

# Model Design & Building Merit Badge

## Types of Models

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## Types of models

The Merit Badge describes five types of models

- Architectural
- Structural
- Process
- Mechanical
- Industrial

## Model Design & Building Merit Badge

### Types of models

#### Architectural Model

- A model of a finished building, such as a house
  - Used to show how a building will look
  - May be used to show how the building will fit in its environment
  - May be used to show how a building will function

# Model Design & Building Merit Badge

## Types of models - Architectural Model



Railroad Freight House  
HO Scale 1:87

This model is an example  
of “kit bashing”



## Model Design & Building Merit Badge

### Types of models

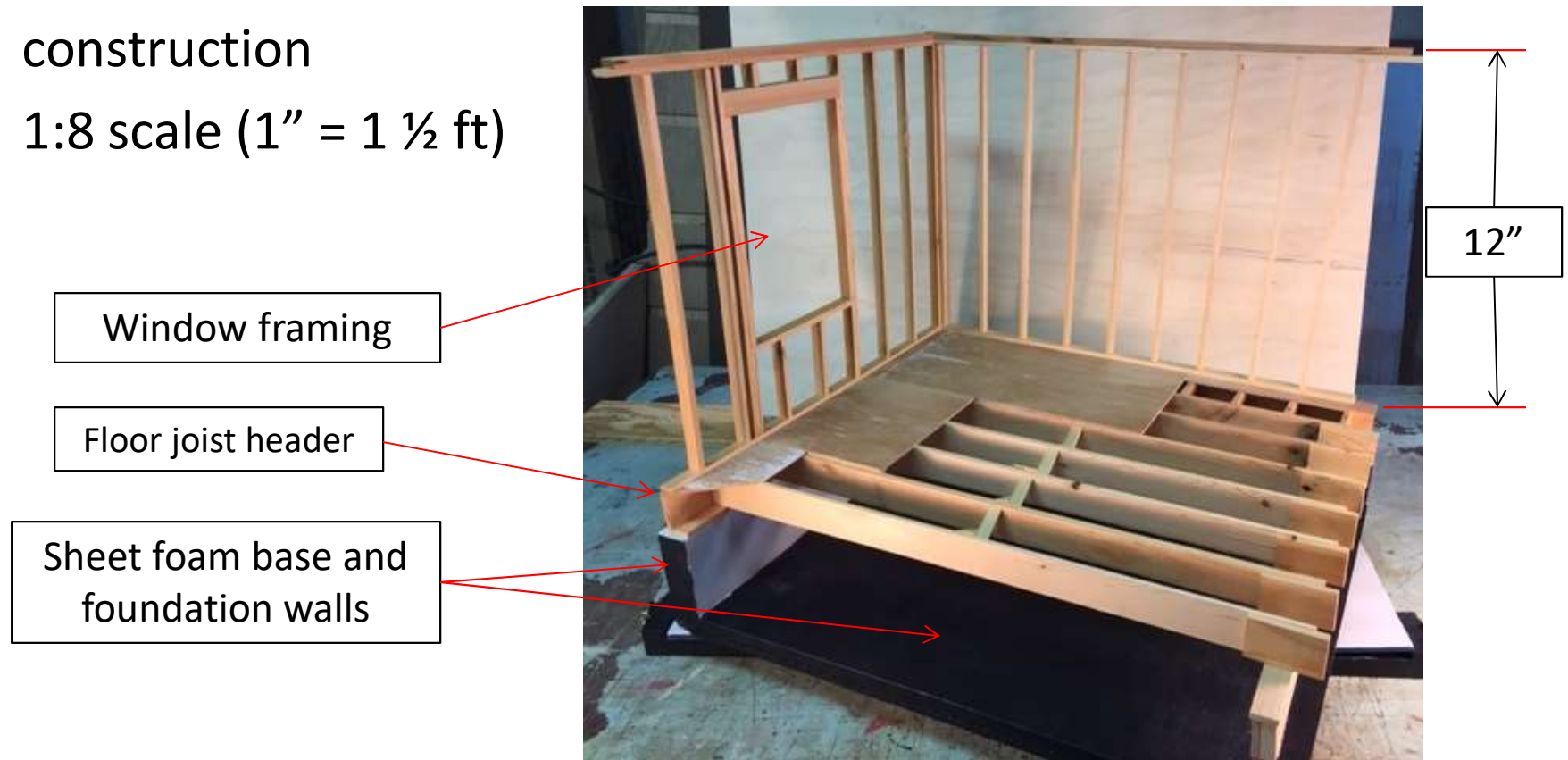
#### Structural Model

- Shows how something is built, such as a wood framed house
  - Foundations
  - Structural supports and bracing
  - Wall and roof coverings

