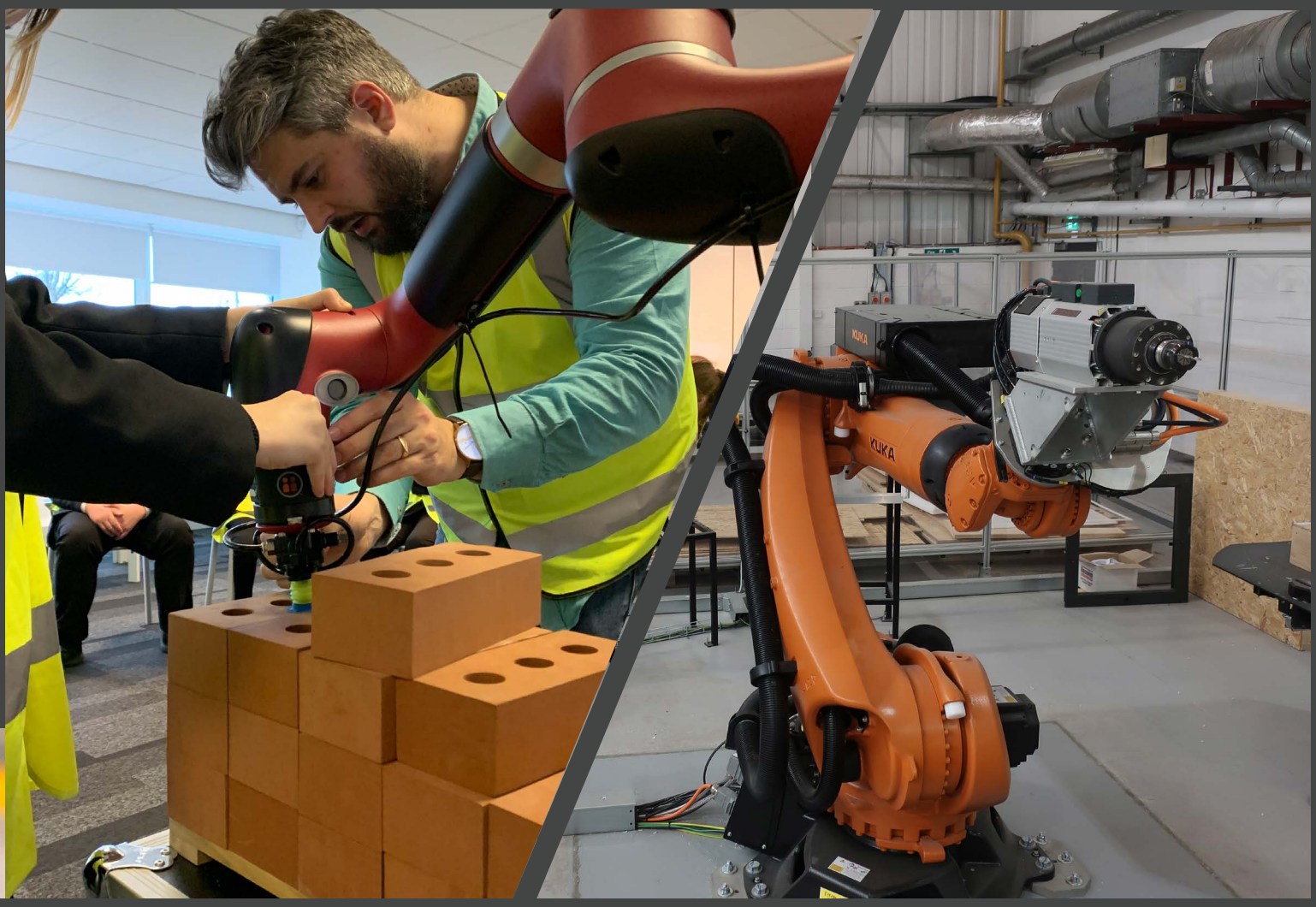
BUILD YOUR FUTURE

2021 Programme

Provided by:

