Identify the following external features on your dogfish shark:

1. **Nares** – a pair of openings at the front of the head that function to detect chemicals in the environment. Water is taken into the smaller opening and expelled through the larger opening.

2. **Spiracles** –small openings behind the eyes that allow water to pass through the gills even when the shark's mouth is closed.

3. **Gill slits** – five vertical slits that allow water to exit the mouth after passing over the gills.

4. **Ampullae of Lorenzini** – tiny pores on the head end that function to detect weak electrical signals of their prey.

5. **Lateral Line** – A pale line that extends the length of the shark. The line is actually a group of tiny pores that open into the undelying canal. Water circulates through this canal and allows the shark to detect various signals such as water movement.

6. **Cloaca** – This is the exit from the digestive tract combined with being an opening for the sex organs. The cloaca lies between the pelvic fins.

7. **Clasper** – A finger-like extension of the male reproductive system that aid in sperm transfer to the female.

8. **Dorsal spines** – a small spine close to the dorsal fins. Each spine is associated with a poision gland.

Identify the following internal features on your dogfish shark:

1. **Esophagus** – the connection between the pharynx (throat) to the stomach. Sends food to the stomach.

2. **Stomach** – The j-shaped organ used for digestion.

3. **Spiral intestine** – Located just below the stomach. If you cut the organ open, you will notice a spiral-like fold of tissue inside. This tissue greatly increases the surface area for absorption of nutrients.

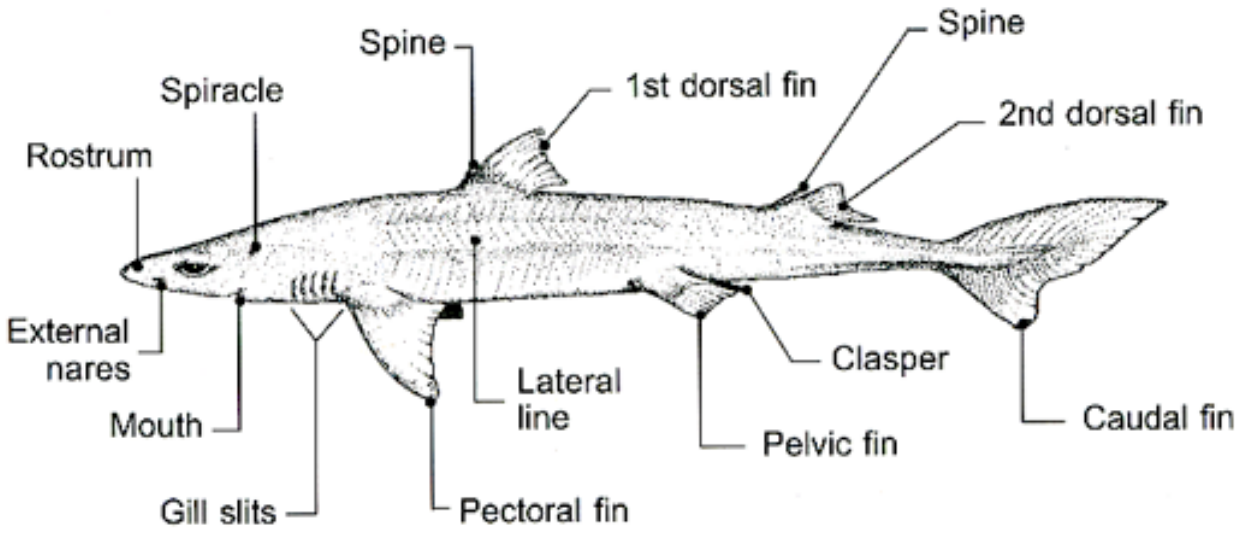
4. **Pancreas** – Sits between the stomach and spiral intestine. Produces digestive enzymes for release in the spiral intestine.

