



Science

Forces

Water Resistance



twinkl

Aim

- To explore the effects of water resistance.

Success Criteria

- I can explain the effects of water resistance.
- I can identify streamlined shapes.
- I can minimise the effects of water resistance on an object.

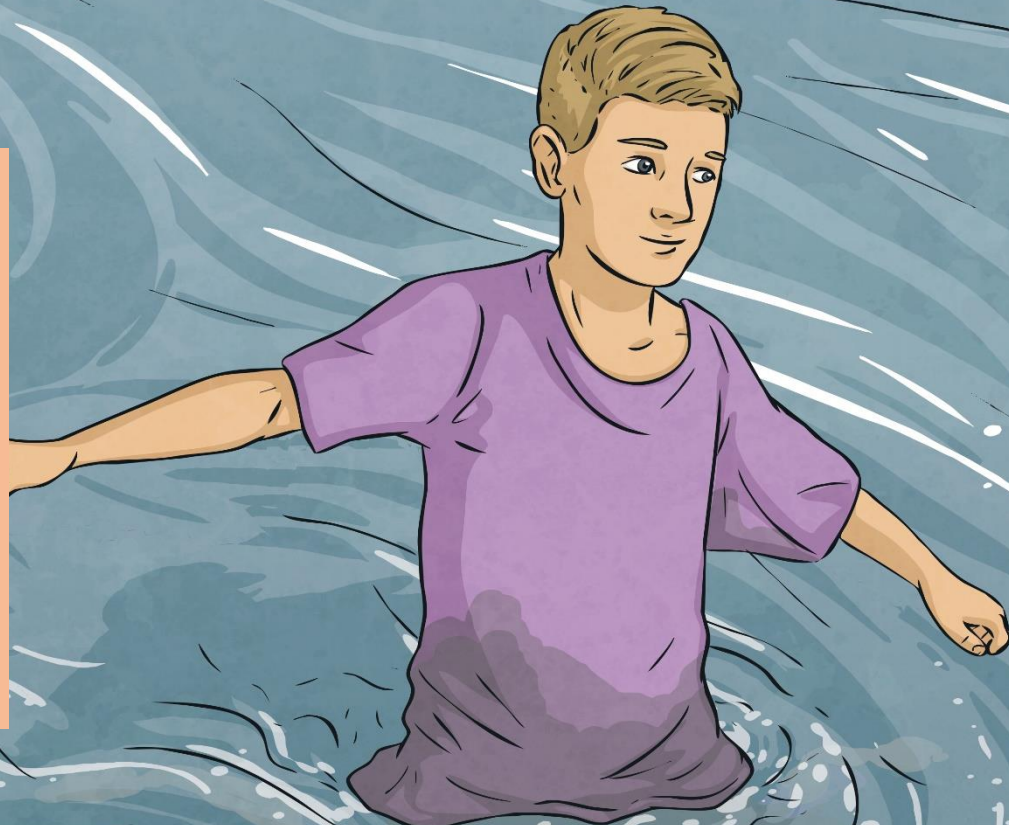
Water Resistance



How does it feel to walk through deep water?

Think of some words and phrases to describe the feeling.

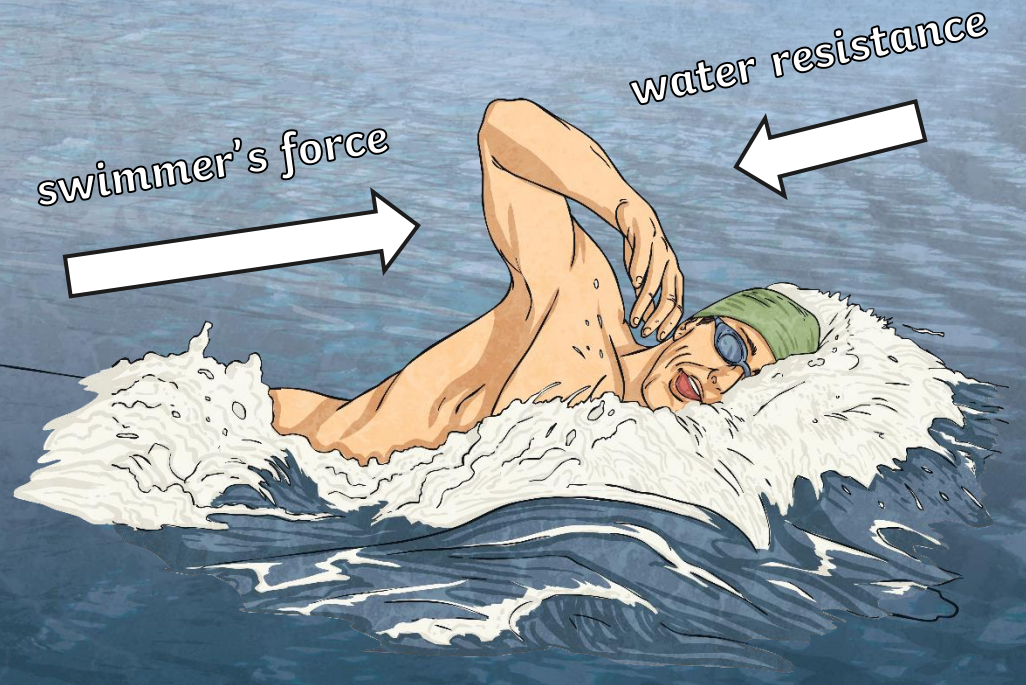
Share your ideas with the class.