CONSTRUCTION SCOTLAND INNOVATION CENTRE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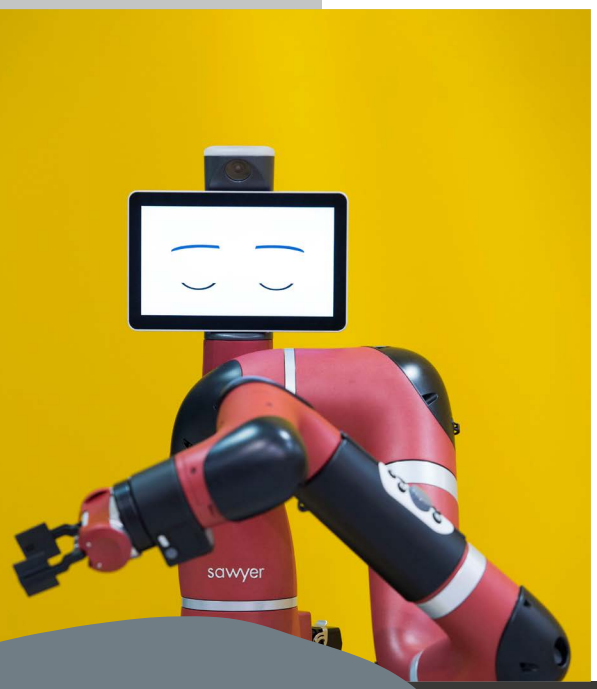
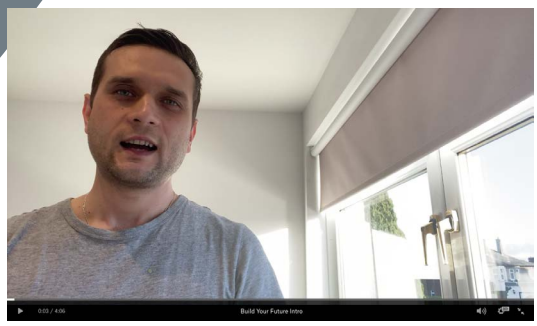


ACTIVITY BOOKLET

INTRO



A video will be available to demonstrate each stage of the lesson to the students.

Click to watch our Director of Operations and Future Skills, Douglas Morrison, introduce you to the programme.

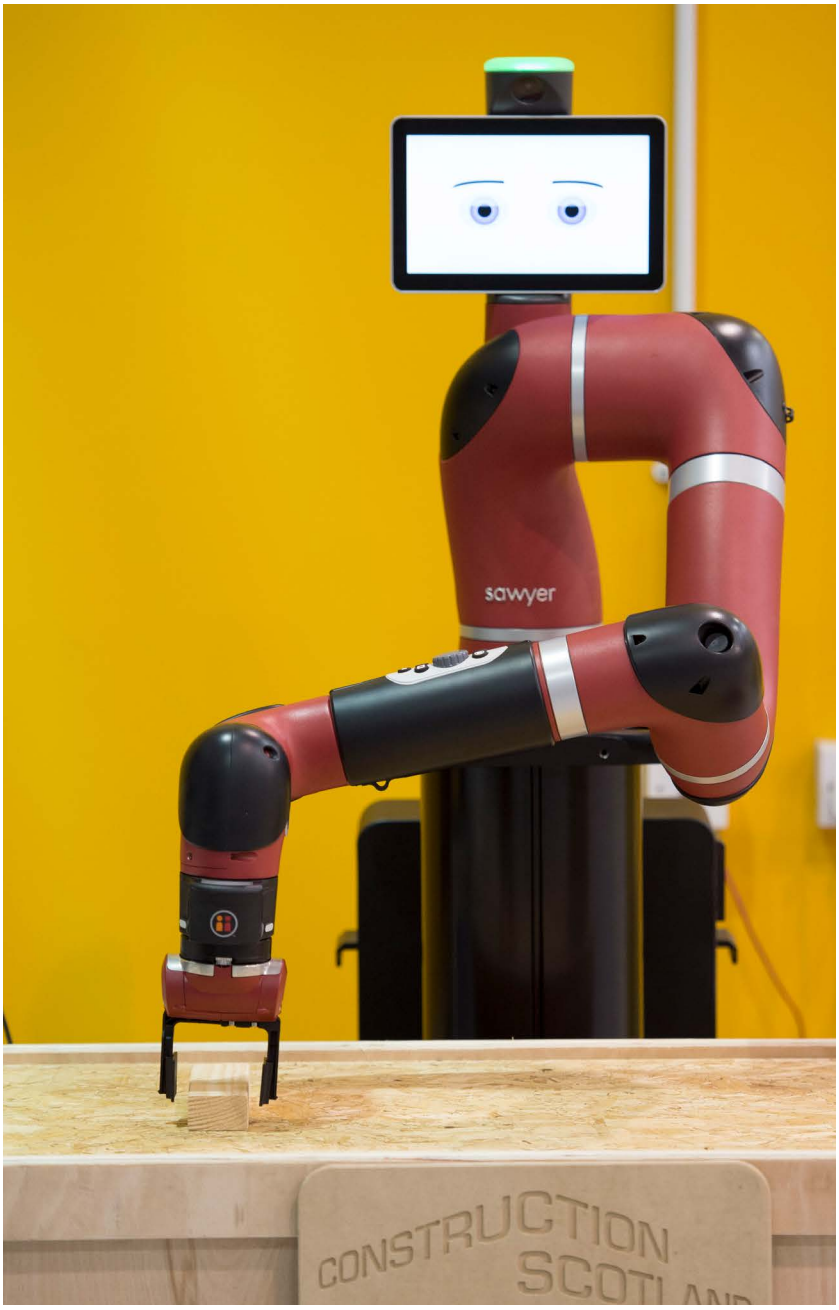
CSIC believes that we can support students' futures by highlighting opportunities for them in the built environment.

