NEW SOUTH WALES

PRIMARY ACTIVITY

HOW DO MARINE ANIMALS ADAPT TO THEIR ENVIRONMENT?

- Syllabus Reference
- Resources
- Activities

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SYLLABUS OUTCOMES

- Plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions **ST3-1WS-S**
- Plans and uses materials, tools and equipment to develop solutions for a need or opportunity **ST3-2DP-T**
- Examines how the environment affects the growth, survival and adaptation of living things **ST3-4LW-S**

INQUIRY QUESTION

How do the structural and behavioural features of living things support survival?

Students:

- describe adaptations as existing structures or behaviours that enable living things to survive in their environment (ACSSU043) SciT
- describe the structural and/or behavioural features of some native Australian animals and plants and why they are considered to be adaptations

ACTIVITIES

BEHAVIORAL ADAPTATIONS

ACTIVITY 1

Define Structural and behavioral adaptations and provide examples of each.

Students watch the video Types Of Adaptations then as a class come up with a definition for adaptation. Students complete the questions on **student worksheet**.

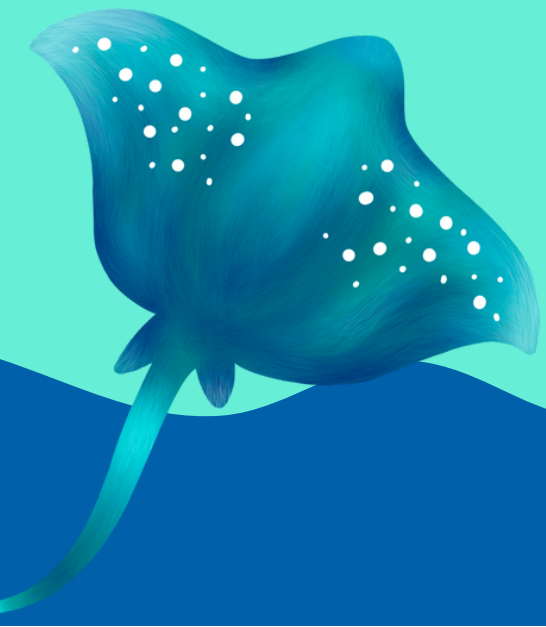
ACTIVITY 2

How can adaptation help an animal survive: coloured sticks pickup.

Students conduct a short experiment that demonstrates the effect of camouflage.

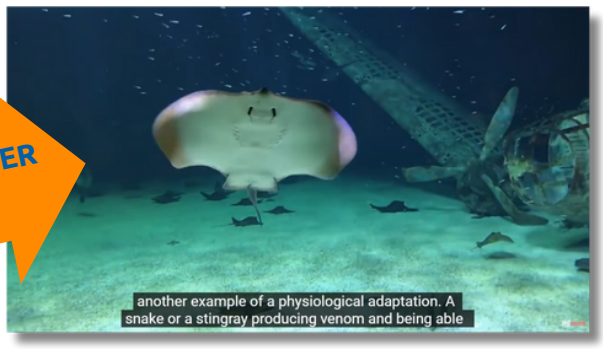
Materials: Coloured toothpicks

Design your own fish



ACTIVITIY 1
STUDENT WORKSHEET

WATCH THE VIDEO TO ANSWER THE QUESTIONS



1. Define the term adaptation: _____

2. What is a structural adaptation? _____
_____

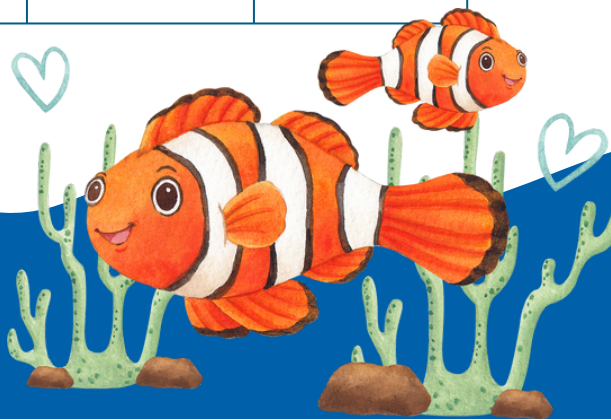
3. Provide one example of a structural adaptation: _____