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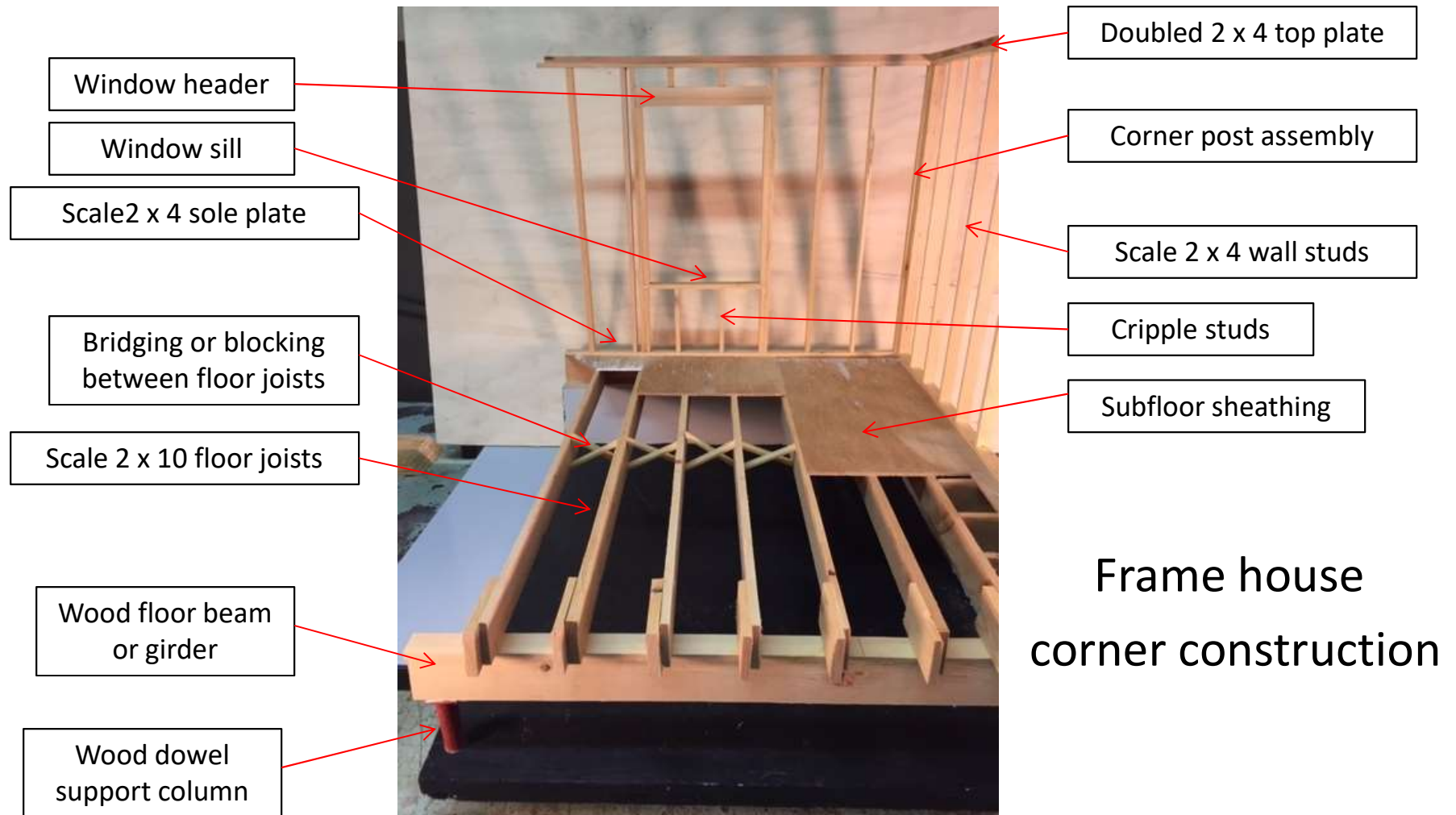
## Types of models - Structural Model

- Frame house corner construction