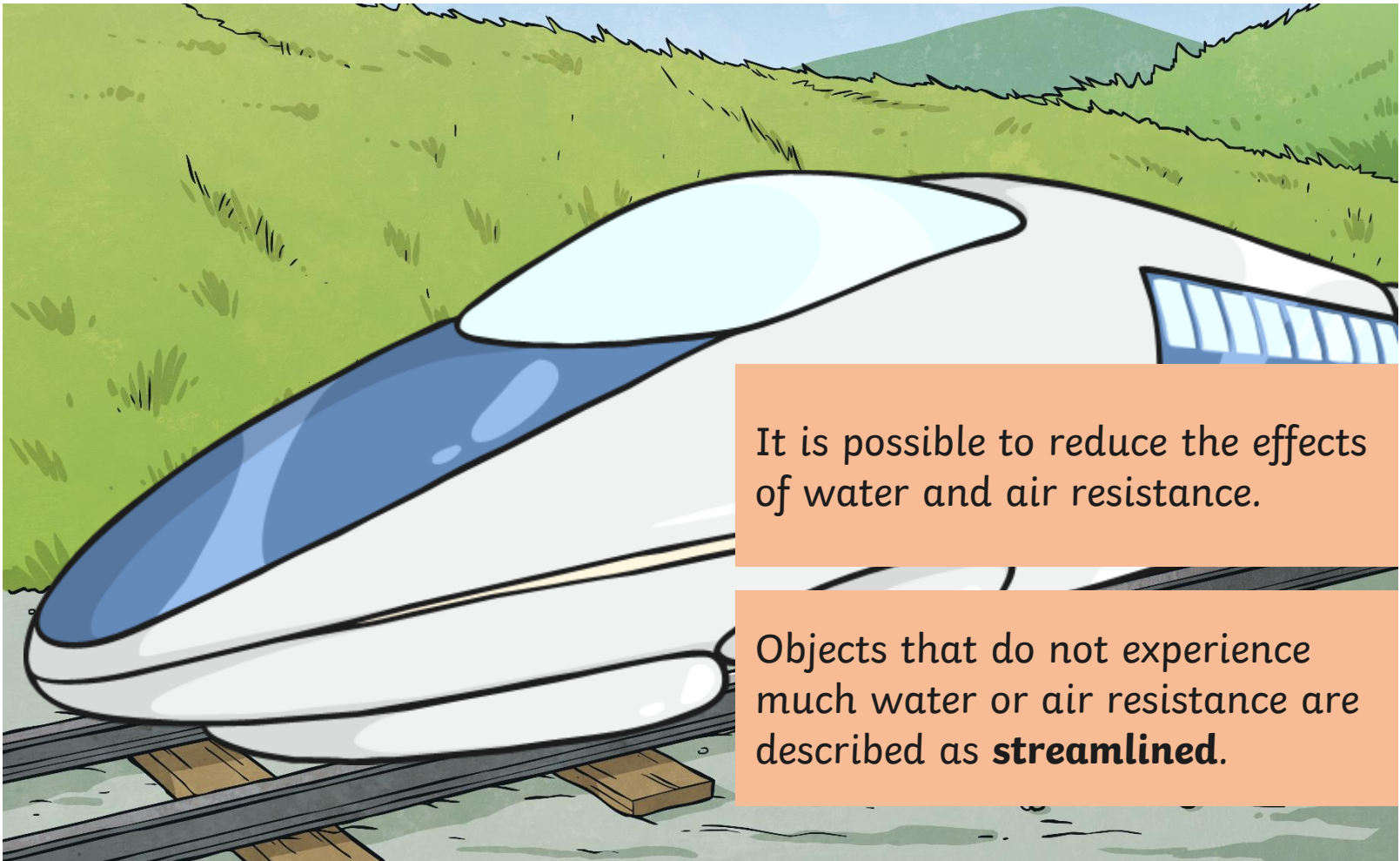
Water Resistance

If you have ever walked through water, you will have felt the effects of **water resistance** pushing against you.

However, this also helps you to swim, as when you push against the water with your hands, the water resistance pushes back and helps you to move forward, like using oars to push against the water to row a boat.



