



ACE Family Makerspace Pop-up Card Template:

- 1) Started with rough student designs for a pop-open card mechanisms.**
- 2) Found a similar mechanism online.**
- 3) Laser cut and studied design.**
- 4) Simplified the design.**
- 5) Provide students with the simplified design.**
- 6) Students study the pop-open mechanism.**
- 7) Students produce a custom card for their novel based on the mechanism.**



A student prototyped pop-up mechanism.



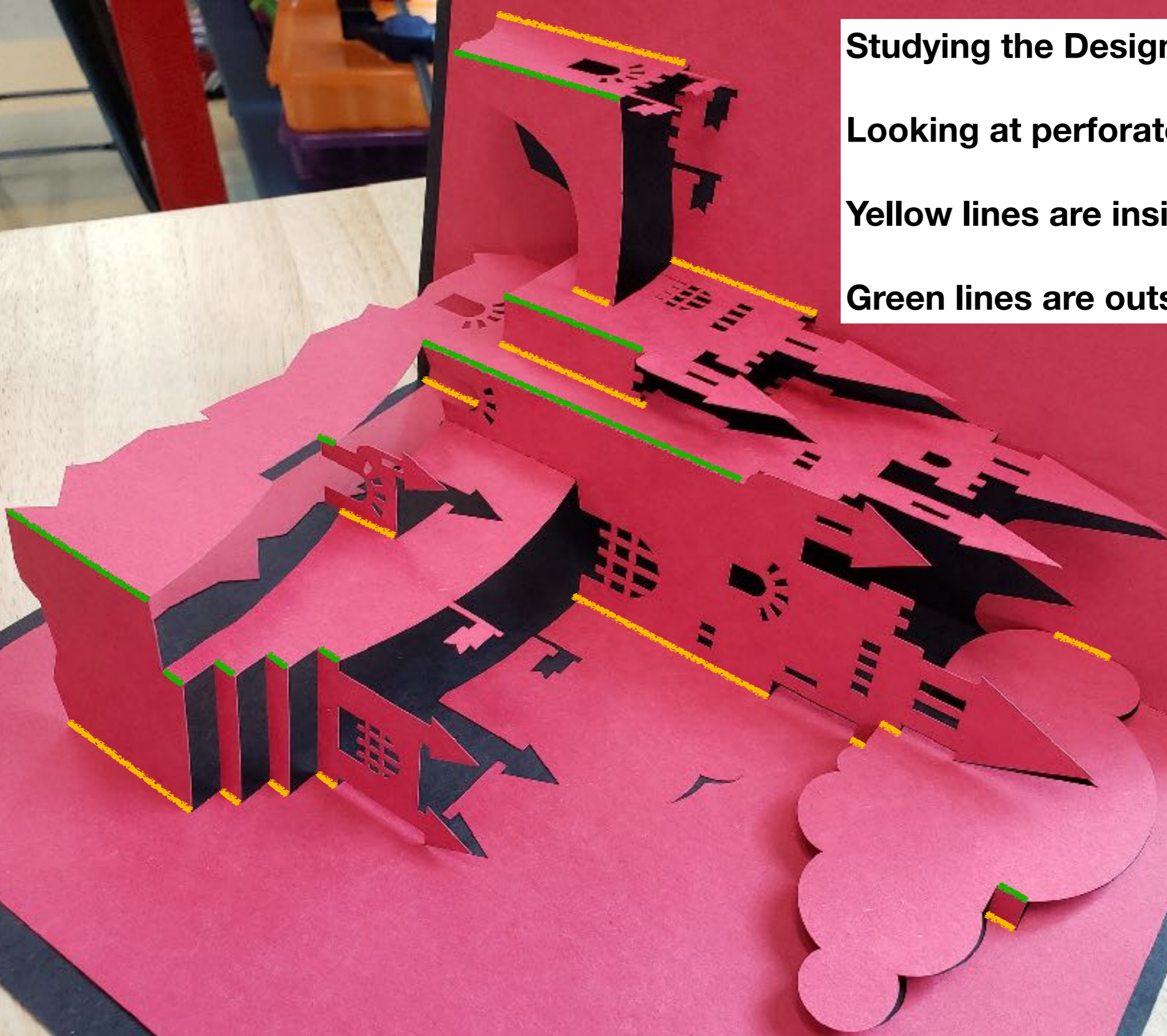
The more detailed design found online cut on the laser from a single sheet of construction paper.