- 1:8 scale (1" = 1 ½ ft)



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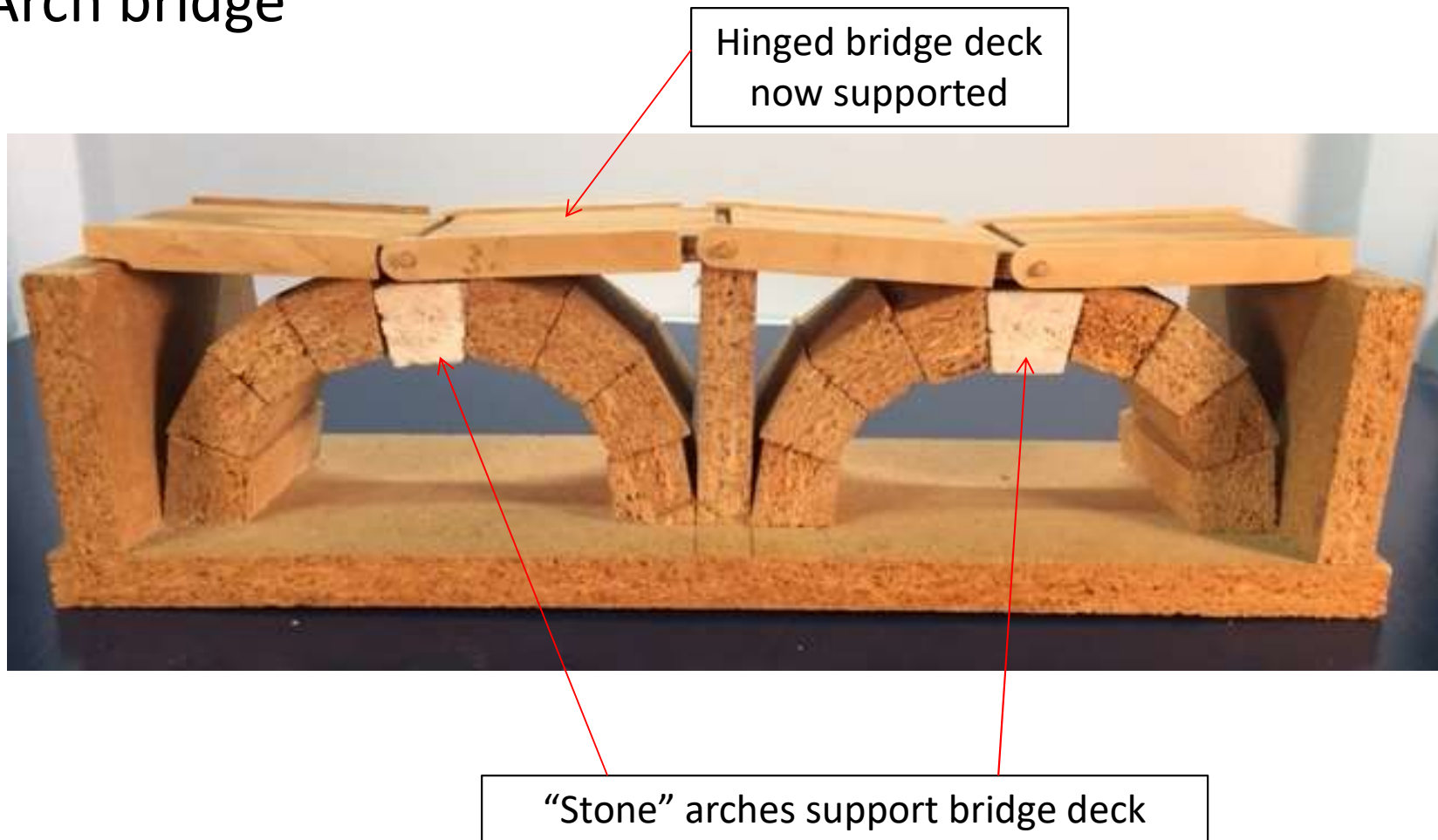
## Types of models - Structural Model



