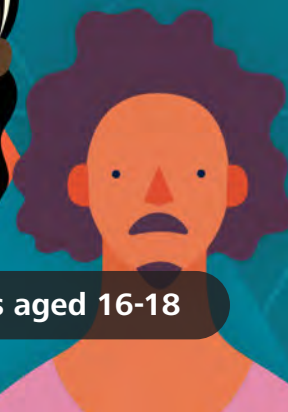
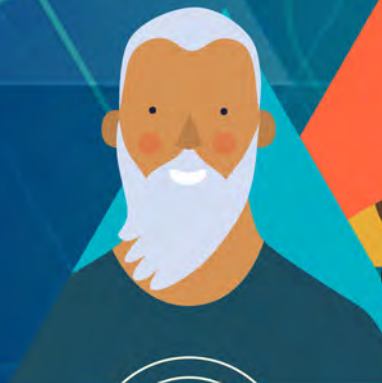




CITYZEN

BUILD YOUR WORLD

2023 Mentor Guide



For pupils aged 16-18



Contents

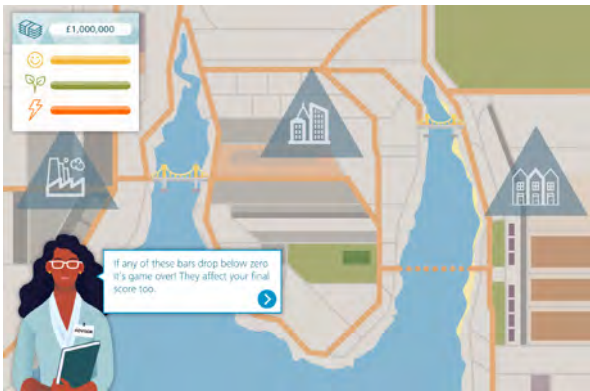
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Introduction

The ICE CityZen Award is designed to inspire young people 16-18 to follow a career in Civil Engineering. It supports STEM subjects, including **Design and Technology** and **Geography** curriculums at GCSE and A-Level and is mapped to **Gatsby career benchmarks**.

It is designed to be run within an extra-curricular or co-curricular club, based around our ground-breaking new game CityZen



Participating in the award will involve:

- Playing 4 rounds of the CityZen game
- Creating a short video as a competitive team project

This document is designed to give you everything you need to support a participating club successfully, with minimal preparation on your part.

Our team are here to support you. If you have any questions or problems, including technical issues, please contact: careers@ice.org.uk

The Game

CityZen is a digital classroom game designed to be played in teams over a period of four weeks, with each week presenting a different Civil Engineering challenge.

Teams can compete against each other for the highest score, and learn more about what Civil Engineers do at the same time!

- Web based 3D gameplay
- Meaningful decisions that will affect the lives of your citizens
- Scenarios on bridge building, park renovation, sustainable housing and crisis management
- Local scoreboard to encourage competition

The Video Project

As teams discover more about the role of Civil Engineers in society, we want them to apply their knowledge to their local area and suggest a project that would help improve people's lives in the same way that projects in the game do. Teams should present their project as a video of 2-4 minutes which outlines a strong project proposal for the competition judges to consider.



Prizes

The team with the best entry (based on the video submission) will be awarded the ICE CityZen Gold Award, two runners up will also be selected, winning the ICE CityZen Silver and Bronze Awards.



£2,000
PRIZE MONEY

+

Lunch with the ICE President
and a tour of ICE's prestigious
headquarters in Westminster



£1,000
PRIZE MONEY

+

Lunch with the ICE President
and a tour of ICE's prestigious
headquarters in Westminster



£500
PRIZE MONEY

+

Lunch with the ICE President
and a tour of ICE's prestigious
headquarters in Westminster

For each award the prize money will be split equally between students and school.

The top scoring teams in the CityZen game will also win prizes.

Highest scoring team:

£50 Waterstones voucher for each student

Second highest scoring team:

£35 Waterstones voucher for each student

Third highest scoring team:

£20 Waterstones voucher for each student



Links to Gatsby Benchmarks

Learning from career and labour market information

The game and associated task will provide excellent quality information about opportunities within the field of civil engineering, particularly around the range of roles available and how school subjects can feed into these. Mentors and club leaders will act as informed advisers to help pupils make best use of this information.