4. What is a behavioral adaptation? _____
_____

5. Provide one example of a behavioral adaptation: _____
_____

6. Put an X in the chart below to show whether each animal adaptation is structural or behavioral.

Adaptation	Behavioral	Structural
Fish have gills so that they can get oxygen from water		
Clownfish live in sea anemones to protect themselves from predators		
Sea turtles have a hard shell to protect them from predators		
Fish travel in schools to protect themselves from predators		
Whales have a layer of fat to help them maintain their body temperature in water		
Whales migrate from Antarctica in the winter to help them find food		



ACTIVITIY

Can animals adapt to climate change?

WATCH THE VIDEO

QUESTIONS (FROM TED-ED)

1. What is the genetically dominant form of plumage for tawny owls?
   a. Brown
   b. White
   c. Gray
   d. Purple

2. What environmental change has driven pitcher-plant mosquitoes to delay dormancy?
   a. More water
   b. Warmer temperatures
   c. Longer days
   d. More pitcher-plants

3. How are wild thyme plants evolving in response to climate change?
   a. Growing higher on the hillside
   b. Producing more flowers
   c. Producing more seeds
   d. Producing more herbivore-repellent oils

4. How many species have been identified as evolving in response to climate change?
   a. 20
   b. 55
   c. 6.7 million
   d. 200

5. How are humans helping wildlife adapt to climate change?
   a. Helping species move to better climates
   b. Setting aside “climate refuges” for protection
   c. Updating existing parks to account for climate change
   d. All of the above

6. How do you think “plastic”, or non-heritable, changes like those listed in the lesson (changing body sizes, breeding seasons, or flowering dates) could help organisms adapt to climate change? How do you think they may be limited?

7. Some organisms may not be able to evolve fast enough to climate change to survive. How might this affect this biodiversity on Earth and why is this so important to consider?

8. Humans will have to adapt to climate change too. Predict the future for those people living in areas that will be most affected (coastal areas, those in warmer climates, Arctic areas).

ACTIVITIY 2
PICK UP STICKS

HOW DO ADAPTATIONS HELP ORGANISMS SURVIVE

1. Throw the toothpicks onto the paper so that they are evenly distributed.
2. Pick up as many toothpicks as you can in 10 seconds. You can only pick up one tooth pick at a time. Extra challenge use tweezers to pick up toothpicks.
3. Tally how many toothpicks of each colour you collected.

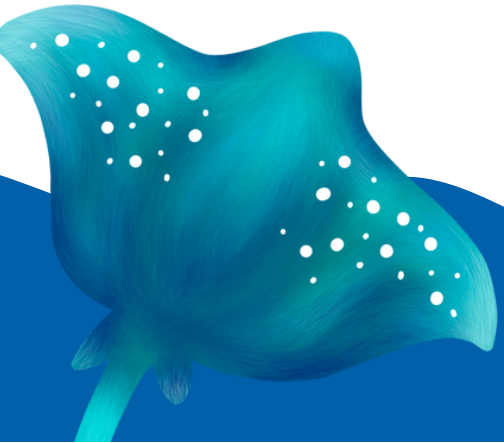
Results

Colour of paper _____

Colour	Number of toothpicks

MATERIALS NEEDED

- Coloured toothpicks (40 per group)
- Coloured paper (1 piece per group)
- Stopwatch
- (1 per group) Tweezers - optional



DISCUSSION QUESTIONS

WHICH COLOURS OF TOOTHPICKS "SURVIVED" THE BEST?

HOW DID THIS COMPARE TO THE COLOURED PAPER YOU WERE USING?

WHICH COLOURS OF TOOTHPICKS WERE "EATEN" THE MOST?

ACTIVITIY 2

Design a marine animal adapted to its environment

PICK A MARINE ANIMAL TO RESEARCH

Name your chosen animal:

What does it eat? Is it a carnivore, herbivore or omnivore?

