Google Search in Blocks  
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Problem
To use Google's advanced search, a user must either already know about using operative symbols in the search bar, or be told by someone else. Even users who know about advanced search using operative symbols can have a difficult time keeping track of what symbol maps to which search command. Currently the only solution to this problem is either using Google's advanced search form, hidden in the settings bar, or googling how to do an advanced search.

Our Solution
We've created an interface that helps users utilize Google's advanced search features using blocks. Users can drag and drop blocks into a workspace area and build their query without worrying about remembering what syntax is necessary to execute advanced searches. This tool is intended to introduce beginners and less experienced Google users to advanced search syntax through the toolbar, as well as to assist users at a higher level remember which symbol maps to which search type.

Why we chose certain blocks
According to Search User Interfaces by Marti A. Hearst, the most common operators used were double quotes, +, -, and site:. + is now obsolete on Google thanks to the existence of Google+, where the + operator is now used to signify things related to Google+, so we do not have that in our interface. Informal surveys indicated that people enjoyed using “range” and “file type” search modifiers, so those were included in our block query.

"Search User Interfaces" also says, "Hargittai, 2004's study showed that even among the small fraction of users who did attempt to use operators, several completely misunderstood their meaning." To improve this, we convey as much information as possible about how the block works. This information is conveyed by working with people’s natural intuition and avoiding the use of the cumbersome definitions and terms people typically place on the side of objects to describe what the objects do. Instead, the blocks have tooltips when a user hovers them, giving more details and examples on how to use the blocks.

Technologies Used
We added JavaScript, HTML, and CSS to Google's Blockly API for this project.