Addressing the needs of each student

This experience has been specifically designed to appeal to a wide range of learners, challenging the stereotypes of what a civil engineer looks and acts like, and helping learners aspire to make a difference in society. It has also been produced with the needs of neurodiverse learners in mind, allowing a safe digital space with clear constraints to explore and build confidence, building into a team task with different roles available for those of different abilities. Within the period of the club running there will be multiple opportunities for advice and support from the club leader and Mentors.

Linking curriculum learning to careers

There are a wide range of roles available within the field of civil engineering, for pupils with many different aptitudes and abilities, yet this is rarely made clear at this level of study. Pupils will experience how their subjects help them gain entry to a civil engineering career, the range of different roles within that career, and how to be effective workers within the field. There is a particular focus on Design and Technology, such as the importance of meeting needs, wants and values of stakeholders, and Geography, particularly sustainable land management and impact.

Encounters with employers and employees

Pupils will have opportunity to talk to a Mentor about work, employment and the skills that are valued in the workplace – as well as have access to mentoring of their group project. Teams could also make contact with local businesses whilst researching their video topic.

Links to Curriculum

Pupils taking part in the ICE CityZen Award will develop digital, teamworking and critical skills that will be applicable across the curriculum.

Content in the game and competition will directly relate to:

Design and Technology

- The ability to be innovative and creative in design and technology within a clear set of constraints
- An awareness of the significance of design and technology to society
- The ability to make informed choices as a discerning consumer
- Positive attitudes of co-operation and citizenship and the ability to work collaboratively
- The ability to apply essential knowledge, understanding and skills of design production processes to the design of civil engineering solutions
- The ability to use information and communications technology (ICT), as appropriate, to enhance their design and technological capability
- Critical evaluation skills in technical, aesthetic, economic, environmental, social and cultural contexts

Geography

- The ability to recognise and analyse people-environment interactions, and appreciate how these underpin some of the key world issues
- An understanding of the ways in which values, attitudes and circumstances have an impact on the relationships between people, place and environment
- Engage, as citizens, with the questions and issues arising from these relationships
- Apply geographical knowledge, understanding, skills and approaches in a rigorous way to a range of geographical questions and issues
- Develop as critical and reflective learners, articulate opinions, suggest relevant new ideas and provide evidenced arguments
- Apply a range of quantitative and qualitative skills and approaches



Your role as a Mentor

The support of an ICE STEM Ambassador acting as a Mentor is a key element of the competition. You will act as an inspiring role model by sharing your experiences and career choices.

You will play a supporting role, aiding and encouraging your team whilst not giving away too much! You are aiming to enhance their experience and encourage them to learn more about civil engineering and consider it as a career. You are encouraged to challenge the team throughout the gameplay period, and to help them extend their learning.

Playing the game yourself

We would encourage you to play the rounds of the CityZen game before beginning your mentoring, especially if you're not familiar with it, to get a feel for the types of research and decision-making required.

You can play through the game as many times as you would like. You can replay rounds (for a score penalty) or create a new game code to access a completely new profile. Remember to keep the detail of what you learn from playing the game to yourself though to make sure all the teams are competing on a level playing field.

Supporting the video task

You should discuss your team's video submission at each weekly session and encourage them to formalise their ideas and set a timeline for completing the steps needed to produce it. You may want to use the final session to review their video and offer feedback on content and against the judging criteria. You will find more details on the video submission and how we'll be judging entries further on in this pack.

Once your team have come up with an idea, encourage them to think about how much it might cost and the impact it will have. What challenges would they face implementing the idea and how would they overcome them?

Remember that the teacher who is running the award, or one of their colleagues, should be supervising the young people you're mentoring at all times during your interactions. This is an important part of ICE's safeguarding policy. For tip tips on operating within our safeguarding rules you can watch this short video: <https://bit.ly/CityZen-safeguarding>

Suggested session outlines

You can use these agendas to structure your weekly sessions:

First session

1. Introduction by Mentor: Name, age, job role, brief history of experience in civil engineering, include a fun fact about yourself (you can find a template for a short customisable presentation in our resources hub:

<https://ice.marketing-hub.uk/stemambassador>

2. Introduction by each of the students
3. Students state their understanding of civil engineering
4. Students play the first round of the game then discuss their opinions and decisions
5. Students discuss thoughts on video submission
6. Any other questions

7. Further sessions

1. Discussion on game rounds and scoring; what went well, what went wrong, what teams learnt
2. Discussion on next round; what they have researched so far, what they think, what they plan to do
3. Support for video submission

4. Final session

1. Finalising video submission
2. Overall feedback from Mentor – what went well, what went wrong, feedback to team on professionalism, teamwork, enthusiasm
3. Information on next steps in becoming a civil engineer – discussion about your route into the profession and where to find further information (ICE-inspire.co.uk is a great starting place)



Guiding your team

When you're giving guidance to your team, avoid instructing students on decisions or revealing any outcomes of game play – your team should make their own decisions. You are to act as a sounding board to ask provocative and thought-provoking questions to get them to explore options.