Studying the Design.

Looking at perforated Fold Lines:

Yellow lines are inside folds.

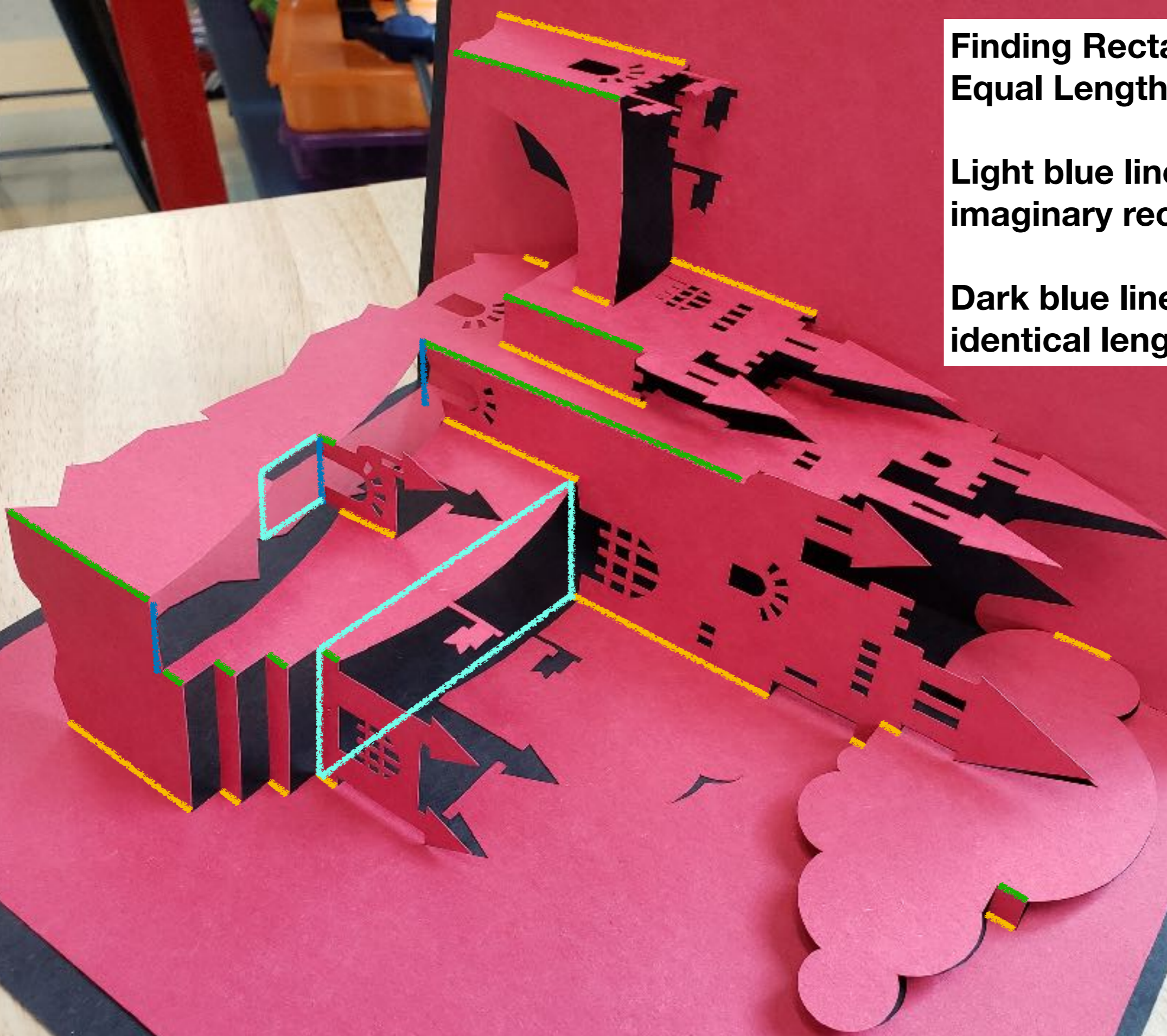
Green lines are outside folds.



