

# Augmented Reality Development Lab™



## Paddle Set & Instructions

### How To Use These Paddle Printouts

There are several pages of paddles below this page. Print this document, and set "Page Scaling" to "None". Check the black areas print as solid black-if printer leaves light streaks or prints too light, the Augmented Reality Development Lab may not recognize them.

These paddles should be flat in order for the ARDL™ to recognize them. It is recommended that you glue them to foam board or cardboard. Make sure each paddle is glued down. Cut along the lines between the paddles.

**D I G I T A L**  
T E C H F R O N T I E R L L C

888-587-7529

# QuickStart User Guide: How to Run Your First Module

## Run a Module

-Select a module to run. Either click “Run” or double-click on it.

## Camera Framing and Environment

-Avoid dark tabletops (lay down white paper), dark walls (light them) or dark clothing.  
-The other option is to manually adjust the webcam settings. Go to the ARDL™ Help tab and see “Advanced Lighting and Camera” for more details.

## Check Lighting (this can make a big difference)

-Aim for high contrast (i.e whites that are as white as possible, and blacks that are black as possible).  
-Avoid spotlights and direct sunlight. Aim for diffuse (soft, spread out) light.  
-The camera should not be able to see the light sources (including bright windows).

## Using the Paddles

-The main rule to remember here is that the ARDL™ has to see the entire black square on the paddles in order to recognize it and display virtual 3D objects over it.  
-Don't cover a square with your finger or another paddle.  
-Don't let the edge or corner of the paddle disappear out of view of the webcam.  
-Don't move too fast, and stay close to the camera (under about 4.5 feet).  
-For more details refer to the “Detailed User Guide” or the Help tab in ARDL™.

## Detailed User Guide

### Run a Module

-Click on the “Modules” tab (along the top), then select a module of interest. You can either click the “Run” button or simply double-click on a module to run it.

### Camera Framing and Environment

If you are using a “Mirror” activity, point the webcam up so that the upper bodies of the users are in view. For other activities, point the camera down at the surface of the table so that all the paddles are in view. Note that some webcams can get confused by dark backgrounds—they react by making the image too bright for the ARDL™ to process it properly. If this is the case, we suggest lighting the background. Some possible solutions include:

-Place white paper on the table top  
-Increase lighting of the back wall  
-Remove dark clothing (e.g. jackets)  
-Manually adjust the webcam driver settings to reduce this effect. See “Advanced Lighting and Camera” for more details.

### Check Lighting

Lighting can make a huge difference to the quality of your experience. The ARDL™ wants to see blacks that are as black as possible while keeping whites that are as white as possible (i.e. High Contrast). Below are some quick hints.

-Avoid spotlights and direct sunlight. Aim for diffuse (soft, spread out) light sources that are behind the camera.  
-Glare from spotlights (or Sunlight) can make the black square appear to be white, so that the ARDL™ cannot recognize it.  
-Avoid dark backgrounds or wearing dark clothing (if they are in view). Some webcams react by making the image too bright.  
-You can also try manually adjusting the webcam driver settings.

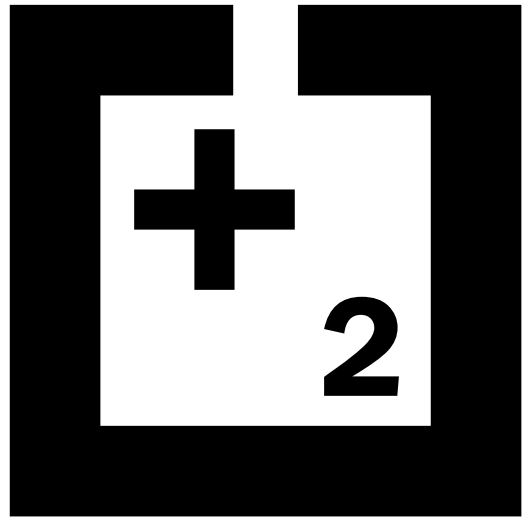
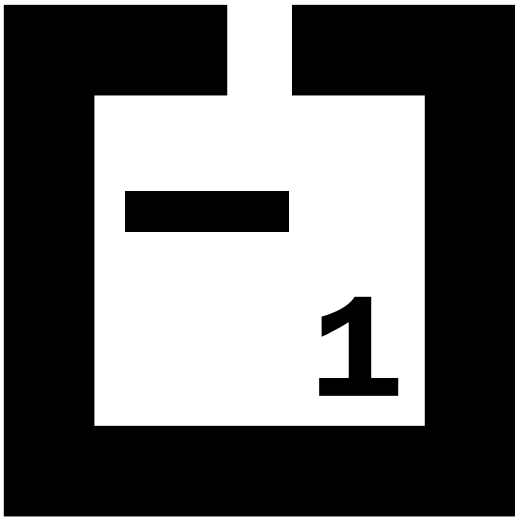
### Using the Paddles

The main rule to remember here is that the ARDL™ has to see the entire black square on the paddle in order for it to recognize it and display virtual 3D objects over it. Follow the guidelines below:

-When you are holding the paddle, don't let your fingers cover any edge of the square.  
-Don't let the edge or corner of the paddles disappear out of view of the webcam.  
-Don't let one paddle overlap another paddle.  
Don't move the paddle too fast—this can cause motion blur, which the ARDL™ cannot recognize.  
-If the paddles get too far away from the camera (about 4.5 feet away), the ARDL™ may no longer recognize them.

The ARDL™ includes extensive help, which includes:

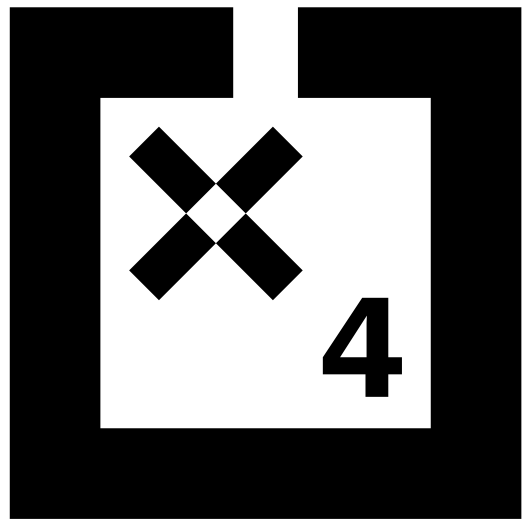
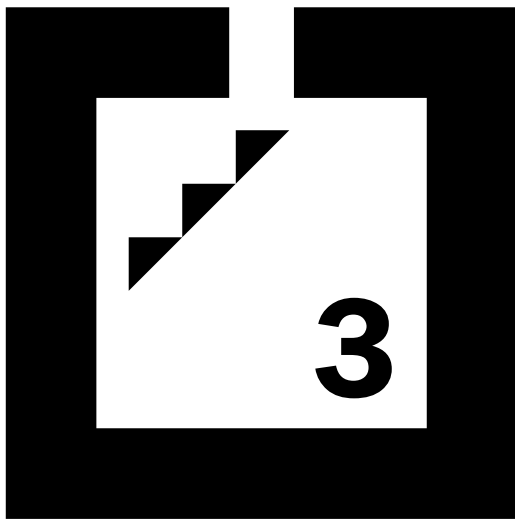
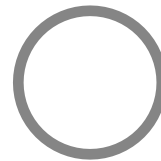
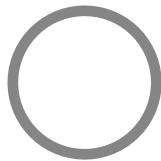
-Ways to enhance your use of the ARDL™.  
-Extra features of the ARDL™ that can be very useful.  
-Increase the quality of video your webcam captures. Take a look at this if virtual 3D content is not staying anchored constantly (i.e flickers in and out) and stable (i.e. jitter from side to side) to the paddles.