## Model Design & Building Merit Badge

# Types of models - Structural Model

## Arch bridge

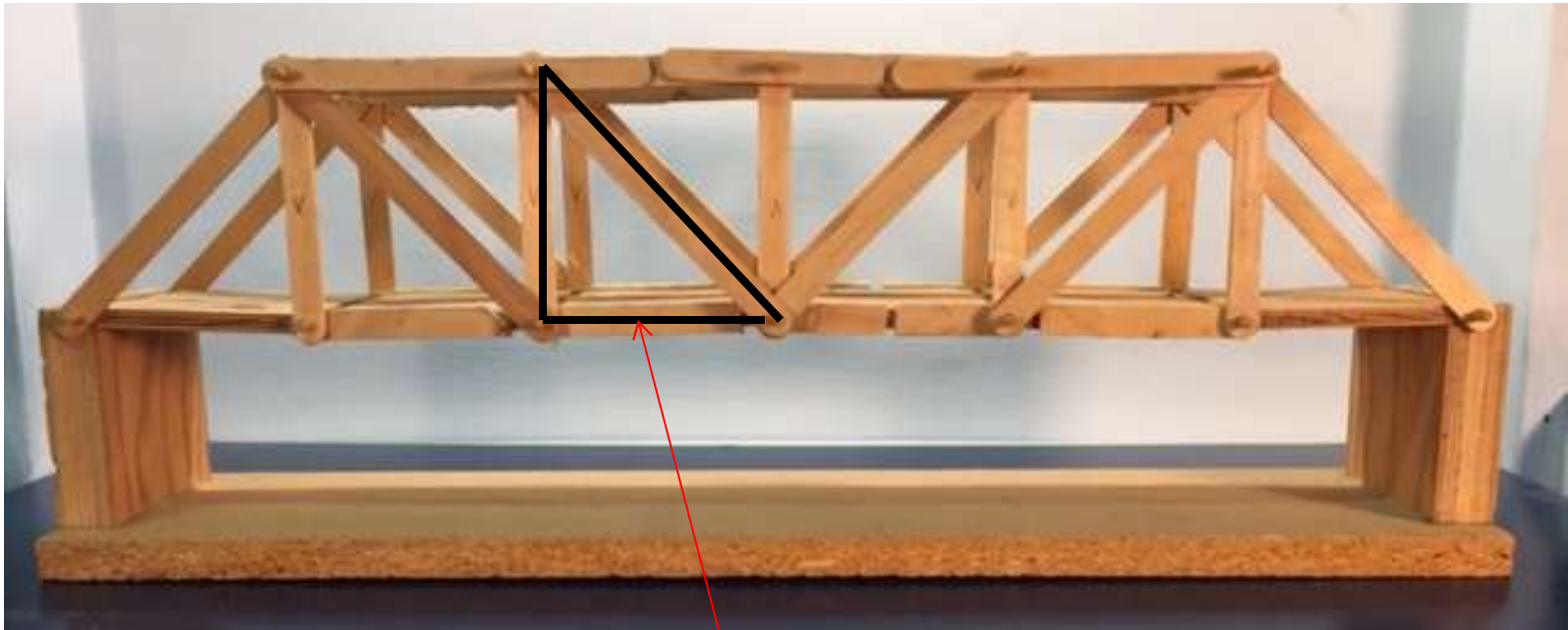




Model Design & Building Merit Badge

## Types of models - Structural Model

Truss bridge



Illustrates the use of triangles to form a rigid structure

## Model Design & Building Merit Badge

### Types of models

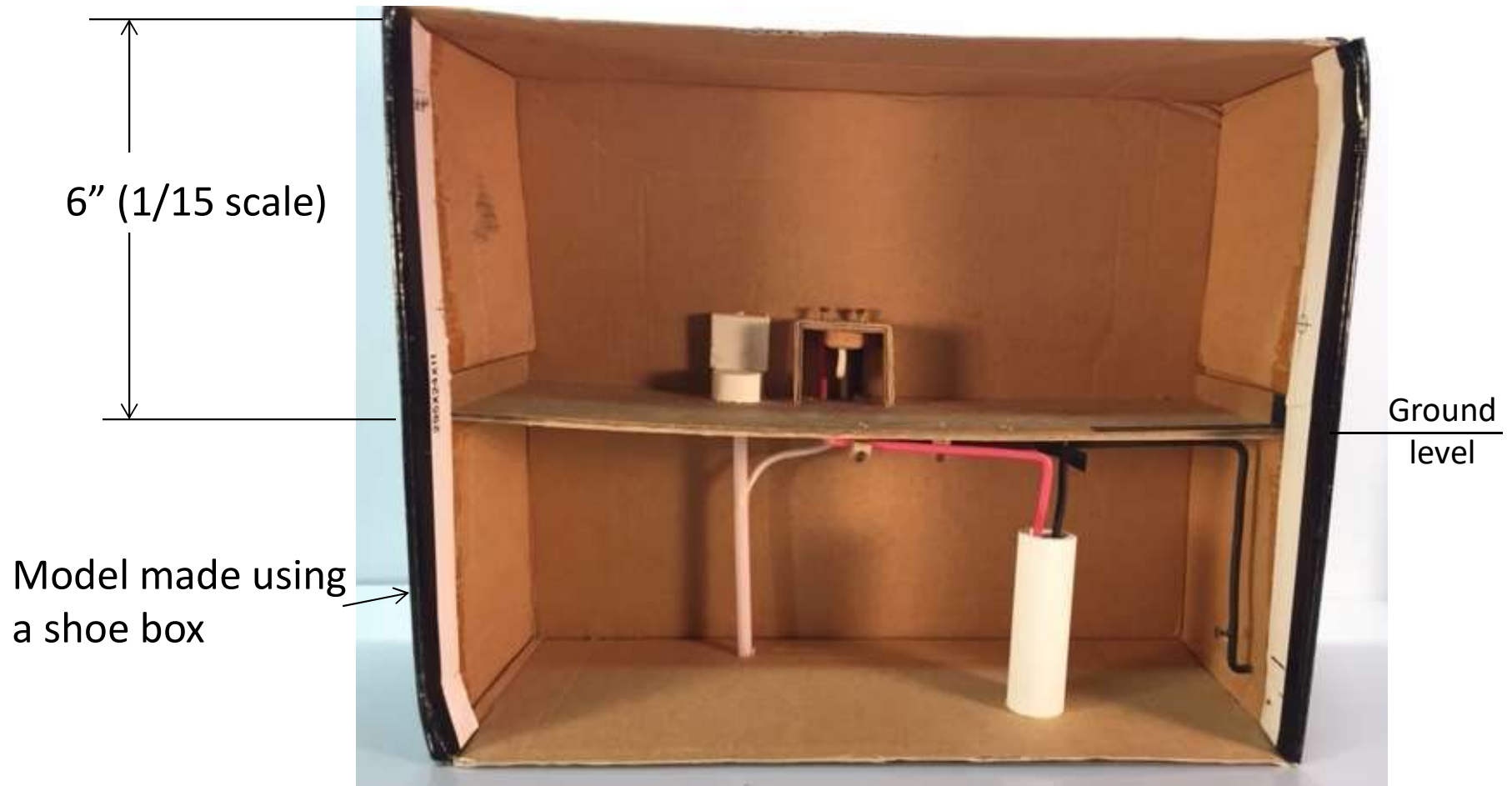
#### Process Model

- A model showing how material is moved or handled and how machinery is arranged to perform work
  - The plumbing system in a house
  - An auto assembly line
  - A chemical refining plant
  - A distribution warehouse

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## Types of models - Process Model

