

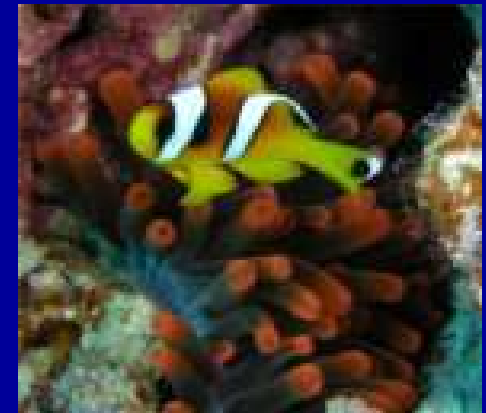
# Rocky Shores, Tide Pools and Kelp Forests

10 Marine Biology

# Rocky Shore: Invertebrates

## ⑩ Sea anemones:

- Animals with stinging cells
  - ⑩ nematocysts
- Reproduce by fission
- Will attack a non-relative
  - ⑩ Does not attack relatives
  - ⑩ How do they know the difference?



# Rocky Shore: Invertebrates

## ⑩Mussels

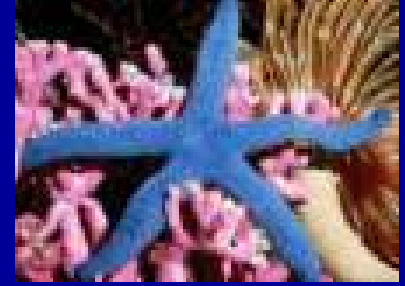
- Related to clams and oysters
- Found in clumps attached to rocks
- Can become exposed at low tide
- Make an adhesive 10 times stickier than super glue



# Rocky Shore: Invertebrates

## ⑩ Sea Stars

- No such thing as starfish
  - ⑩ They are not fish. They are echinoderms
- Found near mussels
  - ⑩ Mussels are their main prey
- Tube feet create a powerful suction
  - ⑩ Tear open mussels and clams
  - ⑩ Spit their stomach out of their mouths
  - ⑩ Digest prey and slurp it back in



# Rocky Shore: Mammal

⑩ Pinnipeds: Seals and sea lions

– How do you tell them apart?

SEA LIONS	SEALS
External ears	No external ears
Can “walk” on their flippers	Must slide on their belly
Have tails	No tails

# Which is which?



10 SEALS





# Other tide pool critters

⑩ Sea Urchin Sea Squirt Sea cucumber



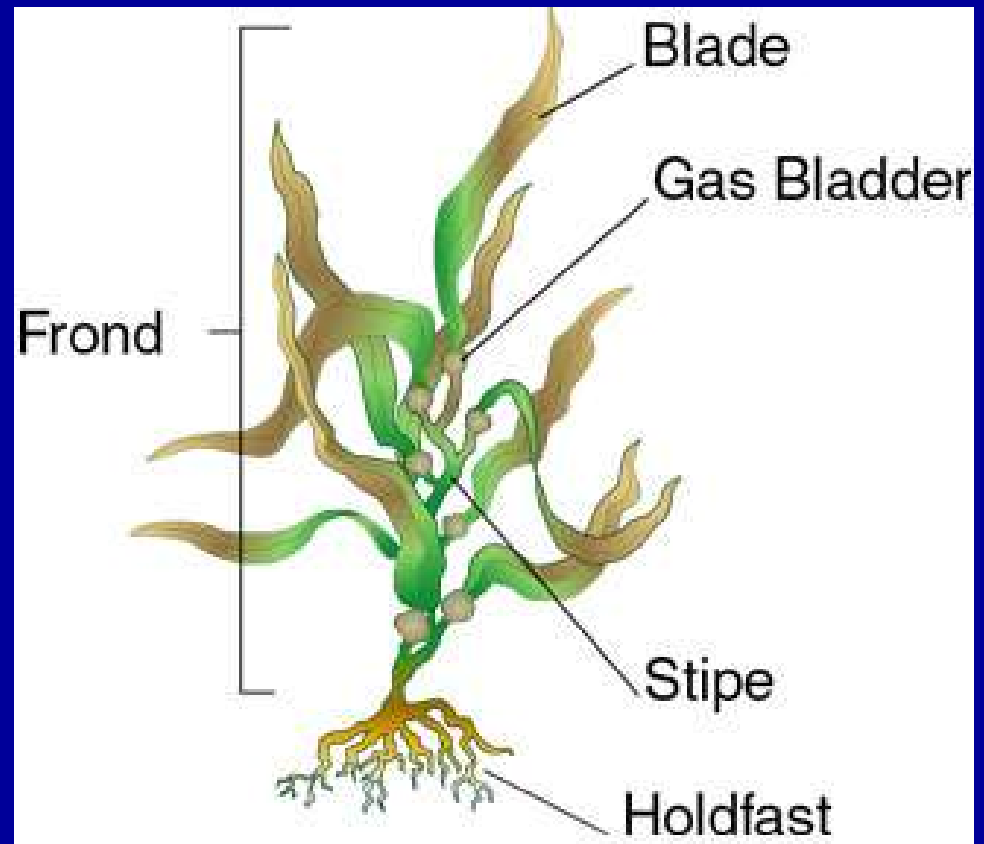
# Kelp Forests

## ⑩ Kelp Structure

- Not like an ordinary plant
- Has holdfasts instead of roots
- Pneumatocysts keep it afloat
  - ⑩ Air bladders
- They form a canopy, like a forest
- Not really a plant
  - ⑩ It is actually algae
- Each organism can be 90 feet high
  - ⑩ 'plant' part of it is called a frond



# Kelp Forests



# Kelp Forests

## ⑩ Invertebrates

- Just about everything. Why?

  - ⑩ Food and shelter

- Snails

- Crabs

- Worms

- Sea stars

- Octopus

  - ⑩ Main predator, along with large fish







# Kelp Forests

⑩ Only mammal to live there full-time:

– Sea otters

⑩ Stay in cold waters

– Only marine animal without blubber

– They have a thick coat of fur

⑩ Eat the animals that eat kelp

⑩ Related to the weasel



# Kelp Forests

## ⑩ Kelp forests have seasons

### – Spring and summer

⑩ Fronds can grow 3 feet per day

### – Autumn

⑩ Water is clear and warm

⑩ Animals are most abundant

### – Winter

⑩ Fronds are 'shed' like leaves

⑩ Sea otters often wrap themselves in kelp for warmth

# Kelp forests

## ⑩ Human uses:

- Pharmaceuticals
- Pudding
- Ice cream
- Chocolate
- Toothpaste
- Sushi