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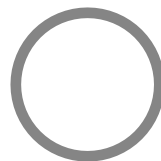
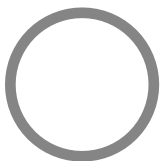
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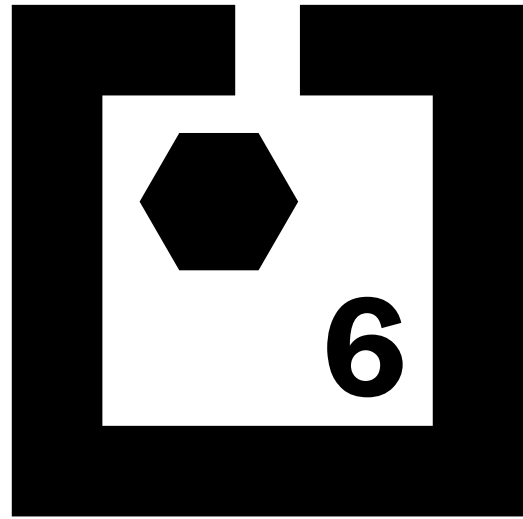
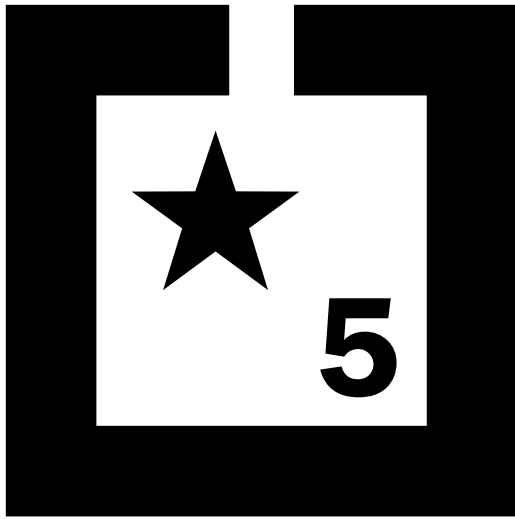


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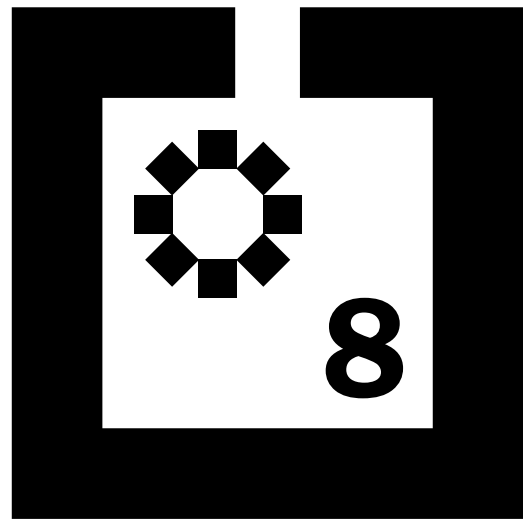
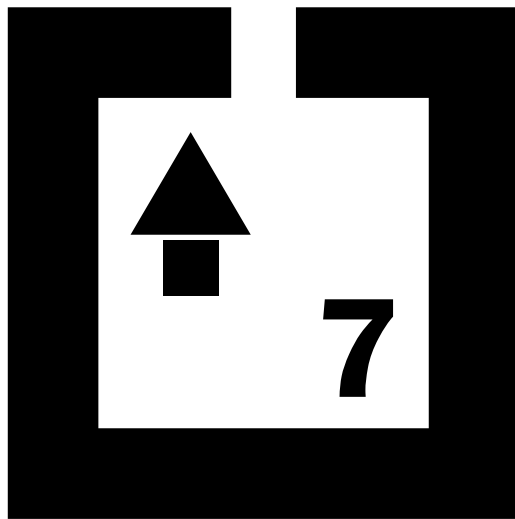
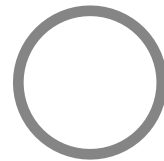
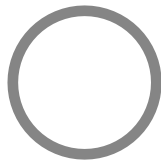




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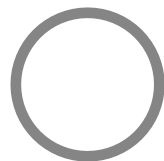
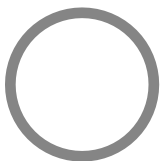
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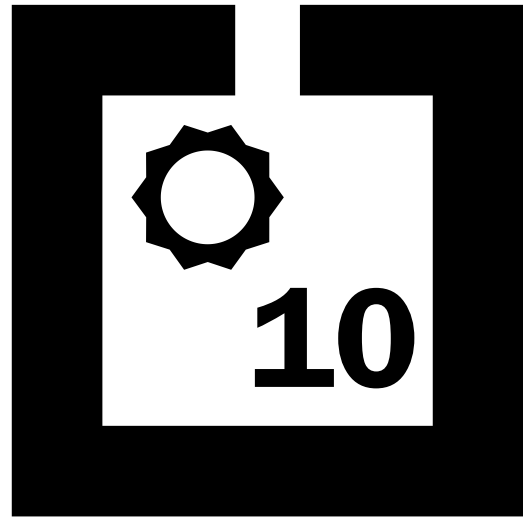
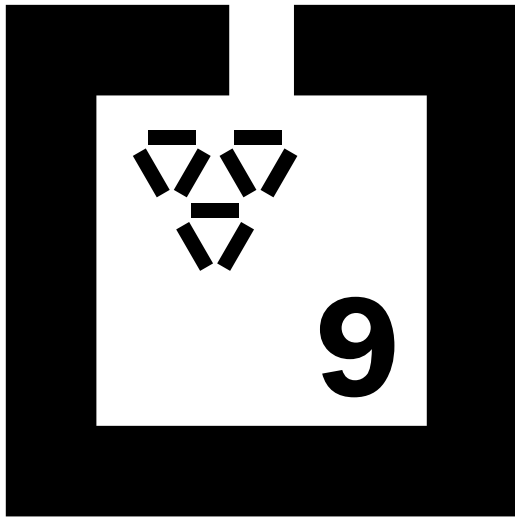


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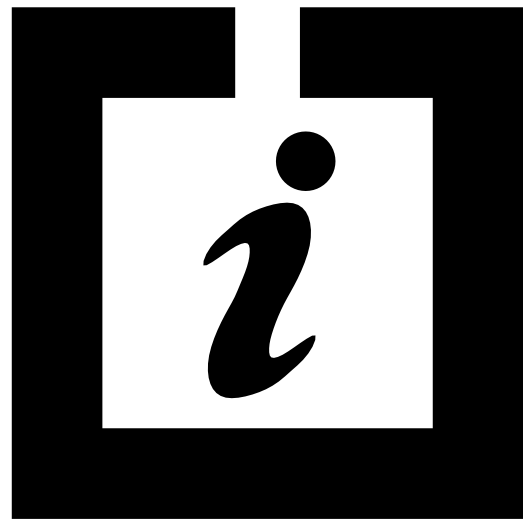
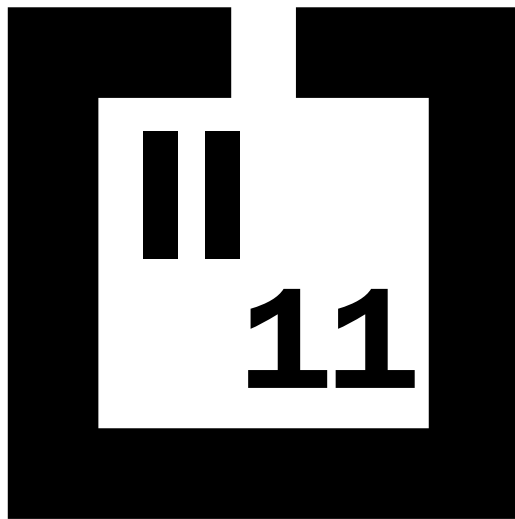
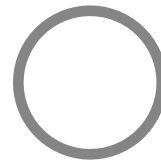
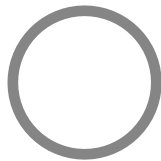