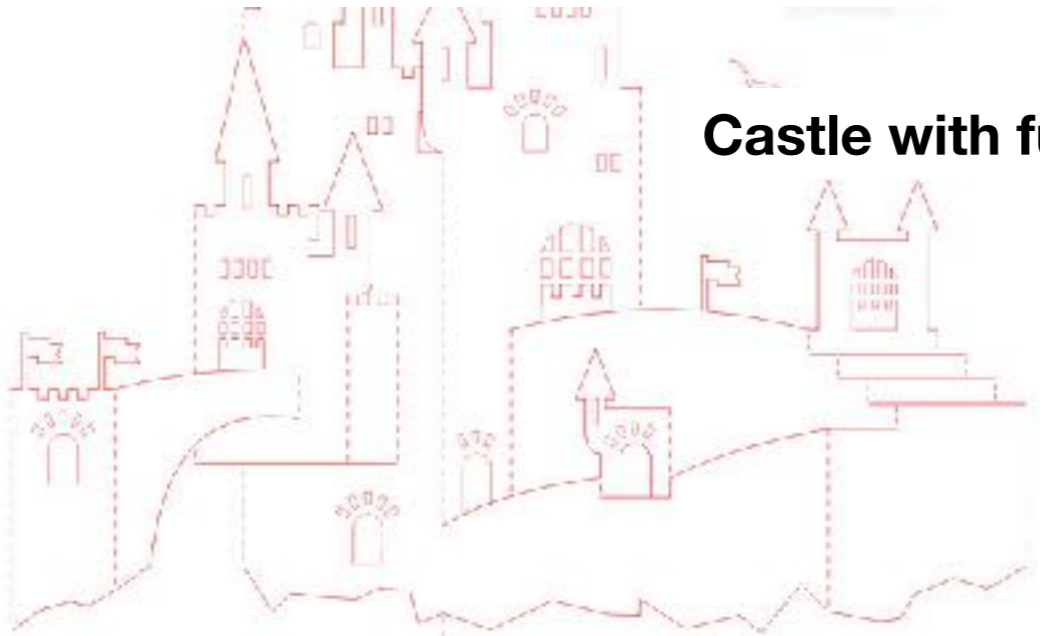
**Finding Rectangles and
Equal Length Lines:**

