**Engineer your future!**

**Engineering challenges, great for older children**

[**The Great Exhibition at Home**](https://www.big-ideas.org/join1851/) - The 1851 group has developed lots of activities for you to do at home that celebrate the Great Exhibition of 1851 which was, at its time, the largest science fair the world had ever seen and took place in South Kensington.

[**Create and make with the Design Museum**](https://designmuseum.org/whats-on/families/create-and-make/create-and-make-at-home) - The Design Museum is dedicated to getting people thinking about good design that effects our lives: from designing tennis balls and London’s buses to a dinner table suitable for space travel. They have lots of great easy activities to help young people develop their design and craft skills. Check them out!

[**Engineering challenges from the James Dyson Foundation**](https://www.jamesdysonfoundation.co.uk/content/dam/pdf/JDF_with%20cover%20challenge-cards_DIGITAL.pdf) - The James Dyson Foundation has a huge number of activities to try out. They have put together 44 challenges, from making a spaghetti bridge to developing cardboard boats for you to try at home.

[**Dyson Engineering Challenges**](https://www.dyson.co.uk/newsroom/overview/update/top-five-engineering-challenges-to-do-at-home.html) - Here are five challenges from the Dyson Foundation, including making a marble run and a boat, that all help develop engineering skills. These challenges introduce young people to the exciting world of engineering, encouraging them to think differently, make mistakes and realise their engineering potential.

[**Throw some shapes with the Science Museum**](https://learning-resources.sciencemuseum.org.uk/wp-content/uploads/2019/02/SMG-Learning-Activities-Build-a-Dome.pdf) - Make some 3D shapes with the Science Museum. You’ll need some straws, a ruler, scissors and some tape. Although the instructions say to make a dome, why not explore some other shapes too?

[**Ear Gongs**](https://learning.sciencemuseumgroup.org.uk/wp-content/uploads/2019/02/SMG-Learning-Activities-Ear-Gongs.pdf) - This is great for young kids! The Ear Gong experiment is from our friends at the Science Museum. You’ll just need string and a clothes hanger. Remember that science is about experimentation, so once you’ve made your Ear Gongs why not try using some other materials? Which materials give the clearest sound, and which ones just don’t work at all?

[**Make a green moving machine**](https://imperialcollegelondon.box.com/s/cwdtzhrnzs1931l9ms2yxpwxa36l53yo) - Although many of our researchers are not allowed in their laboratories, they are still hard at work at home. In this activity, environmental researchers Ellie and Louise have a challenge for you to develop a green vehicle of your own design. All you need is a bit of creativity and some clean dry recycling, like cardboard and plastic.

[**Make it fly**](https://learning-resources.sciencemuseum.org.uk/wp-content/uploads/2019/02/SMG-Learning-Activities-Make-It-Fly.pdf) - The Science Museum have some great examples and instructions for making flying machines. Why not try to make some flying objects like gliders and helicopters or explore different shaped planes?

[**Build a spaghetti tower**](https://learning-resources.sciencemuseum.org.uk/wp-content/uploads/2019/02/SMG-Learning-Activities-Spaghetti-Structures.pdf) - In this activity from the Science Museum you can build your own tower out of food! You will need spaghetti and marshmallows, but you could easily use paper straws and masking tape as an alternative.

[**Create your own pinball machine**](https://learning-resources.sciencemuseum.org.uk/wp-content/uploads/2019/02/SMG-Learning-Activities-Pinball-Power.pdf) - If you’ve got spare time, why not make a pinball machine? This is a great activity from the Science Museum and is perfect for older kids (and adults!). It needs an empty shoe box, two lolly sticks and a marble or small ball.

[**Ping Pong Pick Up**](https://www.iop.org/explore-physics/at-home/episode-12-ping-pong-pick-up#gref) - The IOP have lots of super simple experiments that explore the world of physics! There are 13 different experiments to choose from, but we really like the ping pong pick up activity. You’ll need a large plastic bottle, scissors, tape, a marker pen, bowl, ping pong balls and a mug.

[**Make your own face covering**](https://www.youtube.com/watch?v=R4v5QItAK3w&feature=youtu.be) - You can do your bit to help stop the spread of COVID-19 whilst staying fashionable and learning skills by making your own face coverings with the help of LUSH cosmetics. The instructions are for two types of face covering, one which needs sewing and one which doesn’t. Although in this video they use a sewing machine you can sew the masks by hand. We think getting children to learn to sew early is great.

[**Upgrade your phone**](https://learning.sciencemuseumgroup.org.uk/wp-content/uploads/2019/02/SMG-Learning-Activities-Tune-Booster.pdf) - If you play music from your phone but could do with a little more volume, check [out this activity from the Science Museum](https://learning.sciencemuseumgroup.org.uk/wp-content/uploads/2019/02/SMG-Learning-Activities-Tune-Booster.pdf) where you can make your own sound booster to make your phone louder and clearer. You can experiment with different materials and shapes to see which one has the best performance!

[**Make an air-powered car**](https://youtu.be/2x-ixR7E3xA) - We really like this activity from the Dyson Foundation where you can make an air powered car and learn more about the physics of acceleration and movement! You will need a spare balloon, a cup and some straws to make your car at home.