

3-5  
activity



## Flyingfish

Wonder and Explore: Can fish really fly?

Activity Outline: Discover more about flying fish then investigate balance and gravity as you create a fish that seems to defy gravity and 'fly' on your fingertip.

What you will need

1. Thin card – have students bring n a cereal box
2. Small weight such as a 5c piece or a metal washer (2 per student)
3. Print outs of the flying fish template for students to trace onto their card.
4. Scissors
5. Sticky tape
6. Markers to decorate and colour

To make your flying fish:

Cut out and colour your fish.

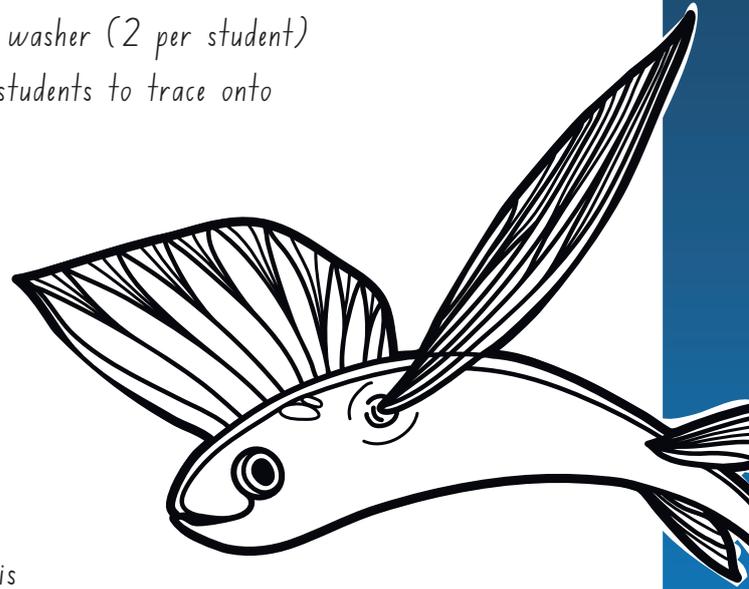
Try to balance it on your finger. Where do you have to put your finger for it to balance? Mark where this "balancing point" is.

Sticky tape a weight to each wing. Try to balance your fish on your finger. Does the same balance point work? What has happened? Keep experimenting until you fish balances on its 'nose'.

### STEAM

In this activity students will follow directions, manipulate materials, experiment, design, draw and think about solutions.

General Capabilities –  
Critical and creative thinking



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### Classroom learning

Flyingfish have so many fast predators, they have had to come up with a totally different way of escaping – leaping out of the water and gliding through the air!

To create enough speed to break through the water and into the air flyingfish have a torpedo shaped body and large wing-like pectoral fins. Can you think of anything else that has this design? (eg aeroplane)

As flyingfish swim towards the surface their tail beats 50 times per second to propel them 1.2m into the air where they can glide for 200m!

Flyingfish glide twice as fast as they swim. Their maximum speeds are: 36km/h (swimming) and 72km/h (gliding)

Unless the day is sunny and the water is particularly still, a pursuing predator will not be able to see a flying fish in the air because of refraction at the water surface.

Most fish eyes have a curved cornea – this is the clear outer covering of an eye that refracts and transmits light. To be able to see in and out of the water flying fish have a flattened cornea.

To see flying fish in action try this link to footage from BBC Life – Flyingfish <https://www.youtube.com/watch?v=wYkk73glNZY>

### Curriculum links:

Science Understanding-  
Biological sciences

Year 3: Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU044)

Year 4: Students broaden their understanding of classification and form and function.

### Physical sciences:

Year 5: Light from a source forms shadows and can be absorbed, reflected and refracted. (ACSSU080)

WOW! specially shaped vertebrae give flying fish the stiff and sturdy body needed to stay straight as they leap powerfully into the air!

