

LESSON IDEA

# Design a Tiny Home

MATHS

ART & DESIGN



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# Lesson ideas

Use these Lesson Ideas to spark your imagination for using Procreate in the classroom. Feel free to take them further and make them your own.

# Design a Tiny Home

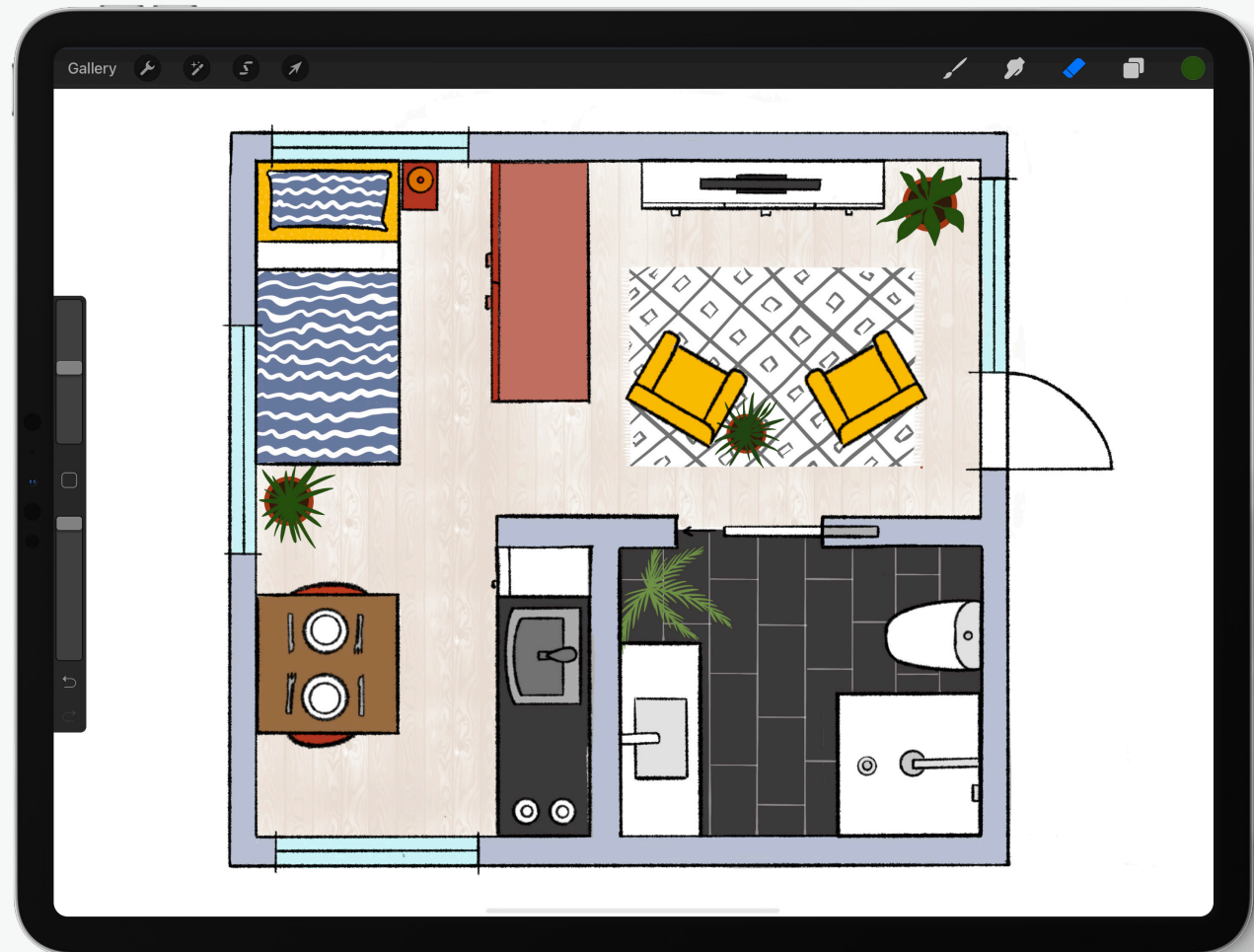
Students design their own tiny home and use geometry skills to draw a floor plan to scale.

All you need is an iPad and the following apps:

-  Procreate
-  Safari
-  Measurement
-  Reality Composer

## Educational Value

- ✓ Students use measurement and geometric principles to draw to scale and calculate the area of their design.
- ✓ Students learn basic principles of housing design.
- ✓ Students apply the design process to real-world applications of mathematical concepts.



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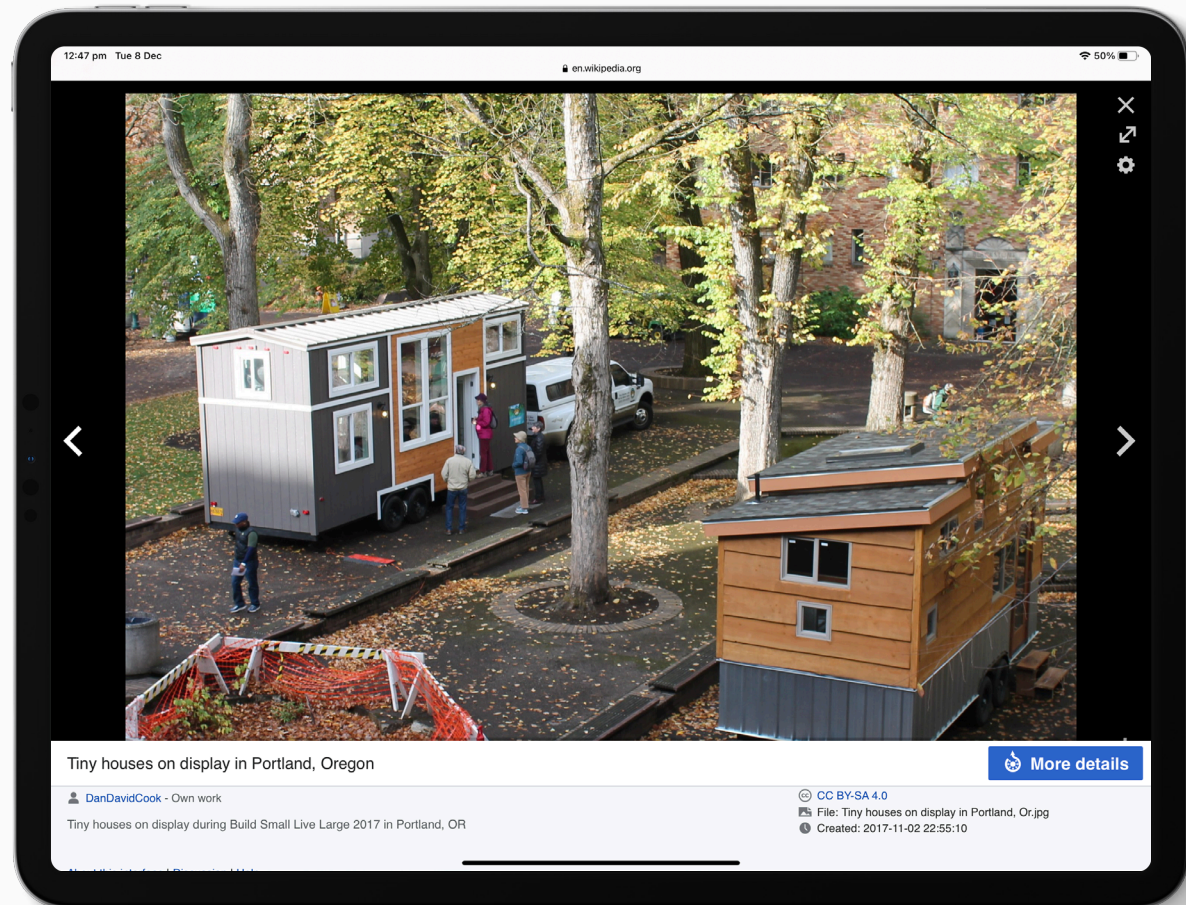
# What is a tiny home?

