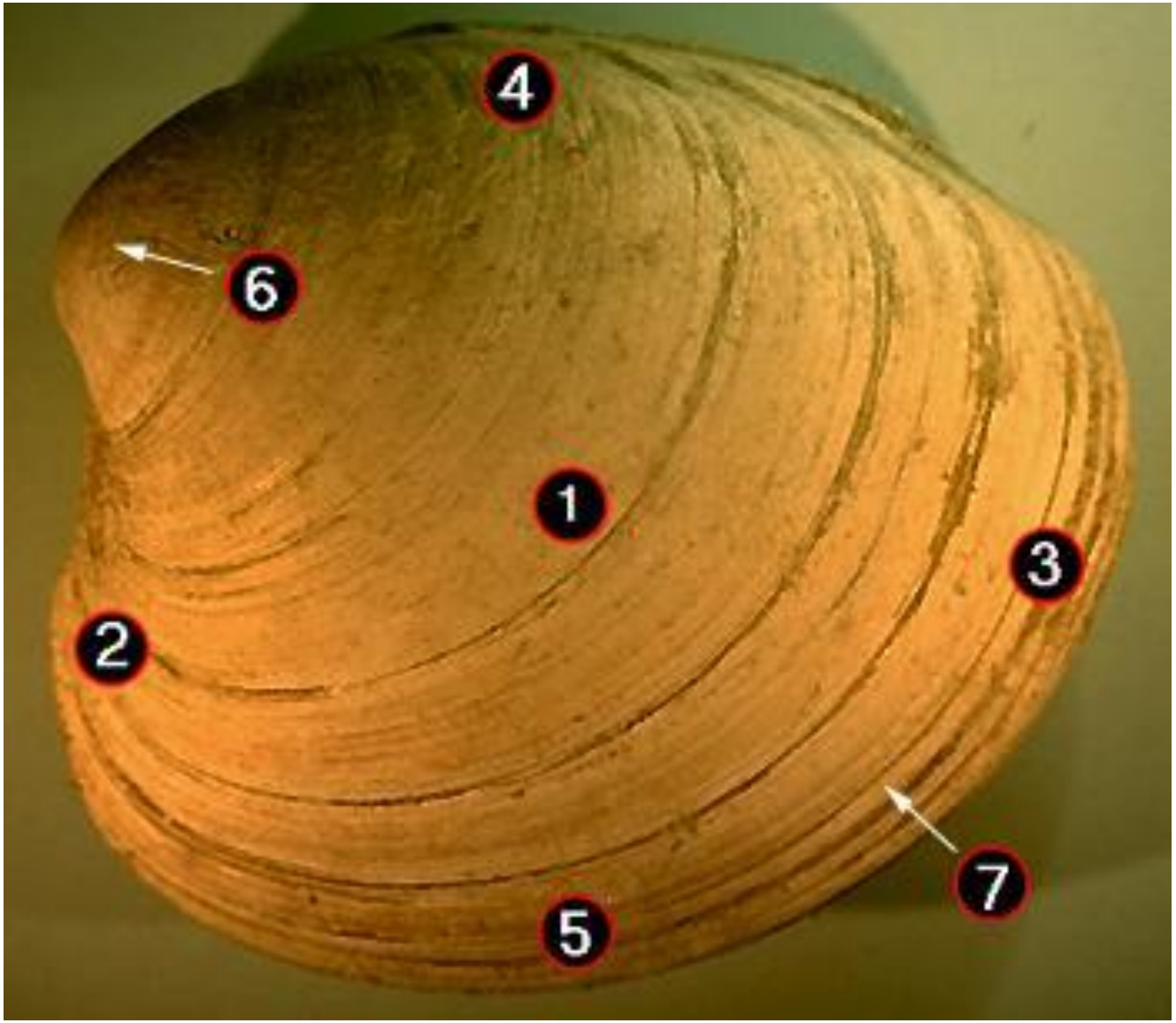

Figure 1

Clam Mantle

Label the following:

1. This is the clam's left mantle. The mantle secretes the shell and is attached to it along the pallial line seen on the inner surface of an empty valve. Note: the left mantle was detached from the left valve when it was removed. The black arrows show the border of the left mantle.