The Construction Scotland Innovation Centre (CSIC) strives to champion innovation and connect Scotland's construction industry to deliver transformational change. We believe a big part of this is through supporting students and highlighting key opportunities within the sector.

This pack is broken into 6 activities which are themed around the built environment and innovation. Each interactive activity will give the students the opportunity to learn more about the built environment, specifically the construction industry and hopefully offer an insight into jobs they may not have thought of or allow them to discover new skills and interests.

Each activity will state the required outcome of that section and will give details of the task. It will be accompanied by a short video which can be played for the students if you wish setting out the instructions for the task. Some activities may have images to support the students with their work.

Activities 1-4 can be done as short 7-10 minute sessions. Activity 5 is a research-based activity which could be completed as a school lesson or small project. Activity 6 can either be done as a class all together or the link can be shared with pupils in their own time to view.



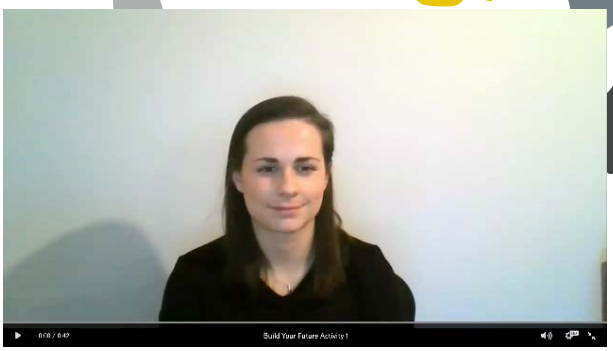
ACTIVITY ONE

SETTING THE CONTEXT

1

Activity

The aim of this lesson is to provide learners with an understanding of the built environment they live in, focussing on the different purposes of buildings and structures and how building styles and materials used in construction are different.



Teacher notes

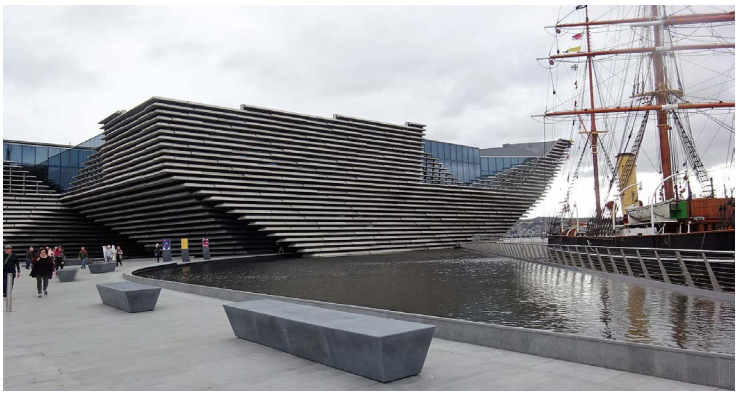
- Show the students a selection of images provided on the next page and let them identify the structures.
- Ask the students to place them on a map of Scotland. If they know the place, they should write it down.
- Ask the students to list them in order of when they think they were built (starting from the oldest.)
- Ask them to select the building/structure which appeals to them the most and explain why they like it.
- Then ask, do you have a favourite building in Scotland? What is it? What do you like about this building/structure?

Additional research questions:

- Each building was built with a specific purpose. How do you think these buildings/ structures are used? Why were they built?
- What materials do you think were used to create each building? e.g stone, steel, concrete, glass etc.

