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Published by the Peter Underwood Centre



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September 6, 2021



Special broadcast live from TMAG

JOIN us for a special broadcast of *UCTV Alive for Kids* this Wednesday at the Tasmanian Museum and Art Gallery (TMAG). TMAG's First Peoples Learning Facilitator Nicole Smith will explore the impact of colonisation on the First Peoples of *Iutruwita* (Tasmania). TO REGISTER: <https://bitly.co/8T9Q>

PICTURES: iStock/ fotojog/
Brian A Jak

COLD FACTS

Staying cool when it's hot and warm when it's not

EVERYONE is having their temperature checked a lot at the moment.

Unless there is something unusual happening, like we are unwell, our temperatures tend to stay much the same.

A normal body temperature is between 36-37° Celsius, but it only has to change slightly to indicate there is a problem.

A temperature of 38° C indicates you have a fever caused by an infection or illness, while hypothermia sets in if your core body temperature gets lower than 35° C.

But how do we manage to keep our bodies at such a regular temperature?



The ability to do this is called thermoregulation.

While you might not be aware of it, your body is always working hard to protect you.

The work the body does to keep your temperature - among other things - balanced is called homeostasis.

Your body system, which

includes all your organs, monitors everything that is happening inside and outside, including temperature.

This job is mainly done by your skin.

The human body has two ways of staying warm, or raising our core body temperatures.

The first is one we are all know - shivering.

The second involves the brown fat in our bodies.

That's right, our bodies contain different coloured fat, and burning brown fat creates heat, without having to shiver.

This is a natural process called thermogenesis.

The only way the human body has to cool itself is to sweat.

When sweat evaporates it helps cool the blood beneath our skin.

Humans are endothermic— animals that maintain a close to constant body temperature.

Ectothermic animals, on the other hand, can have wide variations in body temperature.

They have to rely on external sources of heat and cold.

For example, reptiles warm up by basking in the sun, and cool down in the shade.

Being ectothermic therefore has its disadvantages, but it also has its advantages.

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"Education perhaps more than anything else is a passport to a better life." - Peter Underwood AC

Insulated animals

Giraffes direct warmer blood to the edges of their spots to push heat out.

Polar fish produce antifreeze proteins within their bodies.

Elephants flap their big ears to cool the blood flowing through them.

Hippos and other animals bathe in cool mud.

Japanese macaques (snow monkeys) bathe in warm springs.

Emperor penguins huddle together to stay warm.

Some birds poo on their legs. They cool down as the moisture in the poo evaporates.

Kangaroos spit on their arms, and the saliva cools them as it evaporates.



Research by the University of Tasmania found Tasmanian spotted snow skinks age more slowly in cooler climates. The small, endemic skinks live in a broad range of climatic conditions in Tasmania, from the Central Highlands to coastal areas. Find out more: <https://www.utas.edu.au/research-admin/research-news/cool-climate-the-key-to-lizards-ageing-gracefully>

Pictures: iStock/ vladsilver/ Stu Ports/ AlexanderLaws/ aussiesnakes

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Being ectothermic takes less energy, which is why snakes can survive on one meal a week. Animals, humans included, have of course developed all sorts of ways of coping with heat and cold.

Some, as you can see from the examples above, are very clever.

Termites keep their mounds cool by constructing air pockets to create an elaborate system of air conditioning.

Others are simple but effective, such as hippopotamuses and pigs rolling in mud to stay cool.

Just as we wear clothes and have insulation in our homes, animals also insulate with fat, fur and feathers.

There is a fun experiment you can do at home to explore this technique.

All you will need is a container of ice water and some plastic wrap.

Try wrapping your fingers in items you can find around the home - e.g. cotton wool, socks, fat (seals and other animals use blubber to stay warm), foil - and plastic wrap, and then dip your fingers in the ice water.

Which insulator works best?

Perhaps rate each item out of 10, from coldest to warmest, and keep a score sheet.

Birds use down feathers to trap a layer of air next to their bodies.

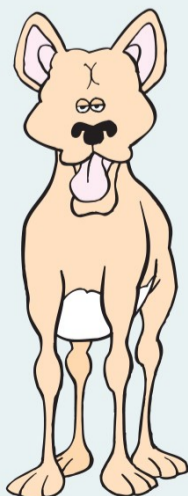
If you have a balloon and a straw at home you can check this out.

Put the balloon on a finger and place it in the ice, and rate its insulation properties out of 10.

Then use the straw to blow some air in the balloon, and try the method again.

Children's University Tasmania members can earn stamps in their passports for these challenges, at the discretion of their school coordinator.

Word CHANGER



Change one letter and arrange them on the next line to make a new word. Use the clues to help you change a bilby into a dingo. The answer is below.

DID YOU KNOW?
Water is scarce in the dry desert areas in which the bilby lives, so it gets most of its water from the food it eats.

B I L B Y

- Short for William _____
- Another name for birds' beaks _____
- Fish use these to breathe _____
- A broken arm might go in one of these _____
- Smiles widely _____
- Muscle at the top of the leg _____

SOLUTION: BILBY, Billy, bills, gills, sling, grins, groin, DINGO.

D I N G O