## Research

Tiny homes are houses that are generally less than 400 square feet and designed to have a low impact on the environment. Spend some time researching different examples of the design of tiny homes.

Use the following questions to guide your research:

- \* Why do some people choose to live in tiny homes?
- \* What does it mean to have a 'carbon footprint'?
- \* What are some examples of small spaces that have multiple uses?



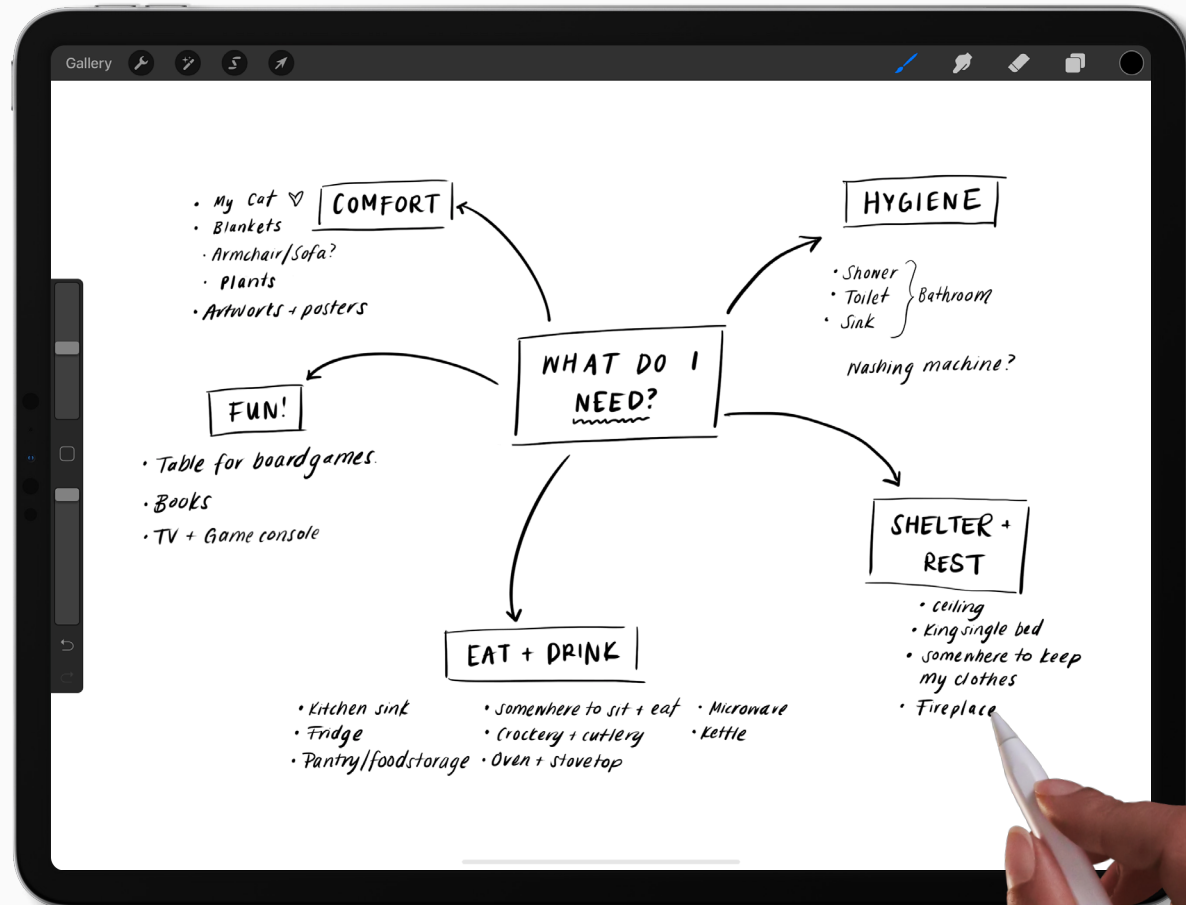
# Brainstorm

## What do you need?

Make a list of the things that you need to include in your home. This will include the bare necessities, as well as a few of your favourite belongings that you simply can't live without.

### CONSIDER...

- \* What size bed will you sleep on?
- \* How will you stay warm?
- \* Of all your personal belongings, what are the 5 things that have the most meaning to you?