Places (in order)

- Stirling Castle
- Scottish Parliament
- City Observatory
- Glasgow University
- Edinburgh Waverley
- Glasgow Hydro
- Forth Rail Bridge
- The Kelpies
- The Falkirk Wheel
- Dundee V&A




Shetland
Orkney
Inverness
Aberdeen
Dundee
Oban
Stirling
Falkirk
Edinburgh
Glasgow

2

ACTIVITY TWO

FURTHER GROUP DISCUSSION

Activity

This activity follows on from activity 1. Use the same images and ask the students to work their way through the questions and encourage discussion.

The outcome of this activity is for the students to gain an understanding of the buildings in their area and why they are different.

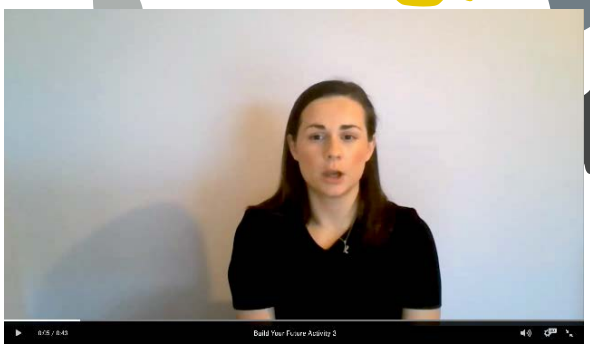
Teacher instructions

- Do you live in a town, city or in the countryside?
- Is your house modern or traditional?
- Make a list of at least ten buildings that are in your local area – try to include a variety of different buildings.
- Discuss in your group the reasons behind certain buildings using certain materials e.g why would a bridge use steel, why would a house be built with timber and bricks.
- Aberdeen is known as the 'Granite City' – find out the reason why.

ACTIVITY THREE

RIGHT BRAIN LEFT BRAIN?

JOBS IN CONSTRUCTION



Activity

This activity is to allow the pupils the opportunity to think about the different characteristics they have and show them a selection of job roles and descriptions that could interest them within the construction industry.

The outcome of this activity is for the learners to have learned more about the possible job opportunities open to them in construction.

Teacher notes

3.1

- Read through each of the statements 1-22 to students.
- Tell them that every time they hear a description or characteristic that applies to them, they should write down its number.
- Review the key (on the next page) either by handout or on the board. Tell them that next to every number on their paper, they should note if it was an L (left) or an R (right).
- Tell the students to count the number of Ls and Rs that they have.
- Tell them whichever number is higher represents what side of their brain is dominant. If they are mostly analytical in their thinking, they would be considered to be left-brained. If they are more artistic and creative they are thought to be right-brained.

3.2

On page 15 are a selection of job roles and descriptions that are based off of the quiz. Give this or show this to the students. These will give them an understanding of a role they may be interested in. It will also give them an understanding of the type of characteristics they might have.