Depending on the set up of your school/teams, it may be that they play the game without you and come to you at the end of the round with their results and questions.

Ask open ended questions to encourage them to think about their decisions and what the consequences will be of choosing a particular action or set of actions. Open-ended questions are questions that cannot be answered with a simple 'yes' or 'no', and instead require the respondent to elaborate on their points. They will encourage students to consider alternative perspectives and consequences of their decisions.

Examples of open-ended questions and discussions:

- What is the reason you would consider making that decision?
- If you make that decision, then what do you think the outcome will be?
- What happens if you don't make that decision?

At the end of each round of the game there are further reading links for students to explore. You may want suggest a few more.

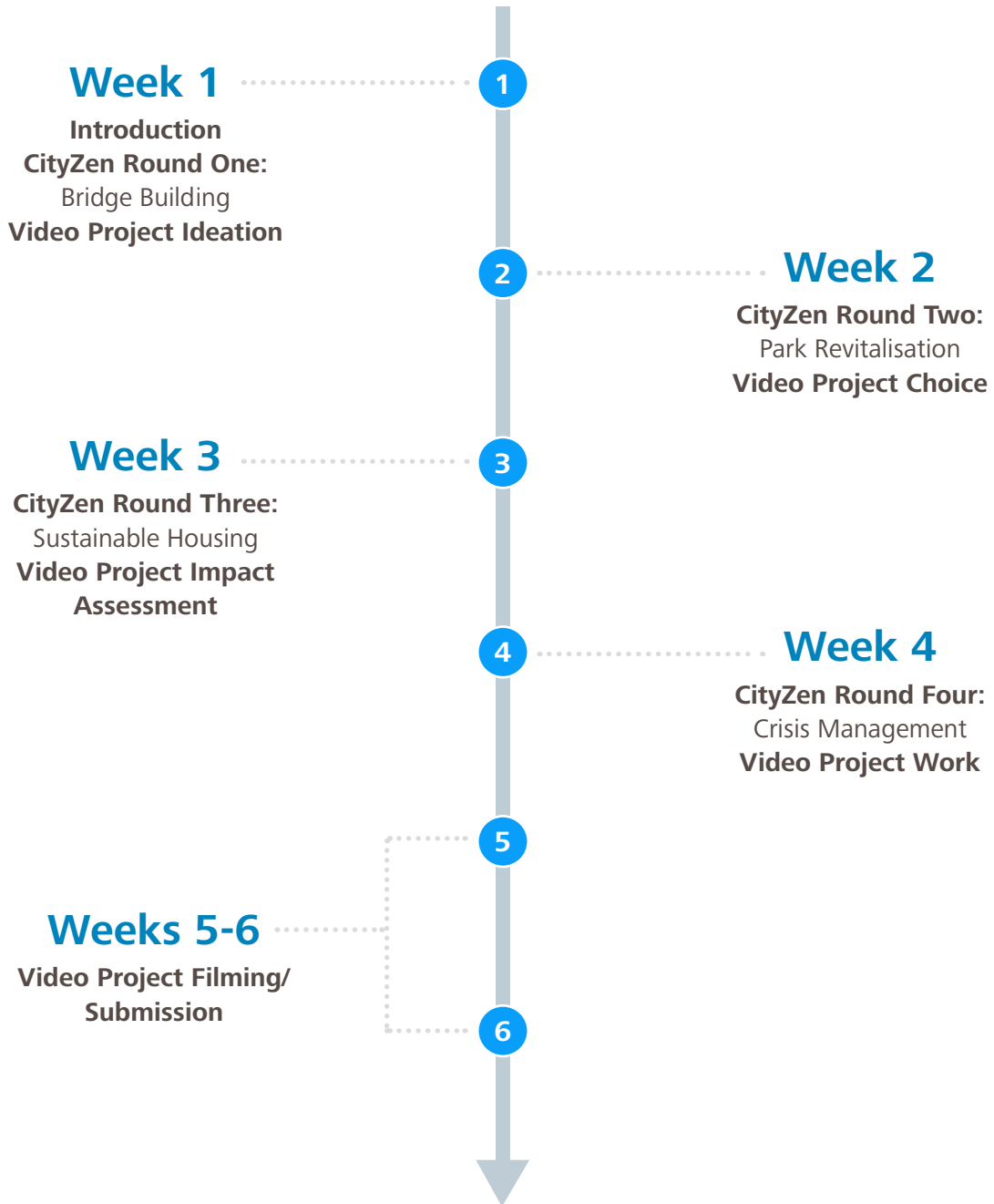
Feedback

We'd like you to complete a short feedback survey on the game and your team's participation after completion of the award for quality improvement purposes. This will be emailed to you once your team's submission has been received or gameplay finished.



Running the Award

The timeline below shows our suggested deployment, though this can be staggered to fit around school holidays and activities, as well as the availability of Mentors.



All classroom sessions will need to take place either in a dedicated computer room, or in a classroom with sufficient laptops to provide one per team.

Technical Requirements

This game will run on desktop and laptop computers (including Chromebook). It is not optimized to work on tablets, mobile phones or to run on IE11.

The experience will play in the following browsers: Chrome, Legacy Edge, Chromium Edge, Firefox.



Getting Started

The first step is to go to the CityZen website to create an account in order to generate your game codes and choose a school to support. Please select the **2023 Award** when prompted to choose.

<https://bit.ly/CityZen-login>

Which school to support?

We suggest you look for a school that is close to you, even if you'd prefer to support them remotely as your local knowledge is bound to come in handy for helping students shape their video project. While it's possible to change school on the CityZen Account Manager we ask that you make every effort to choose a school you can stick with to avoid confusion.

Schools may register their teams up until 4th October and we want all schools to have been allocated a mentor before beginning the award, so we'll be assigning schools to mentors who haven't chosen towards the end of September.

