



JOIN THE MIDLANDS MAKER CHALLENGE

AND HELP INSPIRE THE MAKERS OF THE FUTURE

.....

The **Climate (in)Action Challenge** is a fantastic opportunity for pupil-led design, discovery and making.

Sign up teams to challenges in the January and summer terms.



Supported by:



midlandsmakerchallenge.co.uk



INTRODUCING THE MIDLANDS MAKER CHALLENGE

The Midlands Maker Challenge aims to empower the next generation of makers and innovators. Through the Climate (in)Action challenge we are looking for each team to imagine, design and create a solution to a challenge that puts people at its core.

UPCOMING CHALLENGES

13-16 AGE GROUP

- 11 January - 8 March

15-18 AGE GROUP

- 7 February - 4 April

16-21 AGE GROUP

- 24 January - 4 April

13-16 AGE GROUP

- 3 May - 28 June

15-18 AGE GROUP

- 17 May - 13 July

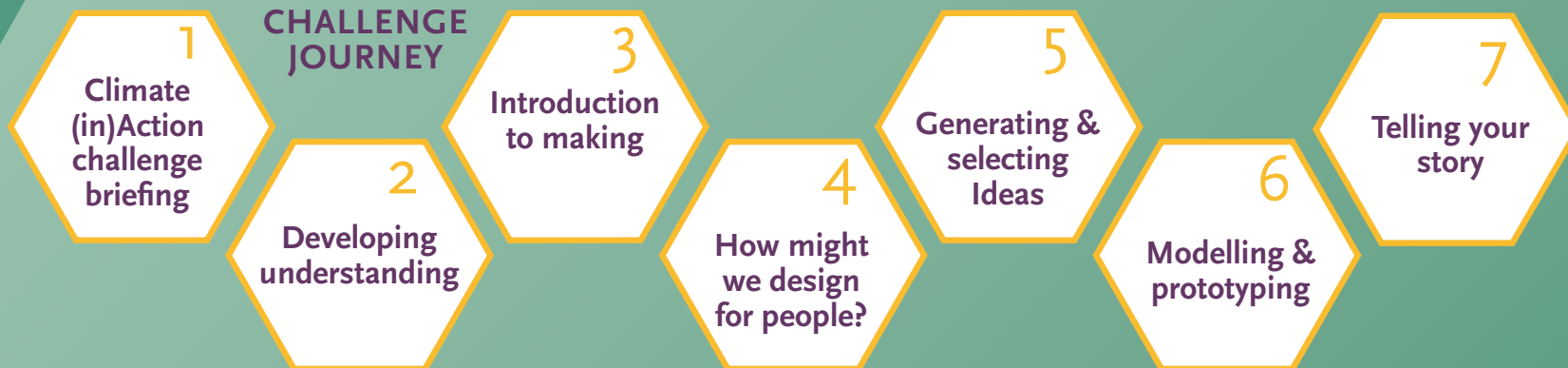
16-21 AGE GROUP

- 26 April - 19 July

WHAT YOU NEED TO KNOW ABOUT TAKING PART

- 4 The context of the Climate (in)Action theme
- 6 The amazing opportunity for your pupils and school
- 8 Inspiring learning to support innovation
- 10 Comprehensive learning and skills development
- 12 Recognising and celebrating achievement
- 14 Timing and logistics

CHALLENGE JOURNEY





THE CONTEXT OF THE CLIMATE (IN)ACTION THEME

CHALLENGE THEME

Many studies have evidenced young people's concerns about the impact of climate change. Climate (in)Action is our theme because it reflects these concerns and gives control to young people to design and make the changes they would like to see in the world.

The challenge has been constructed to offer flexibility for young people to consider positive action, as well as the impact of inaction. Young people can design and create a meaningful solution to the challenge, whilst learning design and making skills along the way and developing confidence to make change. The challenge is driven by the idea that local action can have a global impact and champions young people and their ability to make big changes with big ideas.

TERM 2: BIOMIMICRY. JANUARY TO APRIL 2022

Through 3.8 billion years of evolution, nature has maintained balance, creating myriad designs for living well on this finite planet, for elegantly resolving challenges such as temperature regulation, energy efficiency, nutrient cycling, and water conservation in ways that serve the both individual and the community. Although nature and our planet have always been changing, human influence is pushing the speed of that change to disastrous levels.

Looking to nature for design inspiration is called biomimicry, and includes not just studying the natural forms that we might want to mimic, but also understanding natural materials, processes and systems. This challenge has been set by the Nature Lab at the Rhode Island School of Design and challenges participants to use biomimicry to design a solution to reduce fossil fuel use, take carbon dioxide out of the atmosphere, or help us cope with the effects of a warming planet.



CLIMATE CHANGE IS RELEVANT TO YOUNG PEOPLE

BBC Newsround survey, March 2020:

"They are worried about the impact that climate change will have on them when they're older and one in five have even had a bad dream about it"

[www.bbc.co.uk/newsround/51451737]

YouGov survey suggested:

"Almost half of 18- to 24-year-olds chose environmental issues as one of the nation's three most pressing concerns, compared with 27% of the general population."