# Blueprint

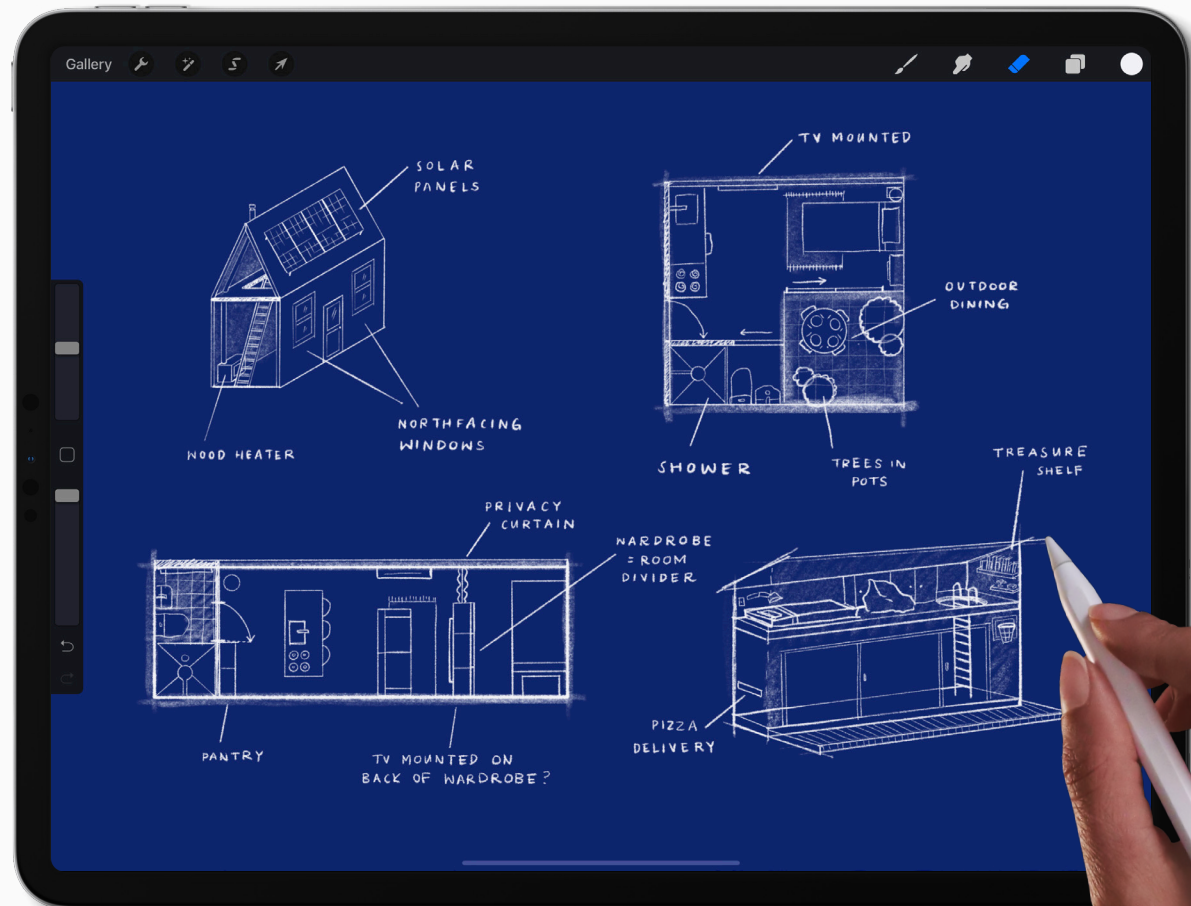
3.

## Visualize your home

On a new canvas, set the background to blue and use a white brush to experiment with a few different designs for your home.

### CONSIDER:

- \* Think about how you would like to move through the space and how you can fit in all the belongings you brainstormed.
- \* Is there anything that you'll need to sacrifice to keep the house under 400 square feet?



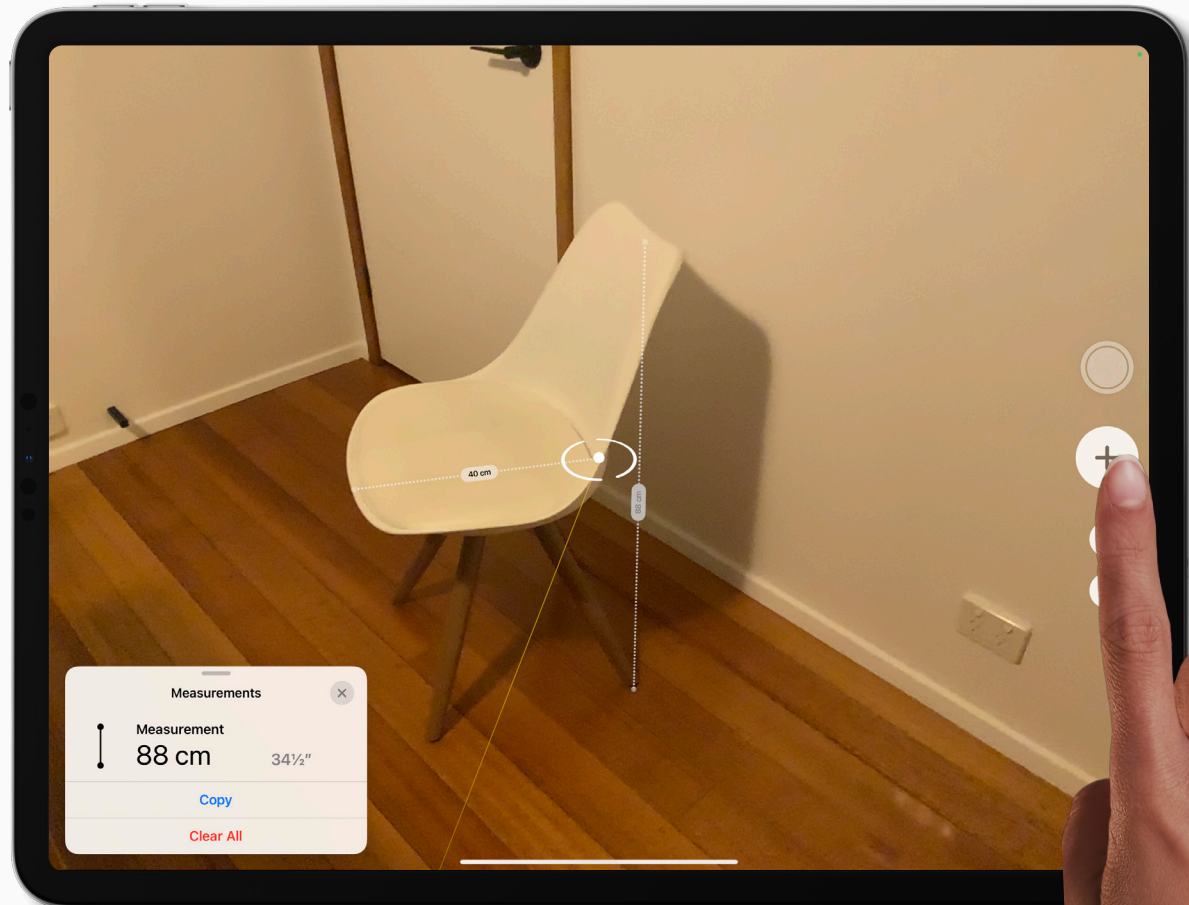
# Measure it up

4.