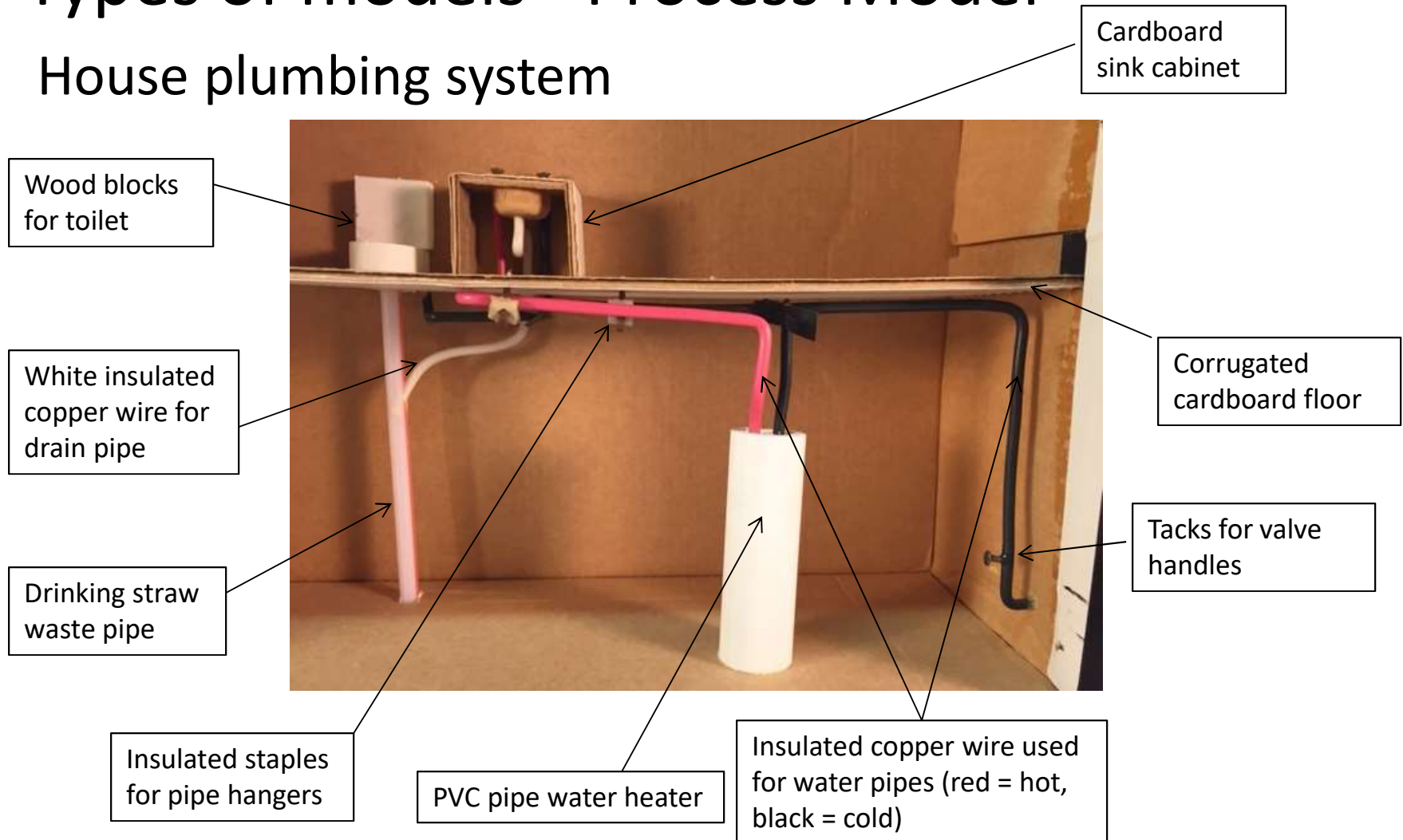
### House plumbing system



# Model Design & Building Merit Badge

## Types of models - Process Model

### House plumbing system



# Model Design & Building Merit Badge

## Types of models

### Mechanical Model

- A model showing how a mechanism or machine is made to perform work, particularly utilizing combinations of the six simple machines
  - Lever
  - Wheel and axle
  - Pulley
  - Inclined plane
  - Screw
  - Wedge
- We will discuss Mechanical Models and simple machines in the 2<sup>nd</sup> week sessions

## Model Design & Building Merit Badge

### Types of models

#### Industrial Model

- A model showing any finished product
  - Passenger carrying vehicle
  - Furniture
  - Home appliances
  - Toys

# Model Design & Building Merit Badge

## Types of models - Industrial Model



1969 AMX  
(1:40 scale)

# Appendix

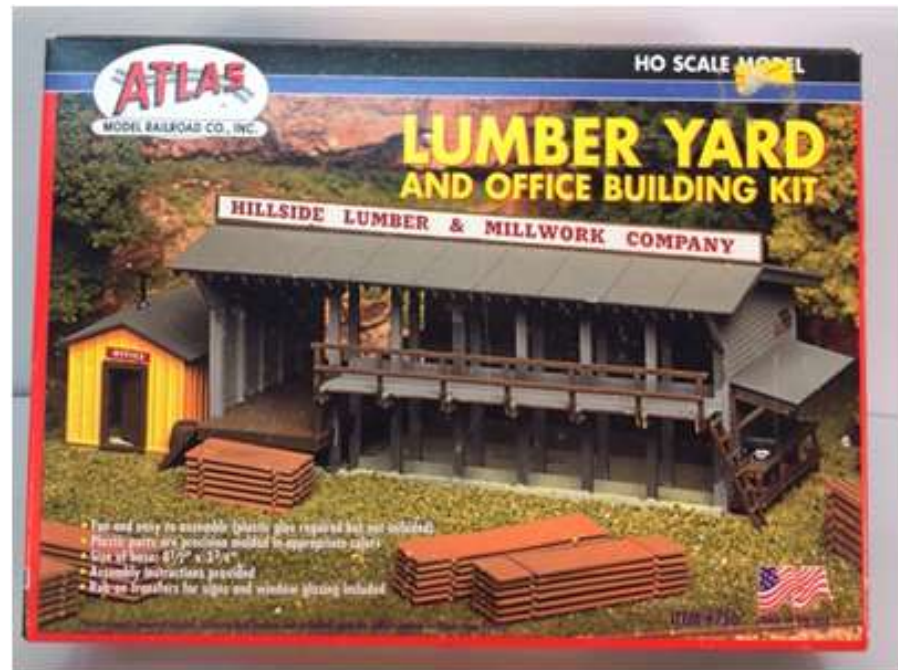


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## Types of models - Architectural Model

“Kit bashing” is taking one or more kits and using the parts to make something different than the kit subject