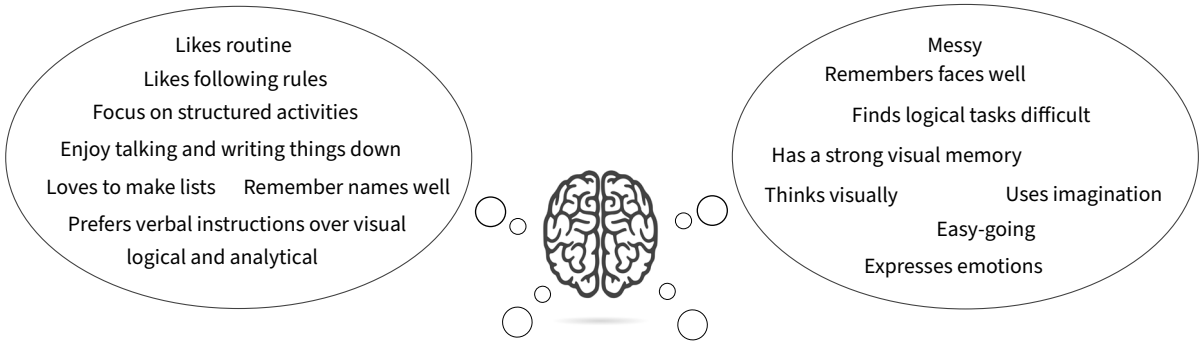
Statements

1. I constantly look at a clock or wear a watch.
2. I believe there is either a right and wrong way to do everything.
3. I find it hard to follow directions precisely.
4. I frequently change my plans and find that sticking to a schedule is boring.
5. I think it's easier to draw a map than tell someone how to get somewhere.
6. To find a lost item, I try to picture it in my head where I last saw it.
7. I frequently let my emotions guide me.
8. I learn maths with ease.
9. I'd read the instructions before assembling something.
10. People tell me I am always late getting places.
11. If I have a tough decision to make, I write down the pros and the cons.
12. I'd probably make a good detective.
13. I learn music with ease.
14. To solve a problem, I think of similar problems I have solved in the past.
15. I believe there are two ways to look at almost everything.
16. I have the ability to tell if people are lying or guilty of something, just by looking at them.
17. I keep a "to do" list.
18. I am able to thoroughly explain my opinions in words.
19. In a debate, I am objective and look at the facts before forming an opinion.
20. I always lose track of time.
21. I like to draw.
22. When I'm confused, I usually go with my gut instinct.

Key

1.	L
2.	R
3.	L
4.	R
5.	L
6.	R
7.	L
8.	L
9.	R
10.	R
11.	L
12.	R
13.	R
14.	R
15.	R
16.	L
17.	L
18.	L
19.	R
20.	L
21.	R
22.	L

WHAT JOB IN CONSTRUCTION IS SUITED TO YOU?



Left-Brained People Right-Brained People

An Engineer

Supervise construction at project sites, along with giving technical advice, testing materials, following standards, and evaluating projects. These jobs require people who are analytic thinkers and pay close attention to detail, invest great effort in mastering skills and who are able to lead and direct.

A Health and Safety Manager

All building sites require health and safety managers. They are responsible for ensuring the correct procedures and measures are put in place and adhered to. This helps ensure all workers can work on site safely. They need to be organized & stick very closely to rules and regulations.

A Computer Programmer

All building sites and manufacturing facilities require machinery. As we move towards robotic production lines, these robots need to be programmed to work in the way they are required to produce materials or complete tasks. These type of jobs require a person to be very logical.

A Quantity Surveyor

Surveyors are involved in lots of different building projects. They manage costs and conduct analysis to ensure value for money whilst sticking to the rules and regulations for buildings. Quantity Surveyors are also involved with controlling quality. You need to be extremely analytical for this type of job.

Architects

Being an architecture needs you to have strong logical skills but also requires you to use a lot of visual and creative skills. Architects can often design and create buildings and spaces as freely as they want.

Marketing Roles

There are many marketing roles in construction e.g. promoting companies, new building products, or raising awareness to the industry. Jobs within marketing involve a high level of creativity to ensure campaigns are different and stand out from the other businesses/products.

Communications Roles

These roles include handling public relations, information, and writing to press and media. This job family requires imagination to think of new ways to engage with the public. Like marketing, Communications in construction takes many forms – from working within the Government to releasing information for businesses.

Interior Designer

This job is making the indoor spaces of buildings safe, functional and good looking. This includes choosing decorative and essential items like colours and lighting. This part takes place at the end of a building project, although the interior designer will be planning throughout. A role within interior design requires a good eye.

4

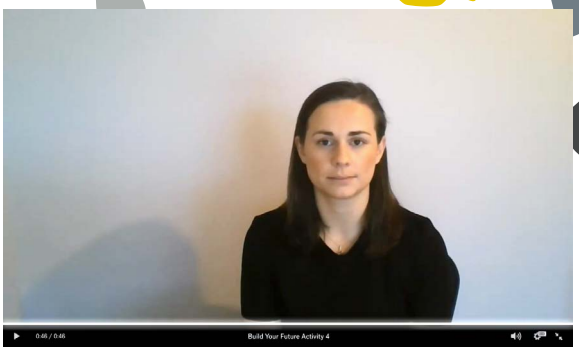
ACTIVITY FOUR

SMART TECH

Activity

In this activity we want the students to use their imagination to think about what the future looks like in supporting those who have a visual impairment.

The outcome is to develop an understanding of how to use smart technology to improve living for those who require assistive living.