Choosing a school will give you the supervising teacher's email address. Please keep in regular contact with your school and try to make arrangements to set up sessions swiftly to enable them to begin the competition as early as possible in the autumn term.

If you need help with choosing or contacting your school please get in touch with us for help at careers@ice.org.uk

Face to face, or online?

It's up to you, in arrangement with your chosen school, whether you mentor your teams online, or face-to-face. This may also be affected by your school's official policy on visitors. Research by Engineering UK has shown that face-to-face engagement is slightly more effective so we'd encourage you to visit the school for all, or some of your sessions if it's practical. Make sure you sort this out early on with your school as it can have a bearing on what equipment and rooms the supervising teacher will need to provide. If you're assigned a school that is not in your locality then online will be the only option.

Competition resources

We've created new resources for the 2023 award including mentoring videos for each week which you can direct your school/college to if you have to miss a session.

<https://www.ice.org.uk/cityzen>

Week One

Setup

You or the teacher could introduce the separate elements of the award – game, competition, and how you'll be supporting your teams as their Mentor. You may wish to discuss with students their perceptions of what civil engineers do and talk about some of the different elements of the job they will encounter as part of the ICE CityZen Award.

Within each student group, we recommend that roles of Budget Holder, Note Taker and Decision Maker be assigned (responsibilities are explained within the game).

The supervising teacher should have provided each team with a code and link to begin playing the game.

Playing a round should take around 20-30 minutes. Encourage teams to take notes and discuss their choices thoroughly before building – it's easy to get caught out! If a team finishes early they can follow the further reading links for the round, or start thinking about their video project.

Once all teams have finished compare scores on the leaderboard and congratulate the week's winner. There will be plenty of opportunity for other teams to catch up.



CityZen

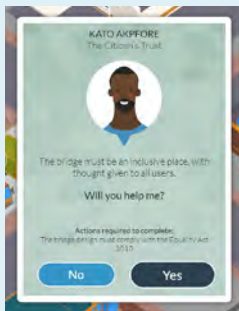
In the first week, the focus is on bridge building. Teams will choose where to place their bridge, how it will be constructed, and how it will best meet the needs of their citizens.

Challenges in this round involve balancing the needs of the city for improved infrastructure against its environmental impact, and managing budget to produce a bridge that meets the needs of citizens. Teams will be penalised heavily if they build a bridge that does not meet the requirements of the Equality Act 2010 (this is explained in the game).