- The original kit was for a lumber yard
- Two Lumber Yard kits were used to make the freight house
- Wall panels from both kits were combined to make an enclosed building.
- Platform pieces were used to make the loading dock and ramp
- Doors were scratch-built from cardboard

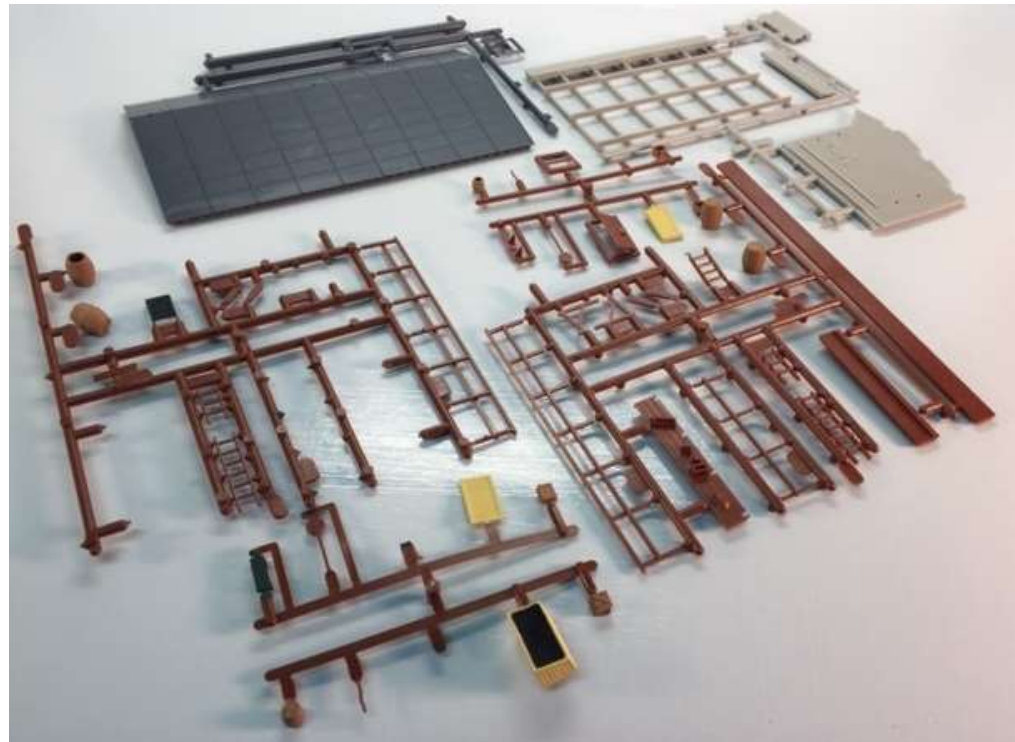


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# Types of models - Architectural Model

This introduces a new way to look at a model kit

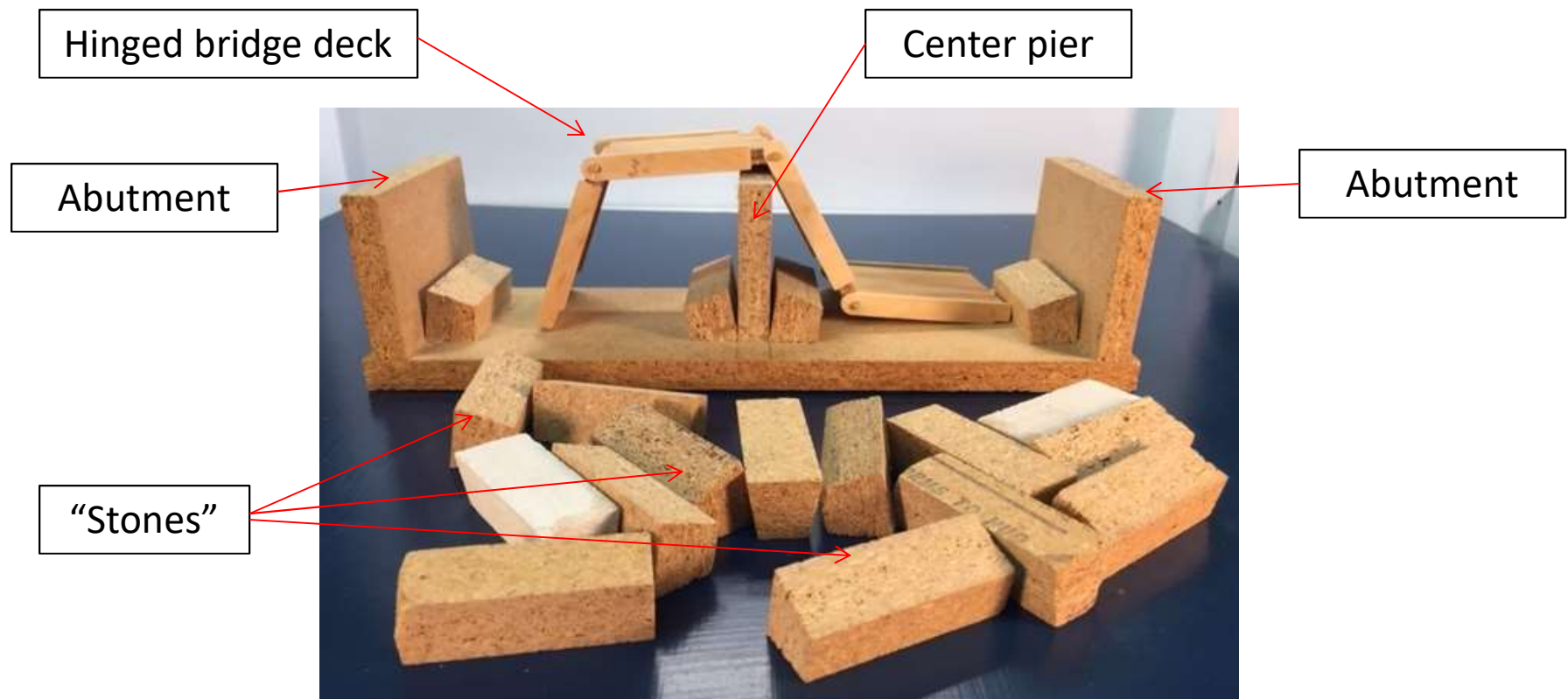
- Instead of thinking of it as a kit to build just one particular subject, it can be a box of parts to be used to make something very different