Streamlined Shapes

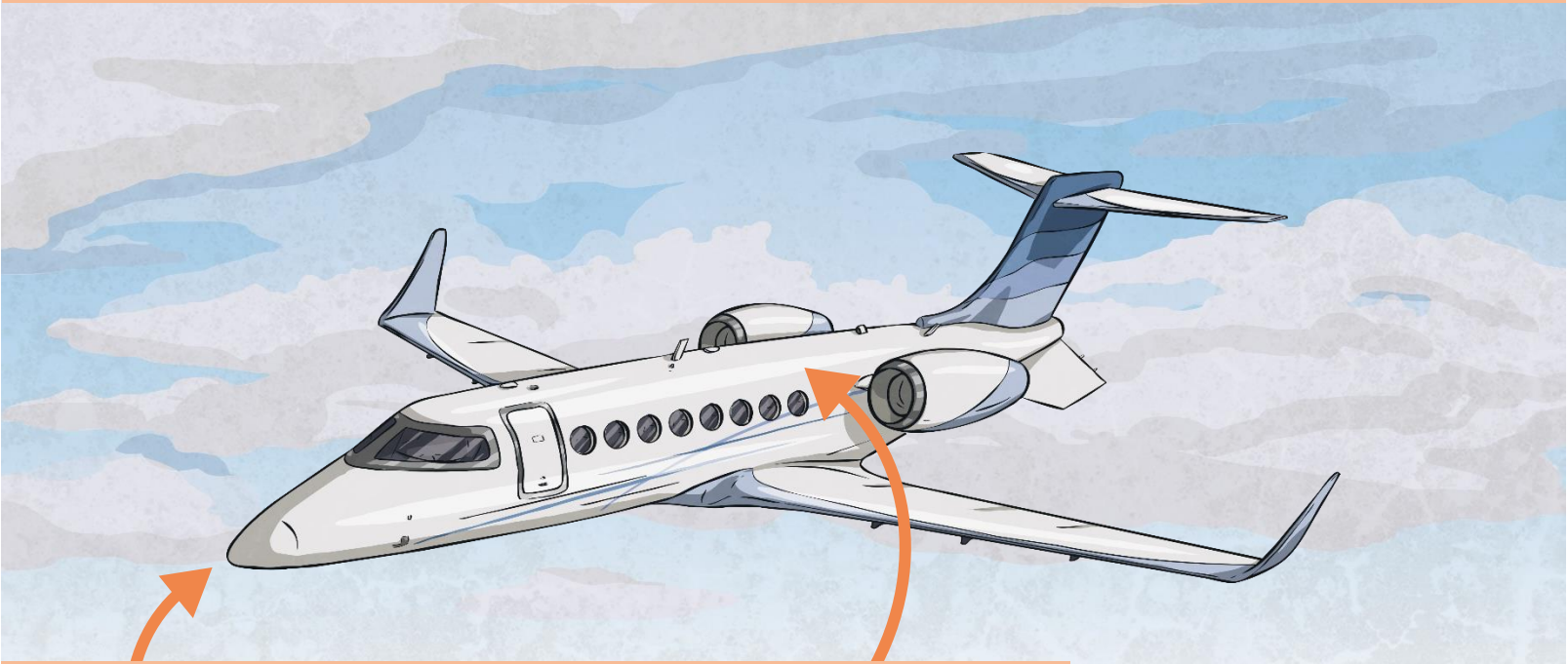


It is possible to reduce the effects of water and air resistance.

Objects that do not experience much water or air resistance are described as **streamlined**.

Streamlined Shapes

This aeroplane is **streamlined**.

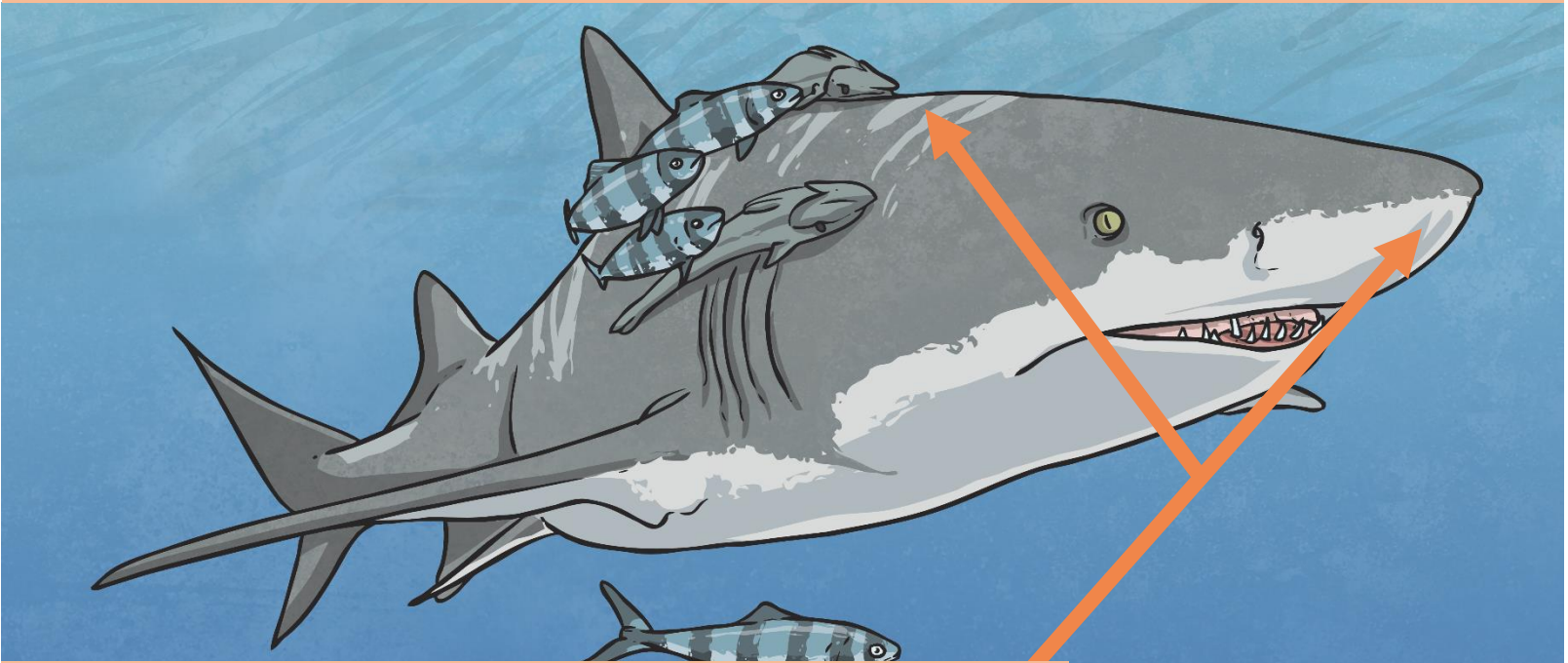


It does not create much **air resistance** so it can move through the air easily.

ough the
d **back** to
round it.

