Inspiration and Overview

Greater than, less than representation with stacks of blocks

Students can stack blocks in two stacks, then draw a line from the top of one stack to another, and from the bottom of one stack to another

Components

- 2 stacks that can hold up to 10 blocks each
  - Blocks can be added/removed one at a time by student or through a control panel input outside of the widget.
  - Blocks can be added/removed (on a delay for visual interest) or set to num from control panel
- Number labels for each stack that can be in input or label mode.
  - Switch modes from control panel
  - Show current value of input/label in control panel
- Auto comparator lines that can be shown/hidden from control panel
- Student-drawn comparator lines that “snap” to the top or bottom of a stack of blocks
- A comparator in between the two stacks that can show <,>, or =

Interactions

- Add/remove mode:
  - Student can click a stack area to add, click-drag to remove
  - Open to suggestions on these if another gesture would work better
- Compare mode:
  - Student can tap to start a line and tap to end. The in-progress drag shows a line from the starting location to the mouse/finger. This interaction is constrained to the top or bottom of the stack. If they try to start outside one of those zones, discard
    - If they try to start on one that’s already connected, discard
    - If they try to end anywhere other than the corresponding location (top->top, bottom->bottom) discard

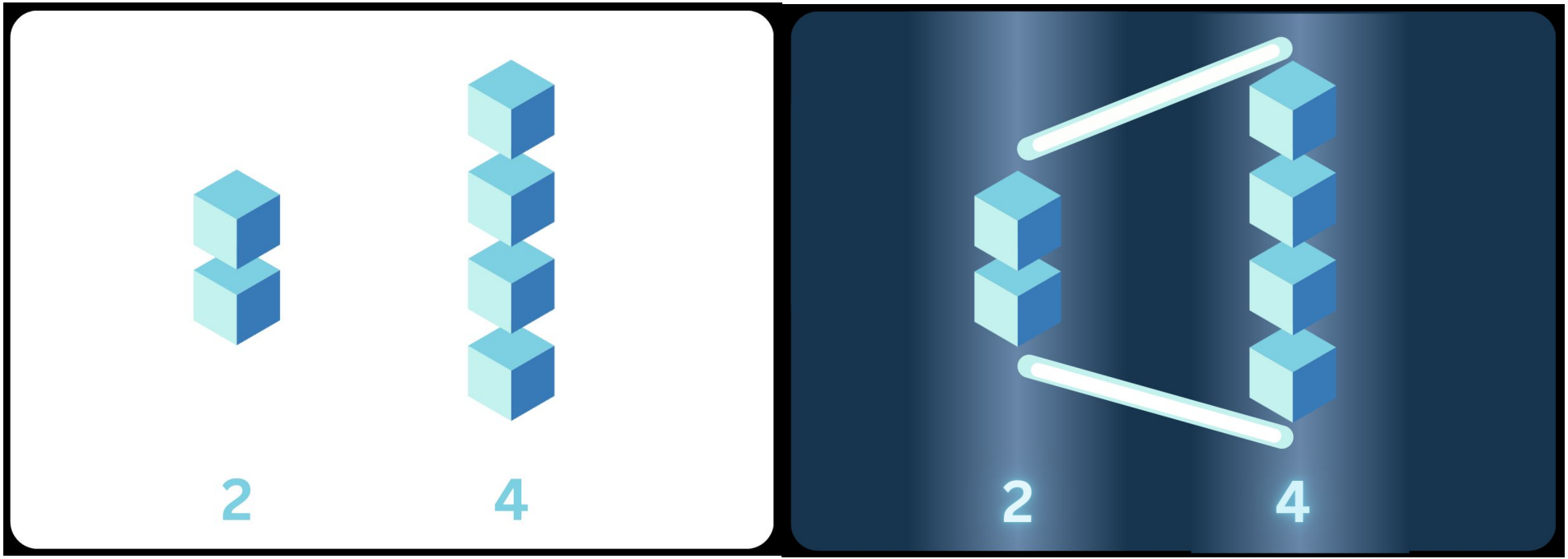
Control Panel

- State of widget
  - Stacks, block count (input to change), label/input value
- Interaction Mode: [none/addRemove/drawCompare]
- Button to play comparison animation: after the student has drawn the lines from the stacks, those lines animate to the shape of the corresponding comparator in the center

Dynamic Arrangement of Block Stacks

- Stacks should be positioned ⅓ in from each side
- The stacks should be centered vertically in the widget space
- Spacing between the blocks should be determined based on the larger stack
    - Determine the maximum spacing between blocks on the larger stack, set that spacing on both sides. This will maximize the angle of the comparator lines

Mockups



Generally, going for an icy, futuristic neon look. Ideally, with some fun floaty animations when it won’t be distracting.