Section 1. Overview

1.1 Purpose

This game introduces the basic mechanics of Kanban to a team already familiar with Iterative (scrum-like) development. It demonstrates how Kanban regulates production flow.

1.1.1 About Iterative

The benefits of Iterative are that it:

- enables regular, periodic feedback from the customer
- allows the team to self-limit the amount of work done in any iteration
- By having breaks in the work, encourages Kaizen on a periodic basis

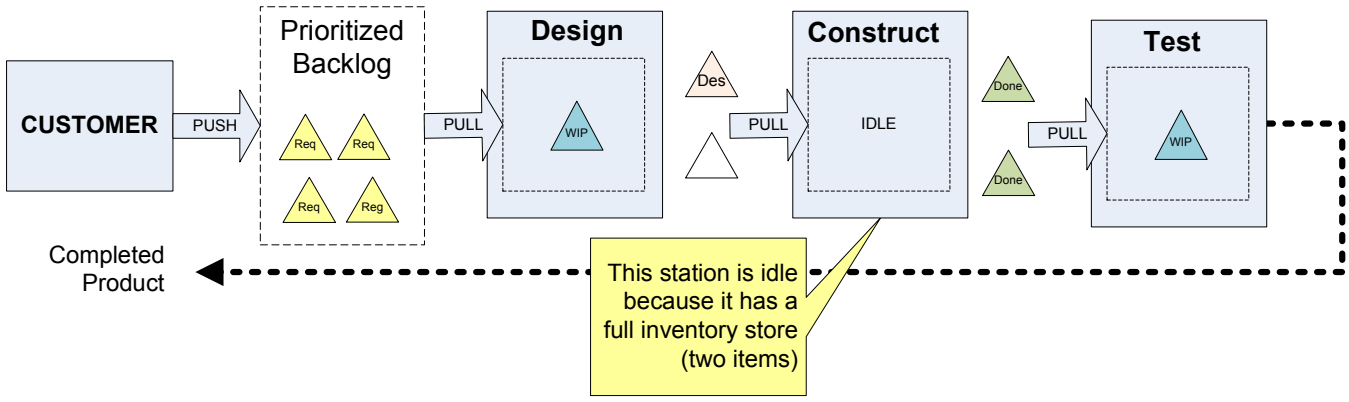
1.1.2 About Kanban

The benefits of Kanban are that it…

- Is a continuous-flow production method
- limits the amount of Work in Progress that a system can have
- By making the process flow visible, encourages Kaizen

The Kanban system is a pull system. The signal to produce for the upstream processes is a depletion of their 'finished' inventory store below a certain amount. In the diagram below, all stations have a target inventory store of three units, so will produce if there are less than three items.

