Wildlife crossings

Civil engineering is the **design and construction of infrastructure** that we use every day like roads, bridges, and buildings.

Civil engineers make sure these structures are safe, functional, and durable. You can find out more about this in a session from another of our projects, Building to Break Barriers, available here.

One important area of civil engineering is building bridges, which connect places and people.

The Sustainable Development Goals

The 17 Sustainable Development Goals (SDGs) were adopted by the United Nations in 2015 as a call to "end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity". Find out more here: https://www.undp.org/sustainable-development-goals.

Civil Engineering and the SDGs

Civil engineering directly supports these goals by creating resilient and sustainable infrastructure.

Building bridges supports **SDG 9 (Industry, Innovation, and Infrastructure)** by developing reliable and sustainable infrastructure.

It also supports **SDG 11 (Sustainable Cities and Communities)** by improving urban transportation and connectivity.

By designing resilient structures, civil engineering contributes to **SDG 13 (Climate Action)** by preparing for climate impacts.

Wildlife crossings

Wildlife crossings, also known as green bridges, allow animals to safely move across roads and other barriers.

They **reconnect habitats** that have been split apart, making it safer for both animals and people by reducing accidents.

Habitat fragmentation happens when things like roads and railways cut through animal homes, making them smaller and less healthy.

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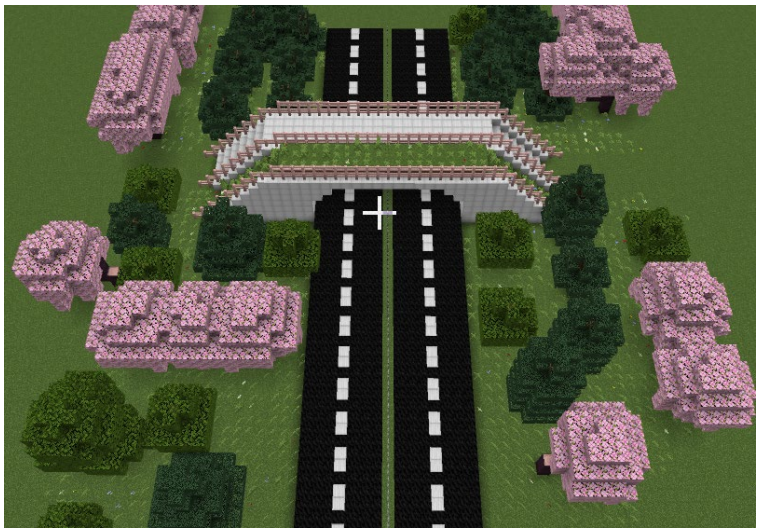

Image: Thomas Murray, used with permission

Roads can:

- Reduce the space and quality of habitats.
- Cause accidents that can kill animals.
- Block animals from reaching food and shelter.
- Split animal groups into smaller, weaker ones.

These problems can make it hard for animals to survive and can even lead to extinction if their numbers get too low.

Green bridges are a way to help solve these issues.

Minecraft Challenge

Use your creativity to design and build a green bridge in Minecraft that connects two areas.

Think like a civil engineer: **how do you make your bridge strong, safe, and useful?**

Consider the **materials** you'll use, the bridge **design**, and how it fits into the **environment**.

Include features like **pedestrian walkways** and **green spaces**.

Make sure your bridge can withstand weather events like rain and wind.

Anything else you think of!

You could use:

- some of the engineering techniques we have covered
- your own ideas

If you do not have access to Minecraft you could:

- draw your design
- build your own using simple materials.

Not an official Minecraft resource. This project was supported by the Royal Academy of Engineering under the *Ingenious Awards* scheme. For educational use only. Contact: sciencehunters@uwe.ac.uk.