Streamlined Shapes

This shark is **streamlined**.



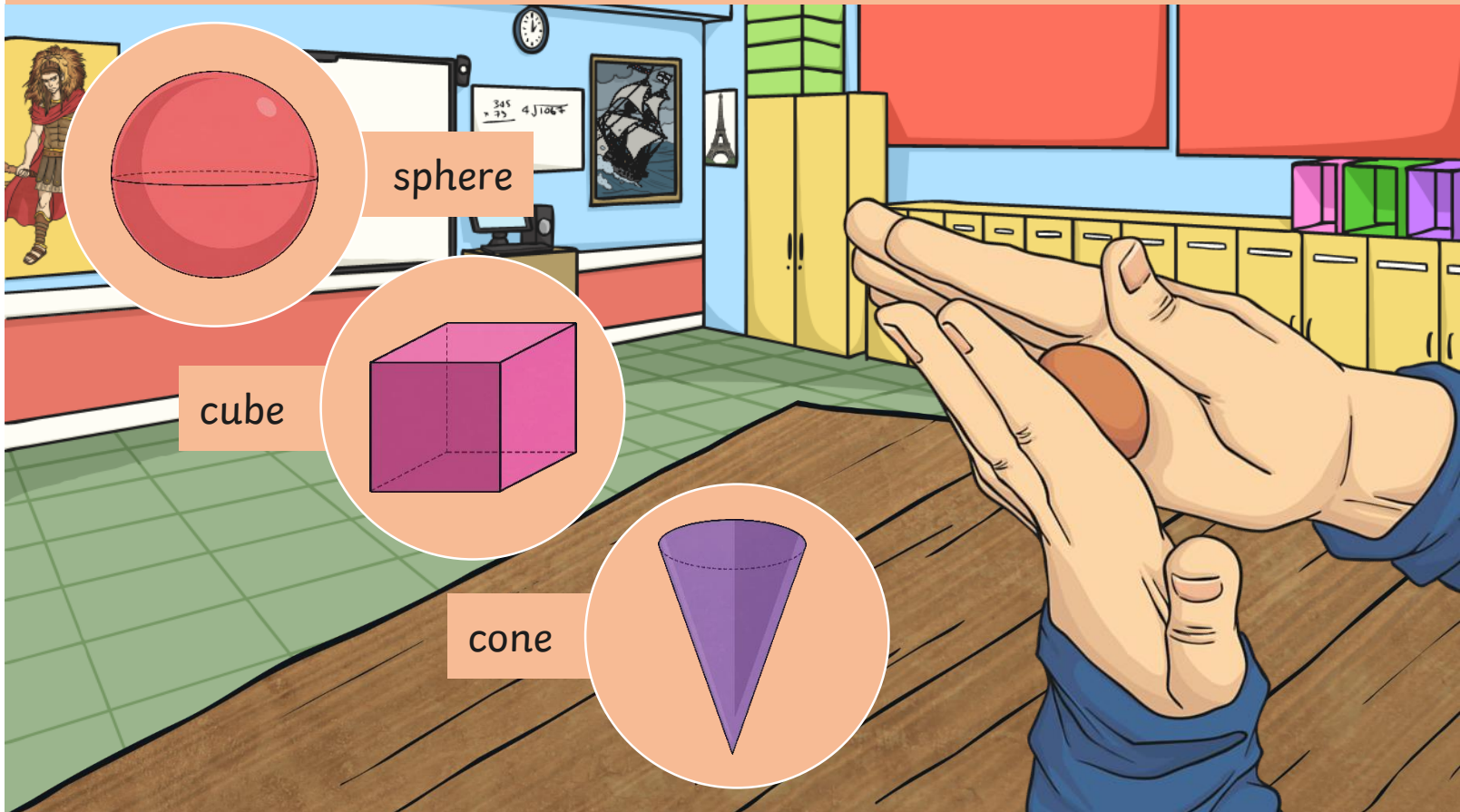
It does not create much **water resistance** so it can move through the water quickly.

water,
the

Streamlined Shapes



Then mould each piece into one of the three different shapes shown below.