2. This is the anterior adductor muscle, a major muscle for closing the valves.

3. This is the posterior adductor muscle, a major muscle for closing the valves.

4. This is the pericardial cavity, a region covered with a thin, dark membrane that contains the heart, kidney, etc.

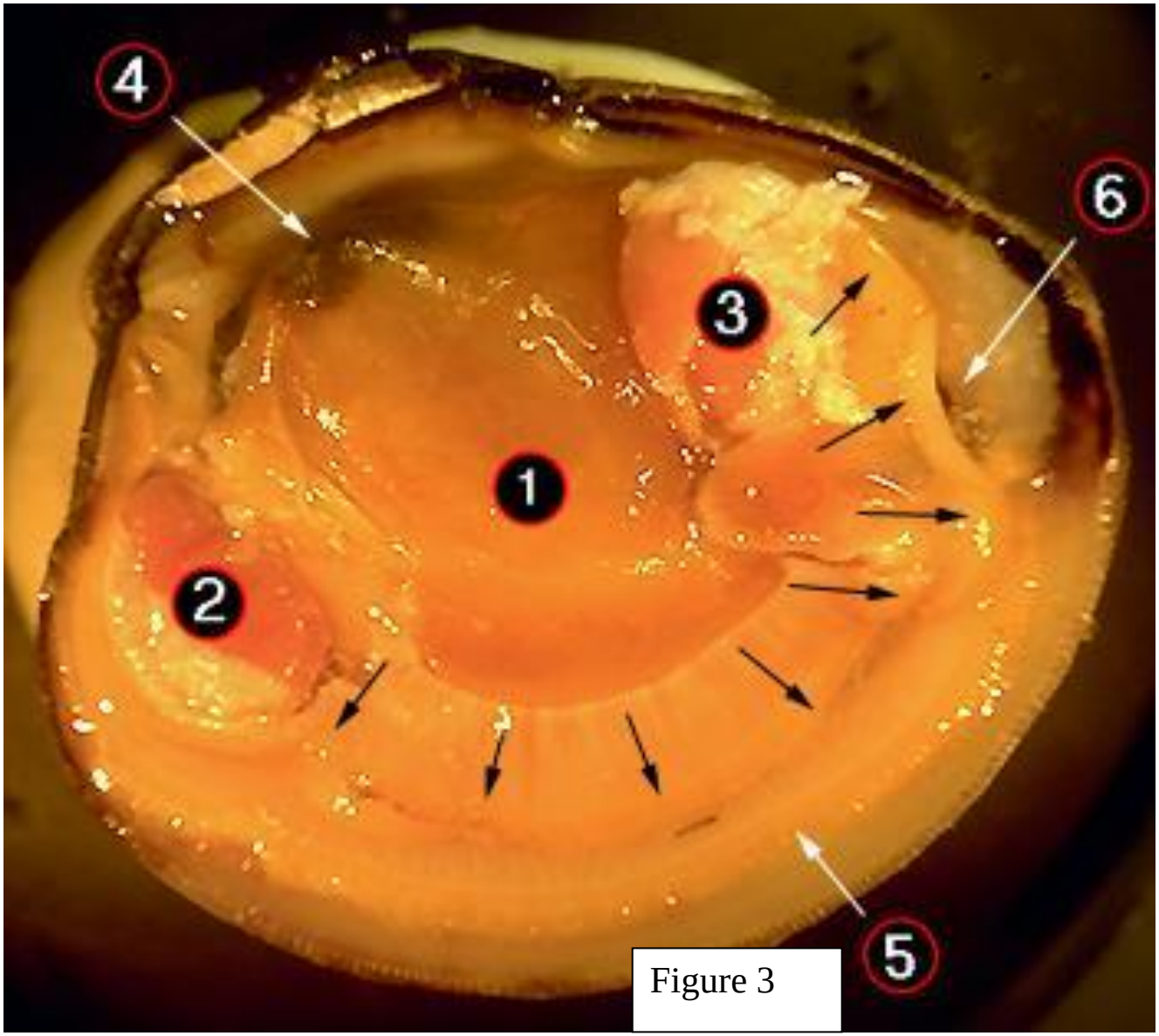

Figure 3

5. This is the margin of the right mantle. The right and left mantles join together & form the incurrent and excurrent siphons. 6. This is location of the incurrent and excurrent siphons.

