

AIMING FOR
AWESOME

2018

1918

Disaster relief

Student Booklet



Royal Academy
of Engineering

THIS IS
ENGINEERING

ROYAL
AIR FORCE
Youth STEM

The aim of this resource is to give students the opportunity to investigate the impact of science, technology, engineering and mathematics (STEM) on delivering humanitarian aid.



RAF disaster relief

The RAF has a long history of delivering disaster relief within the UK and across the world.

The 1983 to 1985 famine in Ethiopia was the worst famine to hit the country in a century. In response to the famine, Operation Bushel became one of the largest airdrops of its kind with more than 32,000 tonnes of supplies being delivered to the starving people of Ethiopia.

In 2009, the RAF played a key role in supporting the residents of Cumbria after around 500 homes in Cockermouth were flooded as water levels rose to more than 2.5 metres. RAF helicopters were used to airlift at least 50 people to safety; some of those rescued by the RAF had to break through the roofs of their houses to be airlifted.

In 2015, RAF Chinook helicopters were used to deliver sandbags to Lancashire in efforts to avert flood damage to the area.

TIME TO THINK

The RAF has been asked to support after an earthquake in Nepal. The earthquake happened in November, the middle of dry season when temperatures fall to 15°C in the day and as low as 7°C at night.

In groups, identify some of the things people need but do not have access to during and after an earthquake

Use the cards to order them by which are needed first. Use the blank cards to add any other ideas your group has.



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TIME TO MAKE

Sometimes it is not possible for aircraft to land to deliver aid, so aid must be dropped from the craft while it is still in flight.

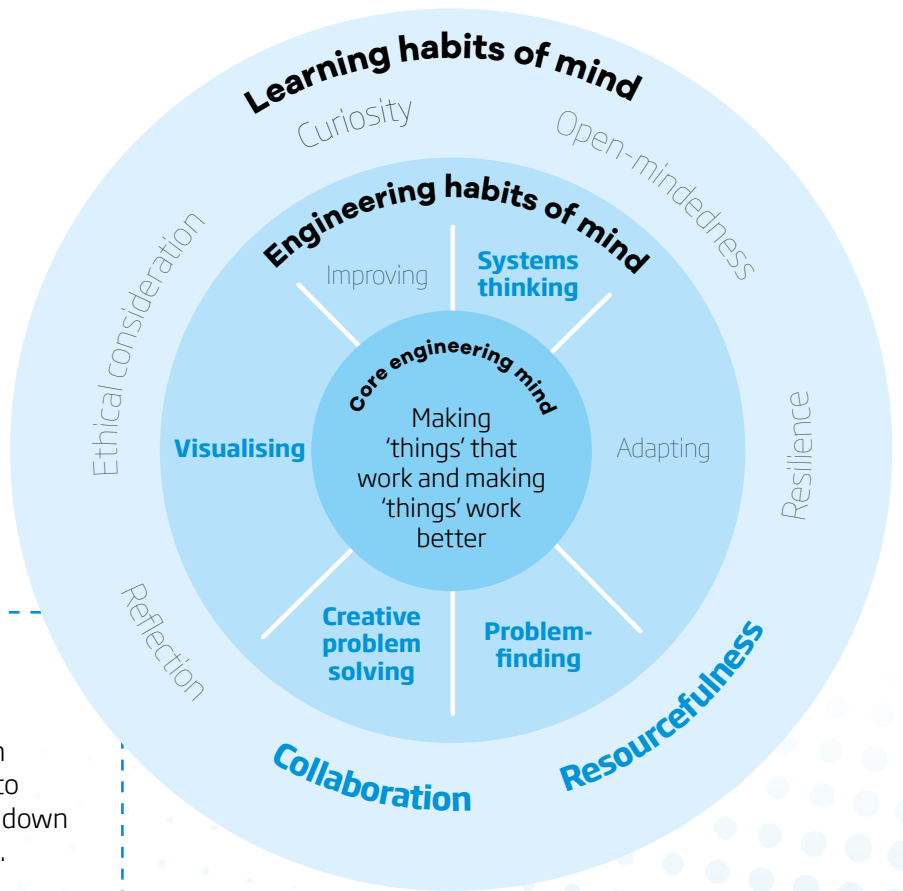
Design a lander for an egg to ensure it does not get broken when it hits the floor.

When designing your lander, think about how you can reduce the impact force when the egg lands.

Guidance provided to STEM activity leader

Students should work in teams to design a lander for an egg. There are two ways to reduce the impact on the egg: slowing it down with a parachute and protecting the egg.

The eggs should be launched from a height, either down stairs or out of a window. A full risk assessment should be completed before conducting this experiment.



Disaster relief



Royal Academy of Engineering

The Royal Academy of Engineering is harnessing the power of engineering to build a sustainable society and an inclusive economy that works for everyone.

In collaboration with our Fellows and partners, we're growing talent and developing skills for the future, driving innovation and building global partnerships, and influencing policy and engaging the public.

Together we're working to tackle the greatest challenges of our age.

What we do

Talent & diversity

We're growing talent by training, supporting, mentoring and funding the most talented and creative researchers, innovators and leaders from across the engineering profession.

We're developing skills for the future by identifying the challenges of an ever-changing world and developing the skills and approaches we need to build a resilient and diverse engineering profession.

Innovation

We're driving innovation by investing in some of the country's most creative and exciting engineering ideas and businesses.

We're building global partnerships that bring the world's best engineers from industry, entrepreneurship and academia together to collaborate on creative innovations that address the greatest global challenges of our age.

Policy & engagement

We're influencing policy through the National Engineering Policy Centre – providing independent expert support to policymakers on issues of importance.

We're engaging the public by opening their eyes to the wonders of engineering and inspiring young people to become the next generation of engineers.



The RAF Youth STEM programme is designed to engage and inspire young people by building their interest in engineering and technical career pathways.

From cyber specialists to aerospace, aviation, electronics, and mechanical disciplines, the RAF is committed to widening participation in STEM, extending opportunities to all, and encouraging greater diversity in this critical area of national skills shortages.

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Registered charity number 293074