The first round is designed to teach teams the game as they play. Some key elements that you should be aware of:

Needs, Wants and Values

Meeting the needs of stakeholders is key to success in the game. Each team will have a different set of stakeholders to appease in a round.



Location exploration

Hotspots in each location will give information that will inform the build. It is very important that a team member is taking notes, otherwise they may get caught out.



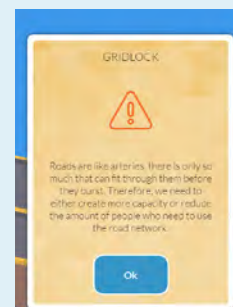
Build

The build menu is where teams will use their knowledge and make decisions based on their notes. It can be closed at any point if they want to check something, and will save their choices.



Variable events

Certain decisions will increase the likelihood of events occurring in later weeks of the game – for example, not signing a maintenance contract on the bridge. Students should be made aware of this.



Game over

Teams can get a 'Game over' if they run out of money, satisfaction or sustainability, or if congestion gets out of control. Don't worry though, they can retry the round with a score penalty.

If teams would like more information about bridge building then further reading links will be unlocked for them on completion of the round.

Video Project

As a final activity in this session, introduce the Video Project and ask teams to have an initial think about what they might like to focus on.



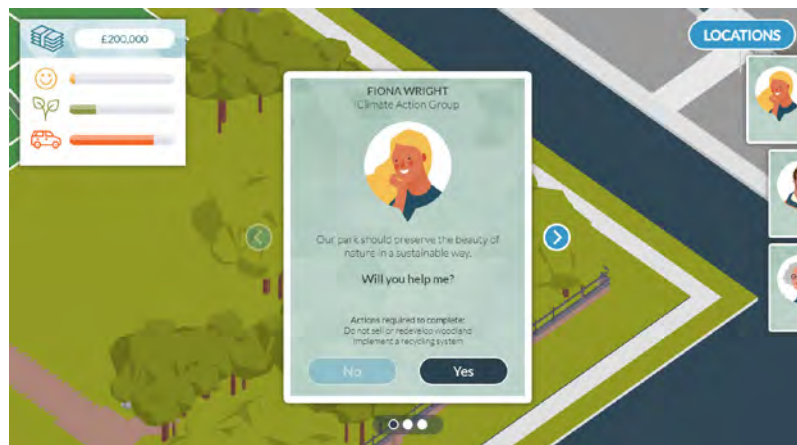
Week Two

CityZen

In week two, the focus of the round is on the renovation of a park; a small enough scale challenge that it should help generate ideas for the competition.

There are many areas of the park that can be redeveloped to meet citizen requests, but teams will not have the budget to do everything they want. They will need to consider which elements of the park should be redeveloped, and how much wild green space should be kept, as well as considering the impact that water systems and drainage might have.

Once again, further reading links will be unlocked on completion of the round.



Video Project

Once all teams have completed the round, they should use the remainder of the session to agree the focus of their project. Good examples to get them thinking could be:

- Switching part or all of the school to renewable energy
- A new park or wildlife garden in place of nearby waste ground
- A new bridge or crossing to help pupils get to school safely
- Replacing the toilet block in the school with a composting loo

Teams can use the worksheet at the end of this document to help with the process of ideation.

You could also look at some entries for the ICE pitch 200 competition, in which engineers take on the challenge of explaining an aspect of civil engineering on video in just 200 seconds!

<https://bit.ly/Pitch200-playlist2021>



Week Three

CityZen

Play through round three of the game, which focuses on sustainable building.

Teams should think carefully about which site to choose, as brown and greenfield sites both present different challenges. There is also a substantial score bonus on offer if they are able to successfully complete a low carbon development.



Discussions around this could include:

- Building on greenfield vs. brownfield sites, especially if development is taking place in the nearby area
- What makes building truly sustainable?