**Light blue lines are
imaginary rectangles.**

**Dark blue lines are
identical lengths.**



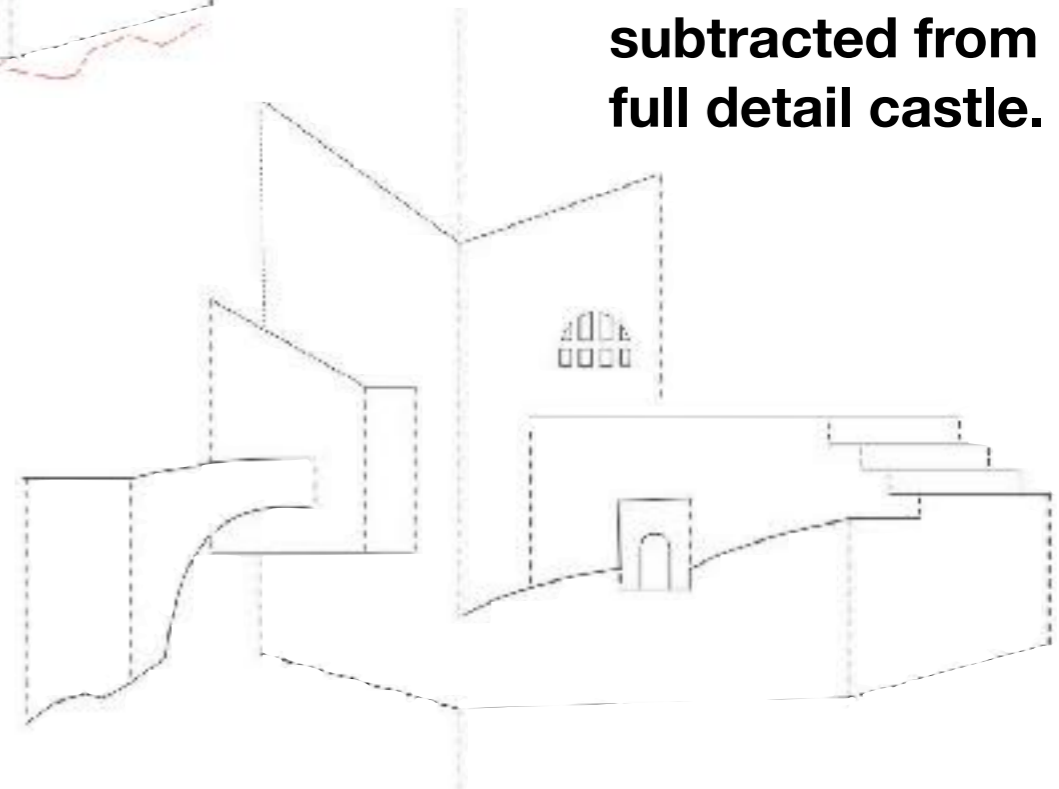
Castle with full detail in red lines.