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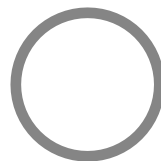
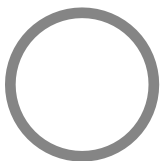
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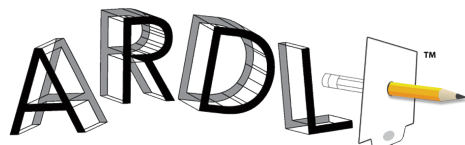
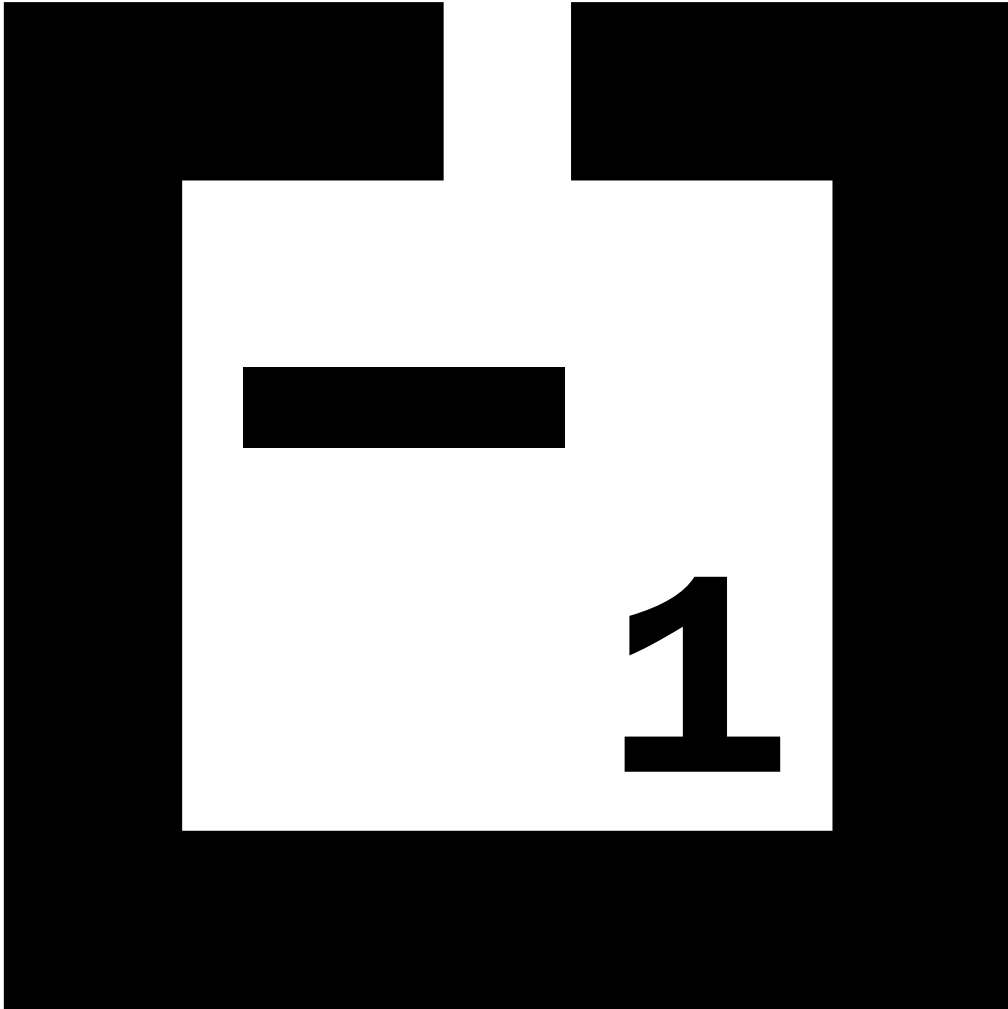


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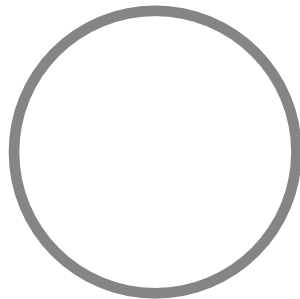
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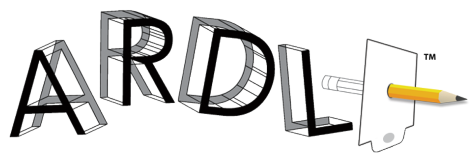
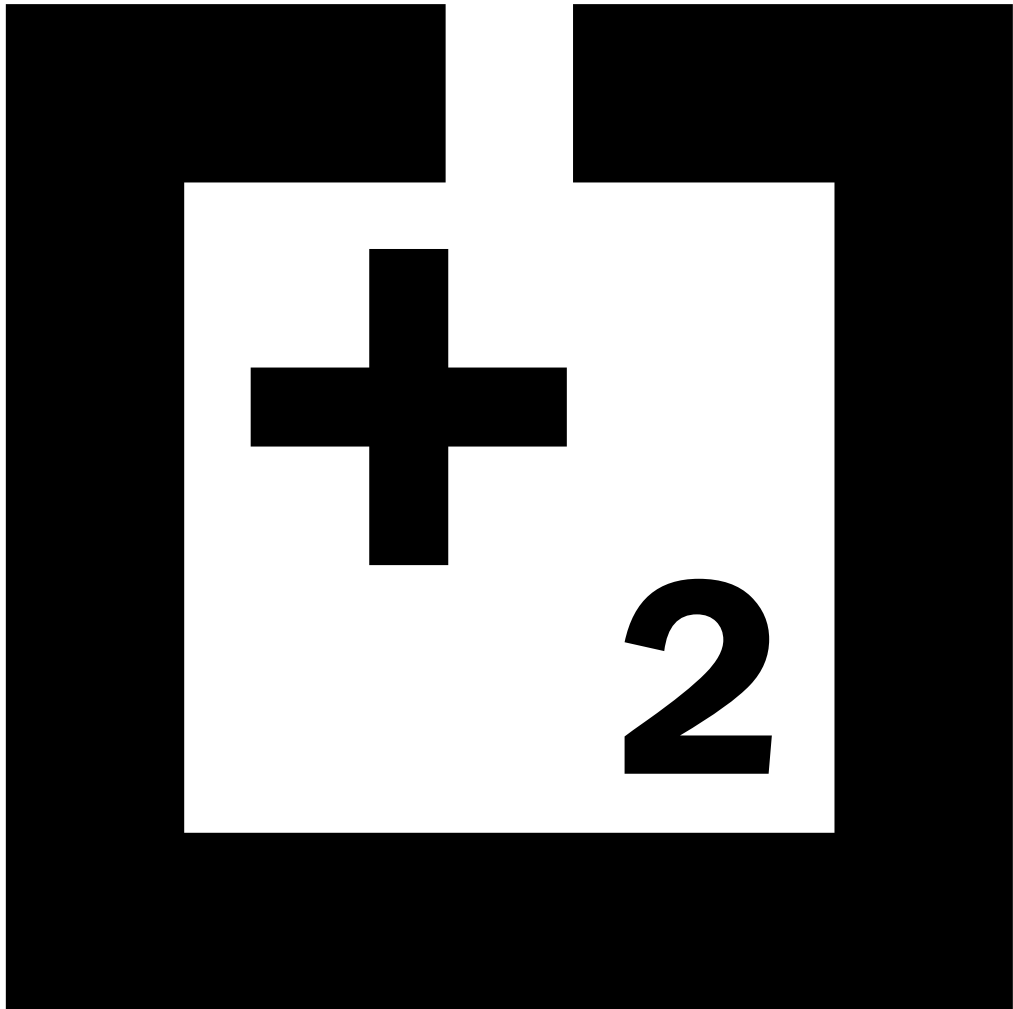