There are several further reading links in this round. You can direct interested students towards ICE Past President Rachel Skinner’s video about achieving net zero for infrastructure (25 minutes):

<https://www.ice.org.uk/news-and-insight/latest-ice-news/shaping-zero-watch-the-film>

Students can also explore the concept of the 20 minute neighbourhood, and talk about what kind of changes would need to be made to their area to enable this, and whether this would be realistic:

<https://www.newcivilengineer.com/latest/20-minute-neighbourhoods-bringing-life-back-to-our-empty-town-and-city-centres-29-03-2021/>

Video Project

Sustainability should be a major focus of team projects. Ask them to show how they will minimise their impact during:

- Setup of the project
- The running of the project
- Project end of life

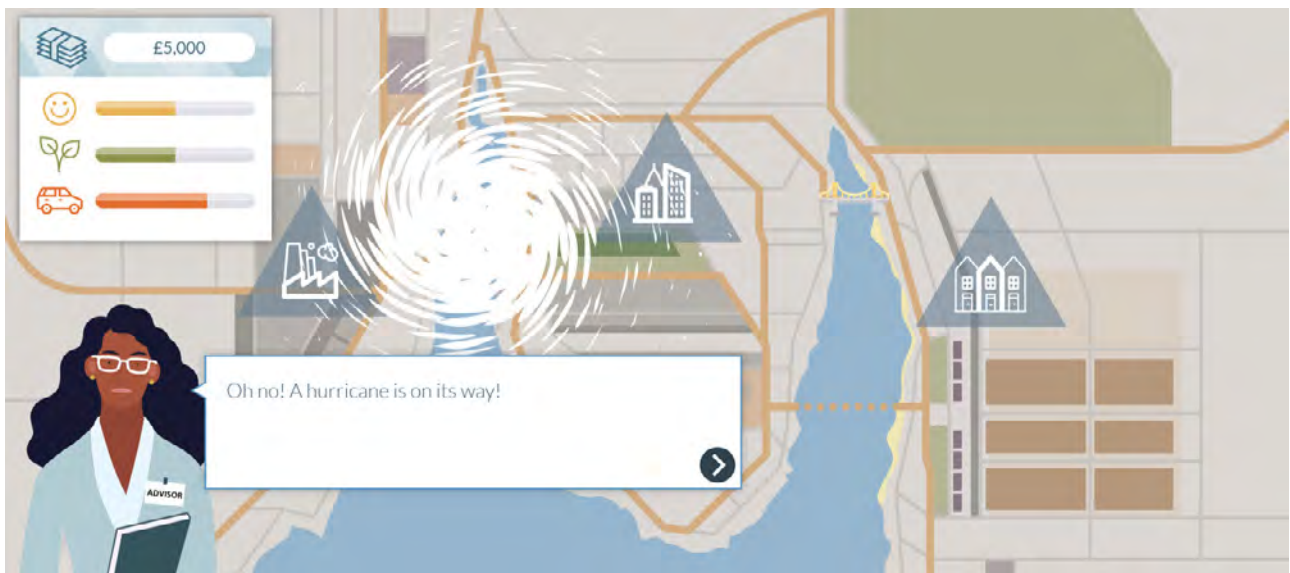
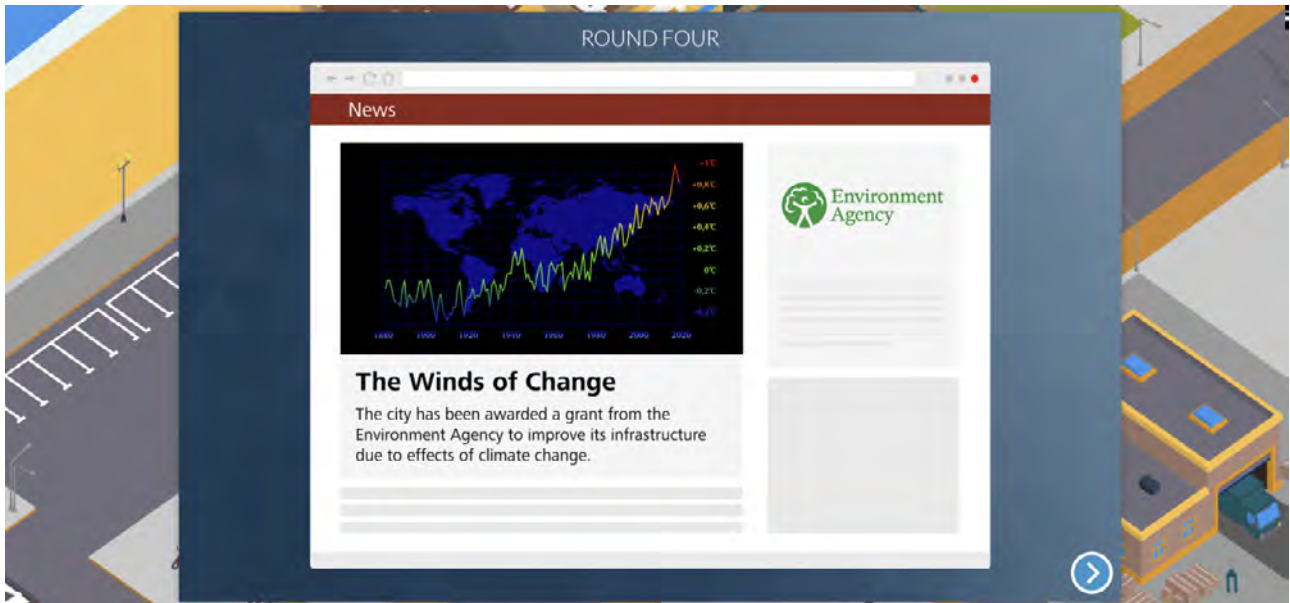