Diagram of the Kanban System Modeled By This Game



Section 2. The Game

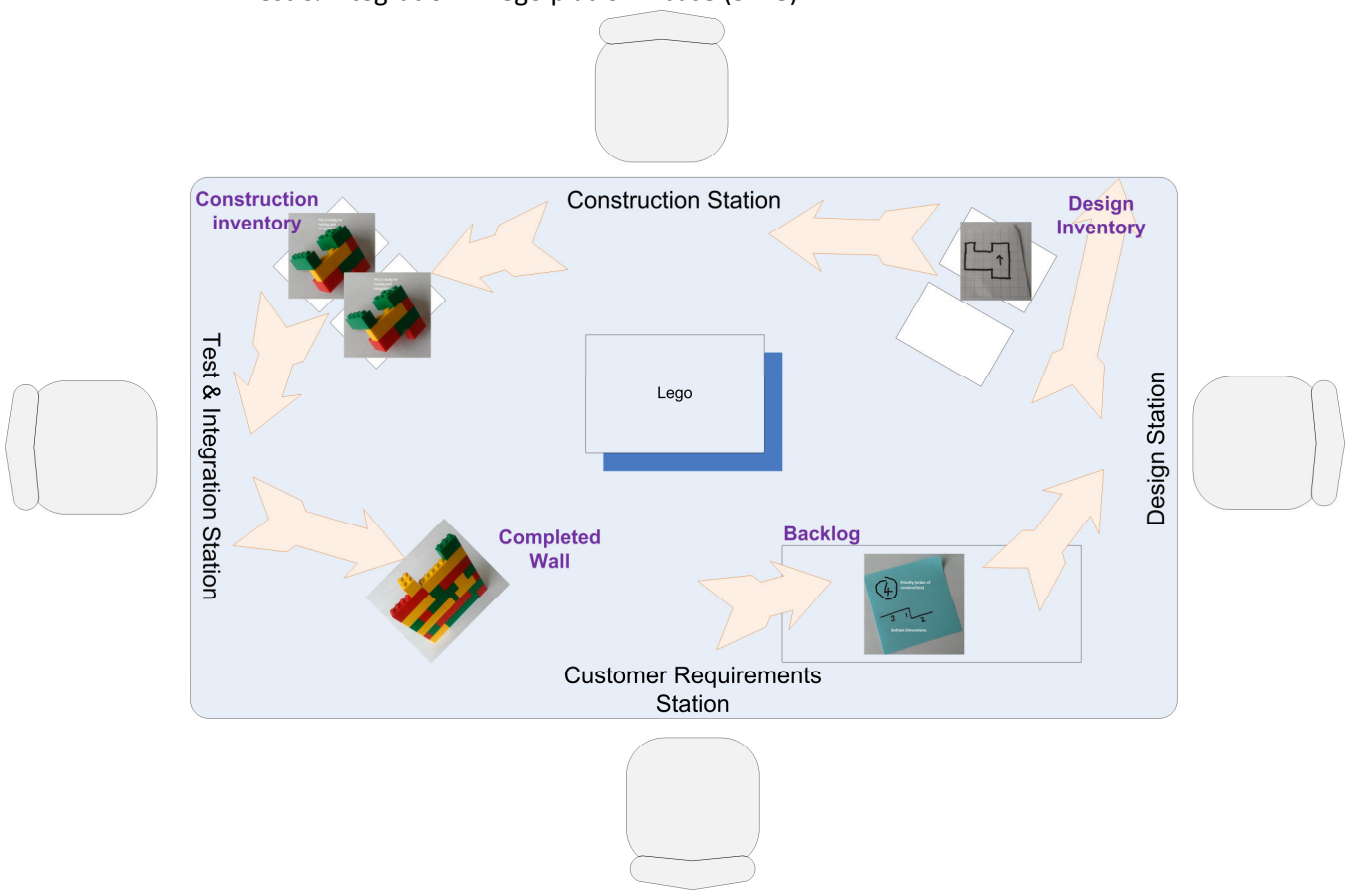
We are a lego construction company, specializing in multi-colored tetris walls. The greater the area of contiguous (solid) wall, the more successful the wall is likely to be in the market place. Our company is divided across the basic functions that you would expect in any development team:

1. Customer Requirements / Product Mangement
2. Design
3. Construction / Development
4. Testing & Integration / Quality Assurance

2.1 Set Up

The process goes anti-clockwise around the table. Sheets of white paper are taped between the stations to indicate the inventory stores are. The Lego (three colors) is placed in the center, reachable by the Construction Station. Each station is set up as follows:

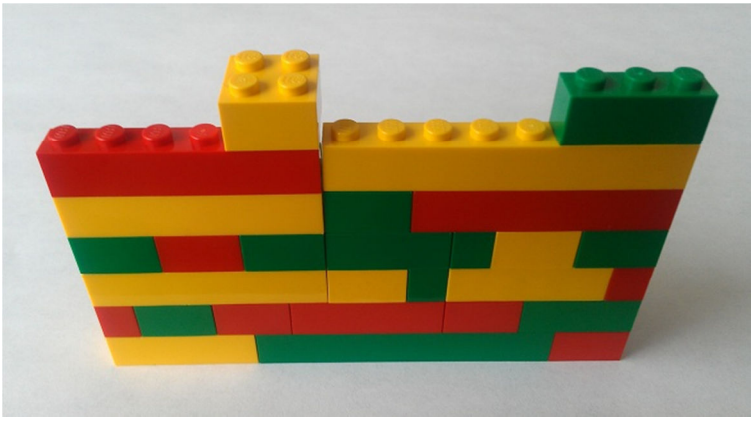
- Customer Requirements – A thick pen (Sharpie etc), scrap Quad-Ruled paper, Sticky Note pad (upside down)
- Design - A thick pen (Sharpie etc), several sheets Quad-Ruled paper, Scissors
- Construction - Lego
- Test & Integration – Lego platform base (32x8)