Do other animals hunt it? How does it protect itself?

How does it hunt for its food?

How does this animal reproduce?

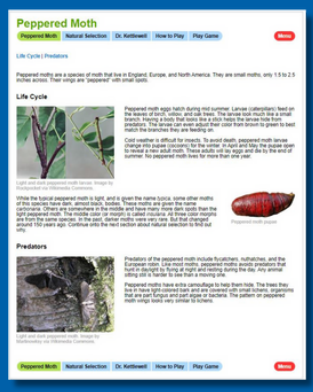
Design your own marine animal

Start by considering the following questions so that your animal is well designed to live in its environment

1. What does your creature look like? What colours does it have?
2. What kind of covering does it have (fur, feathers, scales, shell or other kinds of body covering?)
3. What are its physical features (How many eyes? Legs? Wings? Heads? Does it have a nose or a beak or something different? Where is its mouth? How big is it?)
4. Where does it live?
5. What structural/physical adaptations does it have and how do these help it survive
6. What behavioural adaptations does your animal have and how do these help them survive
7. Draw your animal

ADDITIONAL RESOURCES

Follow the peppered moth's life cycle from birth to death - all in one year!

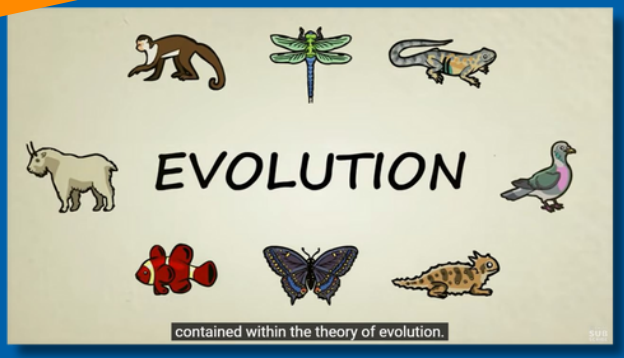


PLAY THE GAME

NATURAL SELECTION IN ACTION

WATCH THE VIDEO

What is NATURAL SELECTION?

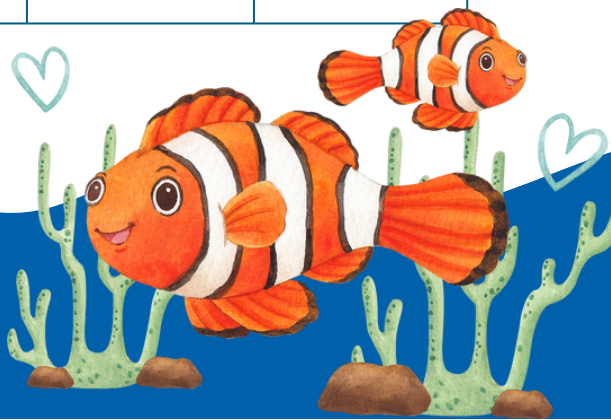


ACTIVITIY 1
STUDENT WORKSHEET

ANSWERS

1. Define the term adaptation: *A trait of an organism that gives it some advantage in its environment*
2. What is a structural adaptation? *a physical feature of an organism that helps it to survive*
3. Provide one example of a structural adaptation: *spikes on an echidna protect it from predators*
4. What is a behavioral adaptation? *Things that an organism does that gives helps it to survive*
5. Provide one example of a behavioral adaptation: *herding animals helps protect from predators*
6. Put an **X** in the chart below to show whether each animal adaptation is structural or behavioral.

Adaptation	Behavioral	Structural
Fish have gills so that they can get oxygen from water		x
Clownfish live in sea anemones to protect themselves from predators	x	
Sea turtles have a hard shell to protect them from predators		x
Fish travel in schools to protect themselves from predators	x	
Whales have a layer of fat to help them maintain their body temperature in water		x
Whales migrate from Antarctica in the winter to help them find food	x	



NEW SOUTH WALES

CHECK OUT MORE PRIMARY TEACHER RESOURCES ON OUR HUB!

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