Week Four

CityZen

Play through round four of the game, which focuses initially on disaster preparedness, and then asks teams to respond quickly to an imminent hurricane.

Teams will revisit areas from previous rounds of the game, and decide how much budget they want to spend to make these safe. Many improvements that teams have built will be put to the test in this round, and those who cut corners to get high scores may well find themselves slipping down the leaderboard as adverse events occur.



Once all teams have completed the game you can consult the leaderboard and congratulate the winning pupils!

Interested learners can find out more about different civil engineering roles here:

<https://www.ice.org.uk/what-is-civil-engineering/who-are-civil-engineers>

Video Project

Check with teams that they all have a realistic idea for their Video Project which will be refined and filmed over the coming weeks.



Weeks Five & Six

The remaining weeks of the club should be spent working on team's video submissions.

- Refining the idea
- Practicing
- Creating visual aids
- Video editing

Teams should have the opportunity to share their video with you and get feedback, as well as ask any final questions about civil engineering in general.

The final session would be an excellent opportunity for teams to share their videos with each other, and perhaps vote on the one they think is best.





The Video Task

Students must up with an idea to radically improve your local area and the lives of those living in it.

They should consider the needs of local stakeholders and come up with the best solution for:

- Sustainability
- Congestion
- Satisfaction
- Value for money

They will also want to include how they would overcome any challenges. Using the knowledge they have gained from playing CityZen, and being as creative as they can with their idea and its presentation, students should make a short film about their proposal and it's impact.

They should work together as a team and seek advice from you and their teacher as needed but the submission needs to be solely their own work. Films should not include any unlicensed copyrighted material.

Submission

Films should be **between 2 and 4 minutes long**, in **MP4 format**. Films that do not meet the criteria will not be eligible for the award prizes. We strongly advise students to follow our guidelines for filming safely - found in the ICE CityZen Award Student Information Pack. You will be advised by email about the film submission process during the competition. Submissions must be made by the overseeing teacher or school representative.

The teacher or club leader will submit videos for judging. We'll send instructions for video submission during the competition period by email.

Judging criteria

Each entry will be assessed against the following criteria:

- Originality of idea – We are looking for some creative thinking for a brand-new idea or an innovative way of improving something that already exists
- Clarity of idea – Explain your idea so our judges can see exactly what you want to do and how. Remember they don't know your area and won't know what you've been thinking
- Use of learnings from CityZen and research – We want to see what you've learned from CityZen, your Mentor and your research. Tell us how this project has impacted your understanding of the world around you
- Impact of idea and extent to which brief has been met – Judges will be looking for ideas that have a big impact on your local area, as well as offer value for money and will it really improve sustainability, congestion and satisfaction
- Presentation skills – We are looking for entries that stand out from the crowd – aim to get your message across in the most original and creative way you can
- Game performance – All teams entering the competition should have played all four rounds of CityZen. Performance on the game will be a factor in determining winning teams in the event of a close decision

Further learning links

Students can find out about topics featured in the game from these links (which also come up at the end of each round in the CityZen game): <https://bit.ly/CityZen-furtherlearning>



Video Project Planning Worksheet

Ideas

How will your chosen idea affect...

Satisfaction	Sustainability	Congestion

What more do we need to know, and where can we find it out?

Questions to research or ask a Mentor:

1.
2.
3.
4.
5.



