Goal 9: Industry, Innovation and Infrastructure

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.

Industry includes factories that convert raw materials into goods and businesses that provide useful services. Innovation involves industry inventing new products, technologies and services that support daily living. Infrastructure includes our buildings, our transport systems, our energy systems, and our communication technology.

World leaders are working together to address inequalities that prevent the growth of industry.

We are now going to explore how nature can teach us how to build and design in a smart way.

How can nature teach us to build better?

Nature serves as a wonderful teacher for creating, designing, and constructing our roads, buildings, and bridges. When we look at nature, we can see amazing examples of efficient building. For example, the way a spider weaves its web shows us how to make structures that are both strong and lightweight. We can find inspiration from the patterns we find in nature. For example, the branching pattern of trees helps us design efficient transportation networks. Nature provides us with examples of how to build structures for many functions. For example, the design of termite-mounds can teach us about energy efficient buildings.

By studying nature, we can learn valuable lessons about how to make our infrastructure more durable, beautiful, sustainable, and kind to the environment.

1. Resilient means to be strong and recover quickly from difficult conditions. 2. Industry involves making or producing goods, especially in factories. 3. Innovation means introducing new things or new ways of doing old things. 4. Infrastructure means the systems and services that a community needs for its people to live well such as roads, schools and hospitals.
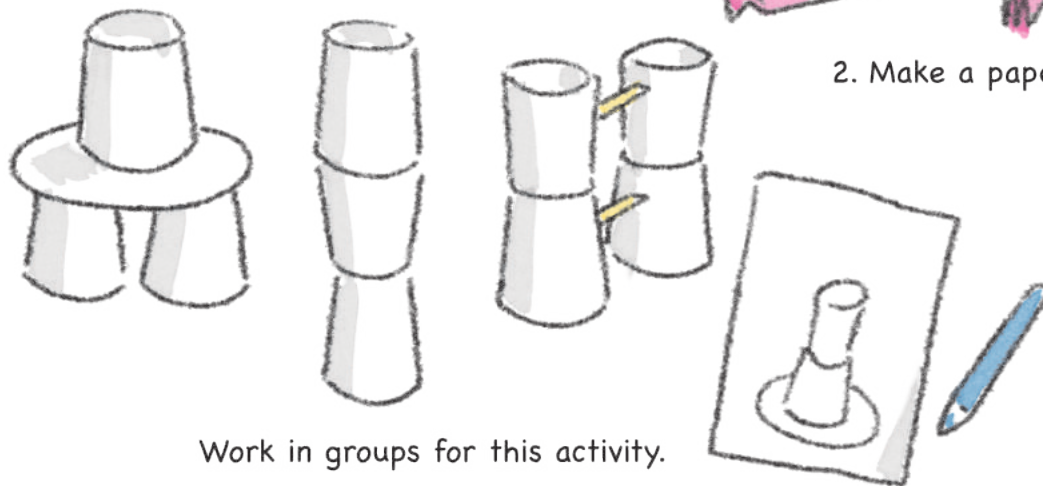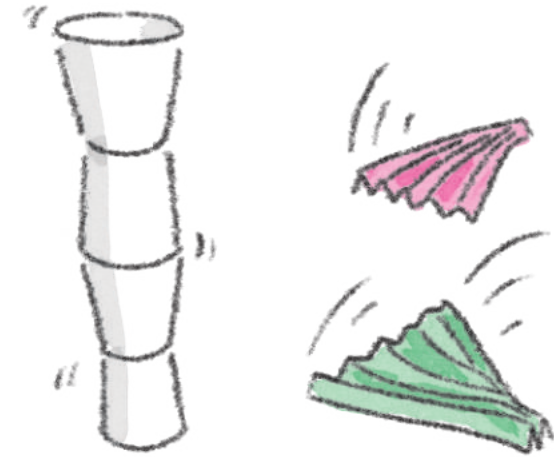
Experiment - Tallest and Strongest Tower
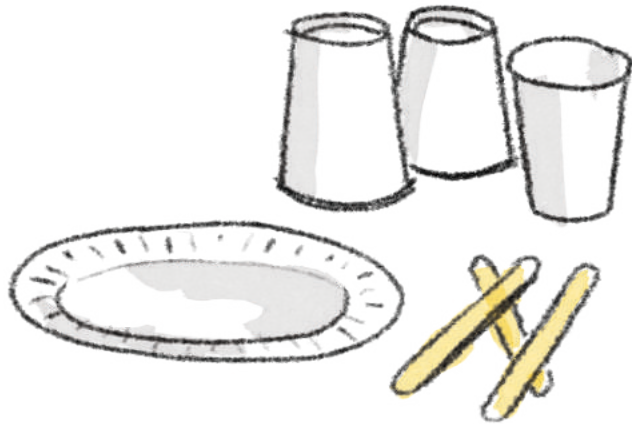
What you need:

