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Delivered weekdays at 6am.
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THE DAY Build a better world

News Detectives

TODAY'S BIG STORY

The house where the central heating is YOU

Half of the world's energy is used to heat buildings. Now, scientists have found a way to build houses that are warmed by the people who live inside them.

Heat retreat: There is no need for a fireplace in a passive house. ©OHLAB

Imagine the scene. It is raining outside. Your shoes are soaked!

All you want to do is go inside and sit next to the warm radiator. But you can't – because your home has no heating at all!

This might not be a crazy idea. Designers have found ways to build houses that do not need heating. They are called passive houses.

A passive house has something called super-insulation. There are no spots where cold air can get out. Normal homes have cracks in windows. Doors might have a draught.

Passive houses are sealed tight. The rooms heat up from the warmth of our bodies.

Heating buildings uses lots of energy. Now, some say all houses should be made into passive houses.

You decide: Should we ban heating altogether?

YES!

All new houses should be passive houses. They can help us save the planet. And if we get cold, we can just put on a jumper!

NO!

Passive houses can only be built by people with lots of training. If we ban heating, most people will just be very cold.

KEY WORDS

Radiator: A device used to heat a home. It gets its name because it radiates – sends out – heat.

Passive: When something is not active, it is passive. A normal house is active because it uses energy to make heat.

Superinsulation: An insulator is a material that does not allow heat through it. This makes it good at keeping houses warm (or cold). Most buildings have insulation, usually in the roof or walls.

Draught: A breeze inside a room, usually from a crack in a door or window.

Detective zone

Picture puzzle

Can you work out what this is?

- [ ] The fibres of a carpet
- [ ] Frost covering a lawn
- [ ] The bristles of a paintbrush

Spot the fake!

Only one of these news stories is fake. Which one?

- [ ] **"Quick-thinking bear stops wildfire in California"**
- [ ] **"Hundreds attend festival about climate crisis"**
- [ ] **"Hair waste from salons recycled to mop up oil spills"**

Build the Change

It is not just homes that are becoming passive buildings – it is leisure centres, apartment blocks and even schools. In this challenge, you will design a new eco-friendly building for your school.

Step 1: Come up with a design. What features will it include? Who will use the building, and why? How will it help to save the planet?

Step 2: Create your school building! You can draw a picture of it or, if you have time, use craft materials and LEGO bricks to make a real version of your green design.

Did you know...?

- The narrowest house in the world is 92cm wide.
- During the ice age, humans sometimes lived in tents made from mammoth skins.

Share your genius

Show your work to your class

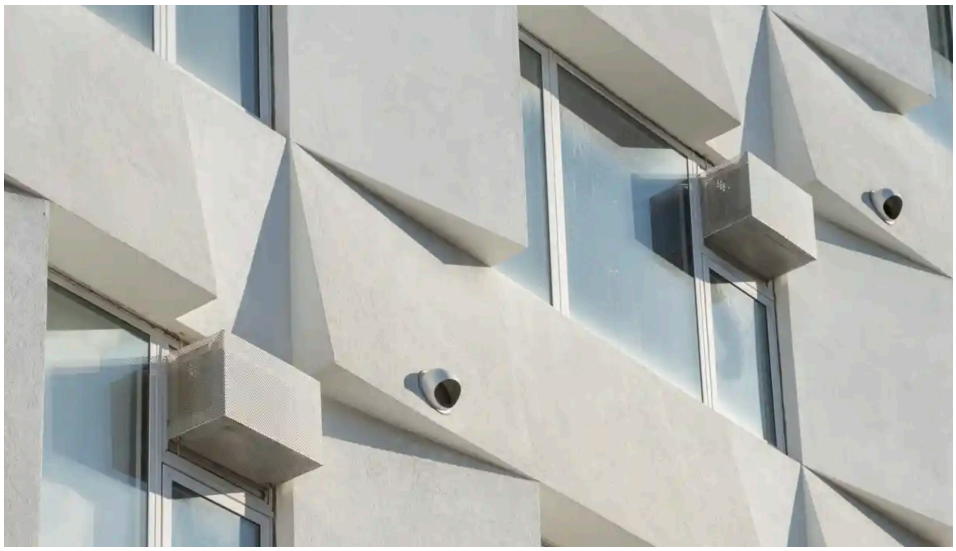
Upload a photo of your work to the Build the Change gallery by scanning the QR code and have your work displayed to inspire real-world change.

This worksheet is available online every weekday at 6am from theday.co.uk/newsdetectives.
For any feedback or help please contact newsdetectives@theday.co.uk. Thank you.

Teacher notes

TODAY'S BIG STORY BACKGROUND

As climate concerns rise, energy-efficient passive design is catching on in New York and other cities around the world.



Credit: *The Guardian*

The first night Stephanie Silva spent at her new Brooklyn apartment was uncommonly quiet. So was the following morning and the next day.

"It's like a sanctuary," Silva says, but as soon as she opens the street-facing windows, the bustling outside noise fills her living room. Once she closed the windows again, the difference was instantly noticeable. What sets this 67-unit building apart from the rest of the housing in the city is its "passive" element.

A passive building is designed to use minimal energy. To be efficient in heating and cooling, the space is sealed with airtight insulation – like a vacuum flask – so that it can keep the heat in during winter while keeping it out during the summer. Houses and apartment buildings, schools, offices and other buildings built to passive house standards usually use thicker, high-performance windows. Another key step is using the energy recovery process in the building's heating, ventilation and air conditioning system. Known as ERV, the ventilator, by way of two fans, acts as the lungs of the building, drawing in clean, fresh and filtered air and pushing out the stale air.

In New York and other cities, passive design is catching on as a popular option for new apartment buildings and homes, and it's easy to see why: people love living in them.

The continuous exchange of air, coupled with superinsulated construction, means no more smell of whatever the downstairs neighbours are cooking, no more traffic noise in the living room, and no more clickety-clack of old radiators.
"When you walk into a passive house, the average person probably doesn't notice a difference," said Justin Stein from affordable housing company Bronx Pro Group.

The annual energy demand of passive homes is estimated to be more than 70% less than that of traditionally insulated buildings with the same parameters.

From no longer having cold feet while working from home, to sitting near a window and not feeling the chill pierce through the glass, to the lowered noise pollution and energy costs – for architect Satpal Kaur, the benefits that come from living in an affordable passive home are amenities that every person deserves.

Dozens of affordable passive developments are currently in the works throughout all five boroughs of New York.

These renovations and new construction projects can help with the city's goal to reduce greenhouse gas emissions from buildings by 40% by 2030.
Currently the city's housing stock is responsible for 71% of New York's greenhouse carbon emissions.

ANSWERS TO PUZZLES

Picture this!

The bristles of a paintbrush

Spot the fake!

"Quick-thinking bear stops wildfire in California"

Build THE Change

This week's challenge is part of the LEGO® Build the Change programme. It can be done at school or as homework, and parents can help upload photos of pupils' work to the online gallery.

Visit the gallery at https://bit.ly/btcgallery and feel free to use it as discussion point in class.

Build the Change is the LEGO Group's learning through play-based sustainability program, encouraging children to become engaged global citizens with voices that are heard.

This worksheet is available online every weekday at 6am from theday.co.uk/newsdetectives.
For any feedback or help please contact newsdetectives@theday.co.uk. Thank you.