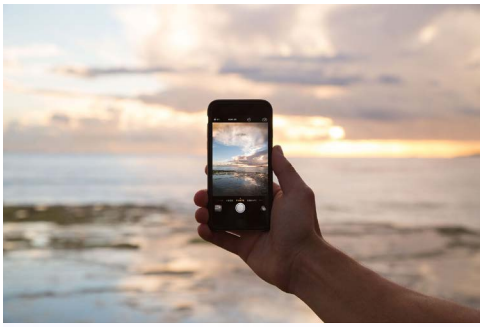


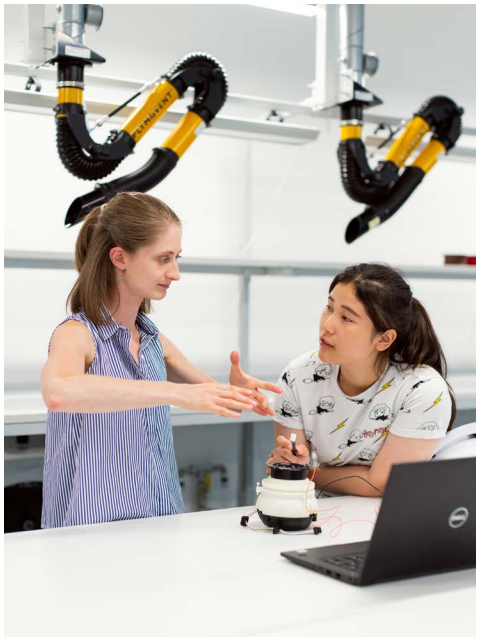
Teacher notes

- Ask the pupils to think about the technology that they use on a day-to-day basis.
- Show them examples of smart technology either with paper copies or on the board.
- Ask them to think about what parts of the technology will best support those with impaired sight.
- The students should discuss in small groups and design a SMART home. This should be demonstrated through using a spider diagram and adding all their ideas.
- Ask the students to think about these key areas:

- Safety
- Everyday living
- Monitoring
- Communication
- Prompts and reminders

- The students can be as creative as they like e.g. a talking oven. We want the students to add as much innovation as they can to this task.





Background on assistive technology

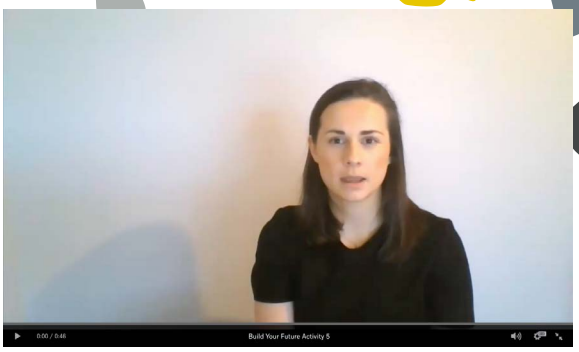
Assistive technology can help elderly and those suffering from chronic diseases to live better and for longer through allowing control of their built environment at home.

This can be with voice control, mobile apps, automation, ubiquitous monitoring and AI. Some of the areas where assistive technology may help include everyday living, monitoring, safety, communication, as well as prompts and reminders.


ACTIVITYFIVE
SUSTAINABLE MATERIALS
5

Activity

In this activity the students will think about the different materials that are used to build a house and if they are sustainable and environmentally the right choice to make. The outcome of this task is for the students to have an understanding that there are alternative materials to brick/ concrete to build a home and to explore different possibilities to making a home more sustainable or eco-friendly.



Teacher notes

- Ask the students to think about light levels in the house, moisture, ventilation and what products you could use to design a really sustainable space.
- Ask the students to do a bit of research for some ideas around this.
- Ask them to sketch the house labelling where they have considered the specific areas.
- Make sure they think creatively and add in one other aspect to their home e.g. a bike powered house.
- Ask them to label their unique feature to the house and why they chose it.

