Anatomy of a Starfish (Sea Star)
Starfish (also called sea stars) are marine invertebrates belonging to the phylum Echinodermata and class Asteroidea. They have a unique radial symmetry, typically with five arms, though some species may have more. Their anatomy includes specialized structures that aid in movement, feeding, and respiration.

1. External Anatomy
Body Structure
Central Disc: The central region of the starfish where the arms extend from; contains vital organs.
Arms (Rays): Typically five but can range from 5–40 depending on species; used for movement and capturing prey.
Oral Surface: The underside of the starfish, where the mouth and tube feet are located.
Aboral Surface: The upper surface, which contains the madreporite (water intake for the vascular system) and sometimes spines for protection.
Tube Feet (Podia)
Located along the ambulacral grooves on the oral side of each arm.
Connected to the water vascular system, allowing movement through hydraulic pressure.
Help in locomotion, adhesion, and prey capture.

2. Internal Anatomy
Water Vascular System
A network of fluid-filled canals that control movement and feeding. Key components:

Madreporite: A sieve-like structure on the aboral surface that filters water into the system.
Stone Canal: Connects the madreporite to the ring canal.
Ring Canal: Encircles the central disc and distributes water to the arms.
Radial Canals: Extend into each arm, delivering water to the tube feet.
Digestive System
Mouth: Located on the oral side, leading to the cardiac stomach.
Cardiac Stomach: Can evert outside the body to digest food externally before pulling it in.
Pyloric Stomach: Further digests food and distributes nutrients through the pyloric ceca (digestive glands in each arm).
Anus: Some species have a small anus, but others expel waste through the mouth.
Circulatory & Respiratory Systems
Starfish lack a true circulatory system; instead, they use the hemal system, a series of fluid-filled channels.
Respiration occurs via dermal branchiae (skin gills) and tube feet, where gas exchange happens directly with seawater.
Nervous System & Sensing
No centralized brain; instead, they have a nerve ring in the central disc and radial nerve cords in each arm.
Eye spots at the tip of each arm detect light and movement.
Reproductive System
Most species have separate sexes (male or female), but some are hermaphrodites.
Fertilization is usually external, with gametes released into the water.
Can regenerate lost arms, and some species can reproduce asexually through fission or autotomy.

Conclusion
The starfish's anatomy is highly specialized for survival in marine environments. Their water vascular system, ability to regenerate, and unique feeding mechanisms make them fascinating creatures in the animal kingdom.