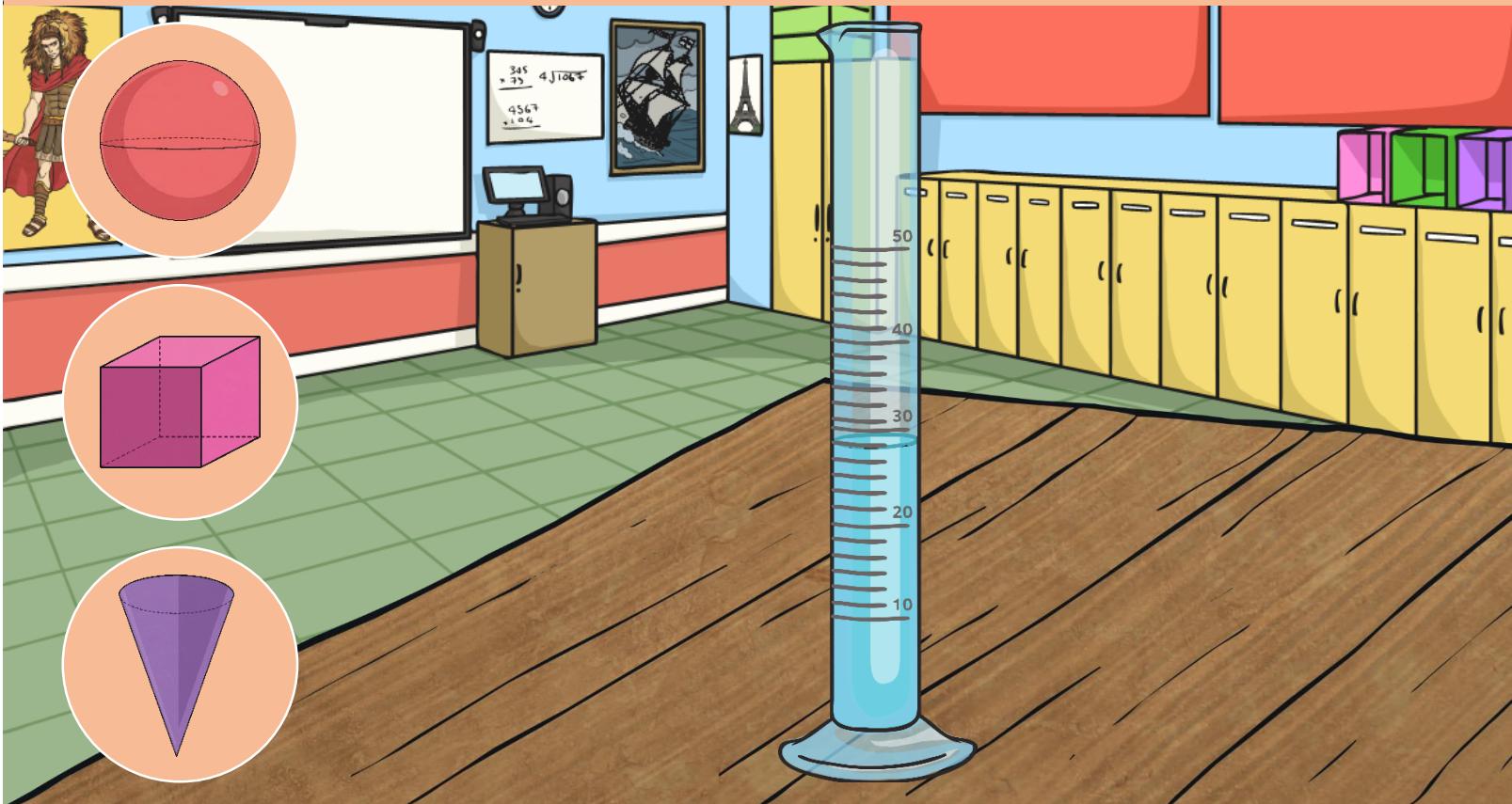


Streamlined Shapes



Which shape do you think will fall the **fastest**? Which will fall the **slowest**?