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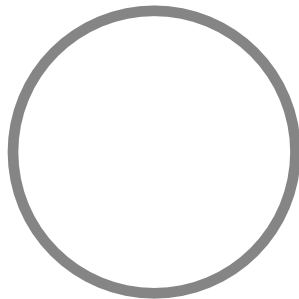
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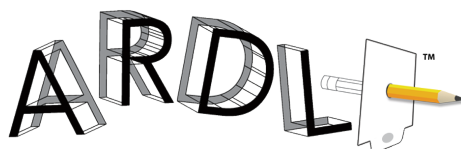
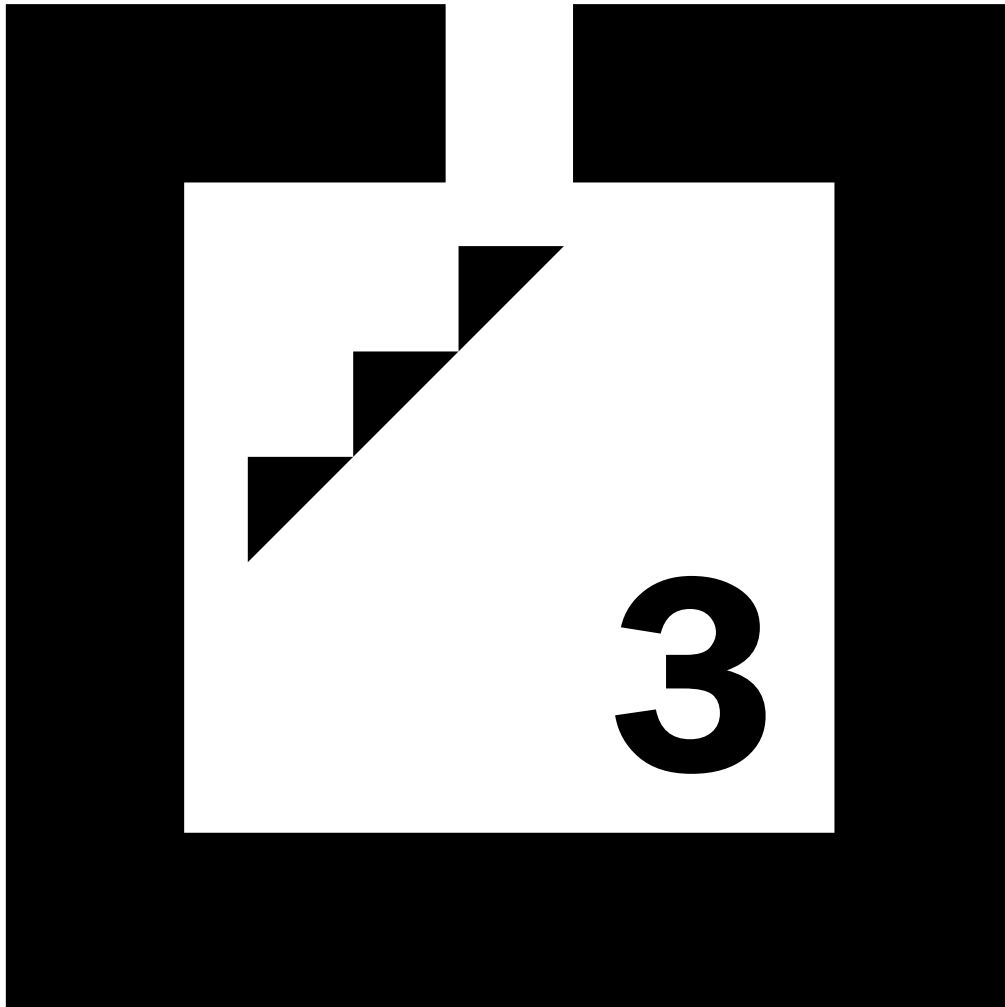




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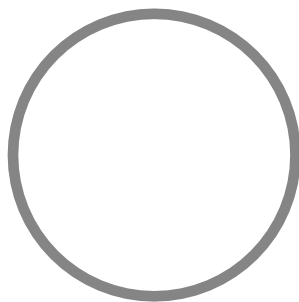
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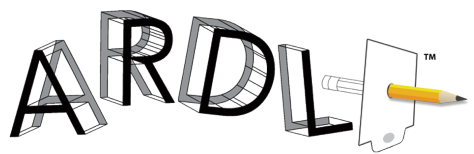
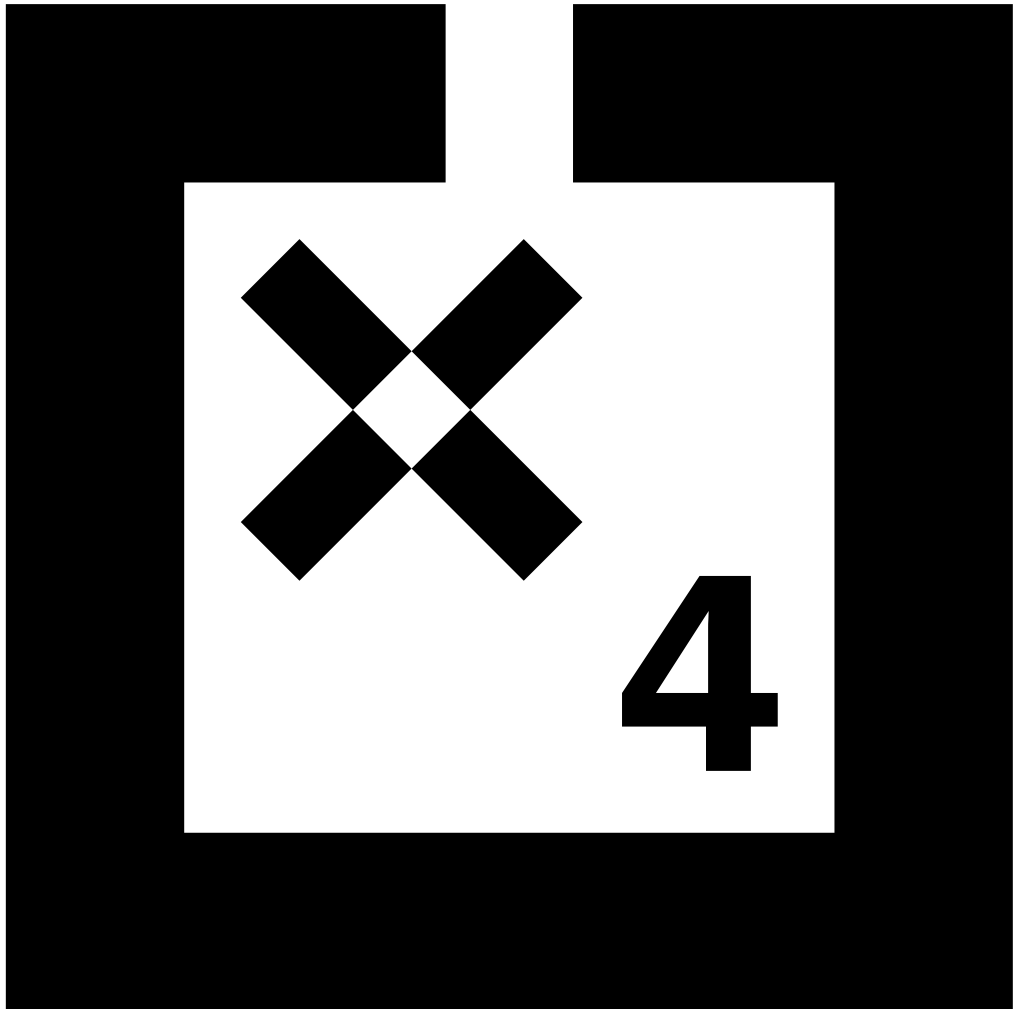


