



Design Your Sustainable Micro-Community

 Social Studies •  30 min •  Ages 16-18 • Grade 11

This lesson challenges students to apply principles of sustainable design by creating a physical model of a micro-community. Learners will explore critical social, economic, and environmental factors that shape livable urban spaces, fostering critical thinking about our shared future.

Our goal is for your child to Analyze key principles of sustainable urban design and community planning., Apply design principles to create a functional and environmentally conscious micro-community model., Evaluate trade-offs and potential impacts of design choices on community well-being and the environment..

What You Need

Cardboard • Scissors • Tape/Glue • Markers



Scan To Tailor

Every child learns differently, and this is just the baseline. Scan to jump into the app and easily tailor this lesson to match your child's exact learning level and see how Mai will guide this lesson.



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Lesson Blueprint

A simple, hands-on lesson that guides your child through curiosity, exploration, and reflection.



Mai's Tips

1. **If your child seems overwhelmed, suggest they focus on just one aspect of their community first, like transportation or housing, before integrating other elements:** If your child seems overwhelmed, suggest they focus on just one aspect of their community first, like transportation or housing, before integrating other elements.
 2. **Encourage your child to 'think out loud' about *why* they are making certain design choices, helping them articulate their reasoning and critical thinking process:** Encourage your child to 'think out loud' about **why** they are making certain design choices, helping them articulate their reasoning and critical thinking process.
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Prep Before Session

1. Gather the materials and choose a safe, comfortable place for the activity.
2. Read through the lesson once so you know where the child will make predictions, test ideas, and reflect.



1 Introduction 5 Min

1. Encourage brainstorming about what makes a place livable and what 'sustainable' means. Prompt them to think about how these concepts relate to the future of communities. A "sustainable community" is one that meets its current needs without compromising the ability of future generations to meet theirs, balancing environmental health, social equity, and economic vitality. For example, using renewable energy and local food sources. This approach is vital for ensuring long-term well-being for everyone.
2. Ask them:
 - "What does 'ideal' mean to you when thinking about where people live?"
 - "What comes to mind when we talk about a 'sustainable' community?"
 - "Why is a 'sustainable' community important for the future?"
 - "What makes a place truly livable for everyone?"



Done when: Student has shared initial thoughts on what makes an 'ideal' and 'sustainable' community.



2 Explore & Plan 8 Min

1. Help them gather the specified materials: cardboard, scissors, tape or glue, markers, paper, and a pencil. Encourage them to sketch out their ideas on paper before building, considering the layout and how different parts of their community will relate to each other. Offer guidance by asking clarifying questions.
2. Ask them:
 - "What essential features would your community absolutely need?"
 - "How will you arrange these elements to work together efficiently and harmoniously?"
 - "Where will people get food in your community?"
 - "How will people travel around your community?"



Done when: Student has verbally outlined their main design ideas and sketched a basic plan for their micro-community.



3 Discussion 6 Min

1. Allow the student to answer first. If they seem stuck, gently guide them by prompting them to think about potential conflicts or different viewpoints within a community. Explain that a "trade-off" occurs when gaining one benefit means giving up another; for example, more green space might mean less room for housing. Understanding trade-offs is crucial in design because resources and space are limited, and every decision has consequences.
2. Ask them:
 - "If you add more green space, where does that land come from?"
 - "How might your transportation choices affect different residents?"
 - "What challenges might make your community fair and accessible?"
 - "What might happen if environmental protection conflicts with economic development?"



Done when: Student can articulate at least one trade-off or challenge in their design and discuss its implications.



4 **Activity** 9 Min

1. Provide them with the specified materials: cardboard, scissors, tape or glue, and markers. Ensure they have a clear workspace. Offer assistance if they are having difficulty with cutting or assembly, but make sure the student makes all the design decisions. Encourage them to be creative with how they use the materials, even if the model isn't 'perfect.' Remember to supervise the safe use of scissors.

2. Ask them:

- "How can you use these materials to represent your planned zones and structures?"
- "What's a creative way you could show a green space or a food source?"
- "How do you want to connect different parts of your community?"
- "What's the most important feature you want to build first?"



Done when: Student has completed a physical model representing their sustainable micro-community design.



5 Summary 2 Min

1. Celebrate their effort and the completed model. Ask them to walk you through their design and explain the choices they made. Focus on what they learned during the process and how they might apply this kind of thinking in other situations. This stage helps them connect their creative work to real-world roles like urban planners and architects.
2. Ask them:
 - "What was the most interesting part of bringing your design to life?"
 - "What was the most challenging part of bringing your design to life?"
 - "How does this connect to real urban planners or architects?"
 - "How might you apply this design thinking in other areas?"

 **Done when:** Student shares one key takeaway or insight from the lesson and connects it to real-world applications.

Beyond The Lesson

Fuel their curiosity beyond the lesson with bonus sparks.

Table Talk



Urban planners and policymakers use these very principles to design the cities and towns we live in, making decisions that affect millions of lives and the environment.

Did You Know?



Everyday objects can reveal surprising science when we slow down and observe them.

Challenge



Add a specific social problem to your micro-community (e.g., limited freshwater access, a diverse population with varied needs, an aging population) and adapt your design to solve it.

★ Quick Recap Quiz 4 Min

Check what your young scientist remembers. Each question includes a Parent Tip to help them find the answer without giving it away.

1. What Does 'sustainable' Mean For A Community?

- ☐ It focuses only on economic growth.
- ☒ It meets current needs without harming future generations' ability to meet t

 Remind them that sustainability balances environment, economy, and society, now and for the future.

2. Which Of These Is A Key Benefit Of Green Spaces In Urban Planning?

- ☐ They are primarily used for commercial development.
- ☒ They improve air quality and provide recreation for residents.

 Ask: 'What do you do in a park? How does nature help a city?'

3. When Designing A Community, What Is A 'trade -Off'?

- ☐ A plan that has no compromises or difficult decisions.
- ☒ A decision where gaining one benefit means giving up another.

 Prompt them to think about 'If I add this, what might I have to reduce or remove?'

4. Why Is It Important To Consider Different Types Of Transportation In A Sustainable Community?

-  To ensure everyone owns a car, regardless of need.
-  To reduce reliance on cars and promote environmental health and accessibility.



Ask: 'How do different people get around? What's good for the environment?'