

October 2021

How do you toilet train a cow?

You are possibly thinking 'I don't care how, but WHY would you want to toilet train a cow?'

Well scientists in Germany have been, and it's all part of reducing the impact cows have on the climate.



On average cows drink over 100 litres of water a day and they urinate about 20 - 30 litres a day.

Their urine is very nitrogen rich and reacts in the soil to produce nitrous oxide – a greenhouse gas.

If the urine mixes with faeces then ammonia is produced which contaminates water supplies.



A toilet room was created for the cows and they were given an immediate reward when they urinated in the toilet room.

The scientists were surprised how quickly the cows behaviour changed – on average it took about 11 visits for the behaviour to be ingrained.

Toilet Training

Environmental Impacts

Methane impacts

The collected urine can be treated and turned into a very nitrate rich natural fertiliser.

Topical Science Shorts

Beating Sepsis with AI



Sepsis is a serious reaction to an infection. Annually it affects about 49 million people and is linked to about 6 million deaths worldwide.

It is very hard to diagnose and requires quick treatment. Artificial Intelligence robots are being trained to recognise symptoms early and recommend treatment.

Sepsis

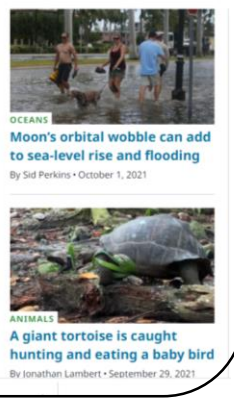
Using AI

AI in healthcare

ScienceNews for Students

Science News for Students is a brilliant website with up to date science news for children of all ages to access.

Stories are clearly and simply explained and there are excellent features and analysis.



topicalscienceupdates@gmail.com

Elemental dances

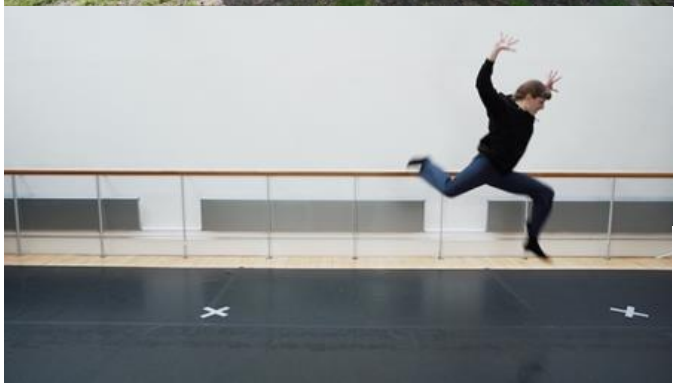
0 1 2 3 4 5 6

Imperial College London

THE PLACE

Discover the tiny things that make up the world with scientists from Imperial College London and dancers from The Place. For children, families and teachers.





Atomic physicists from Imperial College London and dance artists from The Place have teamed together to make an innovative series of educational dance videos about atoms and molecules.

Access the Elemental dances **here**.

There are six episodes, each around 20-30 mins long.





0 **SIZE**
How big is an atom? 2:02

1 **CLUES**
Why do we think atoms exist? 24:44

2 **WORLD INGREDIENTS**
What are the atoms that make the world? 22.42

3 **ATOM LIGHT**
How do atoms colour the world? 31:16

4 **THE WATER MOLECULE**
How do atoms behave when they combine to make a water molecule? 26:51

5 **ICE, WATER, STEAM**
How does water change its character so dramatically? 17:34

6 **ATOM FACTORIES**
Where do atoms come from? 23:49

Each film begins with a scientific theory, simply and thoughtfully explained by a physicist. The theme is then explored creatively with a dance artist.

Elemental dances
Discover the world of atoms through dance.

Elemental dances

0 1 2 3 4 5 6

Imperial College London

THE PLACE

Discover the tiny things that make up the world with scientists from Imperial College London and dancers from The Place. For children, families and teachers.





Follow-on creative project ideas are suggested at the end of each episode.

Use the films as they are or to create your own lesson plans.







The series can be accessed **here** for free and is supported by a detailed **teacher's handout**.

This is a sensational series of videos that takes really complex concepts and explains them so beautifully that anyone could understand them.

The dance sections add a unique layer of explanation which brings the science to life for children.

These could be used equally well with upper primary age children, secondary age children and adults. I can't imagine anyone not improving their understanding after watching.

Paul Tyler (Primary Teacher, Kirkhill Primary School)

Elemental dances

Discover the world of atoms through dance.