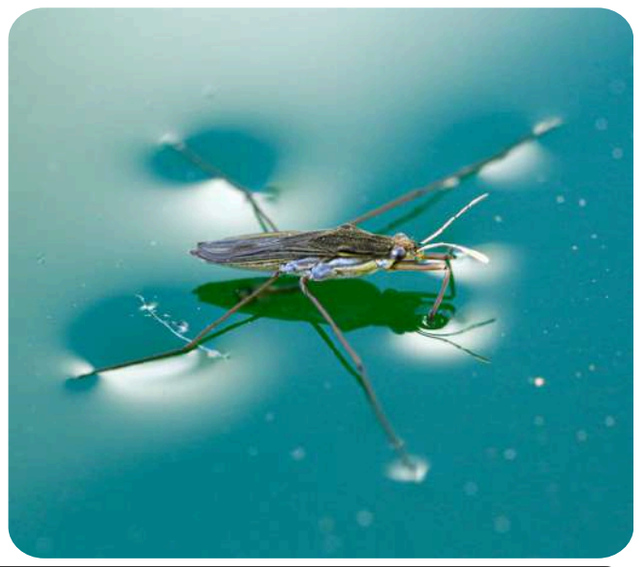
INVESTIGATE

WATER BUG CHALLENGE

7-12 yrs | 10 min | Stage 2-3

Mission Question

Can you improve your pond so it can hold MORE water bugs?



? Wonder & Predict

I PREDICT THAT.....

- ☐ Bigger cup
- ☐ Colder water
- ☐ Warmer water
- ☐ Smaller paperclips
- ☐ Larger paperclips

There are no wrong predictions.

Before you begin

What ONE thing do you think will help your pond hold more water bugs?

This experiment builds on the FREE experiment on the website. Visit this for how to float a paperclip on water.

What you will need

- 2 plastic cups

- Small paperclips

- Large paperclips

- Jug of water

- Pencil

- Investigation sheet

Observe & Record

What happened?

- ☐ My pond held more water bugs.
- ☐ My pond held fewer water bugs.
- ☐ The surface broke quickly.
- ☐ The surface stretched further.
- ☐ It was easier to place the paperclips.
- ☐ Something surprised me

Investigation Record

Follow the steps carefully while observing.

1 Build Your Starting Pond

- Build your pond exactly the same way as before.
- Count how many water bugs it can hold.

Starting score

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2 Change Just ONE Thing

- Real scientists keep everything the same...except ONE thing.
- Which ONE thing will you change?

☐ Cup size. ☐ Paperclip size ☐ Water level
☐ Water temperature

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3 Build Your New Pond

Build the pond with your ONE change, count carefully, record your new count.
New score:

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4 Compare Your Results

Compare your Starting score and New score.

□ Held MORE water bugs — my change helped
□ Held FEWER water bugs — my change made it worse
□ Held the SAME number — no difference

Was your prediction correct? □ Yes □ No □ Partly right

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5 Improve your investigation

What would you test next to hold even more water bugs?

□ Different cup size □ Different paperclip size □ Different water level □ Hotter water □ Colder water

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www.thecrazyscientistlab.com.au
Resource ID: LAB-PHYS-041-WS

INVESTIGATE

What happened?

Fill in the sentences using words from the box.

surface tension | water molecules | invisible | support | stretched | broke | sink

1. Tiny _____ are always pulling towards each other.
2. They form an _____ skin across the top of the water.
3. Scientists call this _____ _____.
4. This invisible skin can _____ very light objects.
5. As more paperclips were added, the surface _____ further and further.
6. Eventually the invisible skin _____ and the paperclips began to _____.

The science behind it

Why Did The Paperclips Float?

Water is made from millions of tiny particles called water molecules.

These molecules are always pulling towards each other. At the surface of the water, they form a very thin, stretchy layer.

Scientists call this surface tension.

Think of it as a tiny invisible skin stretched across the top of the water.

If a very light object is placed gently onto this surface, the invisible skin can support it.

That's why your first paperclip stayed on top of the water instead of sinking.

As you added more and more paperclips, the invisible skin stretched further.

Eventually, the weight became too great.

The surface broke...

...and the paperclips sank.

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