Section 3. Customer Requirements Station

3.1 Inputs

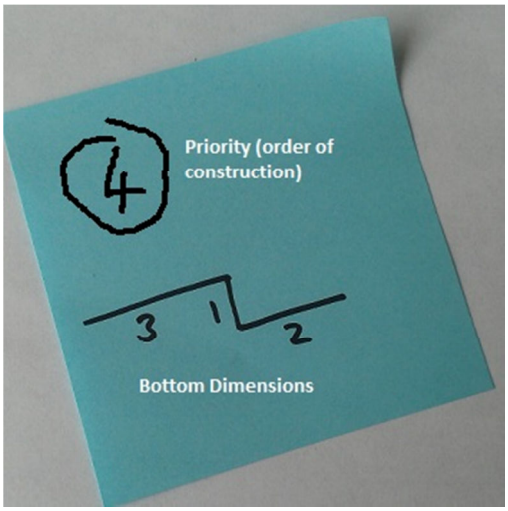
We are building a wall 32 units across, and as high as possible. As the Customer, you will specify your requirements in terms of the base dimensions. The team will deliver units of Lego that will go to construct your wall. The top of the wall will not be flat, however, so as you build up, your requirements will have to take into account the shape of the top of the wall. It is advised to keep a sketch of your requirements



3.2 Process

1. Each customer is associated with a unique color of Sticky Note notes so that the Products are clearly identifiable as being theirs (in this example, Blue)
2. TIP: Write on the BACK of the Sticky Note, as this will help the downstream teams keep the requriements and the designs together
3. Write the priority order (the order in which you will be constructing your wall) on the Sticky Note, and circle this number so it is clear. Each customer will have their own sequence. You should work from left to right.
4. Specify your "requirements" for the blocks that you want the team to construct. Draw a sketch of what the base should look like – for the first row of course, these will all be a straight line as the wall will start on the ground. Indicate how many across and up by writing the dimension next to the drawing.
5. You are only allowed 32 across in total (and will not know until the wall starts to be constructed what the second row will look like…, so don't get too far ahead of yourself

3.3 Output

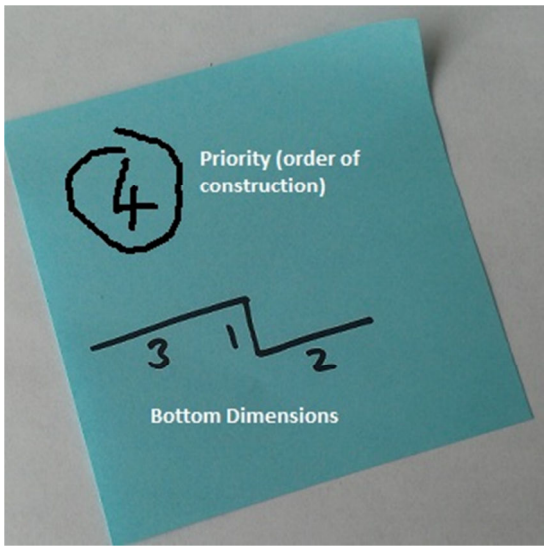


Acceptance Criteria…

- Each customer should use a unique color for their requirements
- Number your requirements in the order from left to right that the wall should be constructed.
- The dimensions you specify are the dimensions of the base that this block needs to fit on to.
- Dimensions should be between 3 and 7 wide

Section 4. Design Station

4.1 Inputs



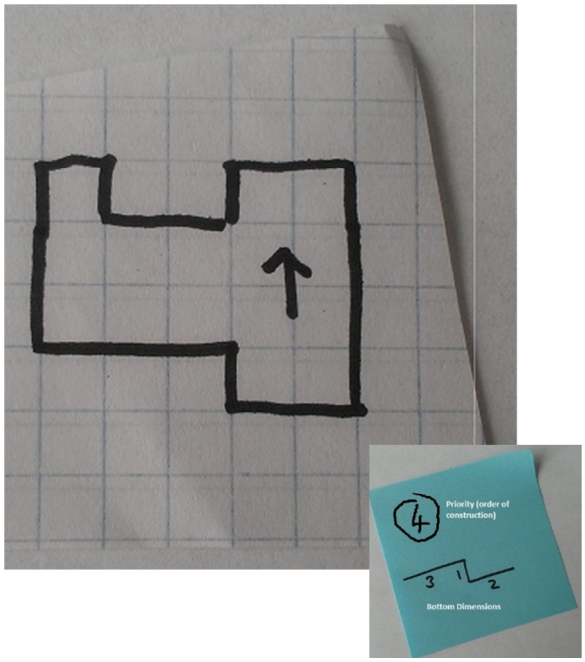
What it Means…

- You should pull the requirements from the backlog in the order specified.
- Each color represents a different customer. Treat each one equally unless told otherwise
- The dimensions are the dimensions of the base that this block needs to fit on to.
- As designer you have discretion over the rest of the shape.