- 10 paper plates
- 25 paper cups
- 25 craft sticks
- A sheet of A4 paper

2. Make a paper fan

3. When everyone has their fans completed stand in a line facing the towers and try to blow the towers down.

Were any of the towers strong enough to withstand the wind?

Work in groups for this activity.

1. Build the tallest tower possible using the materials provided.

When everyone is finished look at all the towers. Draw pictures of the tallest tower and the most unusual tower.

What are your thoughts?

Have you learned something new about how nature teaches us how to build?

What would you do to ensure we have strong buildings and infrastructure?

What Do We Learn From This Experiment?

and on and on

Tallest

plate

cup (up right)

upside down cup

## Tallest and Strongest Tower

What did you learn when building your tower? How would you build your tower differently? Was the tallest tower the strongest?

You may have learned that to build a tall tower you needed to ensure that every layer was strong and could hold the next layer. You may have learned that the strongest tower had a different shape than you expected.

Many building designs are inspired by nature. The Taipei 101 in Taiwan was once the tallest building in the world. It measures 508 meters. Taiwan can experience very strong winds and earthquakes and so buildings need to be strong. The design of the Taipei 101 was inspired by a natural structure that is strong and flexible – the bamboo stalk.

Explore the shape and patterns of the bamboo stalk to create your own designs.

Did you know the tallest building in the world in 2024 was the Burj Khalifa. It is a skyscraper in Dubai and is 829.8 meters tall.

