

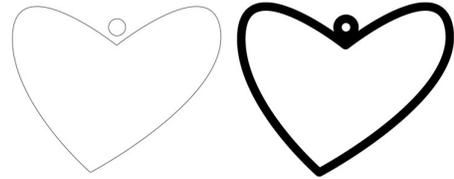
## Activity 20: Heart pendant

**File:** *heart-pendant.svg*

This file was downloaded from a site such as Vecteezy. We therefore cannot assume that it is ready to be cut.

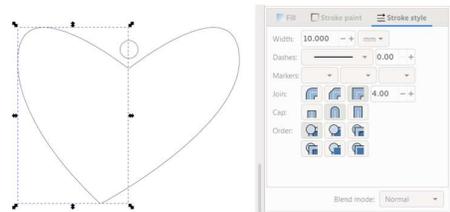
### 1. Review the file

- 1.1. In the Normal View, note that the object looks ready to cut
- 1.2. In the Outline View, note that the thick stroke, now no longer visible gave a false view of the object from a laser cutter point of view



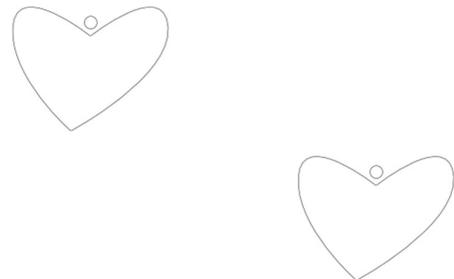
### 2. Inspect the objects

- 2.1. Click on the small circle
- 2.2. How big is the stroke? Go to Object / Fill & Stroke / Stroke style
- 2.3. Click on the big heart, and note that it is in 2 pieces
- 2.4. How big is the stroke?



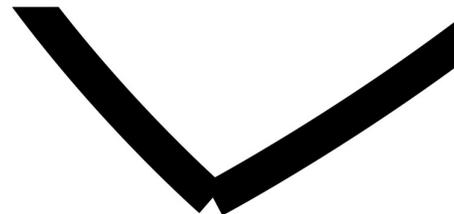
### 3. Preserve the primitives

- 3.1. Select all 3 objects
- 3.2. Copy
- 3.3. Paste far off to the left (these will be your primitives)



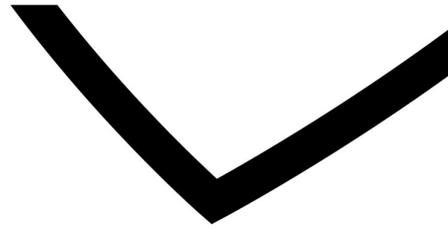
### 4. Merge the heart pieces

- 4.1. Select both heart pieces from the original (but not the circle)
- 4.2. Path / Combine
- 4.3. Go to the Normal View
- 4.4. Zoom in on the bottom point of the heart and notice the notch – this is because the 2 halves have been merged, but the path has not been closed



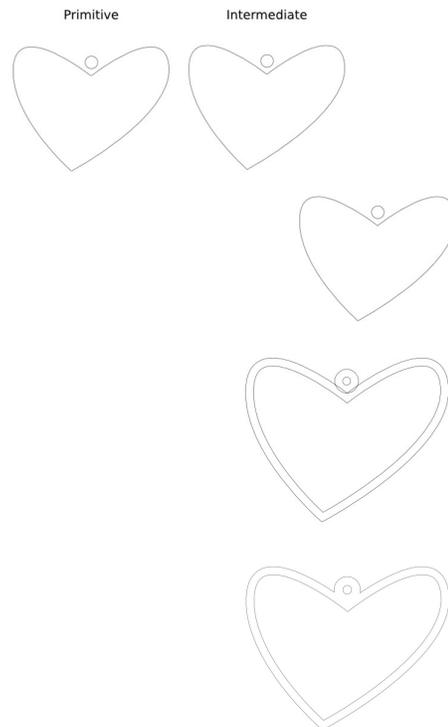
## 5. Close the path

- 5.1. Stay zoomed in
- 5.2. Switch to the Outline View
- 5.3. Using the Edit paths by nodes tool, select the overlapping nodes at the point of the heart
- 5.4. On the Tool Control Bar, Join selected nodes
- 5.5. Go back to the Normal View and see that the notch has disappeared
- 5.6. Repeat the steps to close the top of the heart



## 6. Preserve the intermediates

- 6.1. Select the heart and the circle
- 6.2. Copy
- 6.3. Paste next to your primitive (this will now be your first intermediate)



## 7. Stroke to path

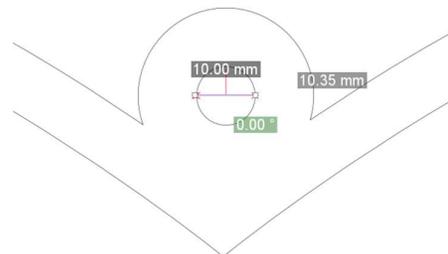
- 7.1. Make sure you are in the Outline View
- 7.2. Select the heart and circle
- 7.3. Path / Stroke to Path

## 8. Merge the heart and ring

- 8.1. Select the heart and the ring
- 8.2. Path / Union

## 9. Dimensions

- 9.1. How big is the whole object?
- 9.2. How wide is the heart outline? (use the Measure tool)
- 9.3. How wide is the hole?



At these dimensions, the heart is way too big to be a pendant.

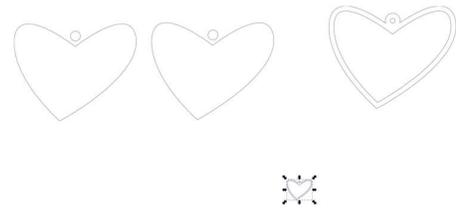
The jumper ring that connects the pendant to a chain has to have a 2mm hole to move freely.

This means we can scale the object to 20% of its original size and the hole will still be big enough.

## 10. Preserve another intermediate

### 11. Scale the object

- 11.1. Object / Transform / Scale
- 11.2. Width = 20%
- 11.3. Tick Scale proportionally
- 11.4. Apply



## 12. Dimensions

- 12.1. Zoom in on the object (press 3)
- 12.2. Repeat 9. Dimensioning steps above
- 12.3. Is the hole big enough?
- 12.4. Is the heart outline wide enough to cut and be strong in the chosen material?
- 12.5. Is the pendant the right size to be worn?

Turns out, no, the pendant isn't small enough. It really needs to be no more than 32mm wide.

Is there anything you could do to the current object to make it small enough, yet thick enough to be strong?

Consider returning to intermediate stages or the original primitive. What could you do differently at each stage to get the result you want?