## Size of furniture

Use the *Measure* app to measure the size of the furniture in your current house. This will help you work out how much room to allow for furniture in your design.

- 1 Tap the *Measure* app to open it.
- 2 Move your iPad around so that the central dot is over the starting point of your measurement. Tap the *Add (+)* button.
- 3 Move your device so the centre dot is over the end point of your measurement. Again, tap the *Add (+)* button.
- 4 Once you've measured your object, make note of its dimensions.





# Drawing to scale

5.

## Grid paper

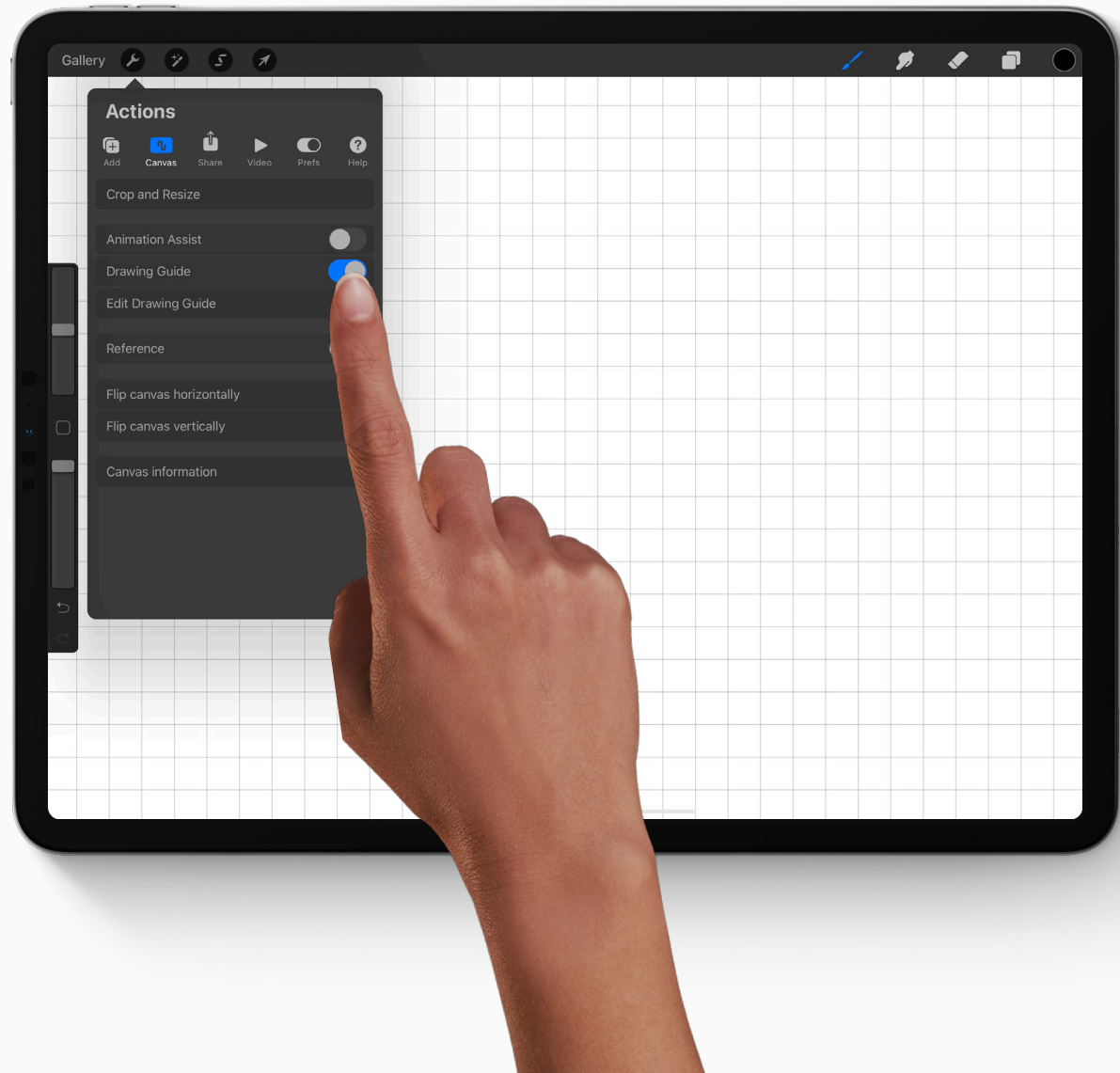
- 1 Create a new A4 canvas
- 2 Tap the wrench icon to open the *Actions* menu.
- 3 Tap *Canvas*, and toggle on *Drawing Guide*.

### EDIT YOUR DRAWING GUIDES

To edit the size or color of your Drawing Guides, tap *Edit Drawing Guide* in the *Actions* menu.

### DRAWING STRAIGHT LINES

Use QuickShape to help draw perfectly straight lines. Hold for a second once you've drawn a line and it will snap perfectly straight.



## Set a scale

Decide upon a scale for your drawing. What does one square on your grid represent as a real distance?

Write this on your canvas somewhere as a reminder.