ACTIVITY SIX

VIRTUAL FACTORY TOUR

Activity

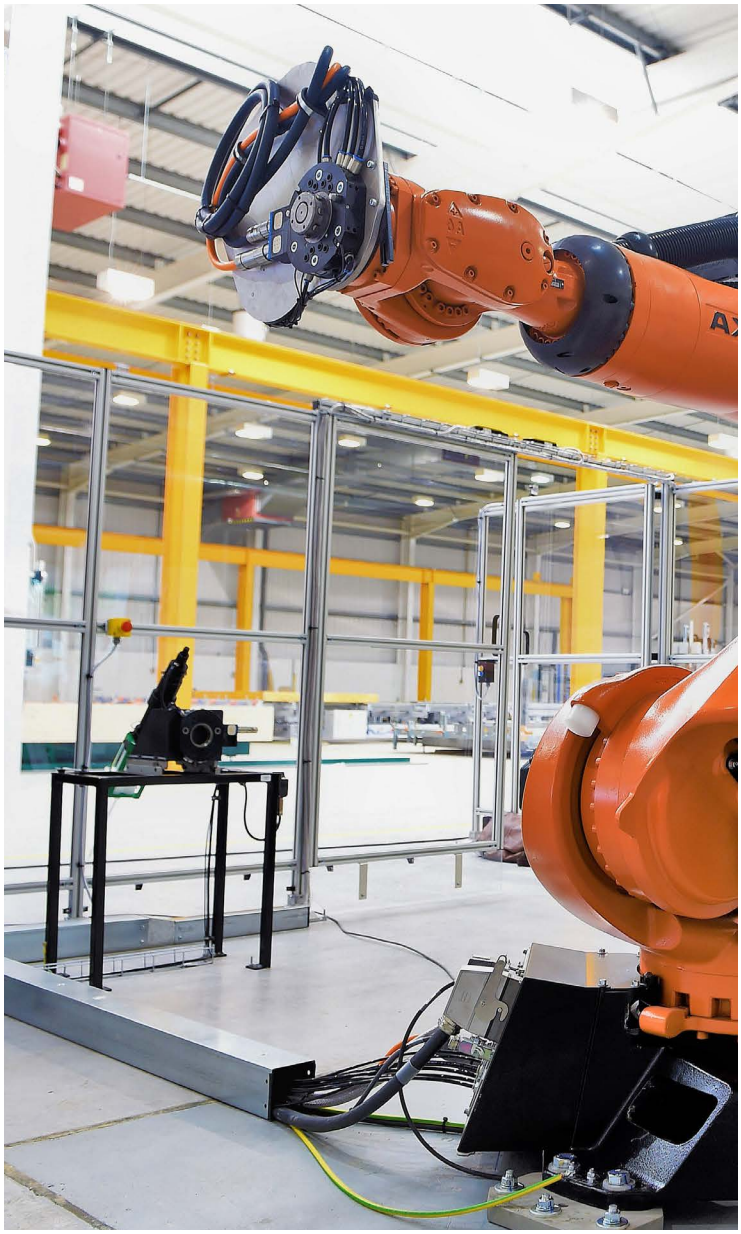
Take the students on a virtual tour of our Innovation Factory. CSIC's factory has an industrial robot, the only CLT vacuum press in the whole of the UK and many other pieces of machinery that help us innovate within construction.

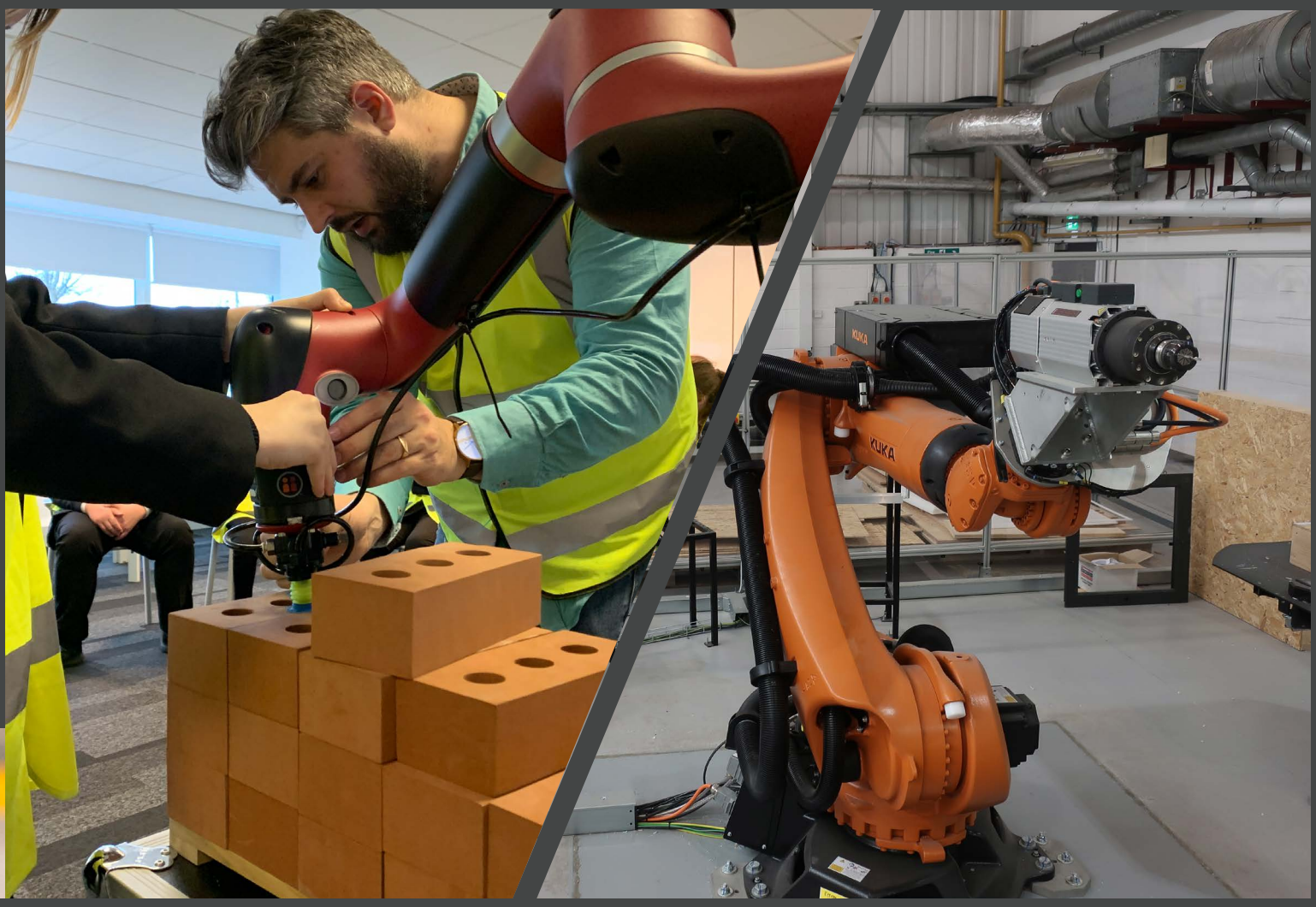
The link below will offer an insight into offsite construction. It also will highlight to the pupils the different opportunities within construction.

