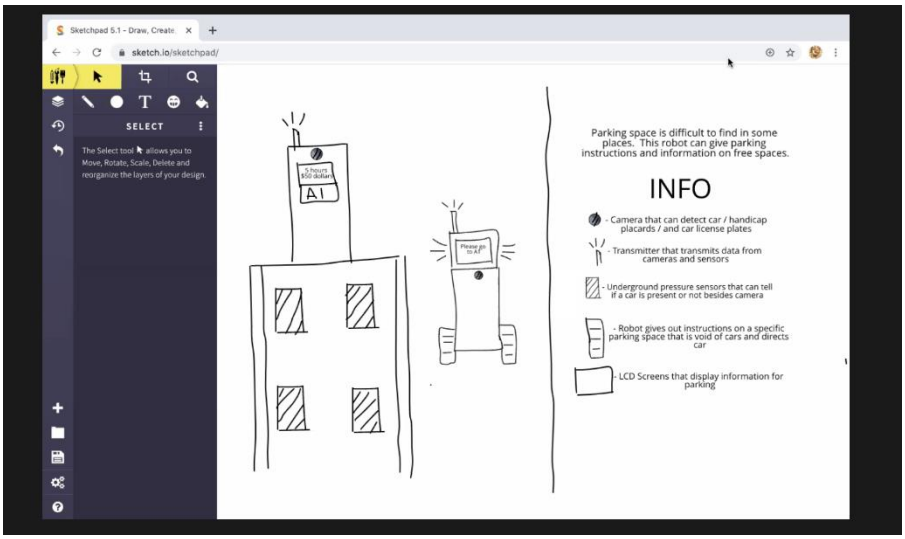
# Virtual Smart Cities Lesson Plan (ages 11 to 18 years old)




## Student Preparation – Lesson 1

- Have a computer with virtual meeting software.

## Teacher Preparation – Lesson 1

- Determine a group lead to facilitate brainstorming. This is a great lesson to bring in industry professionals to serve as mentors in each group.

## Student Learning Objectives – Lesson 1

This lesson will do the following:

- Learn what a Smart City is
- Learn what a prototype is
- Learn what a paper prototype is
- Identify a problem that the students are interested in solving
- Identify an innovation solution and provide a description (encourage the use of emerging technologies)
- Describe the impact and results that could be achieved

## More Info

Ages 11 to 18 years old – this overview will require adjusting to the unique needs of your students. You will use the “Smart Cities Brainstorm” presentation.

| Session 1 – Smart City Brainstorming | 60 minutes |
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| **Welcome and introduction to the activity** | 5 min |
| **Provide an overview of Smart Cities from the Smart Cities Brainstorm presentation** | 10 min |
| **Provide an overview of important questions to ask when brainstorming from the Smart Cities Brainstorm presentation** | 5 min |
| **Break into rooms and group leader or mentor will facilitate a brainstorming discussion. Use questions from the Smart Cities Brainstorm presentation** | 30 min |
| **Provide instructions for creating the paper prototype** | 5 min |
| **Q & A** | 5 min |

## Student Preparation – Lesson 2

- Students will need the IoT Smart Cities concept from Lesson 1.
- Students will need a way to sketch their paper prototype, this could be on paper or on the computer using a program such as PowerPoint or Google Slides.

## Student Learning Objectives – Lesson 2

- Create a paper prototype a.k.a. sketch of their Smart City device prototype.

| Session 2 – Self Guided<br>Create a paper prototype of an IoT Smart City device | Independent work |
|---|---|
| **Students will create paper prototype of the Smart City concept they envisioned on paper or using a program (ex., PowerPoint or Google Slides). Each student will create their own paper prototype.** | Students spend time developing prototype |

## Student Preparation – Lesson 3

- Have a computer with virtual meeting software.
- Have the paper prototype ready to showcase and come prepared to explain it.

## Student Learning Objectives – Lesson 3

This lesson will do the following:

- Provide opportunity for public speaking and showcasing work.
- Provide opportunity for continued learning and idea exploration through interaction with volunteers.

| Session 3 – Presentation of Paper Prototypes | TBD |
|---|---|
| **Students will take turns showcasing their prototypes to a group assembled by their instructor. Coaches will ask questions and provide the students with an opportunity ask the coaches questions.** | Approx. 5 minutes per student |

**Additional information for this lesson can be found in the STEM@CGI at Home Activity Pack.**