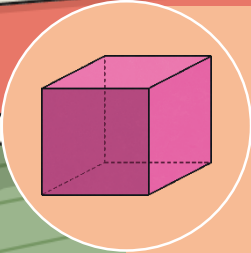
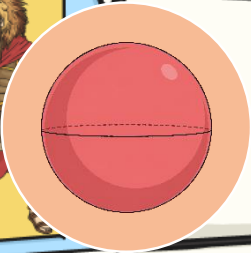
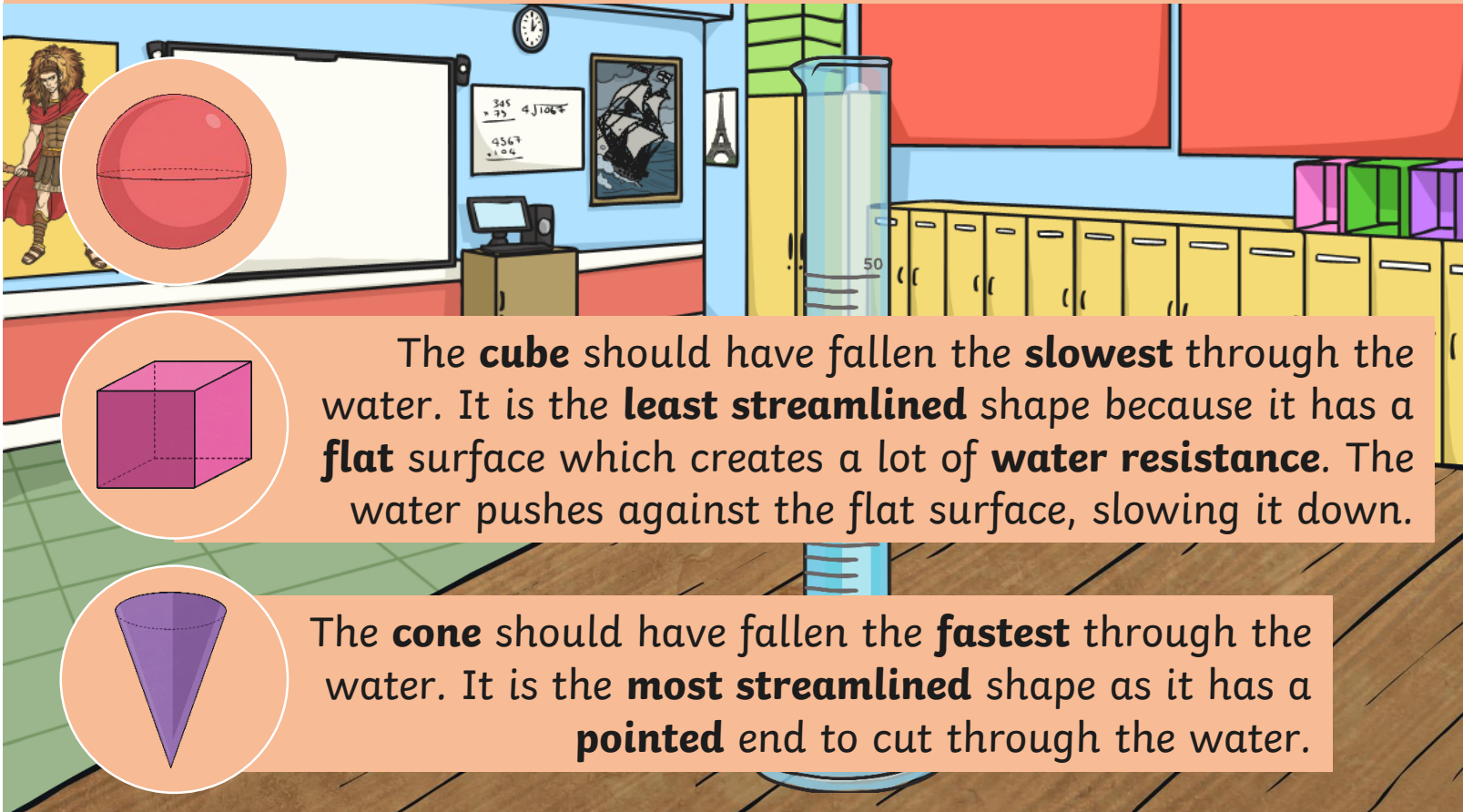
Try it out!



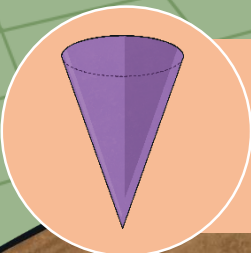
Streamlined Shapes



Can you give an example of an animal that has a streamlined shape?

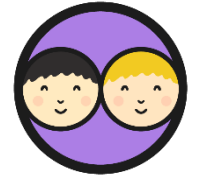


The **cube** should have fallen the **slowest** through the water. It is the **least streamlined** shape because it has a **flat** surface which creates a lot of **water resistance**. The water pushes against the flat surface, slowing it down.