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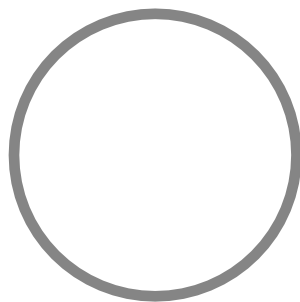


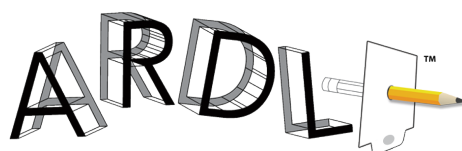
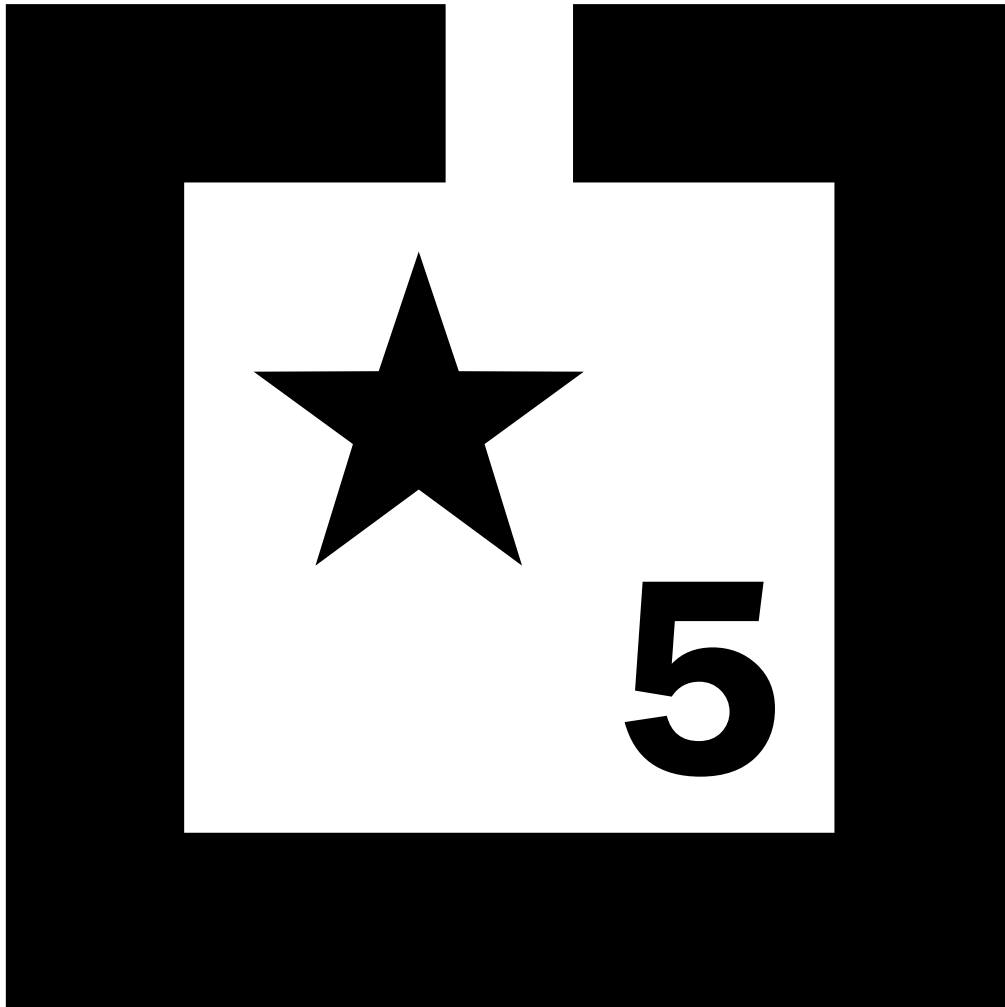




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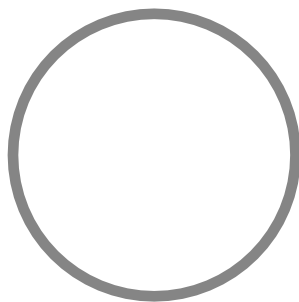
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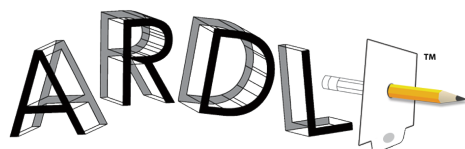
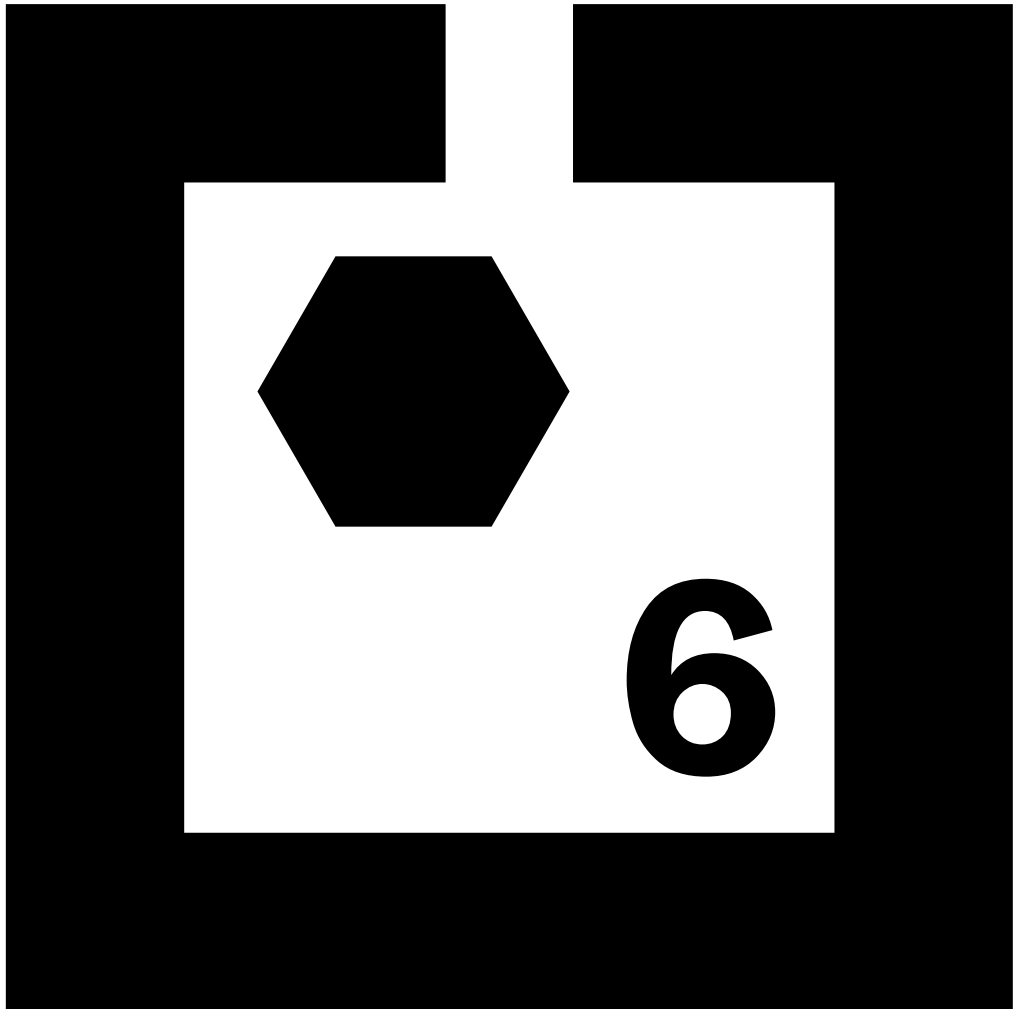
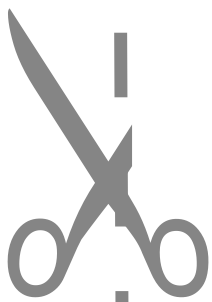