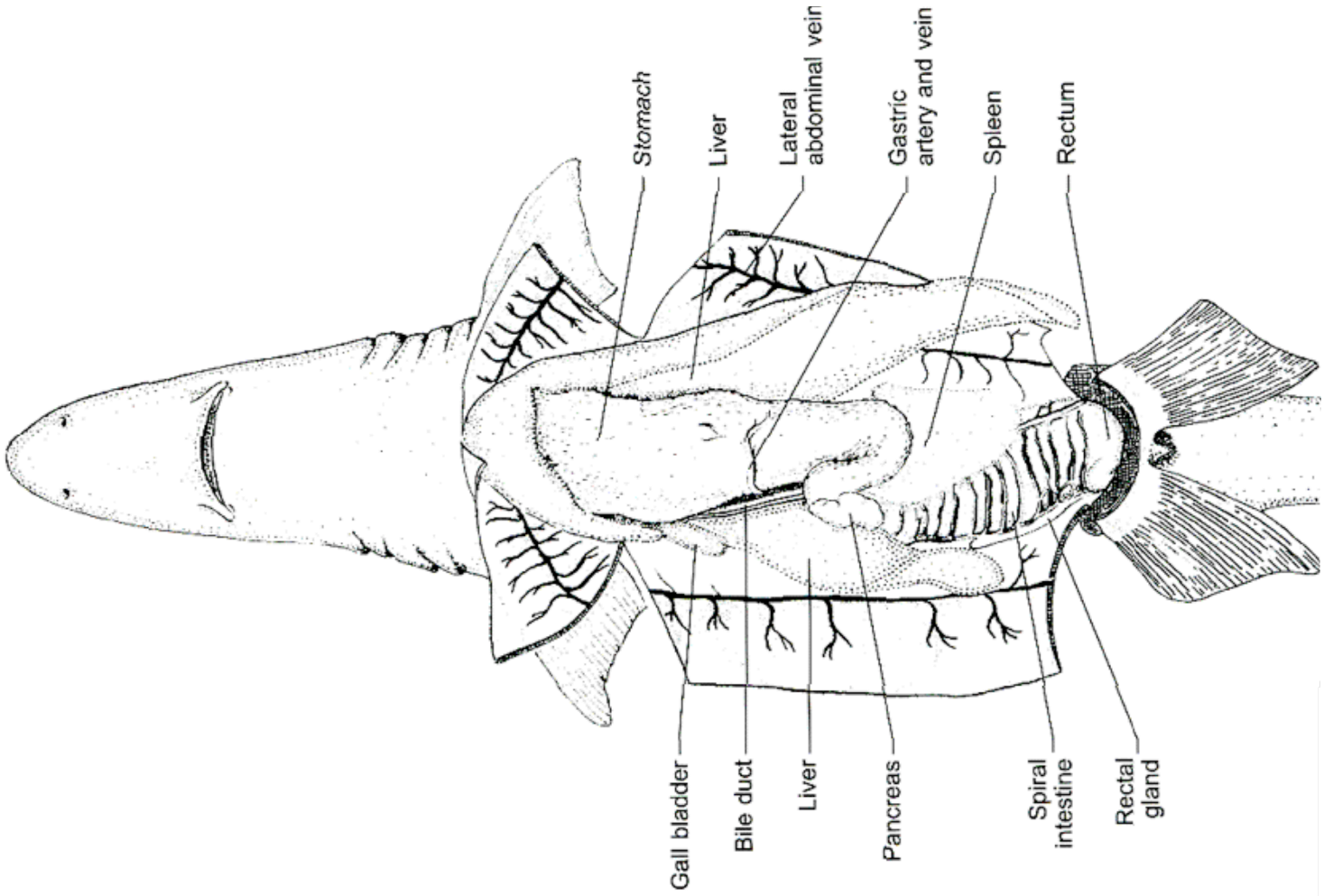
5. **Liver** – An enormous organ composed of three lobes. It is extremely oily – the oil helps the shark maintain buoyancy (float). The function of the liver is to filter impurities from the blood, store vitamins, and secrete bile for breaking down fats.