[www.theguardian.com/environment/2019/jun/05/greta-thunberg-effect-public-concern-over-environment-reaches-record-high]

TERM 3: PRESERVE THE LANDSCAPE APRIL TO JULY 2022

This theme is about making change to help us adapt to a changing climate in both urban and rural contexts by imagining solutions that promote action and tackle inaction.

AN AMAZING OPPORTUNITY FOR YOUR PUPILS

WHAT'S INVOLVED?

The challenge provides participants with methodologies to support their learning both in school and in their future.

Real experience of responding to an industry brief is a great opportunity to learn and demonstrate new skills and their enthusiasm about making a difference in the world.

FOCUSED SUPPORT

The challenge is delivered as two activity days at the Museum of Making in Derby and digitally using Derby Museums' Digital Learning Platform.

Participants will have access to information, tools and resources to help them come up with solutions to the brief



MAKER KIT

Each team is provided with a maker kit, delivered to your school, full of materials to help students prototype and develop their solutions to the challenge brief.

WINNING TEAMS

Winning teams will win exciting making-themed prizes, recognition from industry experts and an exclusive invitation to a Maker Celebration event in the summer of 2022 at the Museum of Making.

GREAT FOR YOUR SCHOOL

The challenge offers an opportunity for your school to celebrate the creativity and inventiveness of its pupils. Winning schools will receive exclusive 'Meet the Experts' access to the Museum of Making for a group of 30 young people as well as a maker kit for their school.

MENTORING & COACHING

The challenge provides each team with a mentor who will support them throughout the process, starting at the context day and finishing on the celebration day at the Museum of Making. Mentors act as a sounding board, cheerleader and critical friend. The mentor team come with valuable experience in industry and education and are passionate about helping participants to develop their skills.

This is enhanced by access to volunteer skills coaches who bring with them experience, knowledge and enthusiasm on key subjects.

INSPIRING LEARNING TO SUPPORT INNOVATION

STEAM POWERED LEARNING

STEAM learning at Derby Museums is an approach that uses Science, Technology, Engineering, Arts and Mathematics to encourage creative, enquiry-based and critical thinking. It enables people to develop the capacities necessary to be curious, empathise and innovate

HUMAN CENTRED DESIGN

The challenge introduces Human Centred Design principles, ensuring meaningful solutions are created with people at the core.

CELEBRATING INNOVATION

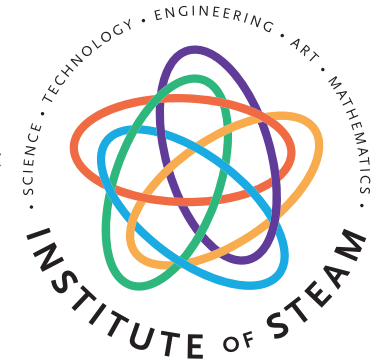
The prototypes created will be judged by experts from industry, education and heritage, offering valuable input and feedback to take forward.

THREE CHALLENGE AGE GROUPS

We have designed the challenge to be relevant and meaningful to different age groups (13-16, 15-18 and 16-21 years), offering content and activity that reflects the age and experience of those taking part, and challenging them to be innovative and creative.

INSTITUTE OF STEAM

The Institute of STEAM is a quality mark that enables us to recognise and celebrate the development of skills and behaviours that support those taking part in STEAM powered learning activity at the Museum of Making. The skill areas are: **CREATIVITY**, **CRITICAL THINKING**, **COMMUNICATION**, **COLLABORATION** and **MAKING**.



THE MUSEUM OF MAKING

The Museum of Making celebrates makers and making, both historical and contemporary. It offers a space to be inspired by past innovation and the rich history of making in the Midlands, as well as providing facilities to support makers today in its workshops and studios. We aim to empower young people to see themselves as makers, supporting them in their development of important skills. For information about the Learning Programmes at the Museum of Making, visit www.derbymuseums.org/learn





COMPREHENSIVE LEARNING & SKILLS DEVELOPMENT

BLENDDED DELIVERY

This challenge uses a blended approach, with two contact days at the Museum of Making.

MUSEUM DAYS

The launch 'context day' will give teams and teachers the knowledge and confidence they need to get started on the challenge. A celebration day ends the challenge with a selection of fun activities and presentations. The solutions will be judged by museum and industry experts and prizes awarded.

DIGITALLY DELIVERED CONTENT

The content between these dates will be delivered weekly via Canvas; Derby Museums' online learning platform, making it accessible at times convenient to the school and young people involved.

1. CLIMATE (IN)ACTION CHALLENGE BRIEFING

This module introduces the challenge and concepts, e.g. Human Centred Design and STEAM.

2. DEVELOPING UNDERSTANDING

This module is about undertaking research and considering the challenge from different perspectives to help frame the team's journey.