Clam Valve (Internal Surface)

Label the following:

1. This is the inner surface of the clam's left valve. In the dissection you performed, this valve was removed for you.

2. This is the posterior adductor muscle, a major muscle for closing the valves. The sea food we call scallops are the adductor muscles of the bivalve known as the pecten.

3. This is the anterior adductor muscle, a major muscle for closing the valves. To open a clam, a thin knife is slid between the valves and the two adductor muscles are cut.

4. This is the hinge area of the shell. A hinge ligament holds the valves together. Interlocking teeth in this area prevent the valves from side slipping when closed.

5. Small teeth border the margin of each valve. These teeth prevent the valves from sliding laterally when the shell is closed.

6. The arrow points to the posterior shell region where the incurrent and excurrent siphons are positioned.

7. This structure indicated is the umbo of the shell. This is the oldest part of the shell.

8. This narrow line (called the pallial line) on the inner surface of the shell connecting the two adductor muscles is the region where the mantle was attached to the shell. An indentation in this line marks the location of the two siphons.

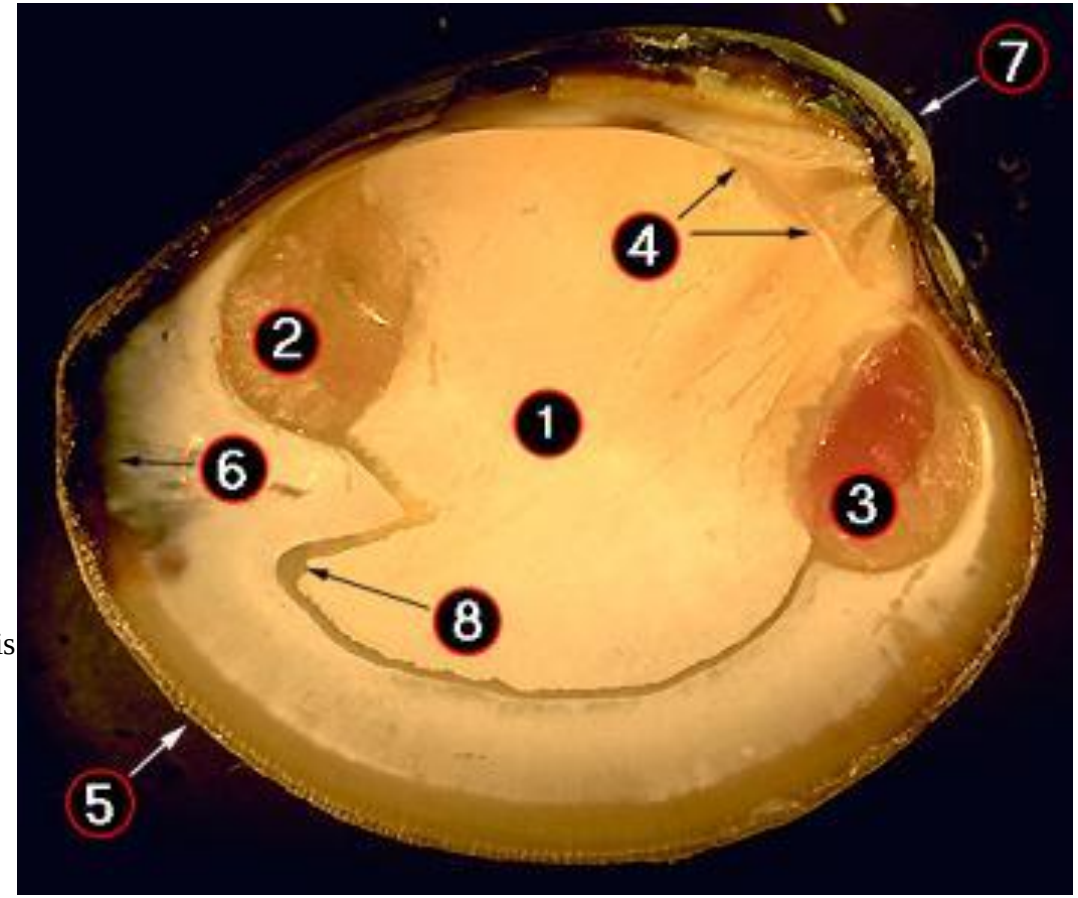

Figure 2

Clam w/out mantle attached

1. This is the clam's foot, a muscular organ used for digging.

2. This is the anterior adductor muscle

3. This is the posterior adductor muscle,

4. This is the visceral mass, a thickened region extending from the foot dorsally to the pericardial cavity and bordered by the mouth and siphons. The visceral mass contains the organs of digestion and reproduction.