# Model Design & Building Merit Badge

## Types of models - Structural Model

### Arch bridge

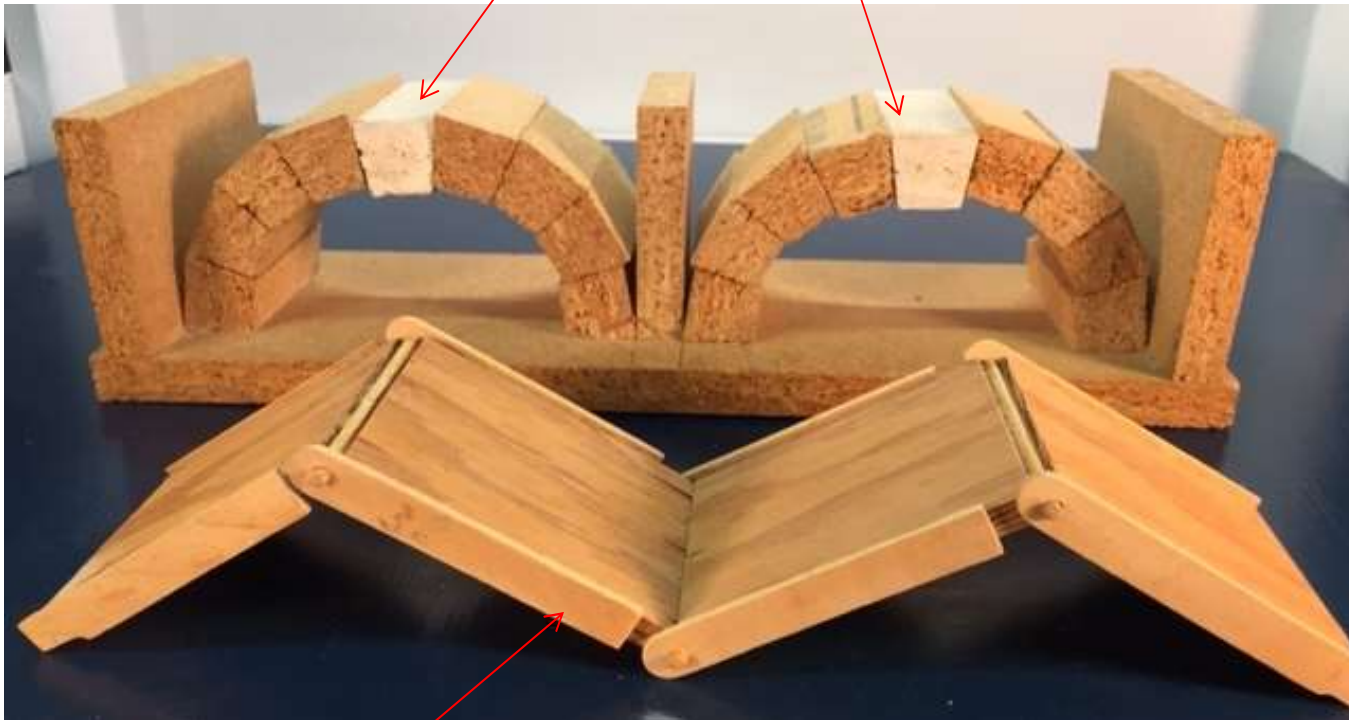


## Model Design & Building Merit Badge

# Types of models - Structural Model

## Arch bridge

"Stones" stacked to form arches



Hinged bridge deck



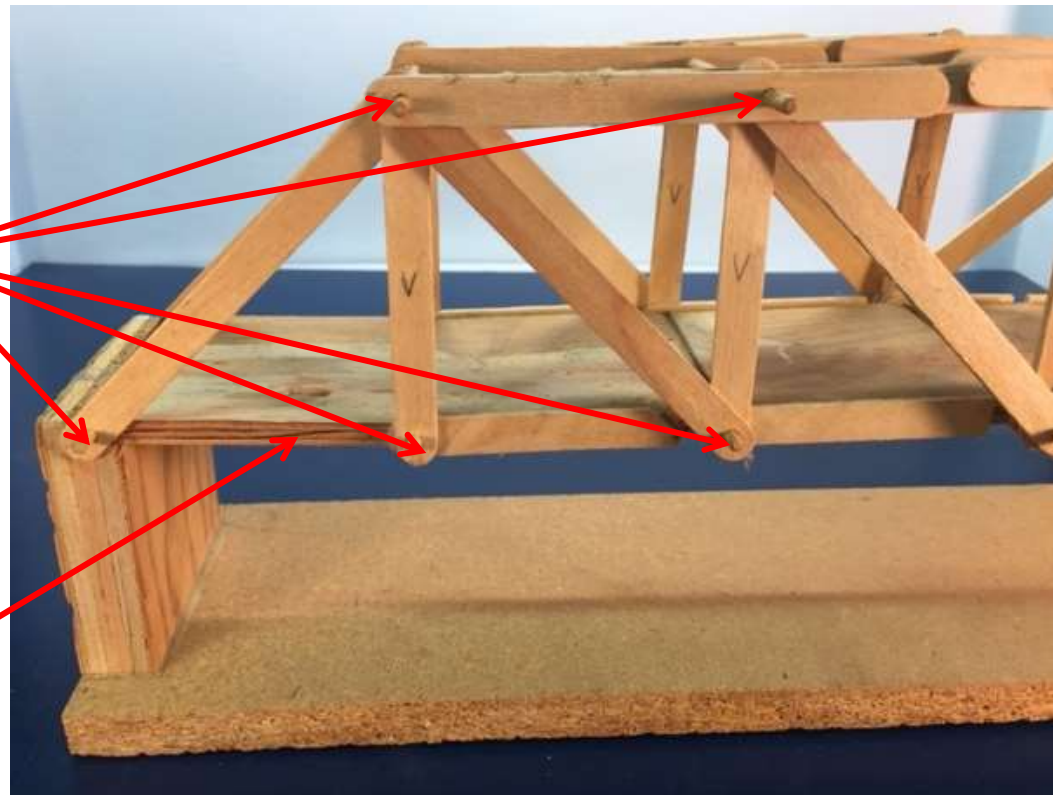