3. INTRO TO MAKING

This module provides the context of past and future making across the Midlands, with a focus on the Museum of Making in Derby

4. HOW MIGHT WE DESIGN FOR PEOPLE?

This module shows how using Human Centred Design helps to ensure that meaningful solutions are created that put people at the heart of the idea.

THE CHALLENGE JOURNEY

The content is delivered as modules over 8-12 weeks.

5. GENERATING & SELECTING IDEAS

This module encourages participants to experiment and think big to imagine creative solutions to the brief.

6. MODELLING & PROTOTYPING

This module introduces iterative prototyping processes used to develop ideas into testable solutions.

7. TELLING YOUR STORY

This module supports participants in telling the story of their process and the solution they created.

RECOGNISING & CELEBRATING ACHIEVEMENT

EMPOWERED YOUNG PEOPLE

We believe it is important to recognise and celebrate the achievements of every young person taking part in the Midlands Maker Challenge. Their journey, new knowledge and developed skills will help them beyond the life of the challenge, helping them move forward with resilience and confidence in their abilities and achievements.

CELEBRATING ACHIEVEMENTS

Each challenge ends with a day of celebration at the Museum of Making and winning teams will be invited to a summer celebration event, bringing together the winners of all challenges taking place in this academic year. It's a chance to meet, reflect and celebrate the creativity of each team taking part.

PORTFOLIO DEVELOPMENT

The challenge offers participants the opportunity to develop portfolios by actively engaging in the process and tasks at key points during the challenge.

This enables them to tell the story of their journey and solution, focusing on the steps taken, lessons learned, the skills they developed and also their ideas.

PARTICIPANT FEEDBACK

"I learnt a lot about how humans are affecting the climate, and how things like wind turbines work!"

/ Student

"I learnt how to compromise and find ways around problems."

/ Student

"...the way it is packaged and laid out is fantastic, the most excited squeals I've heard in school for quite some time!"

/ Teacher

PREVIOUS CLIMATE (IN)ACTION CHALLENGE SOLUTIONS



Resinktoloo - A household device that filters waste water from the bathroom sink into the toilet cistern, meaning we use waste water to flush the loo!

A coral reef replanter

that dispenses genetically modified coral polyps, resulting in new coral reef growth that is unaffected by climate change.



A plant-inspired **air filtration system** to be placed in high pollution areas to reduce emissions.

A **water wheel** in shower pipes to power a USB to charge your phone while you shower!



TIMINGS & LOGISTICS

SUPPORT YOUR TEAMS

The challenge is pupil-led, so we suggest that time and space is made available for them to complete the team elements in school.

The content is designed to be accessed at a time convenient to the team, for example as part of the timetable or at extra-curricular sessions/clubs.

UPCOMING DATES

13-16 AGE GROUP - 11 January - 8 March

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HOW MUCH TIME IS REQUIRED?

These timings are indicative of the time required for teams taking part in the challenge. How you allocate the time depends on how you run the challenge in school, e.g. on timetable, in clubs or self-led.

Attending two days at the museum	11.5 hrs
Accessing content completing short tasks on Canvas	4 hrs
Completing the prototype and presentation	4-5 hrs
Engaging with mentors	up to 5.5 hrs
<u>Optional</u> mid point review	1 hr

DIVERSITY & INCLUSIVITY

The Midlands Maker Challenge is open to all abilities in all educational settings including schools, colleges, work-based learning providers and SEN (Special Educational Needs) providers. Please get in touch if you would like to discuss how your team/s might engage with the challenge.

SUPPORTING TEACHERS

It's not all for the teams - supporting teachers will also be given the opportunity to attend an Introduction to Human Centred Design session, giving you the tools and confidence to support your teams through the challenge. You will gain new skills, as well as knowledge around STEAM and Derby Museums that can be implemented outside the challenge.

Teachers will also receive dedicated mentoring support during the challenge to answer questions and offer encouragement, ensuring that you feel confident and supported throughout.

ENTER NOW

To enter the challenge your school can nominate teams of three for the 13-16, 15-18 and 16-21 challenges (see page three for dates).

To submit your team, send an email to info@midlandsmakerchallenge.co.uk with the team name, year group and nominated teacher. A maximum of three teams from each school can enter each challenge.

Upon receipt of this email we will send documentation to confirm your team's place on the Climate (in)Action challenge including: summary of the content, information on team/individual activity, key contact points and safeguarding information.

FIND OUT MORE.

Visit midlandsmakerchallenge.co.uk for more information.

For more information about the Museum of Making visit www.derbymuseums.org.uk



TERMS & CONDITIONS

Limited places are available and teams will be selected in order of submission.

Collaboration must follow Government social distancing guidelines and the school will be responsible for implementing the appropriate Health & Safety policy and risk assessments.

The dates for the summer 2022 celebration event will be confirmed in the spring of 2022.

The Midlands is defined as: Derbyshire, Herefordshire, Leicestershire, Lincolnshire, Northamptonshire, Nottinghamshire, Rutland, Shropshire, Staffordshire, Warwickshire, West Midlands, and Worcestershire.