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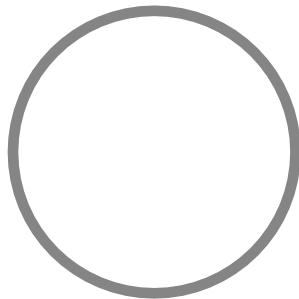
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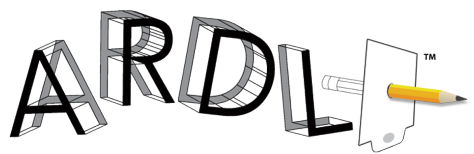
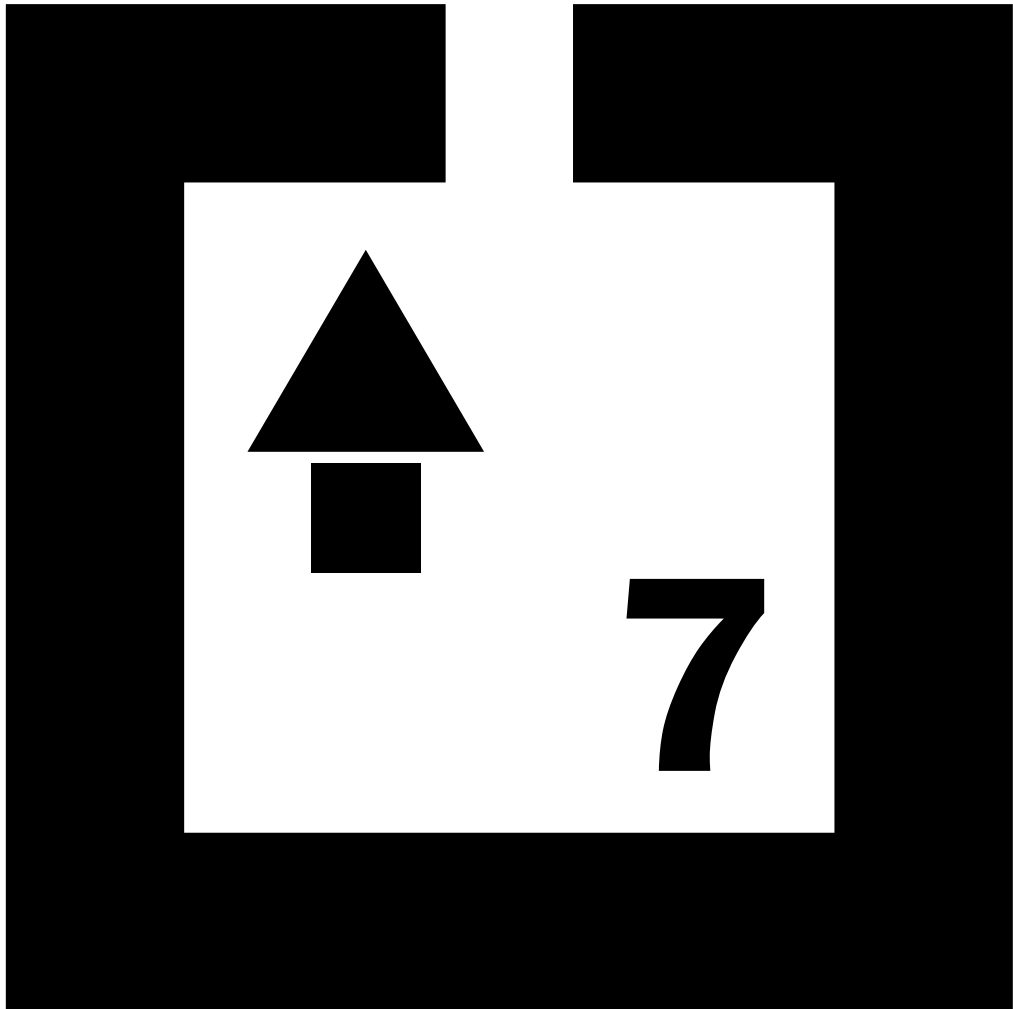




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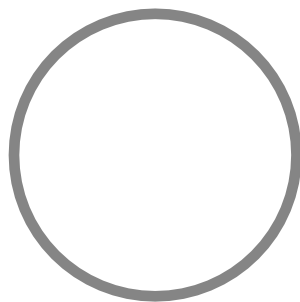
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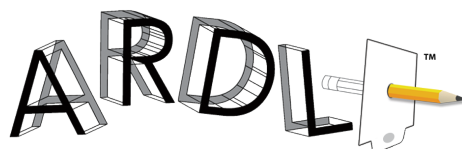
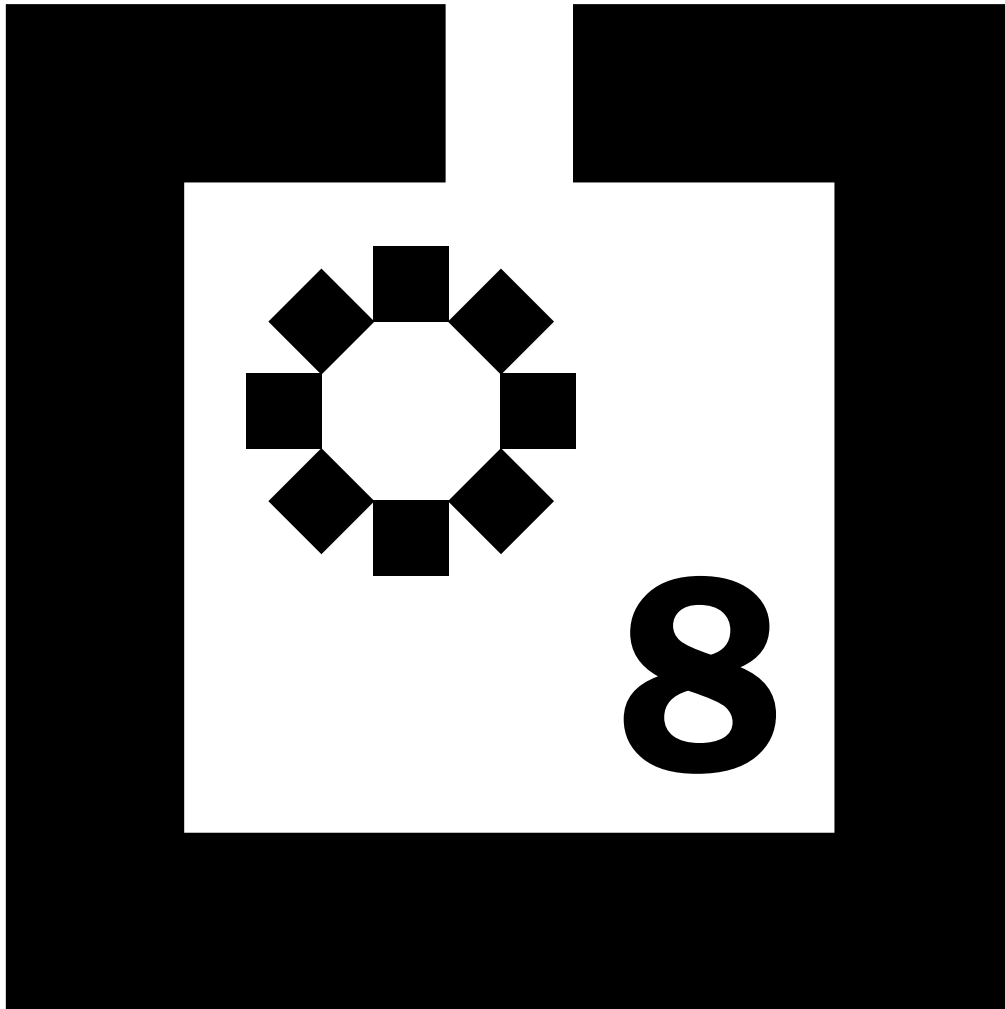