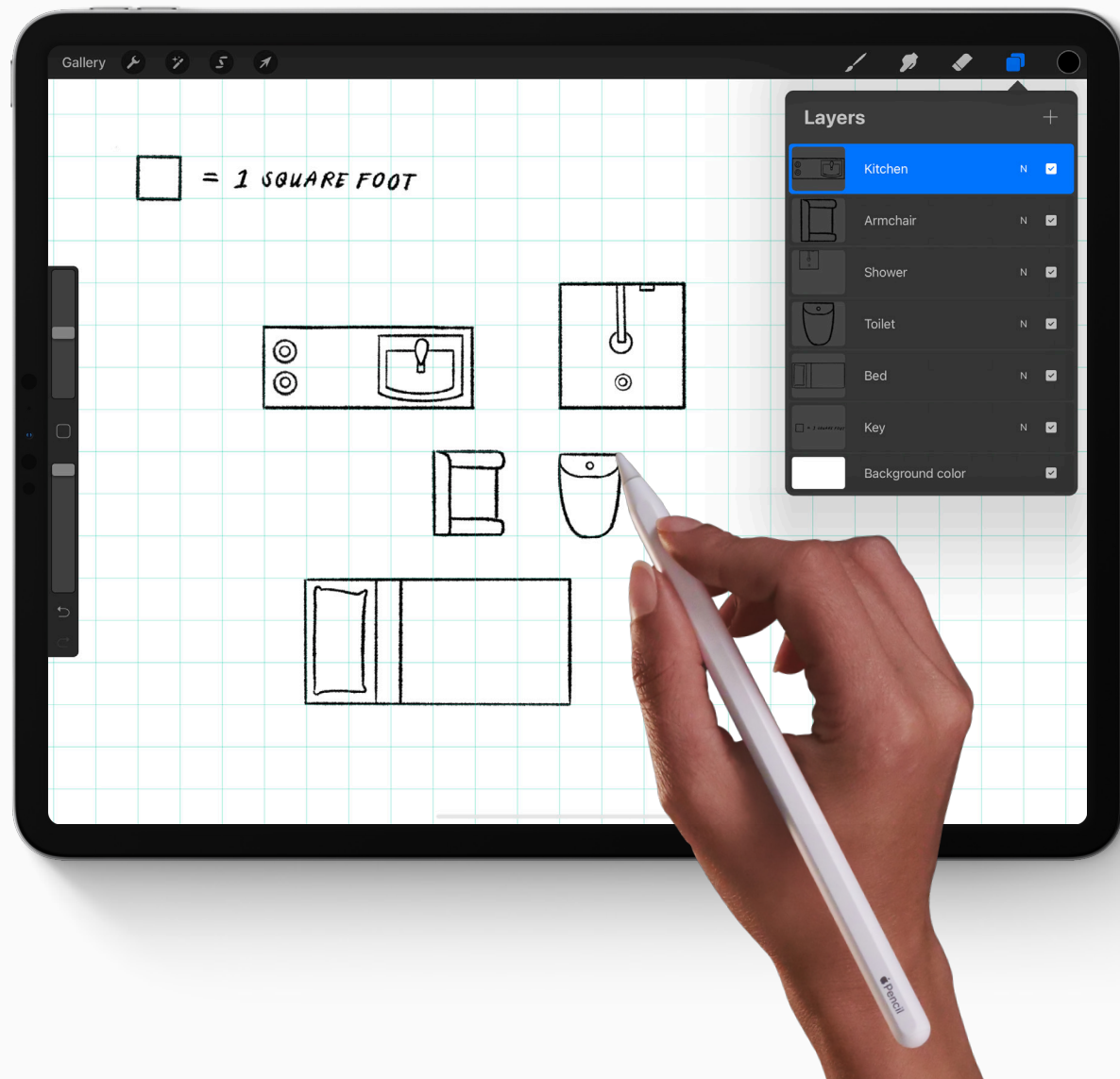
## A bird's eye view

Now draw your furniture and belongings to scale in top view, using the measurements you took earlier as a guide.

Tap the + in the *Layers Panel* to create a new layer for each item.

### REMEMBER

Make sure to name your layers as you go. This will make moving your furniture around much easier.



## Put in place

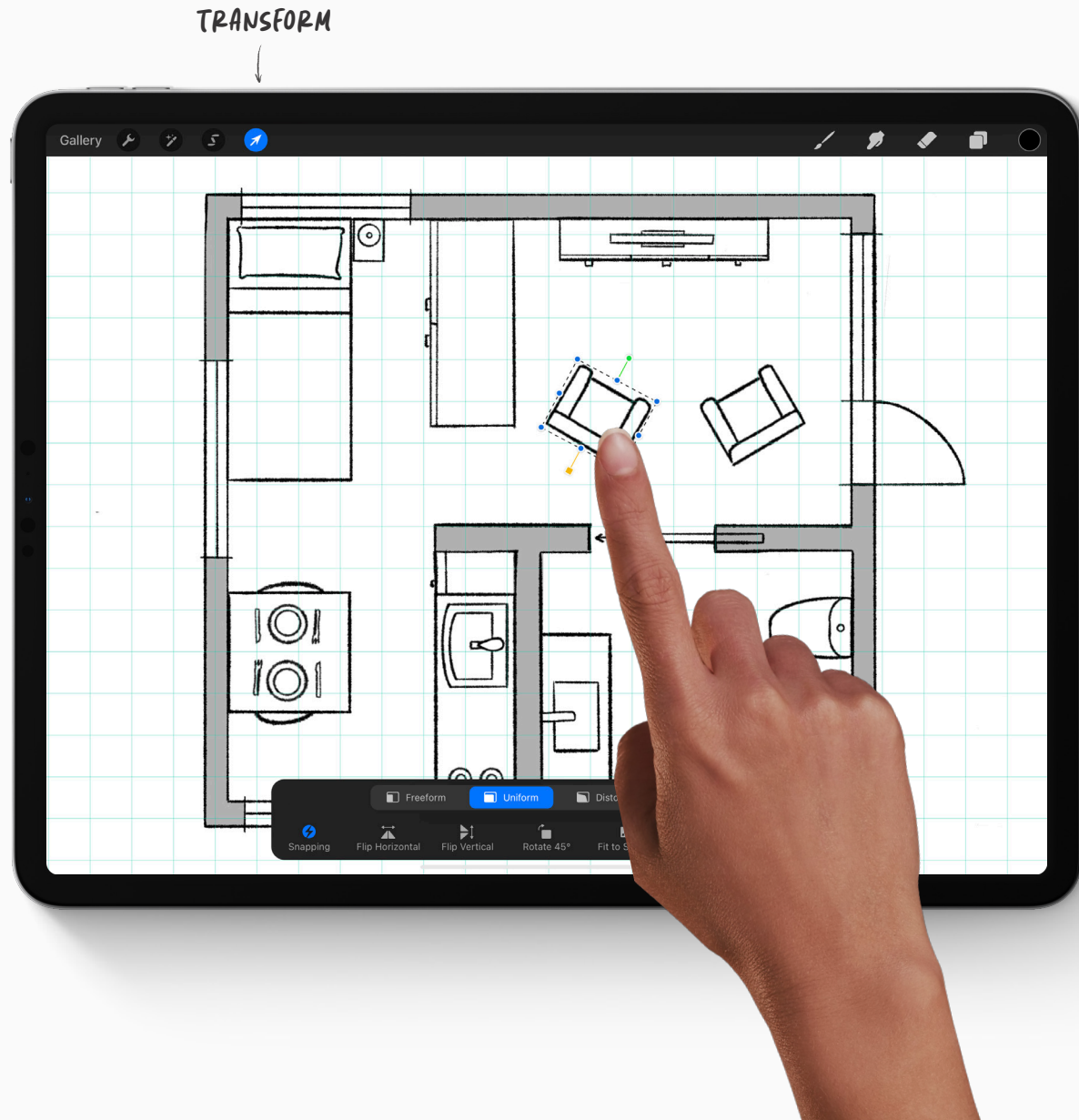
Once you've drawn all of your items, use the *Transform* tool to rearrange them into position, based on your earlier blueprint.