4.2 Process

1. Wait until there is a empty slot in the Design Inventory on your right.
2. Pick out the highest priority 'Requirement' Sticky Note (the lowest number) from the backlog on your left.
3. Draw out the detailed requirements on the Quad Ruled paper.
4. Cut around the shape.
5. Attach the design to the requirement card.
6. Attach the completed design the Sticky Note, and place both onto the empty slot on the Design Inventory.
7. Repeat

4.3 Output

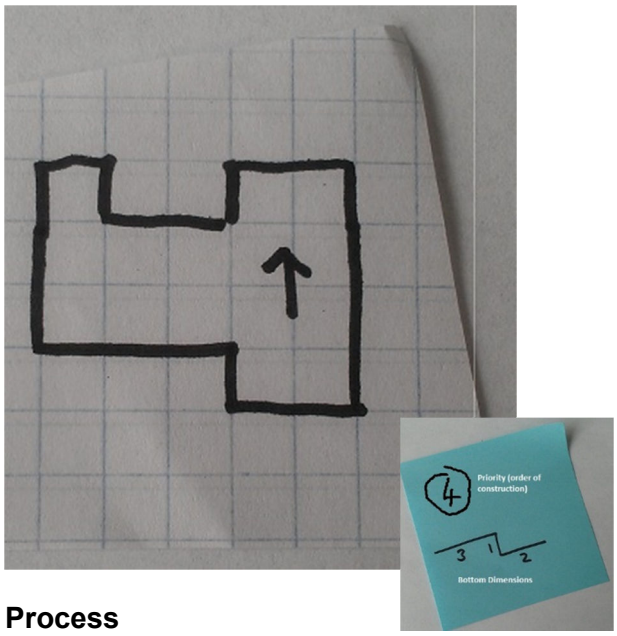


Acceptance Criteria -

- The total number of squares must equal 15
- No 'overhangs' are allowed. This is to ease the integration stage.
- Indicate which way is up using an arrow
- Every shape should be unique – you can't just specify rectangular building blocks for example!
- Blocks also need to be unique across customers – don't give two customers the same design!