5. These are the siphons. The upper arrow points to the excurrent siphon, the lower arrow, the incurrent siphon.

6. These are the gills. Two pairs of gills are found on each side of the clam.

7. These are the labial palpi. The palpi form the boundary of the mouth on their anterior end. They are covered with heavily ciliated cells and direct food toward the mouth.

8. The arrow shows the ventral margin of the right mantle

9. The arrow points to the pericardial cavity, covered with a thin, dark membrane.

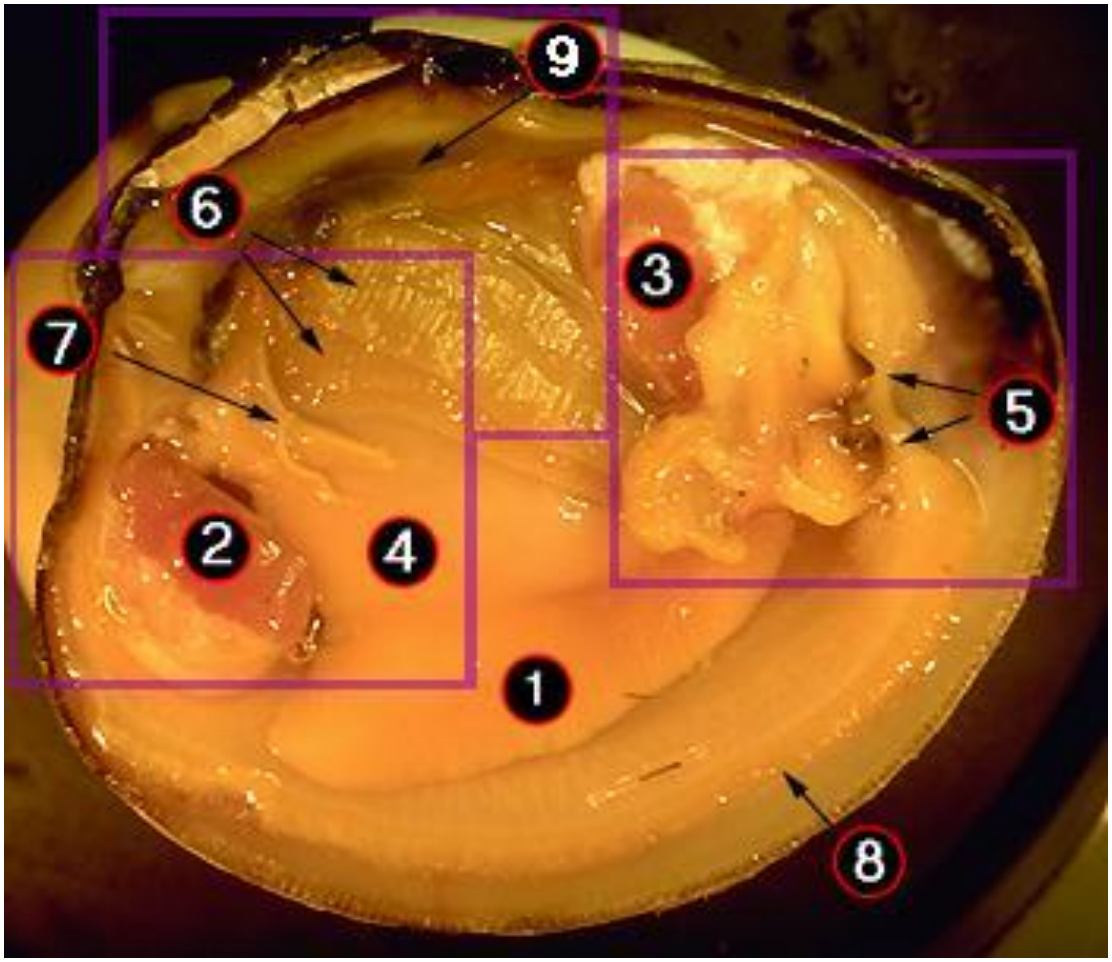

Figure 4