

## The Tiny House Geometry Challenge:

### Read aloud to class:

“Congratulations, you just graduated from architecture school, and this is your very first job!

A young couple with a baby and a dog hired you to design their tiny dream home. In this project, you will have the opportunity to create the perfect living space for them. Your job is to imagine, design, build and decorate the perfect tiny home for this young family.”

### Discussion, what is a tiny house?

A tiny house is house built as small as possible. It is not an exact size, but the typical tiny home is only 1/5th the size of the typical American home. The typical American home is around 2,600 square feet, whereas the typical tiny house is between 100 and 500 square feet.



The Tiny House movement was born when a group of people wanted to downsize the space they lived in.

### Watch:

What is a Tiny House? <https://youtu.be/BVovCDwrEn4>

A Tiny House Family's Big Adventure <https://youtu.be/AkaXfgOLhuc>

### Read aloud:

[If I Built a House](#) by Chris Van Dusen (or [watch the video](#))

### Discuss as a class:

1. Why would we choose to live in a tiny house? Answers may include:

- Mobility (some tiny homes are mobile)
  - Sustainability (less material, less clearing of land and cutting down trees, less energy use)
  - Easier (less cleaning to do)
  - Less expensive (to build and keep up)
  - Adventurous and fun!
2. What are some challenges living in a tiny house? Answers may include:
- Not enough space to move
  - No quiet areas for work, sleep
  - No room for toys
  - Some may not be attached to the ground and can be dangerous in severe weather
3. What are the parts of a house we need? (like bedroom, bathroom, kitchen, windows, doors)
4. What are the parts of a house we don't need but may want? (playroom, office, gym)
5. Are there rooms or parts of a tiny house that can serve two functions? Discuss some examples. (sofa-bed, kitchen table/desk)

## Activity 1: Brainstorming Collage

Research tiny homes around the world and create a brainstorming collage of tiny home ideas. This may be cut out magazine pictures, printed images from the internet and drawings. Be sure students include the inside of tiny homes too.

## Homework

Students should finish collages and discuss with their family fun space-saving ideas. Collages should include the basic "living spaces" like kitchen, bathroom, bedroom, play area, storage, etc.

## Activity 2: Building Tiny Houses

Students will build their own tiny houses. Students may work alone or in groups of up to 4. Using 3DuxDesign connectors, cardboard and crayons, students will create the structural component of their tiny home. Each project should have the same size sheet of paper or cardboard base to work with, ideally 16 x 16 inches.

Students should include

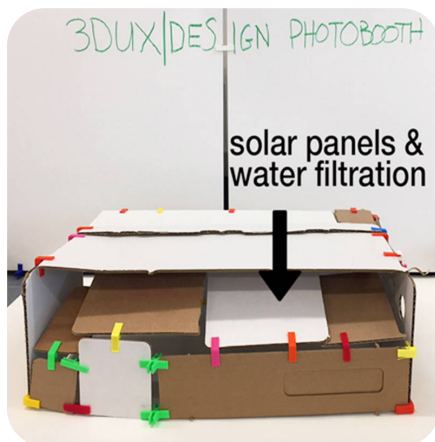
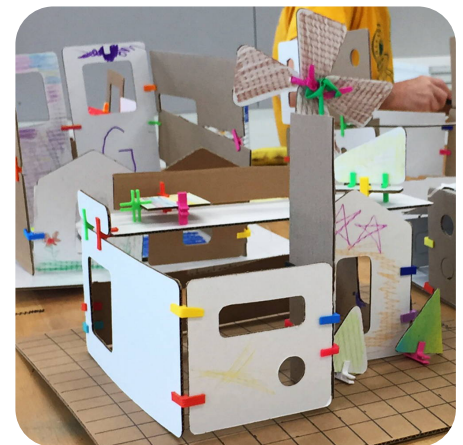
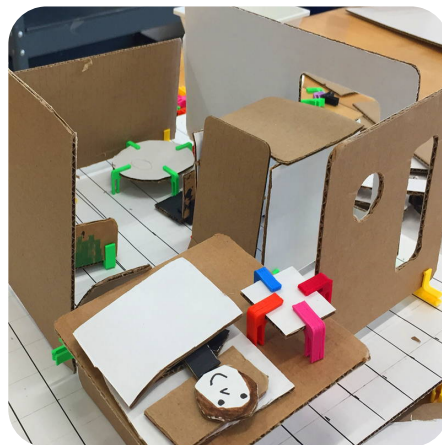
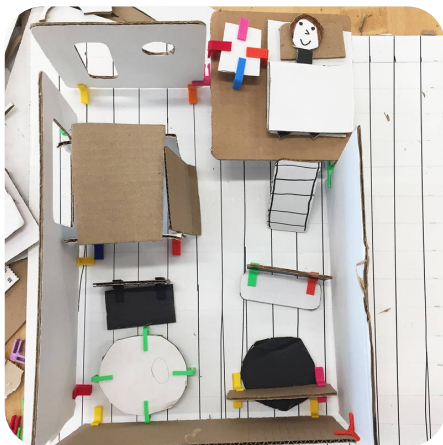
1. outside perimeter of the structure with doors, windows
2. interior walls and specific rooms or areas, must-have spaces on their list. Students should include living space for both parents, child and dog.
3. interior design features. Students should include one dual-function or space-saving item (anything from hanging chairs or wall shelving). This is the space for true open-ended creativity.
4. outside space. Students should design and build out the outside of their space including room for vehicle if appropriate, small yard (or roof garden, vertical garden along the walls—let them be creative here)!
5. characters – Students may include scales family and pet characters.

## Activity 3: Presentation

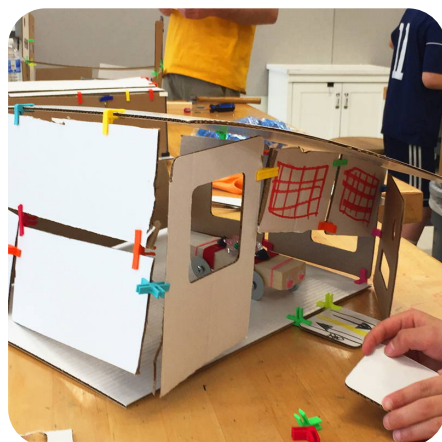
Each student should present their tiny house design and share their special creation with the class.

## Inspiration

Addison, age 8, created an accurately scaled and beautifully detail-oriented design. She made use of vertical space with a bedroom loft and a rooftop terrace. She included all of the necessities for living including spaces for sleeping, eating, food prep, and bathing. She added a windmill for a sustainable energy source and plants for both decoration and for their health benefits. This space had a footprint of only 125 square feet of ground space, but the living area was actually 175 square feet with the loft and roof garden. Way to go, Addison!



Connor, age 7, decided to focus on minimizing carbon footprint



Sam, age 6, felt that the entire space should be one giant garage because his family loves to travel



Sarah, age 8, wanted to be certain that Fluffy the Dog had a place to sleep, eat and drink