## Walls and windows

As you try out your belongings in different places, draw in your walls and windows around them on a new layer.

### REMEMBER...

Walls take up room too. Find a door frame in your house and use the *Measurement* app again to see how thick the walls in your house or school are.



# Adding personality

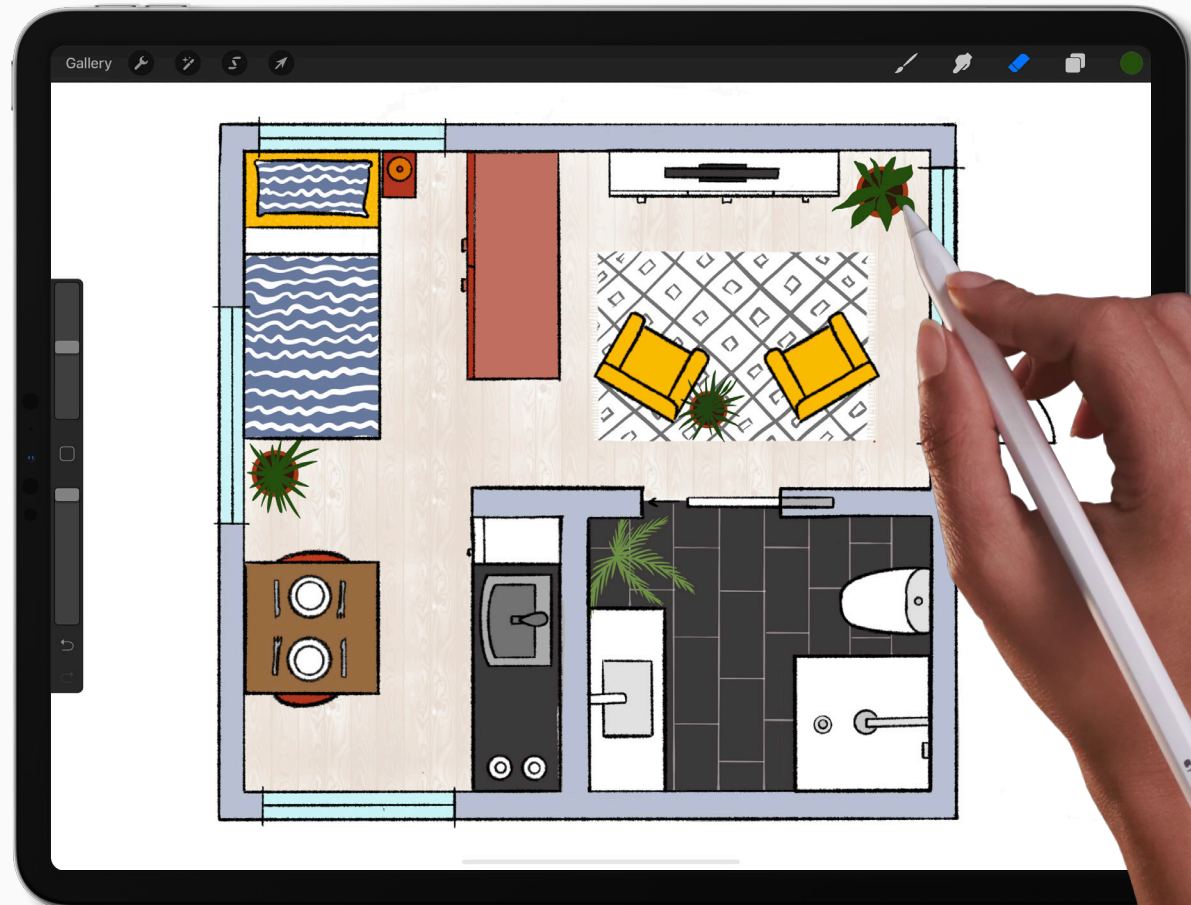
8.

## What makes a house a home?

Add a new layer and then add color and texture to your floor plan, including personal touches such as flooring styles and fun rugs.

### CONSIDER

What are the things about your own home that make your space feel comfortable and familiar?