Click on the link below and take the virtual walk through of CSIC's Innovation Factory.

This tour is 360 degrees with areas which will give you further information on all our pieces of machinery.

START YOUR TOUR

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Who is CSIC?

About us

Scottish Construction employs over 170,000 people - around 10% of the Scottish workforce.

The Construction Scotland Innovation Centre (CSIC) strives to champion innovation and connect Scotland's construction industry to deliver transformational change in this already huge sector.

CSIC is one of Scotland's 7 innovation centres supported by Scottish Funding Council, Scottish Enterprise and the Highlands and Islands Enterprise.

We believe a big part of our mission is to support construction's workforce by investing in future skills, connecting with students and highlighting opportunities for them in the sector.

That starts with reaching out to teachers themselves.

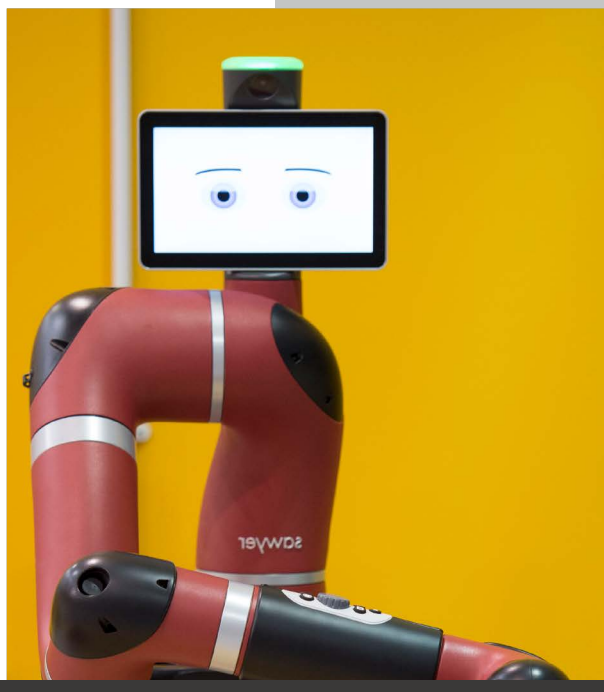
In 2020 we ran a national training programme that reached over 1500 educators in universities, colleges and high schools across the UK to teach educators about modern construction methods.

We want to continue helping teachers:

- gain access to quality teaching and learning materials on construction
- improve their students' options, knowledge and prospects.

The Build Your Future Programme aims to achieve this.

For more information about CSIC, visit:
www.cs-ic.org/innovationcentre



Thank you for using the Build Your Future 2021 programme.

Any questions? Reach out.

hello@cs-ic.org

www.CS-IC.org

0141 212 5250

#buildyourfuture

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