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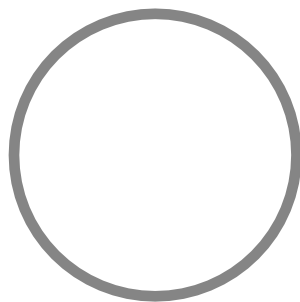
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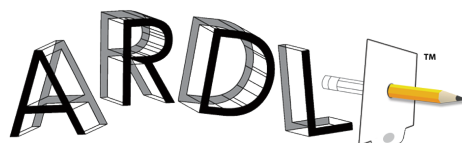
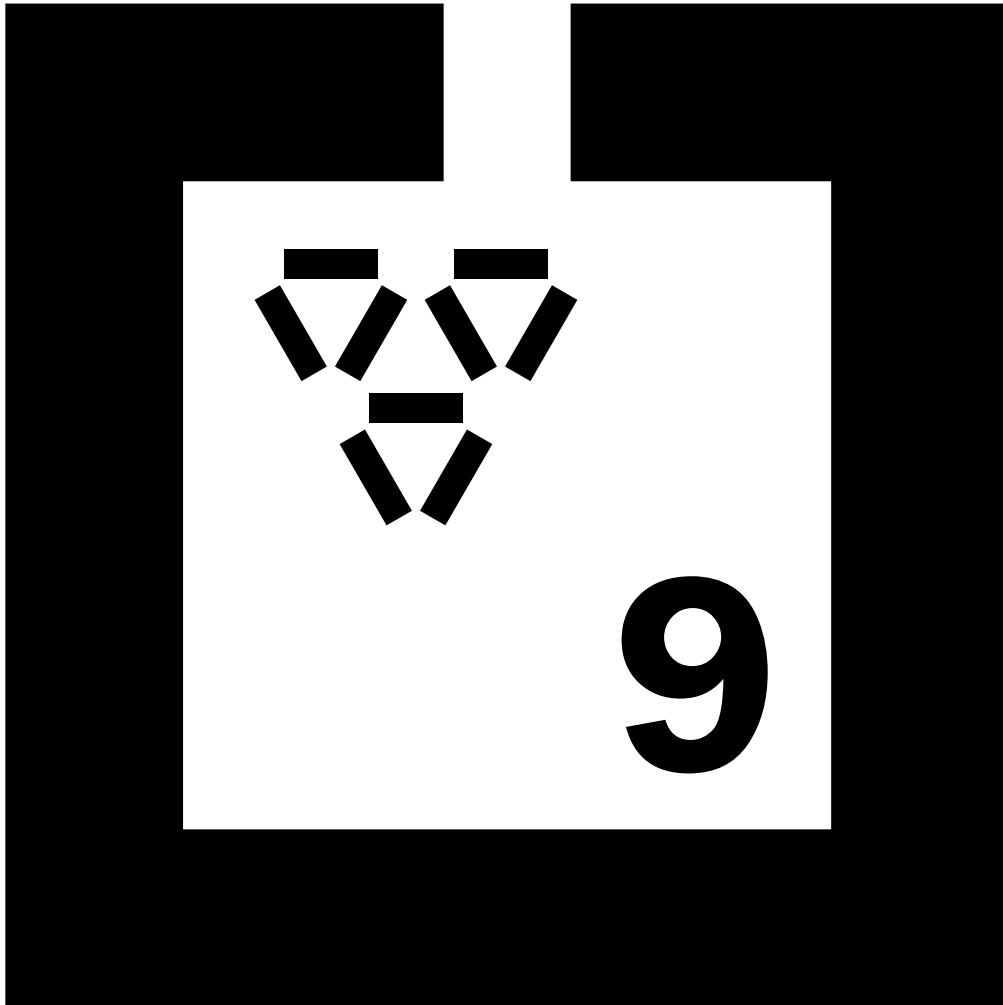




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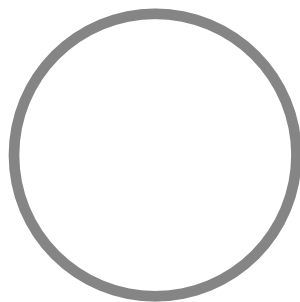
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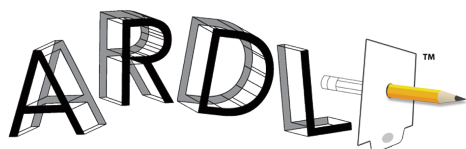
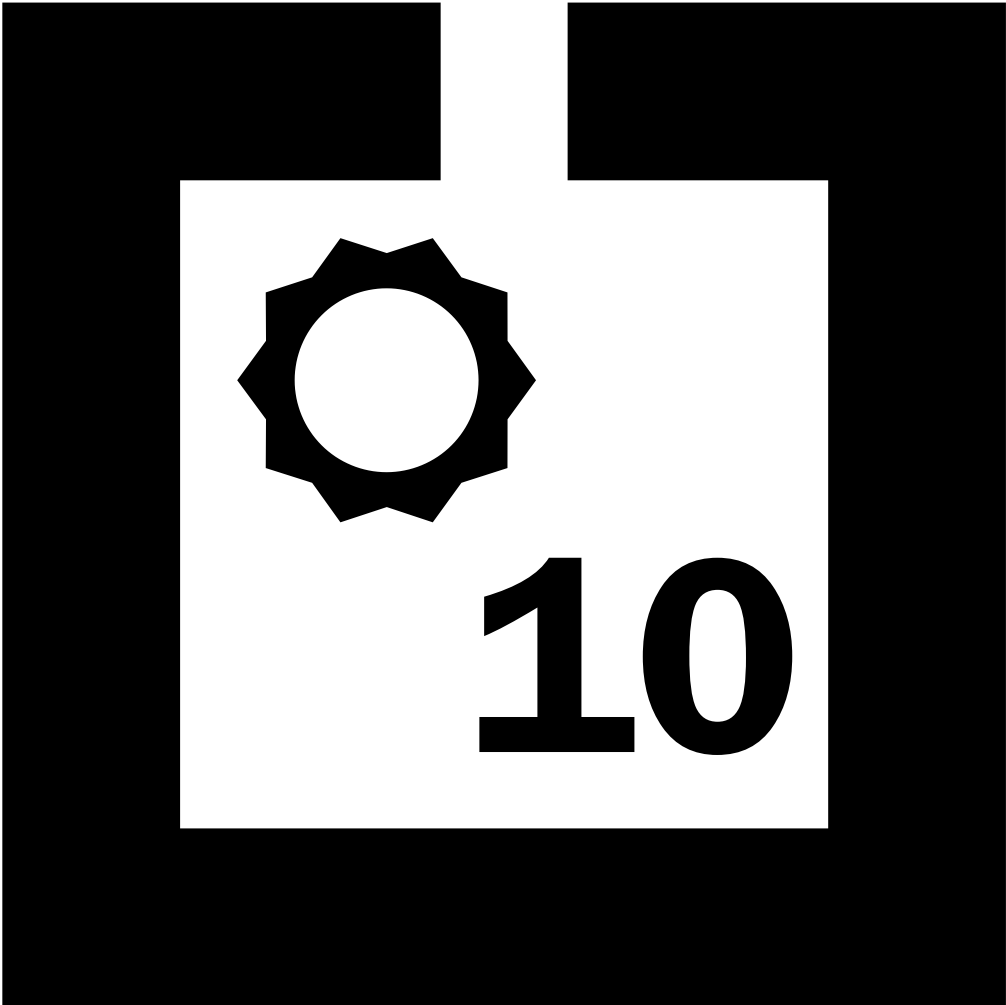