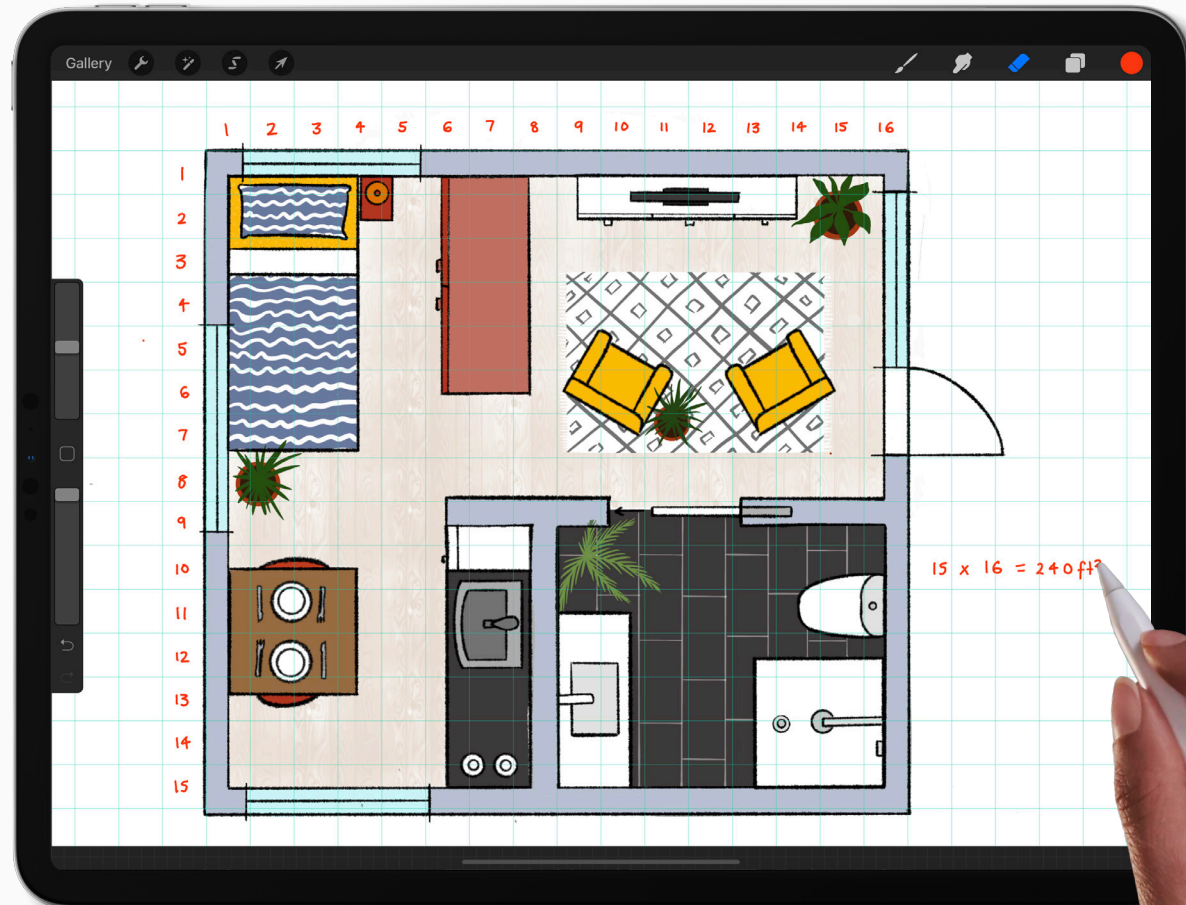


# Calculate your footprint

## How much room do you have?

Now your design is complete, calculate the area of your tiny home.

- \* How does this compare to the place you currently live in?
- \* What do you think you would enjoy about living in a smaller space with less possessions?
- \* What do you think you would find challenging?



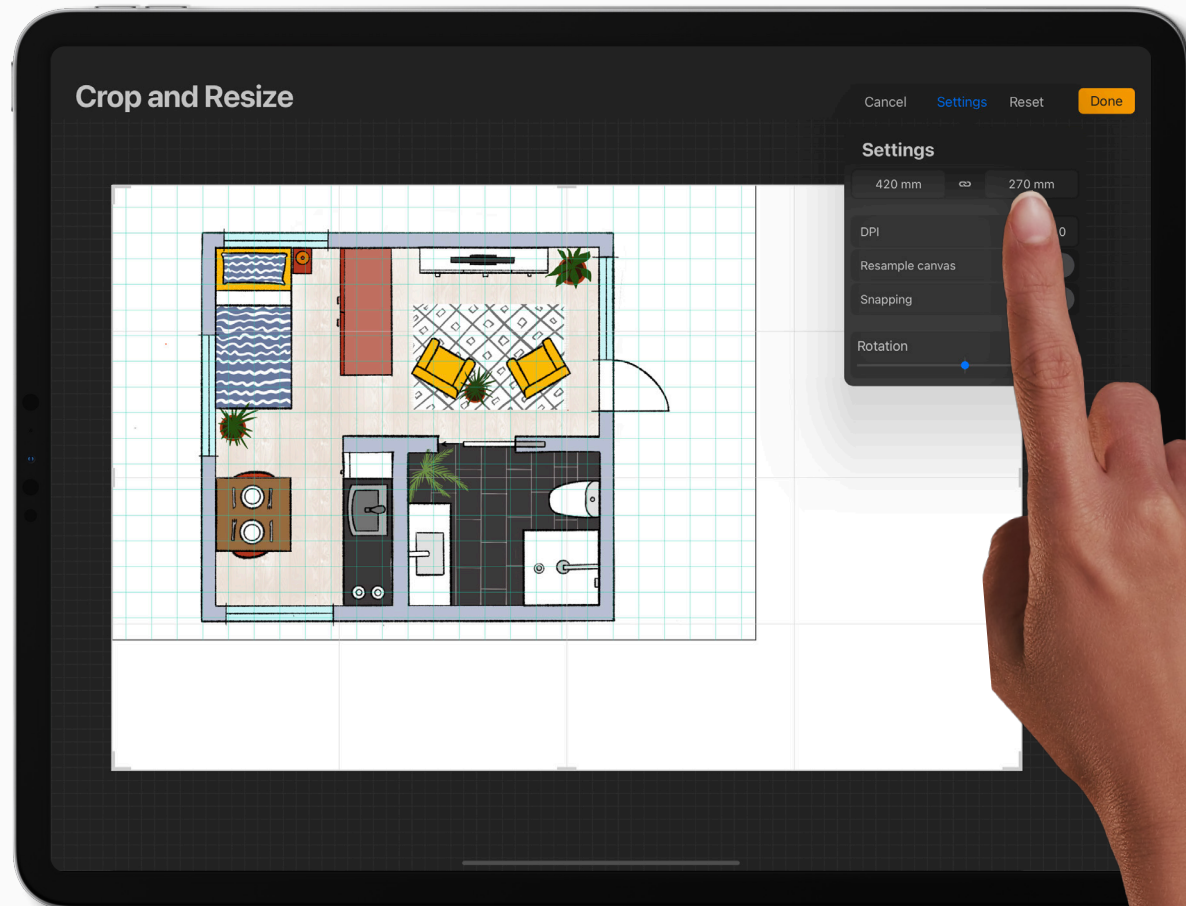
# Take it further

10.

## Resize your canvas

Take it further by adding walls to your creating a 3D model you can print, cut and assemble.

- 1 Tap the wrench icon to open the *Actions* menu.
- 2 Tap *Crop and Resize*.
- 3 Tap *Settings*, in the top right corner.
- 4 Change your canvas size from A4 to A3 by typing in 297mm and 420mm in the space provided.
- 5 Tap *Done*.

