



Adapt or Perish: Adaptations

NAME: _____

Years 11 & 12

Challenges: Organisms must adapt to the various challenges of their environments, or perish. What are some of the biotic (living) and abiotic (non-living) challenges that organisms face in the following environments:

Coral Reef: _____

Tidal Shore: _____

Freshwater Billabong: _____

Open Ocean: _____

Adaptations: Adaptations can either be structural, functional or behavioural. Complete the following table:

Adaptation	Definition	Examples	Organisms at SEA LIFE with this adaptation
Structural			
Functional/Physiological			
Behavioural			

Adapting to Challenges: Pick an animal at SEA LIFE Sydney Aquarium from either a Great Barrier Reef, Discovery Rockpool, Jurassic Seas. Draw it in the box provided. Write **how** the animal has adapted (if at all) to the challenges of its environment identified earlier. Is the adaptation structural, functional or behavioural?

Common/Scientific Name: _____

Adaptations: _____



Beneficial Relationships: Some adaptations reflect the specific relationships existing within communities. Mutualistic symbiotic relationships evolve when two organisms gain a survival benefit from one another. The clownfish and the anemone form a mutual symbiosis. List the benefits they gain from living together.

Anemone benefits by: _____

Clownfish benefits by: _____

What adaptations were needed for this relationship to form?

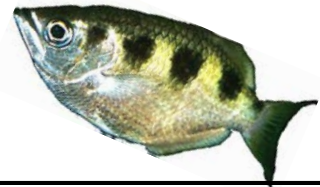
Anemone adaptation: _____

Clownfish adaptation: _____

Competition: There is always competition for food and territory in any community. Archer fish (*Toxotes sp.*) avoid competition by feeding on a variety of tree-dwelling insects such as crickets and moths. Its binocular vision enables it to account for light refraction. What are two other adaptations?

1. _____

2. _____



Design a Fish! Closely observe the fish at SEA LIFE Sydney Aquarium. Ask yourself *why* they're designed that way. Now design your own fish in the box provided. The questions below will assist you with your decision making.

1. **Shape:** Is it shaped to manoeuvre easily (short and compressed)?
Is it shaped for powerful outbursts (strong broad tail)?
Is it shaped for swimming long distances (fusiform and streamlined)?
Is it shaped to live on the sea bed, in rocks, in holes?
2. **Colour:** Is it bright (poisonous, to lure a mate, male/female)?
Is it camouflage? Any special markings (to confuse a predator)?
3. **Spines:** Does it have spines (are they venomous)?
4. **Fins:** Where and how many? Do they tuck into fin slots to reduce drag?
Do they undulate? Oscillate? What is their purpose (movement, balance)?
5. **Mouth:** Is the mouth big or small? Is it facing up (eats from above)?
Is it facing down (eats from below)? Is it straight (eats in front)?
6. **Teeth:** Shape, amount, position? Hint: What does it eat?
7. **Behaviour:** Is it hiding? Nocturnal? In a school? In a relationship? Alone?
8. Does your fish resemble a fish at SEA LIFE Sydney Aquarium?
If yes, which one? _____

