


Paper Mache Fish




Overall Details



Objective	<p>To educate the public about the different native species of fish, namely:</p> <ul style="list-style-type: none"> • Six-banded Tiger Barb (<i>Desmopuntius hexazona</i>) • Sunda Leaf Fish (<i>Nandus nebulosus</i>)
Summary	<p>This activity provides the children a fun and educational experience on doing craft using environmentally friendly materials commonly found around them.</p>
Duration	<p>Around 1 hour</p>
What Participants will need:	<p>Materials:</p> <ul style="list-style-type: none"> • Empty hand sanitizer bottle • Newspaper/Recycled paper • PVA glue (the volume used in the video is 120ml) • Poster/acrylic paint (non-toxic) • Marker • Scissors • Wooden Chopstick/Paintbrush • Plastic containers: 1 large, 3 small 

Activity Description

a) Instructions

Note: The set of instructions below is specific for the Six-banded Tiger Barb only. You are highly encouraged to use your creativity to make other fishes!

Making the Fish Body		
No.	Instructions	Comments
1	<p>Empty and transfer remaining hand sanitiser into another bottle.</p> 	Remove the bottle cap to create the mouth. You may recycle it and use it for other purposes.
2	<p>Tear the newspaper/recycled paper into small pieces as shown in the video.</p>	You may refer to the tutorial video for greater clarity of this step.
3	<p>Pour the 120ml PVA glue equally into 3 different smaller containers.</p>  	You may refer to the tutorial video for greater clarity of this step.

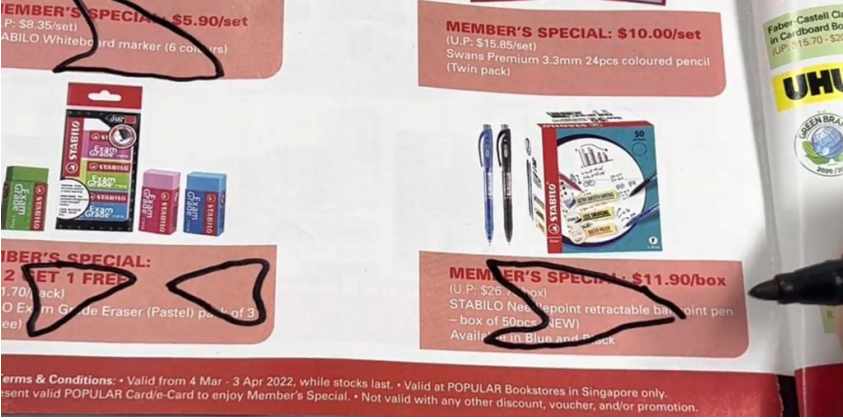

4	Add black, red and orange paint into the containers respectively.	You may refer to the tutorial video for greater clarity of this step.
5	<p>Mix well using a wooden chopstick/the end of a paintbrush, until the desired colour shows.</p> 	You may refer to the tutorial video for greater clarity of this step.
6	<p>Dip the newspaper pieces into the orange mixture, ensuring that both sides are covered.</p> 	You may use the end of your paintbrush/wooden chopstick to help push the newspaper into the bottle.
7	<p>Repeat step 5, using a combination of newspaper pieces dipped in the different colours, until the bottle is fully filled.</p> <p><i>Note: Use more orange-stained and red-stained newspaper pieces than black-stained ones, since most of the Six-banded Tiger Barb's body is orange with a tinge of red.</i></p>	You can use the end of your paintbrush/wooden chopstick to help push the newspaper down if you want the design to look more compact.

Scrunch up and stuff the stained newspaper piece into the empty hand sanitizer bottle.



- 8** Once completed, rinse off the excess glue on the outer surface of the fish's body, being careful to prevent water from entering the mouth of the bottle.



Making the Fish Fin		
No.	Instructions	Comments
1	<p>Use a marker to lightly trace an outline of the respective fins.</p> 	<p>You may refer to the tutorial video for greater clarity of this step.</p>
2	<p>Then, use a pair of scissors to cut out the fins.</p> 	<p>Parents should always supervise their children when handling of sharp objects are involved.</p> <p>You may refer to the tutorial video for greater clarity of this step.</p>

