

Dream Home Challenge

If you could live anywhere, where would it be? More to the point, where would your home be, and what would that home be like? History is filled with dramatic examples of amazing architecture. From the commanding columns and awe-inspiring archways of the [Roman Empire](#) to the playful ornamentation of the [Baroque](#) period, Architecture speaks through the ages of the people who preceded us. Charming half timbered [Tudor houses](#), bare-brick [Jacobean homes](#) and the harmonious symmetry and characteristic airiness of [Georgian architecture](#) are all distinctive icons of the design sensibilities of their time and geographic environment.

Look at Frank Lloyd Wright's famous [Fallingwater](#). Even this more modern architectural marvel is a testament to the ambitions of it's creator as well as a challenge to the prevailing design philosophy that inspired it's creation. When you look at the buildings and homes where you live, what do their unique structures say about them, and the environment in which they exist? What do they say about the people that inhabit them?

Think about these historical examples and the questions they invoke while performing this challenge.

Challenge Briefing

Using whatever resources students have available, each student is to design their own dream home. Then be able to talk about their design by answering the questions that follow.

Introduce the Challenge

Rules

Each student is to design their own dream home. There are a couple methods the student may choose to represent their design:

- Make a floor plan- This may be done either with paper, pencil, markers or crayons, or on a computer using drawing software.



- Build a model- Build a model of your dream home choose whatever materials you have available:
 - Build it out of cardboard, paper and/or other scrap materials using tape, glue, hot glue or other fasteners to assemble.
 - Build your model out of building blocks, bricks or other construction toys. Lego, Kinex, erector or other building toys are a great way to do this challenge. Again, use what is available.
 - Build it virtually. Tinkercad is a free on-line computer modeling program with built in tutorials that are easy to follow. www.tinkercad.com
 - Gamify it. Building-games like Minecraft can also be used to perform this challenge.
- Have students work to scale. Set a limit to the size of their home. Example: 200 square feet for a tiny space, 400 Square feet for a small space, etc...

Additional Constraints (optional)

- Require that students make all walkways at least 3 feet wide, and require each room to have at least 1 point of entry and 1 window.
- Require that interior walls are 6” thick and exterior walls are 1 foot thick.

Inventing, Making, Storytelling

Inventing Stage

Students should brainstorm about what they want to have in their dream home. List out the most important features. Think about who will be living in this dream home. Is it just for the student, or for a whole family? Maybe it's a place for the student and their friends.

For added inspiration students with internet access can research different styles of architecture. Here are some of the links used in the writing of this lesson:

<https://www.widewalls.ch/the-history-of-architecture/>

<https://www.housebeautiful.com/uk/renovate/design/news/a104/homes-through-the-ages/>

<https://fallingwater.org/>



Making Stage

Using whatever resources the students have available, they are to create a design for their dream home. They may choose whatever method they wish to represent their design. They can draw out a floor plan, they can build a physical model, or they can build a virtual model using modeling software like tinkercad or even a building-game like Minecraft.

The method they use will most likely be determined by the resources they have access to. It should be noted that no single method is better than any other. In the industry, usually, all three methods- floor plans, physical models and computer models are employed on a given project.

Storytelling

Students should then explain their creations by answering the following questions:

1. Who will be living in your dream home?
 - a. How many people?
 - b. How do they relate to you?
2. What areas are designated for what activities?
 - a. Where will people sleep and eat?
 - b. Is there a place for hobbies or work?
 - c. What kinds of activities can people do there?
3. Where do you want to live? (Do you dream of living away from everyone in beautiful Alaska? Would you rather live close to the ocean? Is your dream home on the moon?)
 - a. Where would this dream home be located?
 - b. How does the location affect how you designed your home?



Lessons Learned

History

Researching different styles of architecture means learning about society during different periods in history and learning how customs, beliefs and politics influenced the designs of those times.

Math

Putting limits on the square footage of floor space a student's design may occupy or adding constraints about the width of walkways will force students to work in scale. They will learn by doing how to calculate area, and the dynamics of managing odd shapes and sizes.

Design

This challenge uses the standard design method of identifying a problem- "build your dream home", Brainstorming your goals and priorities, doing research, and visualizing a solution. Students will be using soft skills such as critical thinking, creativity, and communication.

Implementation

Share this challenge guide with students via email or messaging program.

Students are encouraged to use whatever resources they have at their disposal at home to create their designs.

For younger students, keep the constraints loose. Keep size references general and relative. Example: instead of keeping the size under 200 square feet, instruct students to make it roughly the same size as a classroom, or a house they are familiar with.

The additional constraints may be added for older and more advanced students. For students using lego compatible building sets, use the scale 1 peg=6 inches.

Students will need to take a photo of their hand drawings or hand built models and send their images to a cloud based drive with their name and a class identifier and "dream home" in the



name. Example “john smith first period dream home.jpg. They can add a number to the name if they have multiple images.

If the students created their design on a computer, using drawing software, 3D modeling software or a building game, they can save the images as a jpeg image or take a screenshot. In either case the images can be saved on a cloud drive.

The students will need to send the answers to the questions along with links to their images to their teachers via email or messaging program.

* If available, students may do a short video of themselves talking about their project while showing their work.