# What Can We Do?

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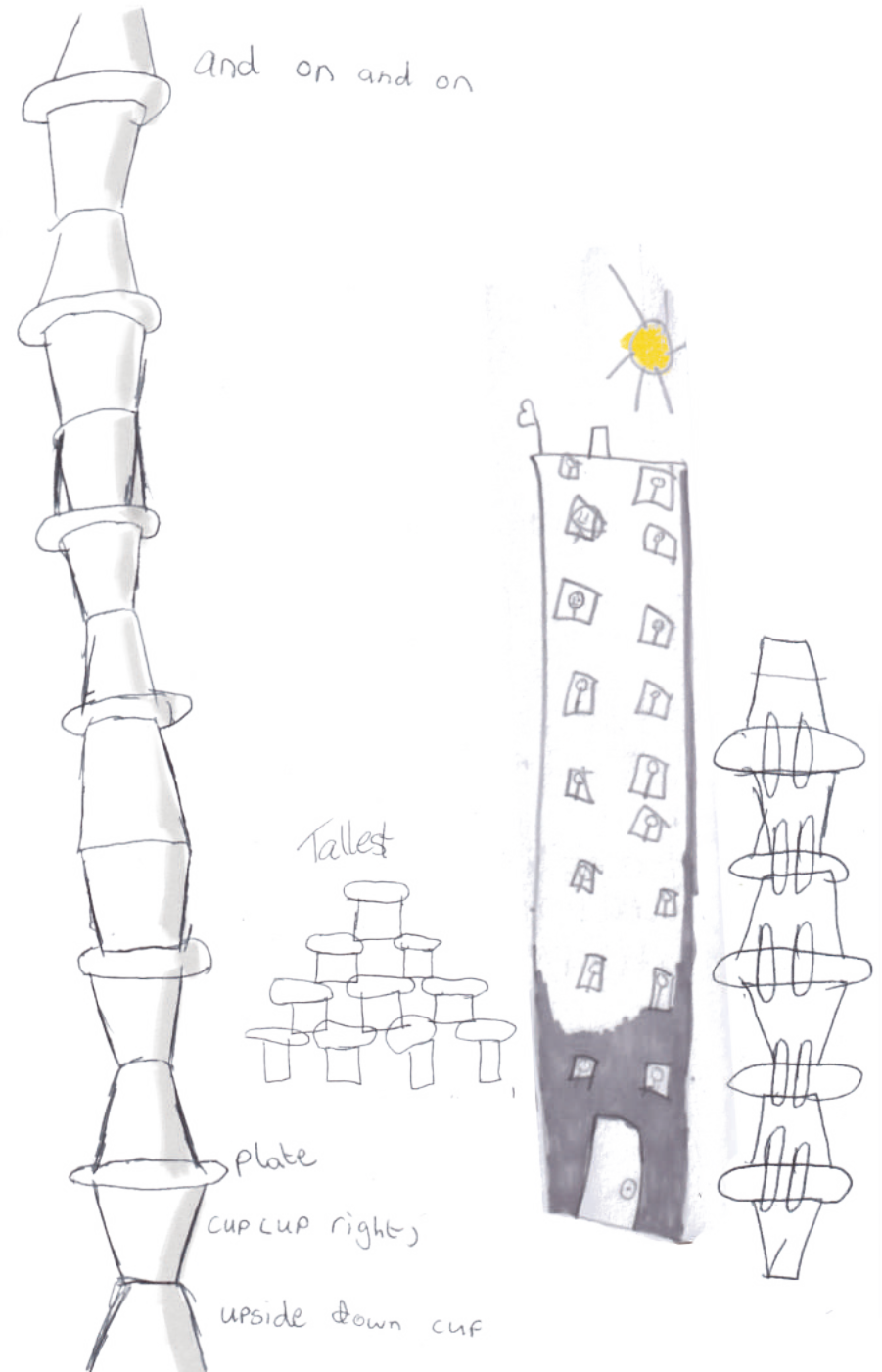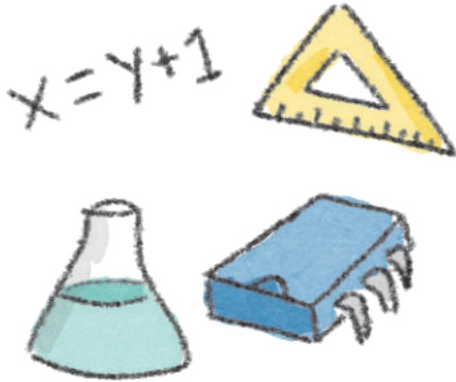
Participate in STEM activities at home and school.

SDG 9 is all about building resilient infrastructure, promoting inclusive and sustainable industrialisation and fostering innovation.

It can be hard to know the things we can do in our lives to make a difference, but by following some of the tips on this page we can start making the world better for everyone. You may not think that little changes will make a difference, but everyone making little changes adds up to big change.

Host an event to collect old devices that can then be recycled or re-purposed.
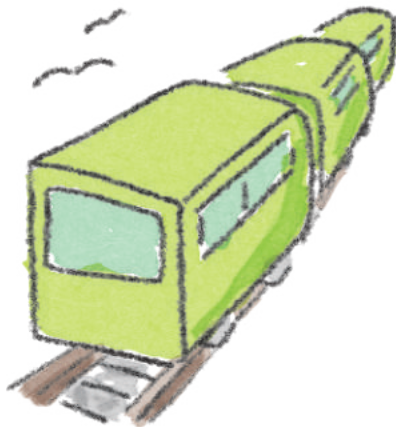
Learn about the importance of infrastructure and share what you learn.
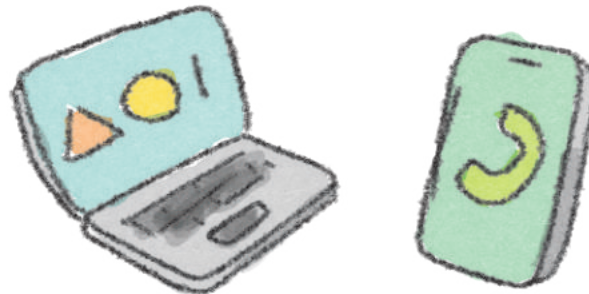
Learn how to use technology responsibly and safely.

Work on group projects in school and in clubs to develop teamwork skills.