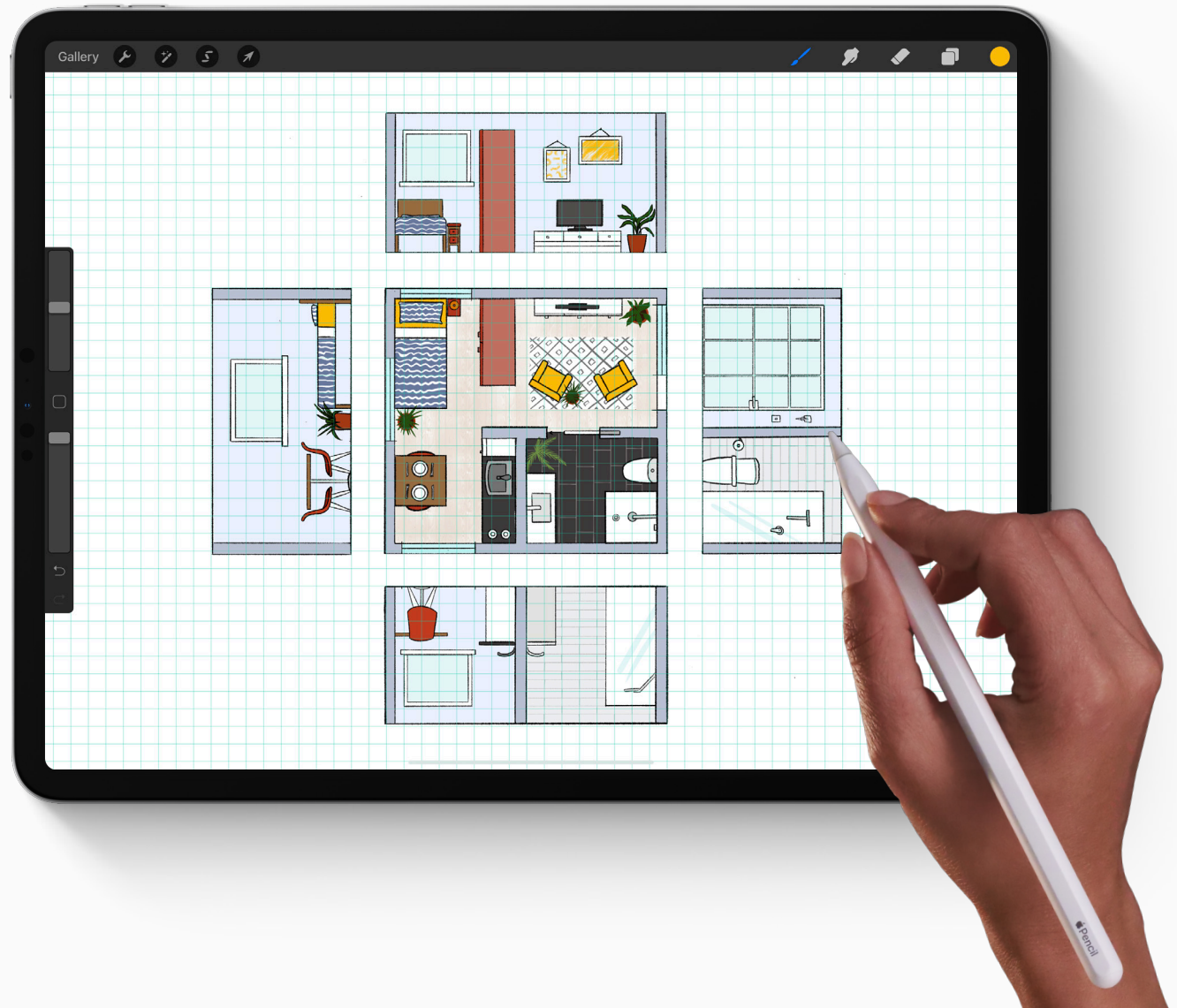


## Adding elevations

Now that you have more room on your canvas, you can add some elevation drawings.

Elevations are two-dimensional designs that show a room or building in a flattened side-view.

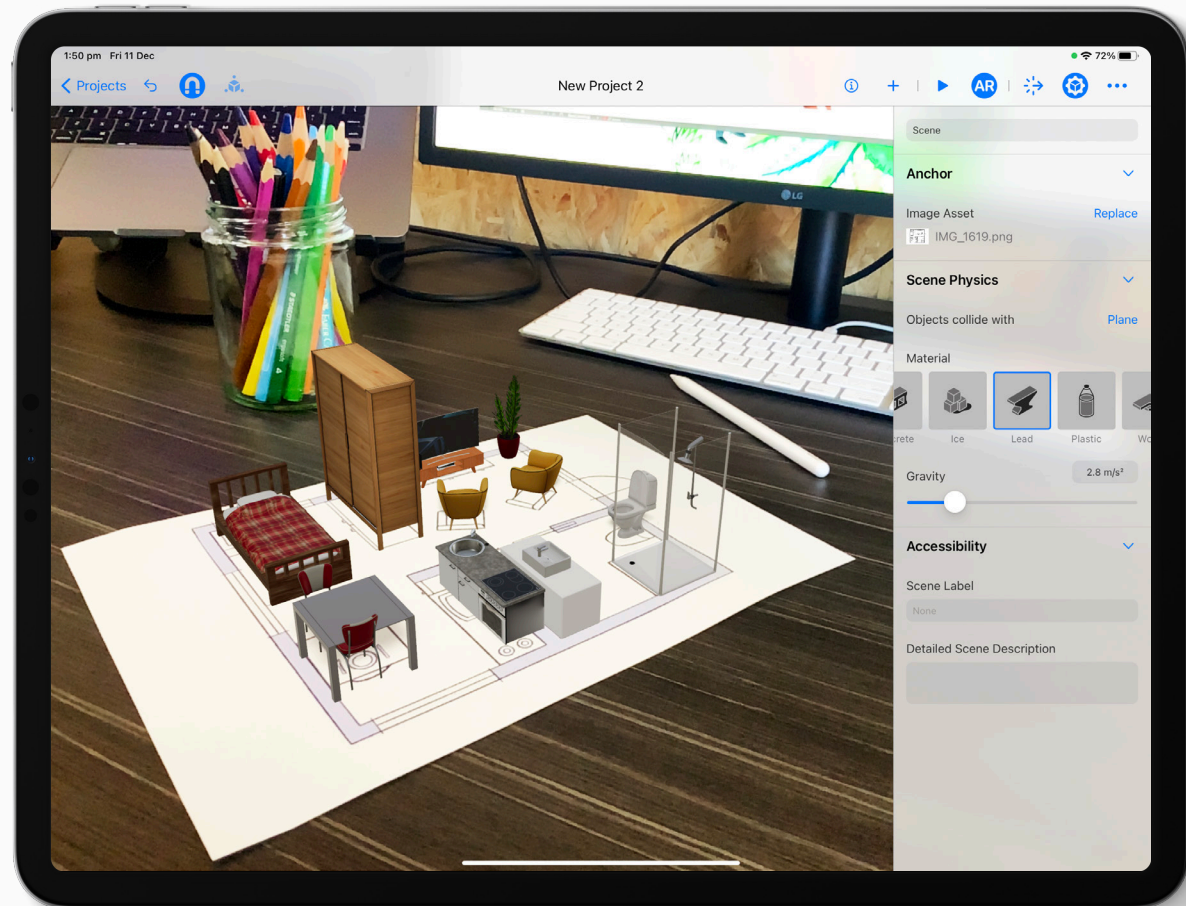
Use your floor plan as a guide to help draw each of your elevations.



## Becoming reality

Open the *Reality Composer* app and set your black and white floor plan as an anchor object.

Then place furniture items over your design to bring your plan into Augmented Reality.





# Create

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