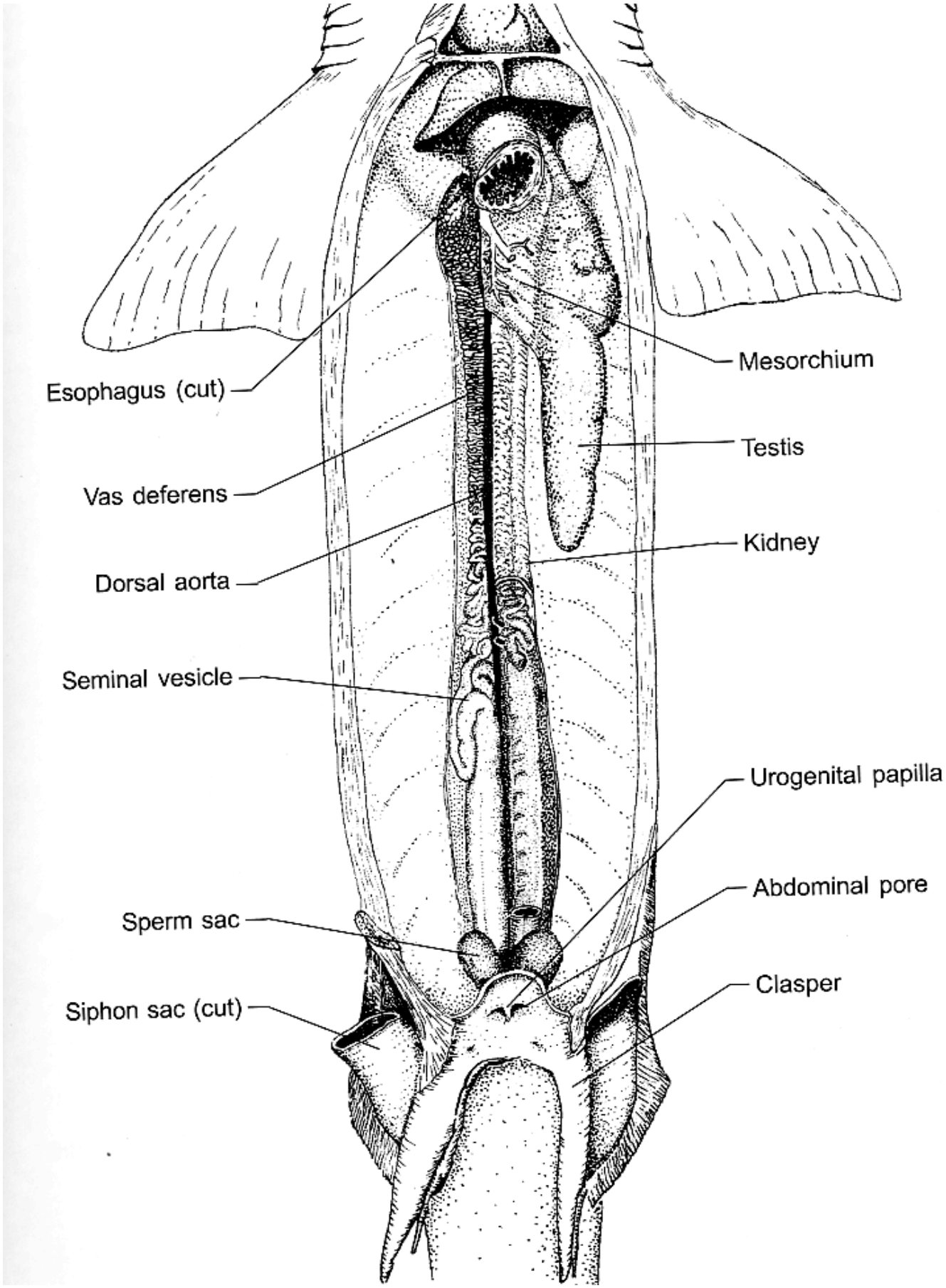
6. **Gall bladder** – small greenish bag beneath the liver that stores bile.