Section 5. Construction Station

5.1 Inputs



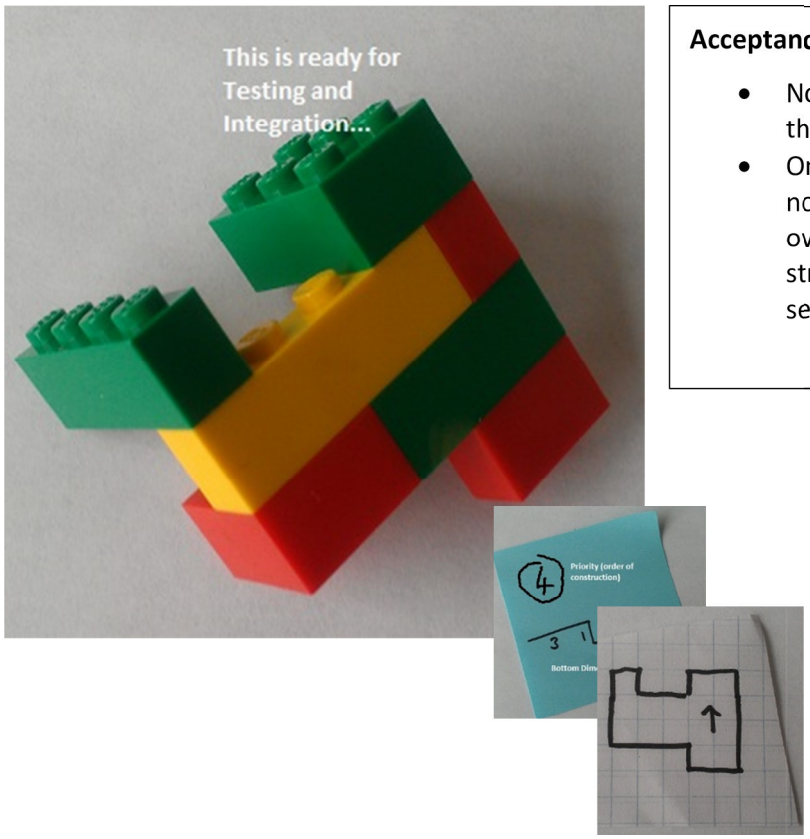
What it Means…

- Your end result needs to look like this when viewed head-on
- Each square along the x axis represents one block width.
- Each vertical represents a line of blocks.
- The arrow indicates which way the lego should face.
- There should be no over-hangs in the design. If there are, reject the design
- The design should encompass 15 squares in total

5.2 Process

1. Wait until there is an empty slot on the Construction Inventory on your right.
2. Take a Design & Requirements Sticky Note out of the Design Inventory on your left.
3. Use up to three colors to construct the shape.
4. Place the constructed Lego blocks, along with the Design, and the Requirements, on the empty slot on the Construction Inventory to your right.
5. Repeat.

5.3 Output

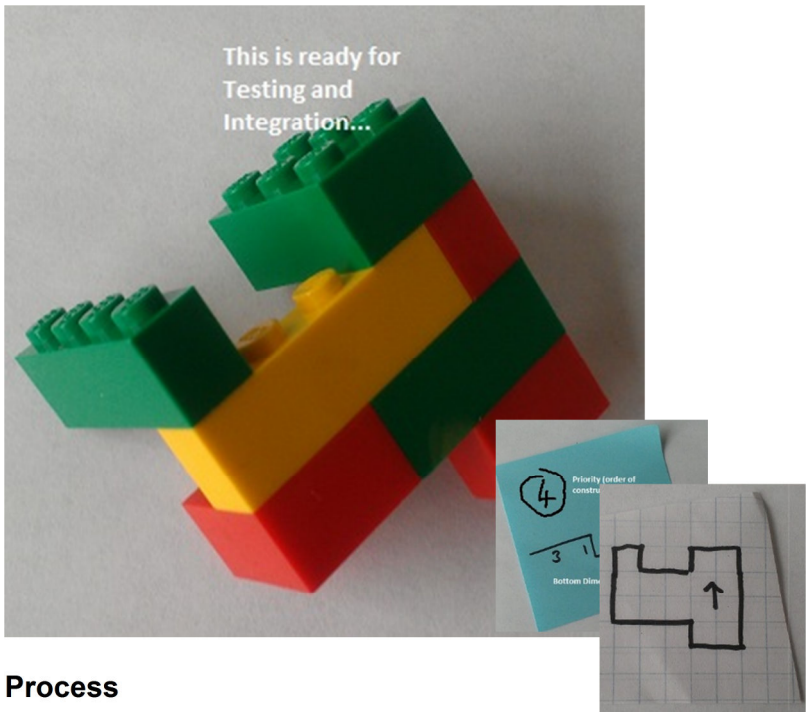


Acceptance Criteria -

- No two adjacent blocks should be the same color
- Only the face matters – it does not matter if you have lego blocks overhanging at the back of the structure (this is to make the brick selection easier)

Section 6. Test & Integration Station

6.1 Input



What it Means…

- Your are presented with the Requirements (the Sticky), the design (the Quad-ruled outline), and the finished story
- Different colored Sticky Notes represent different customers (and hence different walls!!!)
- The circuled number on the Requirements Sticky Note indicates the order of construction, from left to right.
- Walls are only 32 units across – once you've reached 32, start the next row.

6.2 Process

1. From the Construction Inventory on your left, take a the highest priority constructed Lego Block (this is the lowest numbered as per circled number on the Sticky Note)

6.2.1 Verification

2. Check that the base dimensions match the requirements on the Sticky Note
3. Count the squares enclosed on the design – it should be 15
4. Verify that the construction meets the design shape
5. Verify that no adjacent blocks are the same color.

6.2.2 Integration / Assembly Process

1. Assemble the wall from the pieces in the order specified by the requirements.
2. Start each customer's wall on a different base

- We really don't care what the back looks like….

6.3 Output

A beautiful wall without any missing bricks in the middle!