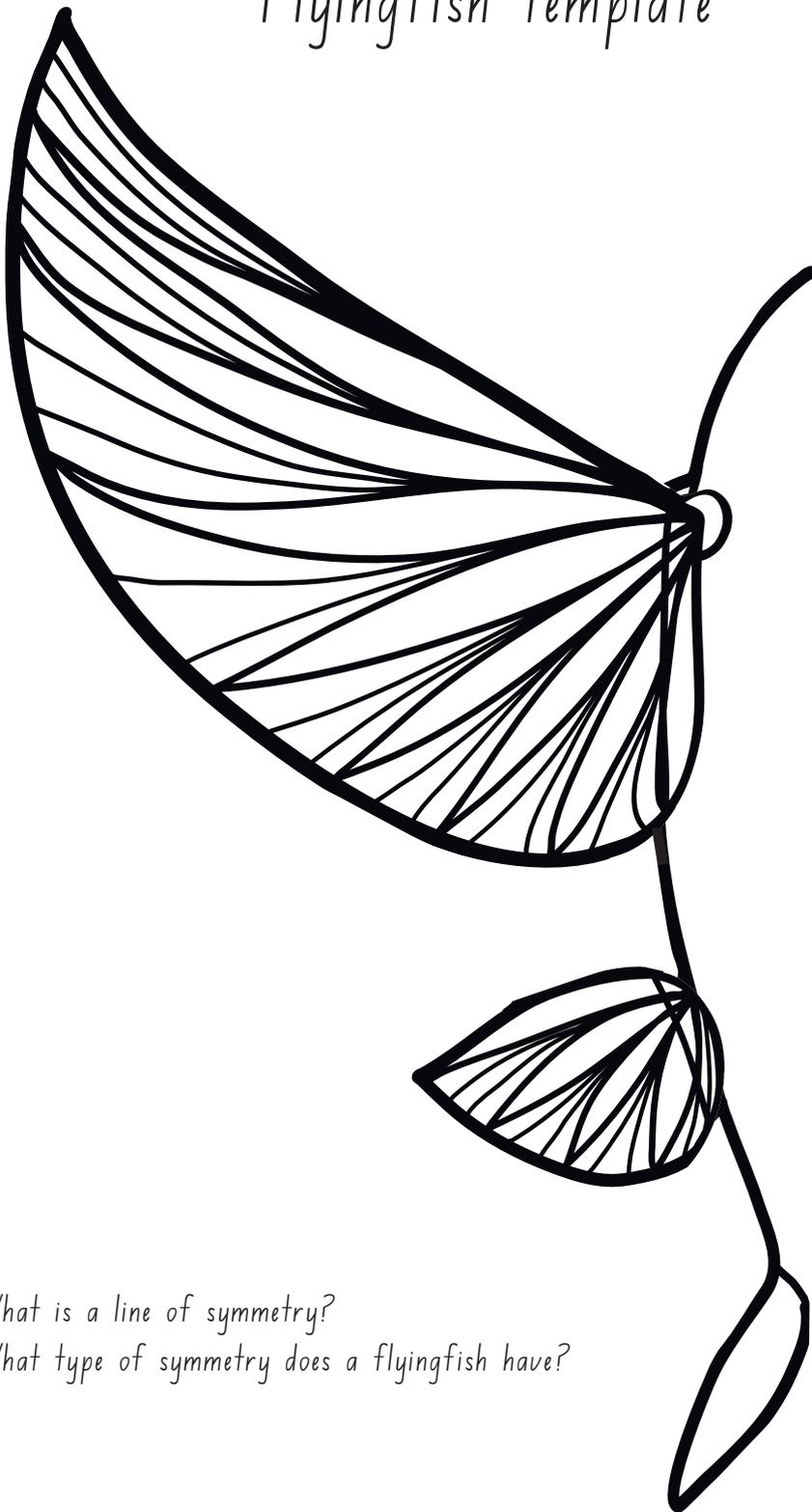


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## Flyingfish template



What is a line of symmetry?  
What type of symmetry does a flyingfish have?

What's happening? The science behind your everyday magic:

Objects balance through their centre of gravity. This is the spot where the weight on one side is the same as the weight on the other.

When there are no weights attached the centre of gravity is in the middle of its body.

When the weights are attached, the centre of gravity shifts up towards the flyingfish's head. Once it has stabilised around its new centre of gravity your flyingfish balances quite happily on its 'nose'.



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### Fun facts:

Flying fish have a rocket named after them! It is launched from underwater, has a low trajectory and skims the surface before hitting its target!

Barbados is known as "the land of the flying fish" - they are a national symbol and are on coins, passports and as sculptures in fountains.

From 1900 -1930 flying fish were studied as possible models for aeroplane designs.

Exocoetidae, The scientific name for the flying fish family means "sleeping outside" - People once thought they left the water to sleep ashore!

In 2006 the UN fixed the maritime boundary between Barbados and Trinidad and Tobago due to a dispute over flyingfish!

To catch flying fish, fishermen put a lantern in their canoe and the fish jump in!

### Fast facts:

Eat: Plankton,  
They are omnivores

Eaten by: Large fish  
such as: mackerel, tuna,  
swordfish & marlin

### Found:

In all the worlds oceans.