Education and careers support materials

The Resource Hub

We support ICE STEM Ambassador work with young people by providing a range of materials in our online hub:

<https://ice.marketing-hub.uk/stemambassador>

Here you can find useful resources like:

- A Powerpoint template for introducing yourself / giving a careers talk
- Digital copies of our careers leaflet for young people, plus the option to order free printed copies
- A short film to introduce civil engineering (also available from the ICE YouTube channel)
- Practical activity ideas, training resources, risk assessment template and more

The ICE Inspire 360° website

You can direct students to our virtual careers building to find out loads more about civil engineering including a digital cinema, gallery and plenty of real Civil Engineers to 'meet', plus an extra CityZen game to play if they want to hone their skills for the main competition.

It's a great resource to support understanding of the tasks in the ICE CityZen Award.

[Explore the ICE Inspire virtual careers centre](#)

CityZen: Pollution Control

Students can get a flavour of the CityZen game by playing a mini-version of the main award game.

Players of ICE CityZen: Pollution Control have to research the causes of river pollution to understand and then solve the problem in this digital 'whodunnit' game. Warning – the citizens of the city also need to be kept happy and the local environment protected too!

Play it in the [ICE Inspire virtual careers centre](#); look for the CityZen posters on the inside and outside of the virtual building.



Frequently asked questions (FAQs)

Here are some questions you could anticipate being asked. If students ask a question and you don't have an answer, then it is ok to acknowledge this. Let them know they can contact careers@ice.org.uk with any question, big or small.

CityZen questions

What is the penalty for re-playing a round?

500 points for each replay.

Why did I fail?

You might not be able to provide specific answers to this question. Discuss which area was their downfall – budget, satisfaction, sustainability, or congestion? If they look back over their notes, can they identify any areas in which they invested too much or too little in? What could the focus more on in the next round?

Why don't I have enough money to do everything?

You could talk about the inevitability of not being able to achieve everything on your wish list and the realities of keeping to a budget. Is it possible to 'run out of money' in your role, and how would this be dealt with in reality?

How much would this cost in real life?

A ballpark figure here is fine! The figures in CityZen are not reflective of real life and whilst this is stated within the game it is always good to remind the students of this! If you have any examples of figures from similar projects you have been involved with then this is a bonus.

Is it really a civil engineer that would make that decision?

You could talk about the different disciplines of civil engineering, including your own passions. You can also mention other professionals you work collaboratively with if appropriate.

Competition questions

How is the competition scored?

Scores are generated within CityZen are based on the decisions made and the impact on budget, sustainability, congestion and citizen satisfaction. Decisions made in earlier rounds will impact scores in later rounds.

The overall winners of the competition will be decided based on the scores achieved for the video submissions. CityZen scores will be used to determine the winners should there be a tie.



Career related questions

The students may have questions about the process of becoming a civil engineer and what a 'day in the life' looks like for you. They may also express an interest in hearing a little about your work/life balance. It is of course up to you how much detail you wish to go into.

Are there scholarships for studying civil engineering available?

ICE offer an Undergraduate Scholarship of up to £8000 and a company sponsorship, as well as a Technician Scholarship of £1000, see ice.org.uk/QUEST for more information. Other bodies such as the Institution of Engineering and Technology, the Royal Academy of Engineering and Whitworth Scholarships also have variety of bursaries and many UK universities offer students civil engineering scholarships too.

Is it a creative career?

Creative problem-solving is at the heart of civil engineering. The vast number of different designs for buildings, bridges and other structures shows how civil engineers have to think outside the box to solve a wide range of challenges, whether it's bringing a drawing on paper to life, to working out how to thread a tunnel through the congested ground below our feet.

How long does it take to become a civil engineer?

Speak about your own experience. Please also mention that university is not the only way, apprenticeships and degree apprenticeships are fantastic options too. Depending on the route they take and the level of academic qualifications achieved, they can graduate and start work in 2-5 years.

What if I'm not good at maths/is there much maths involved?

Speak from your own experience. It depends on your role, but often it's more about problem-solving, rather than 'hardcore' maths. It is also a very creative career.

How much money do you make?

It is of course up to you how and if you answer this question! For those starting out in the profession, salaries tend to start at £23,500, rising to £26,500 with two years' experience. Professionally qualified civil engineers earn on average around £40k and top engineers in very senior or management roles can earn over £100k.

Do you get to travel?

Speak about your own experience if that is relevant. Civil engineering is a global field, so there are absolutely opportunities to travel at home and abroad, both short and long term if that is something they are interested in.



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