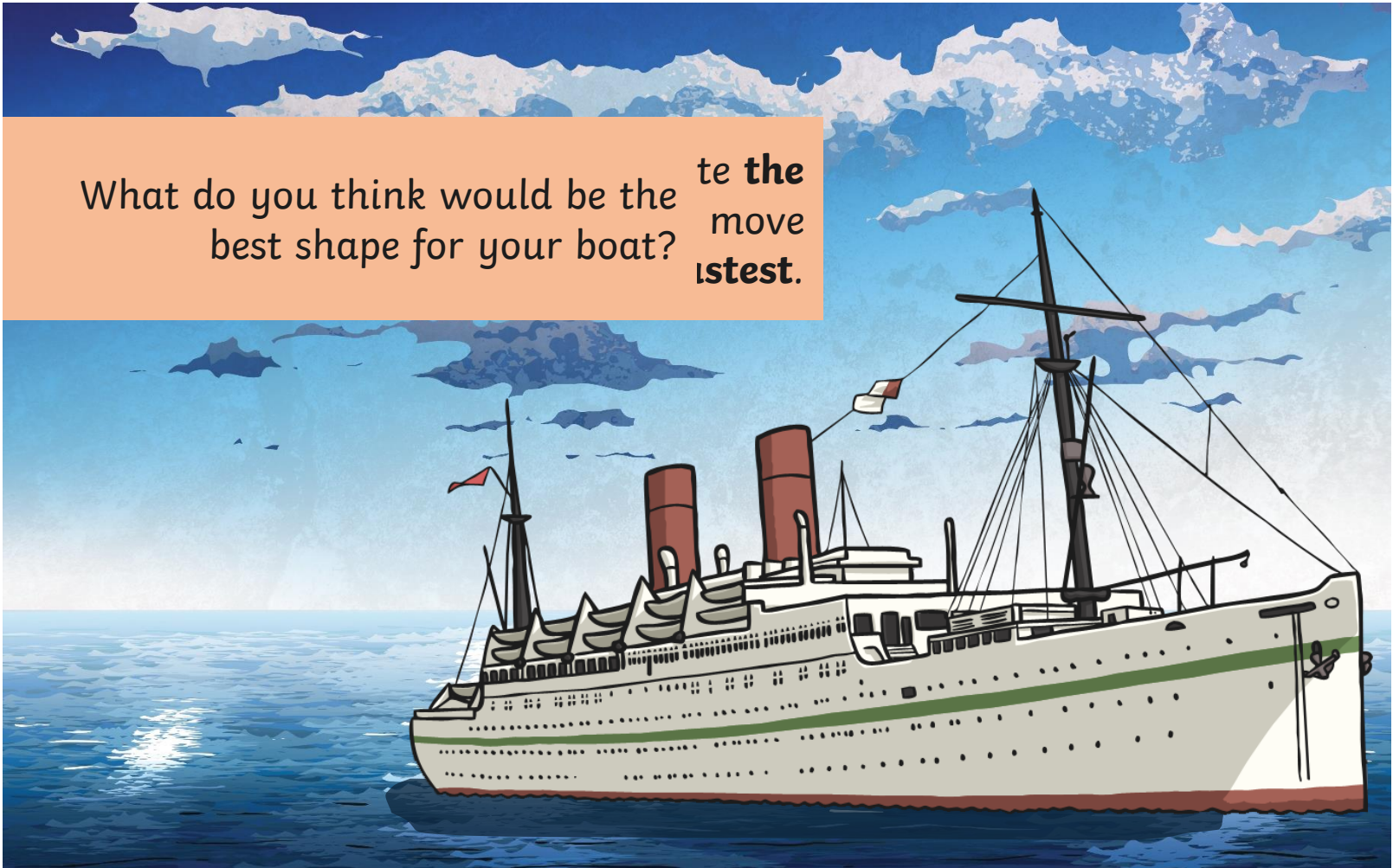


The **cone** should have fallen the **fastest** through the water. It is the **most streamlined** shape as it has a **pointed** end to cut through the water.

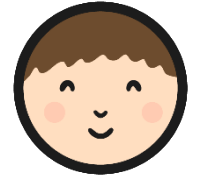
Boat Building



What do you think would be the best shape for your boat? **te the move istest.**



Boat Building



Evaluate your boat's performance on your Boat Race Activity Sheet.

Make sure to explain the effects of water resistance and how you designed your boat to minimise these effects.

Boat Race

Draw and label your boat here.



Do you think your boat will move through the water easily and quickly? Why?

How long did it take your boat to cross the water tray?

How did your boat do compared to the other boats?

Why do you think your boat performed this way? Use the key words below to explain your ideas.

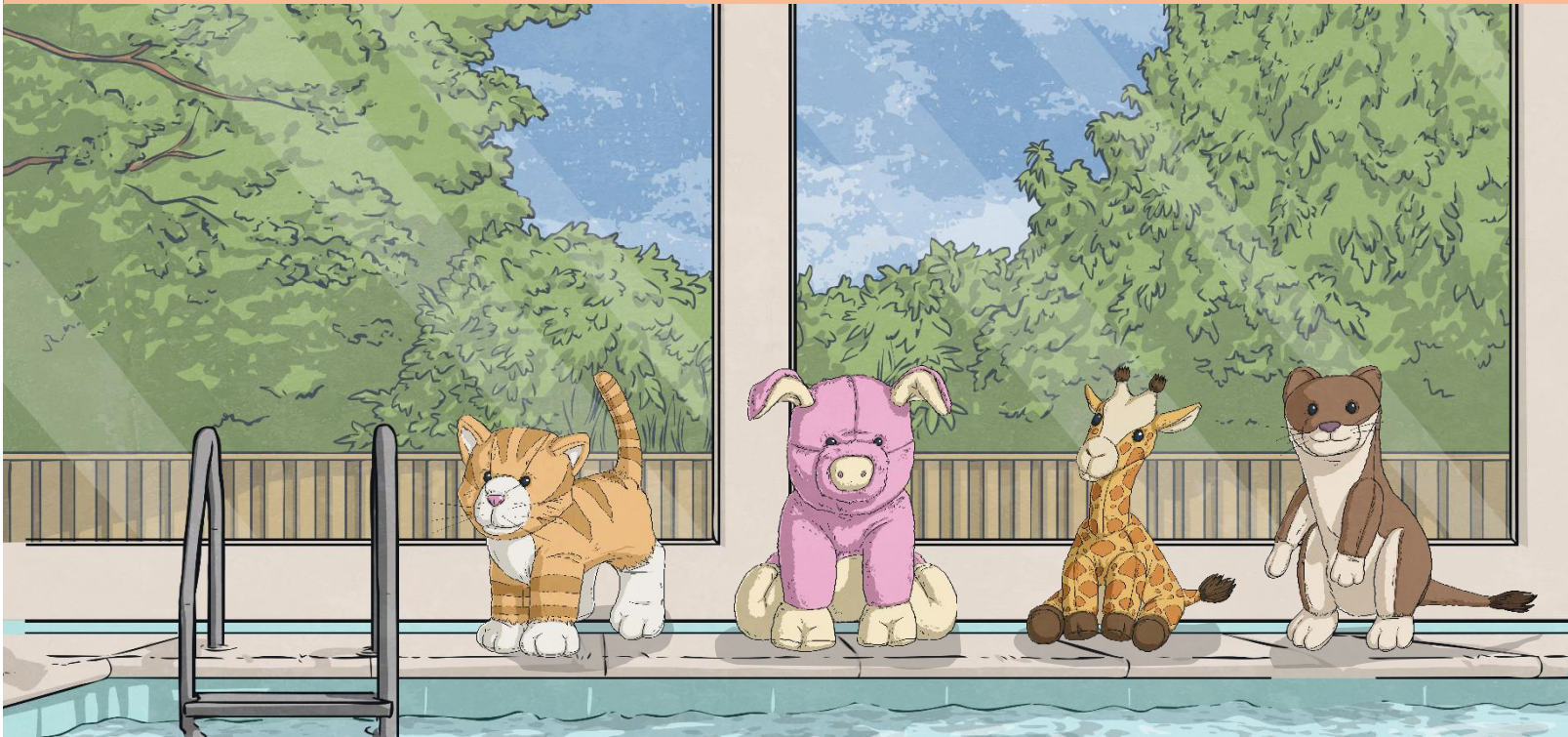
Key Words
water resistance streamlined pointed flat curved low high smooth surface push