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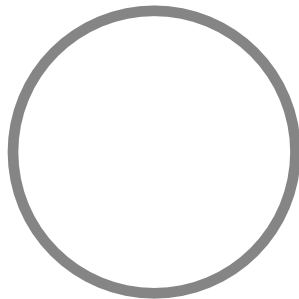
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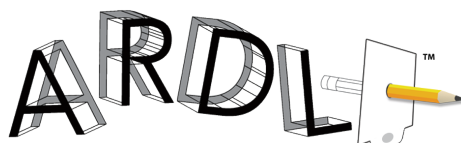
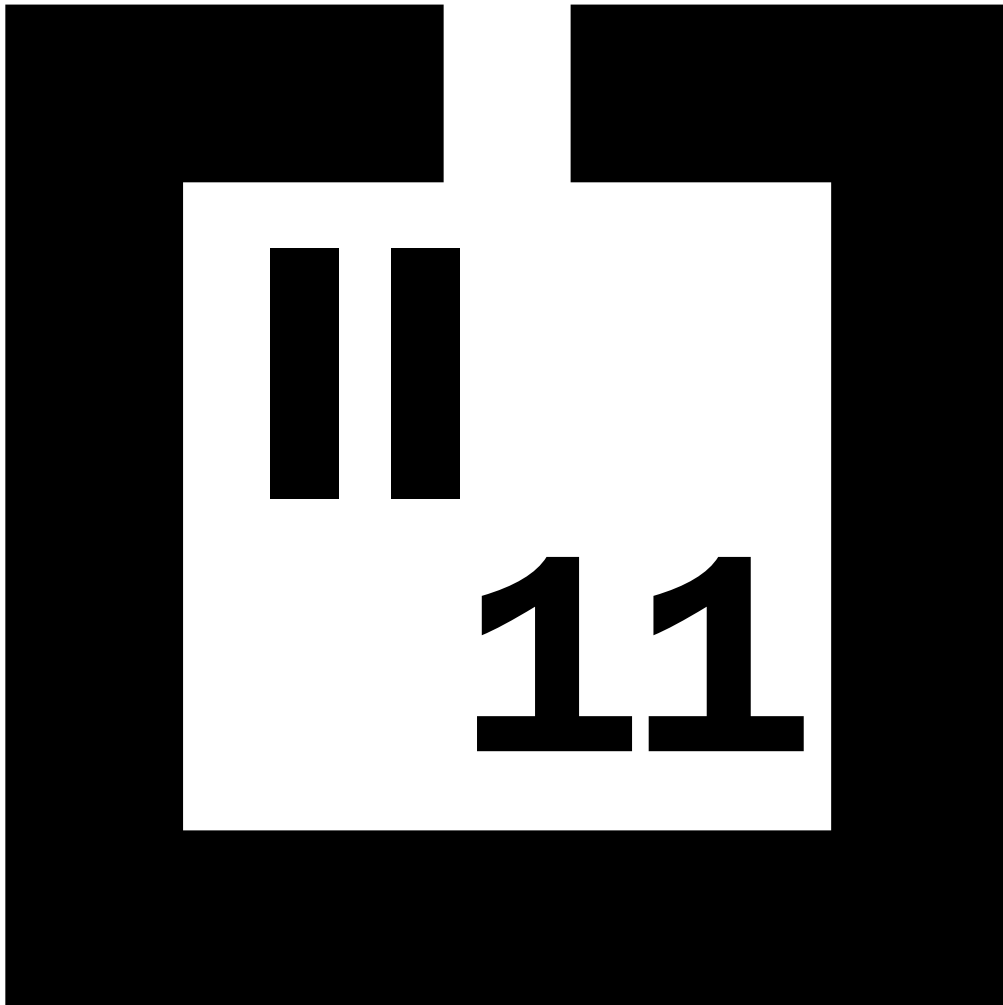




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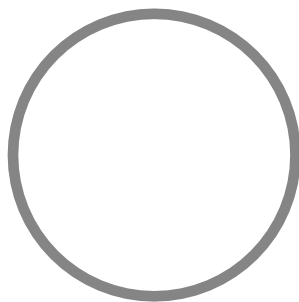
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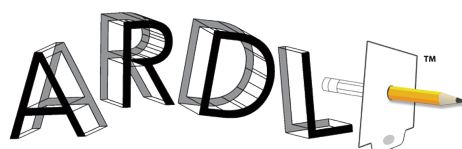
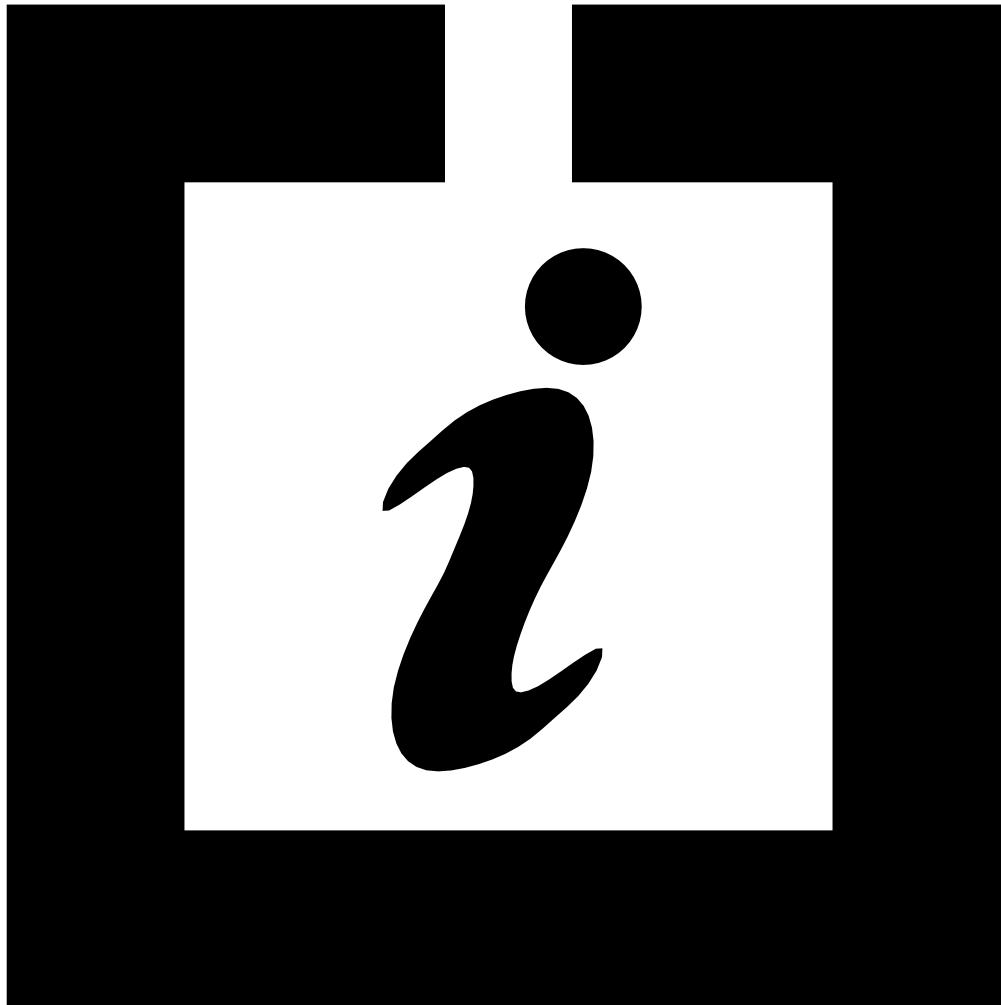


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