3

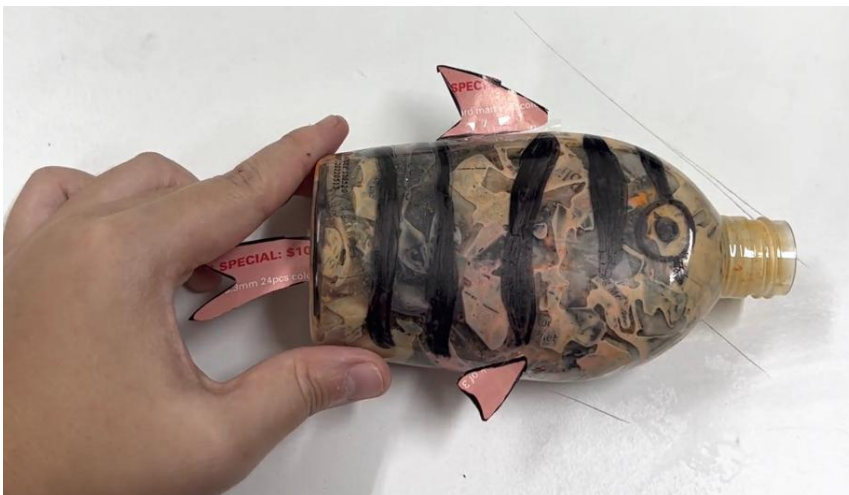
Using scotch tape, attach the respective fins to their respective positions on the fish's body.



You may refer to the tutorial video for greater clarity of this step.

4

Use a marker to draw on the eyes and stripes.



You may refer to the tutorial video for greater clarity of this step.

Background Information & Fun facts

Six Banded Tiger Barb (*Systomus hexazona*)

Physical Characteristics

- Smaller species of Tiger Barbs, measuring around 5.5 cm
- Rhomboid¹ body shape
- Laterally compressed
- Overall body colour: orange, with 6 equally spaced vertical greenish-black dark bands on the flanks
 - Frontmost band passes through the eye
 - Rear band is at the base of the tail fin
 - Third band extends onto the dorsal fin
- Red fins



Fig. 1 Six Banded Tiger Barb
(Photo Credit: iNaturalist)

¹ Rhomboid: A shape with four sides where only the opposite sides and angles are equal.

Behaviour/Habitat

- Omnivorous
- Gregarious (fond of company; sociable)
- Frequently found in middle and lower levels of the water
- Can be found in undisturbed freshwater streams in the swamp forests of the Central Catchment Nature Reserve
- Threatened due to habitat loss and people catching them as aquarium pets

Conservation Status
<ul style="list-style-type: none">Listed as Endangered according to the Singapore Red Data Book (Version 3)

References

<https://www.nparks.gov.sg/biodiversity/wildlife-in-singapore/species-list/freshwater-fish>

<https://www.nparks.gov.sg/nparksbuzz/feb-issue-2022/main-feature/tiger-terrific>

Sunda Leaf Fish (*Nandus nebulosus*)

Physical Characteristics

- Characterised by:
 - Oval-shaped body which is laterally compressed
 - Brown body which is heavily marked with spot or smears of colours with black
 - Hind part of its dorsal fin, anal fin, pectoral fin and the tail fin is translucent
 - Very wide mouth, with its corners stretching to beneath the hind margin of its eye



Fig 1. Sunda Leaf Fish

(Photo Credit: Tan Heok Hui, NParks Flora & Fauna Web)

Behaviour/Habitat

- Expert in mimicry as it not only resembles a dead leaf, but it also acts like one
- Highly elusive, often takes shelter near a bunch of dead leaves in the waters of freshwater streams and reservoirs
- Leaf-like resemblance also aids it in camouflaging with its surrounding environment, allowing it to sneak up on small fishes and prawns which it preys on

Conservation Status

- Listed as Endangered according to the Singapore Red Data Book (RDB) Version 3

Supplementary Information on fish

- Vertebrates that reside in water and breathe using gills
- Currently about 32,000 living fish species worldwide - greater than the total of all other vertebrate species (amphibians, birds, mammals and reptiles) combined
- Can be classified into different types including saltwater and freshwater fish
- Largest fish species is the Whale Shark (*Rhincodon typus*), which can grow up to more than 15 m long
- Smallest fish species is the Tiny Goby/Dwarf Pygmy Goby Fish (*Pandaka pygmaea*), which rarely grows longer than 1.25 cm in adulthood



Fig. 2 Dwarf Pygmy Goby Fish
(*Pandaka pygmaea*)
(Photo Credit: Allen)



Fig. 3 Whale Shark
(*Rhincodon typus*)
(Photo Credit: National Geographic)

References:

<https://wiki.nus.edu.sg/display/TAX/Nandus+nebulosus+-+Leaf+Fish#:~:text=Conservation,-Habitat%20degradation%20and&text=Status%20%26%20Threats%3A%20Sadly%2C%20th is,%20in%20Singapore%5B3%5D.>

<https://www.nparks.gov.sg/florafaunaweb/fauna/2/9/291>

<https://wiki.nus.edu.sg/display/TAX/Nandus+nebulosus+-+Leaf+Fish#:~:text=The%20Sunda%20Leaf%20Fish%20specializes,our%20reservoirs%20and%20freshwater%20streams.>