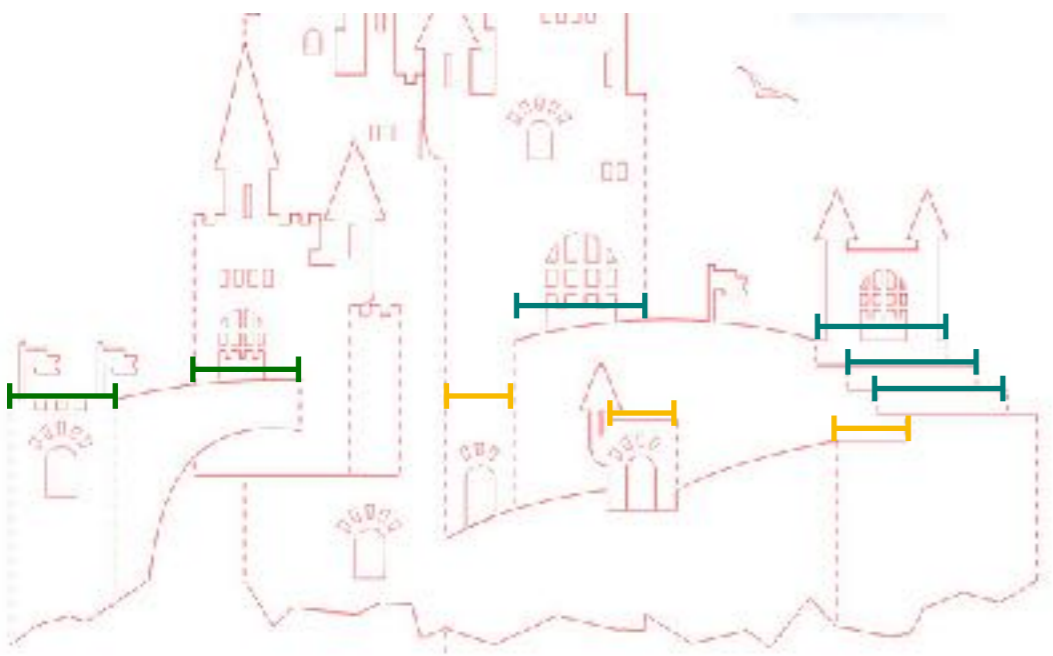


**Simple castle in black lines.
Full detail castle in red.**



**Simple castle
subtracted from
full detail castle.**

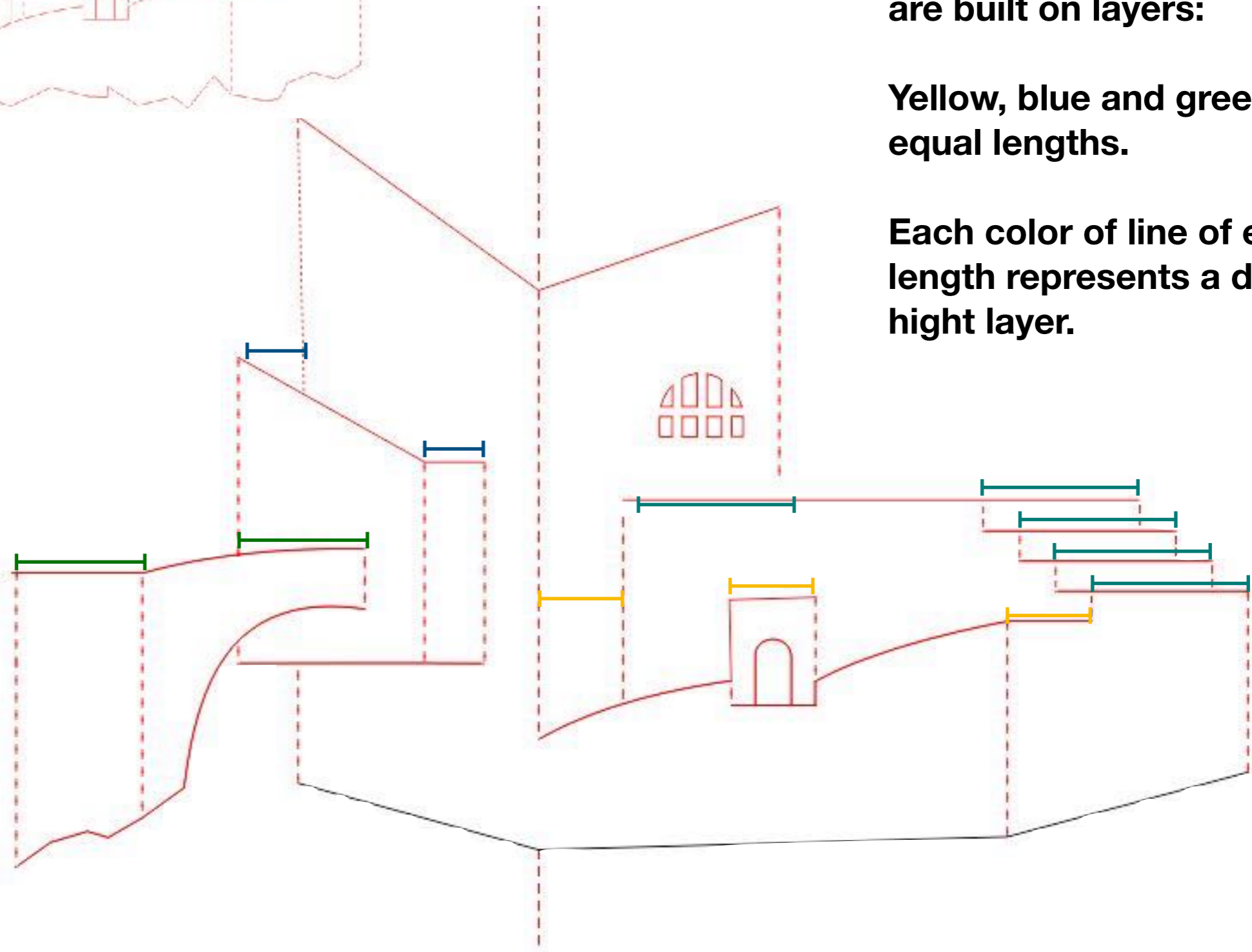




Understanding how layers are built on layers:

Yellow, blue and green lines equal lengths.