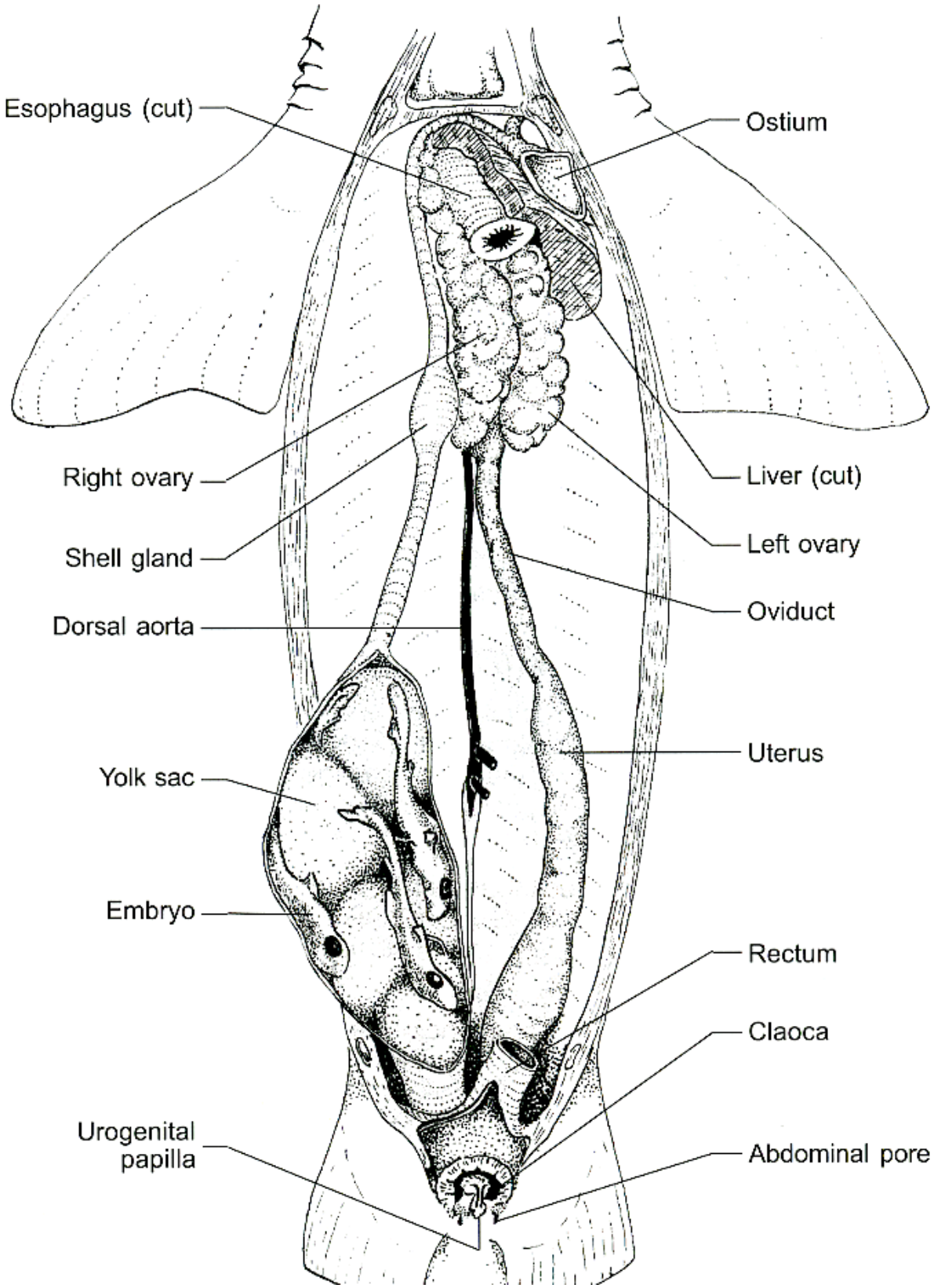
7. **Spleen** – A medium size organ generally below the j-shape of the stomach. It functions to filter the blood and help fight infections.

8. **Rectal glands** – Finger-like glands found toward the end of the intestine. Concentrates excess salts.


Spine
Spiracle
Rostrum
External nares
Mouth
Gill slits
Pectoral fin
Lateral line
1st dorsal fin
Spine
2nd dorsal fin
Clasper
Pelvic fin
Caudal fin


Stomach
Liver
Lateral abdominal vein
Gastric artery and vein
Spleen
Rectum
Gall bladder
Bile duct
Liver
Pancreas
Spiral intestine
Rectal gland


Esophagus (cut)
Mesorchium
Testis
Vas deferens
Kidney
Dorsal aorta
Seminal vesicle
Urogenital papilla
Abdominal pore
Sperm sac
Clasper
Siphon sac (cut)


Esophagus (cut)
Ostium
Right ovary
Liver (cut)
Shell gland
Left ovary
Dorsal aorta
Oviduct
Uterus
Yolk sac
Embryo
Rectum
Claoca
Urogenital papilla
Abdominal pore