Locally you can look out  
for flyingfish next time  
you are on a boat to /  
from Rottneest Island!

### Size -

Can grow to about 30cm

The record height  
of a flyingfish  
jump is 6m into  
the air!



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## Flyingfish Challenge!

How else could you create a flying fish?

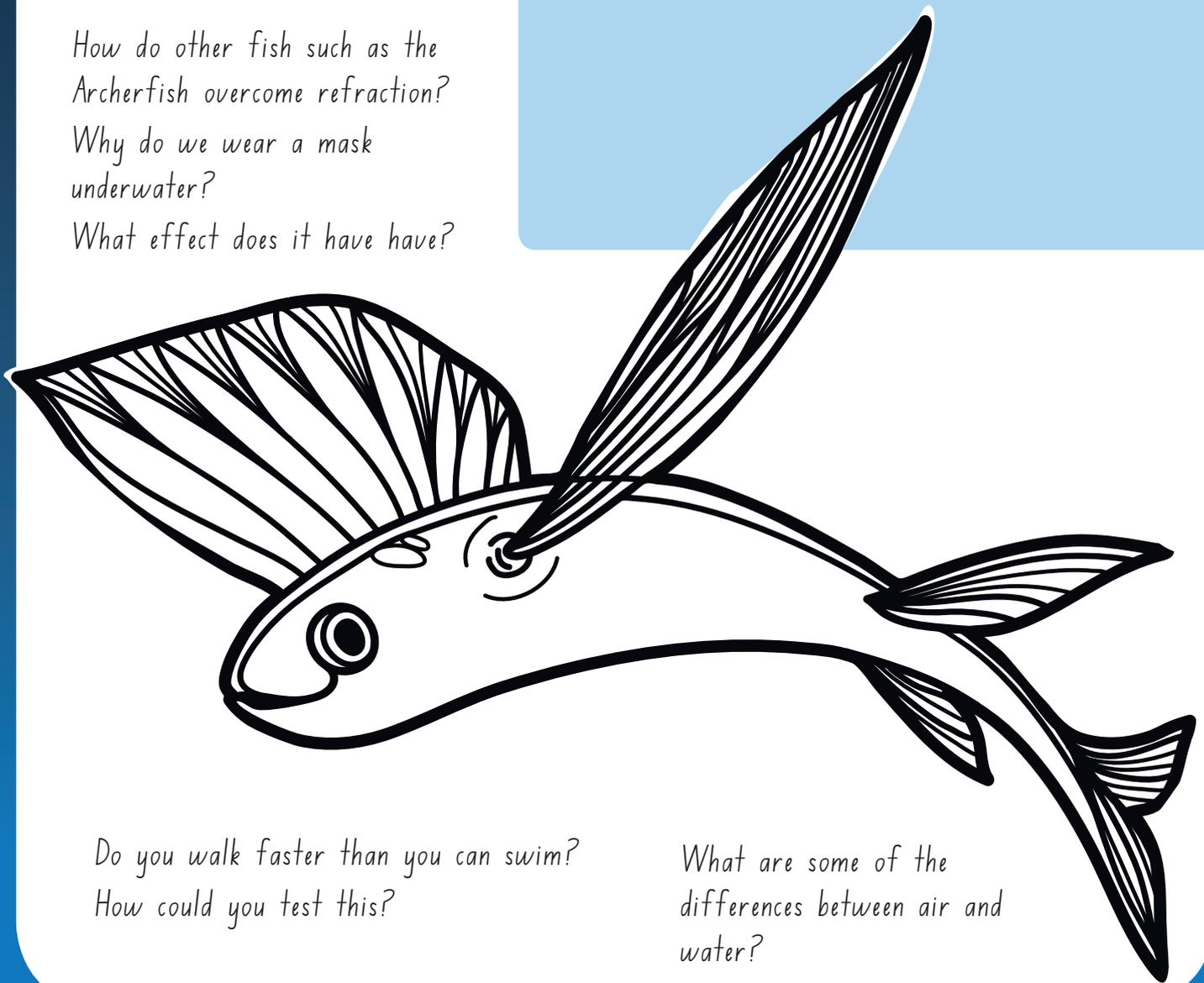
Using the flyingfish template below, a balloon, string, a straw and sticky tape can you find another way to fly this fish across a room?

## Extension Ideas

How do other fish such as the Archerfish overcome refraction?

Why do we wear a mask underwater?

What effect does it have have?



Do you walk faster than you can swim?  
How could you test this?

What are some of the differences between air and water?



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