Home learning

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MAKER

We will learn...

- ❑ To create a model of an inclusive city.

- ❑ Assemble robots using different Lego kits.

- ❑ To use colours and distance sensors.

- ❑ To follow step-by-step instructions (written comprehension skills).

- ❑ Don't give up and learn from mistakes (resilience).

- ❑ How to put technologies at our service for social causes.

Connections

Related ideas that we need to know before we start.

Did you know?

Inclusive cities take into account all citizens' needs and contributions equally.

Sensory disabilities affect people's senses: hearing (deafness), sight (blindness), touch, smell and taste.

This Capsule that you are about to embrace was designed by an elementary class who had a **friend with blindness**. They wanted him to **be able to go from his house to school safely without his parents**.

Are you ready to reproduce and face this challenge using Lego and creating your own city model?
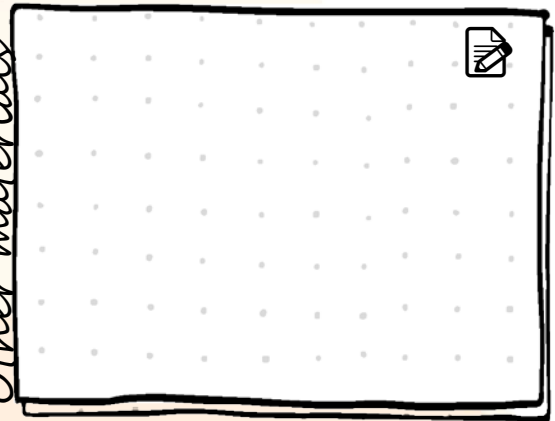
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Get ready!

Materials

- ❑ 1. Styrofoam
- ❑ 2. Cardboard (cardboard boxes)
- ❑ 3. Glue and scissors/cutter
- ❑ 4. Paint Colours and paint brushes
- ❑ 5. Toothpicks (and or paper tubes)
- ❑ 6. Lego Mindstorms
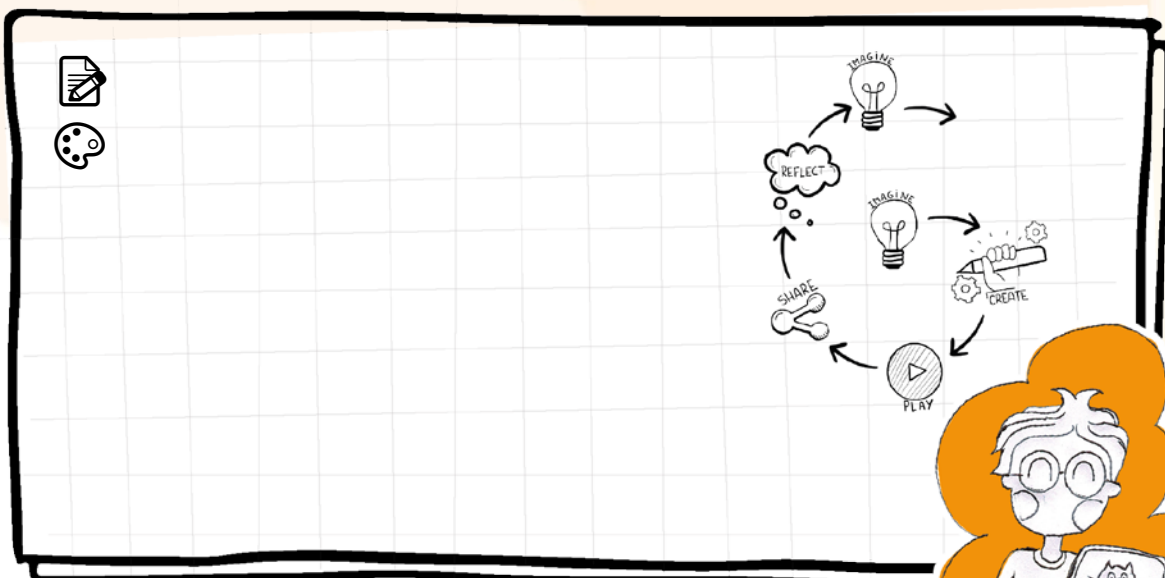- ❑ 7. Lego Wedo 2.0 or Lego Education Kit

Are you missing a material?
For which one could you replace it?
Will you use others to decorate?
Write them down.