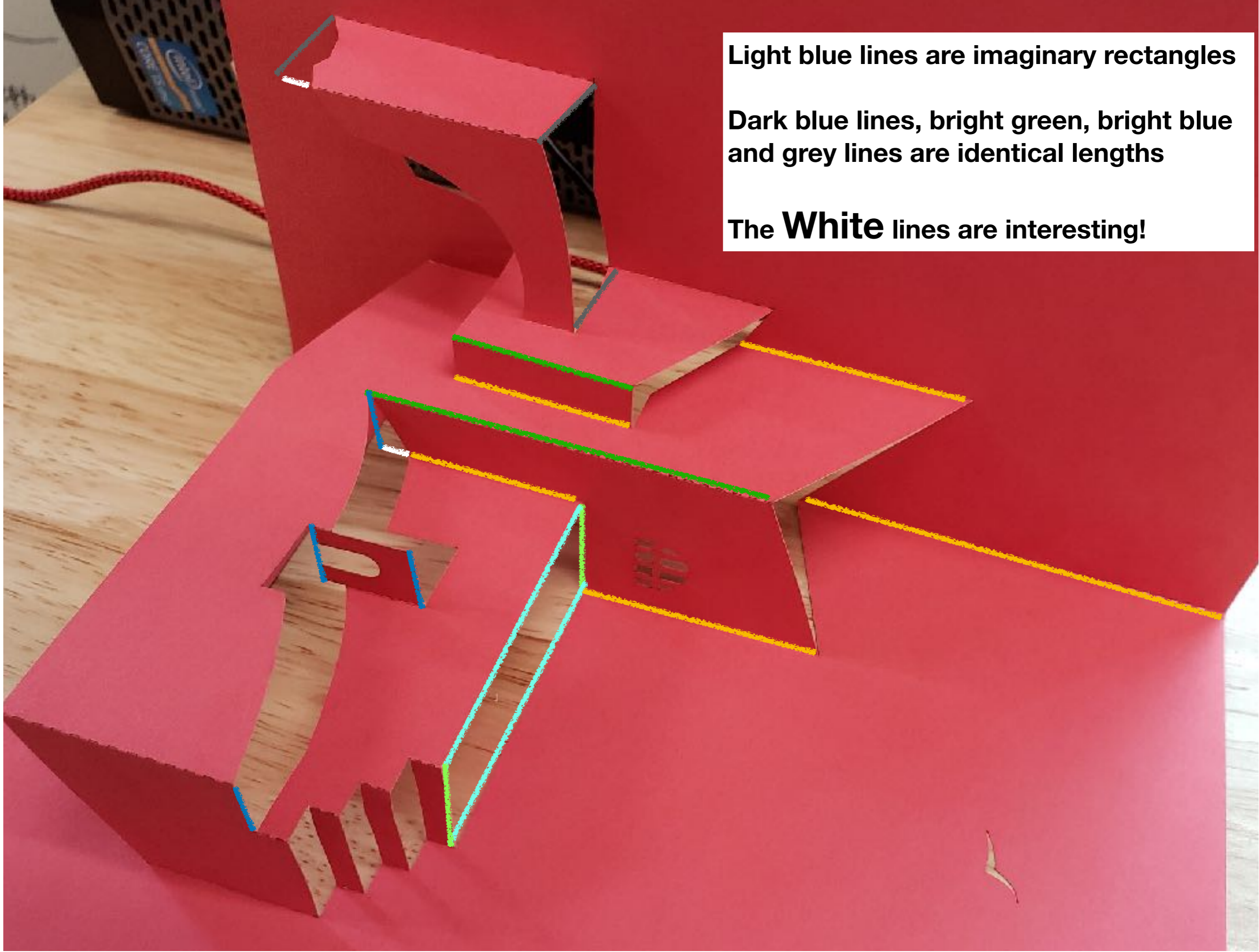
Each color of line of equal length represents a different high layer.



Light blue lines are imaginary rectangles

Dark blue lines, bright green, bright blue and grey lines are identical lengths

The **White** lines are interesting!



Details come from cutting the same design of different color sheets of craft paper, then taking details from one sheet and using a glue stick to add them to a common background sheet.