  Science | Year 5 | Forces | Water Resistance | Lesson 4

Apply Your Knowledge



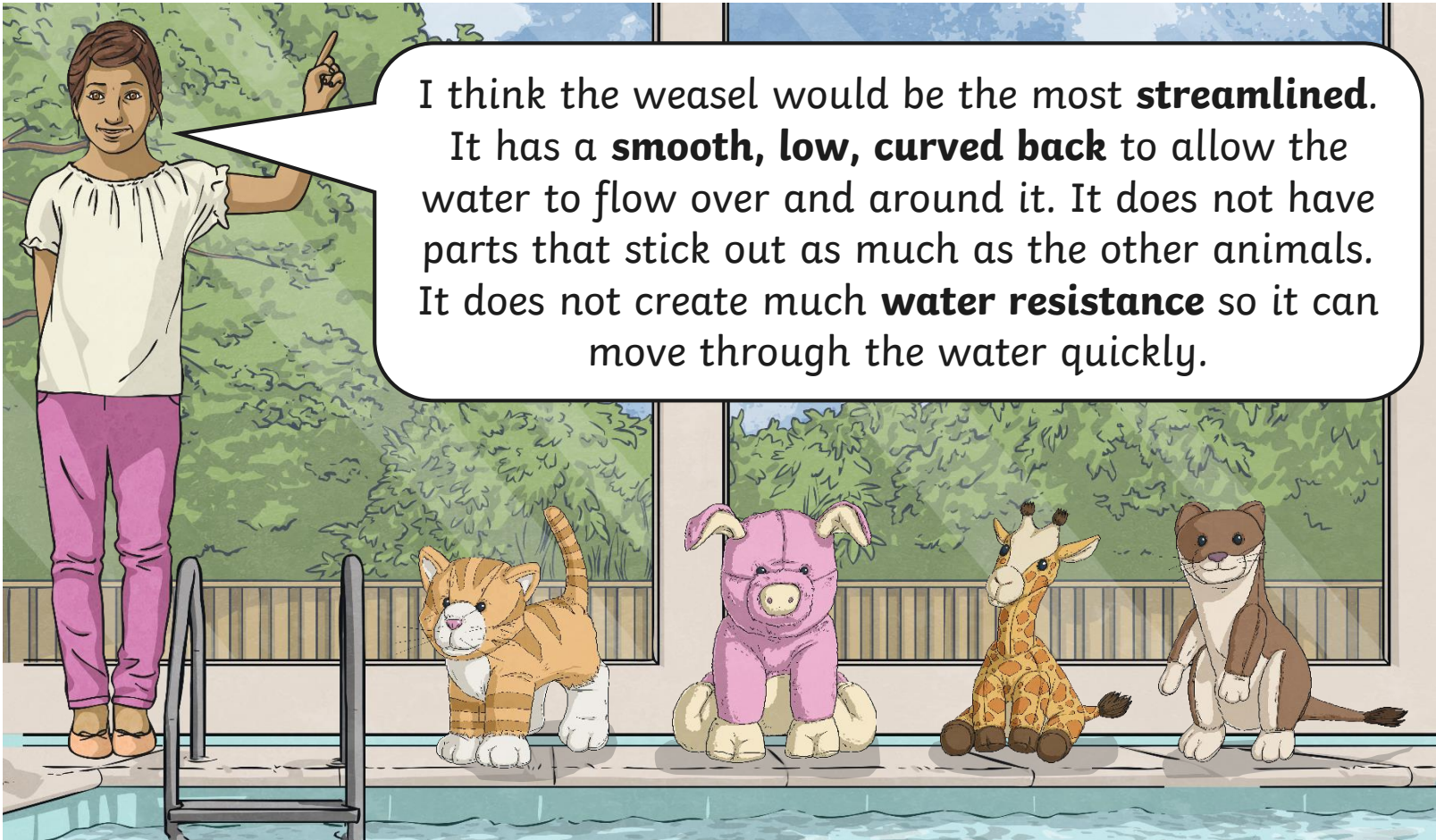
Talk to your partner about your ideas.



Apply Your Knowledge



I think the weasel would be the most **streamlined**. It has a **smooth, low, curved back** to allow the water to flow over and around it. It does not have parts that stick out as much as the other animals. It does not create much **water resistance** so it can move through the water quickly.



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