## Model Design & Building Merit Badge

# Types of models - Structural Model

## Truss bridge

All joints  
are pinned,  
no glue!

Hinged bridge deck

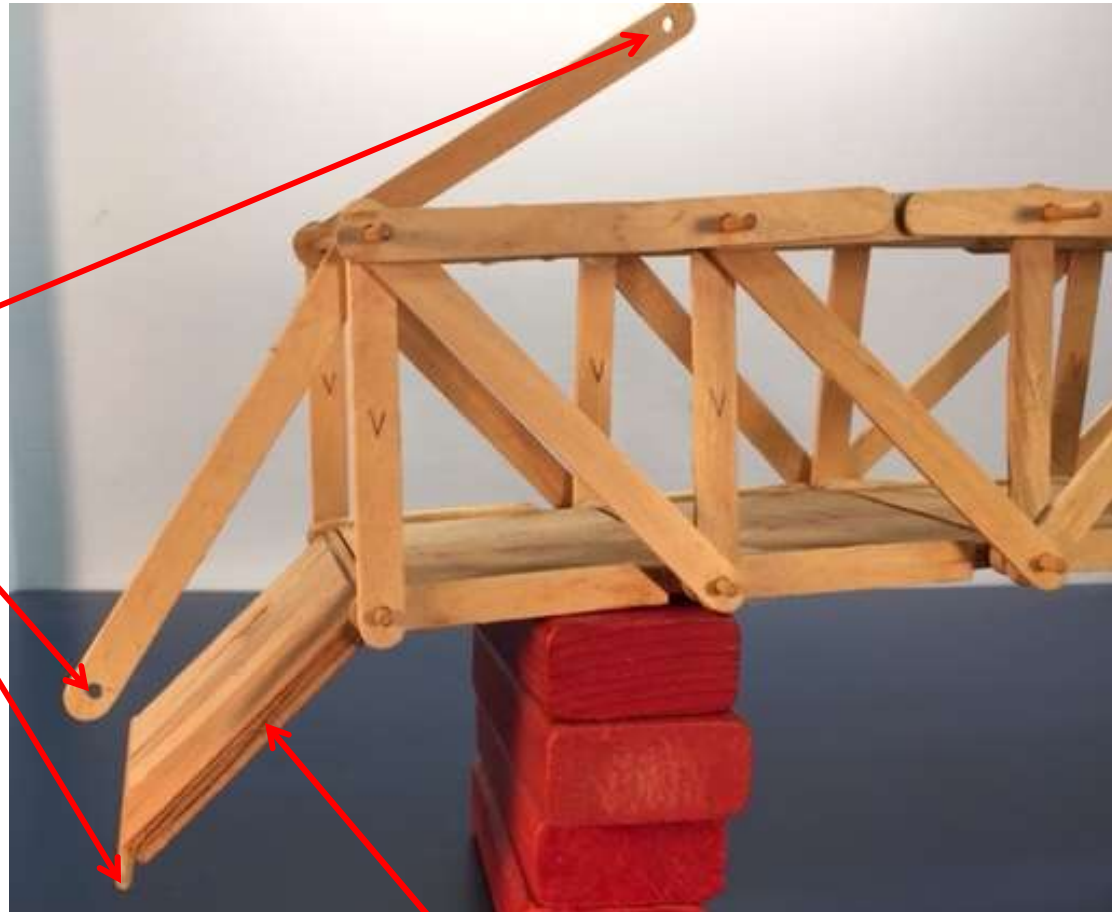


## Model Design & Building Merit Badge

# Types of models - Structural Model

Truss bridge

Joints  
unpinned,  
deck flops!



Hinged bridge deck