Other materials

Imagine

How you imagine your inclusive city? Draw it and label its main futures.

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Let's create!

Follow the instructions and take advise from the videos to make your **city model**.

1. Sketch the streets, the sidewalks, the green areas and the roads (15 cm width) on the Styrofoam that will be the base of your city model. **Is it an inclusive city?**

2. Paint your city. **Give thought to its location, climate and season to decide the colour palate.** Will it be tropical, dry, temperate, continental or polar? Will it be rainy/dry or spring/summer/autumn/winter?

3. Wrap (with colour cardboard or white paper) and/or paint different size cardboard boxes to represent city buildings (**houses**, city-hall, **school**, hospital, supermarket, etc.). **Are the windows and the rooftops adequate for the climate?**

4. Use paper tubes and toothpicks for fences, trees, bushes, flowers, etc. **Is it a green/sustainable city?**

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Play and share

Draw or take a picture of your project.

I shared my city model with _____

Reflect

Choose one of t he following questions and develop its answer.

1. Share something that surprised you about the relation between houses and climate.
2. What have you enjoyed the most during the creation process?
3. What is the relevance of inclusive cities for you?

How many stars will you give to your critical thinking? Colour them!

School Workshop

*Children assemble the robots at school, which gives them the chance to work with materials that wouldn't get to know in another context as they might not be affordable for everyone.
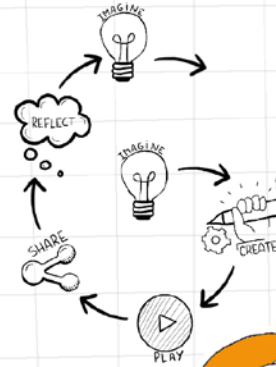
**In case of a lockdown, the school can lend the material to children for some time after signing a responsibility contract with their families.

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Imagine

How do you imagine the robot that will make our blind friend school transfer?

Draw it and label its main futures.

Reflect

Choose one between the following options and develop its answer.

1. Explain in your own words why the robot that makes the transfer stops when the traffic light is red.

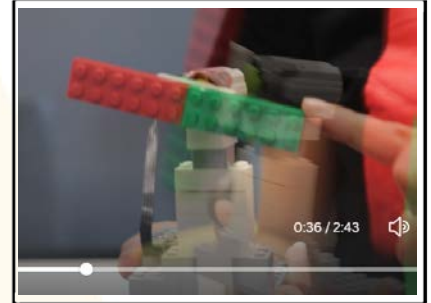2. Share a problem you faced assembling one of the robots and how you solved it.

How many stars will you give to your collaboration skills? Colour them!

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Let's create!

1. Assemble the traffic light following the Education Lego Kit or Lego Wedo instructions.

2. Attach a motor and a smart hub to the traffic light robot (from minute 0:06 to 0:40). Scan the QR code to follow the step-by-step video.

3. Tests the traffic light before placing it on the city model.
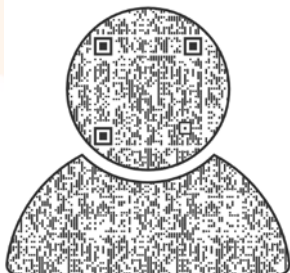
4. Assemble the robot that will do the transfer using Lego Mindstorms instructions (from 0:42 to 1:34). Scan the QR code to follow the step-by-step video.

5. Attach the light and the distance sensors to the robot that will do the school transfer.

6. Program the robot using Scratch to go from the targeted starting point to the desired final destination.

7. Place the robot in front of the blind child house and test it. **Did it arrive to the school? Did it stop when the traffic light was red?**

8. Finish with a class-demonstration. Now, you can share it with the families or other grades of your school.