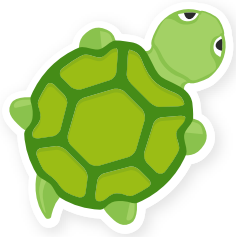
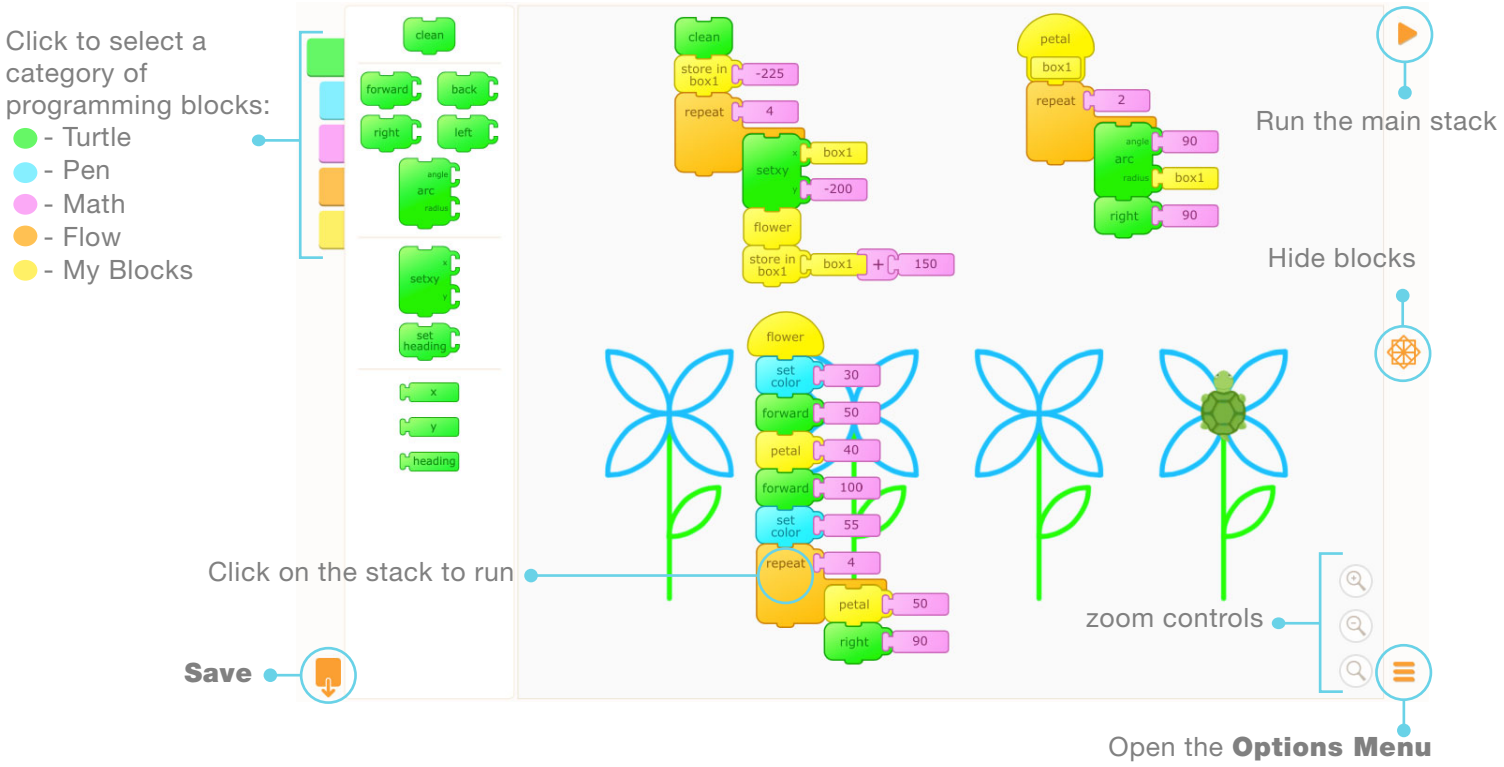
# Web



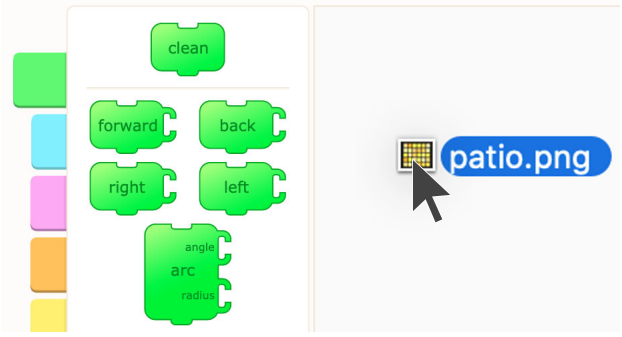
# TurtleArt

# Reference Guide

# Web TurtleArt Interface



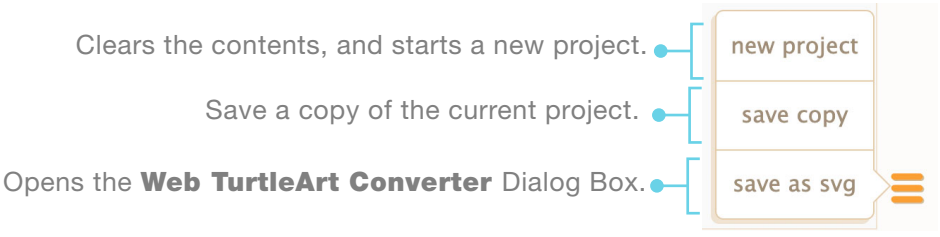

## Load & Save




Drag and drop a TurtleArt PNG file the workspace to **load** a project.

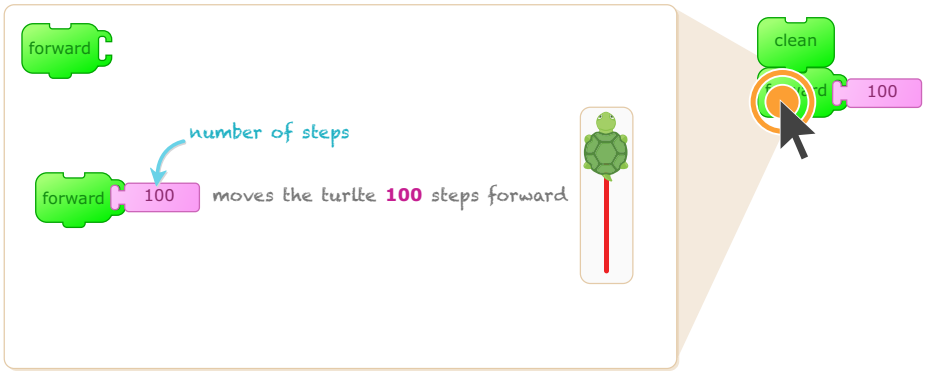
Click on to **save** your project.

## Options Menu



# Web TurtleArt Tips and Tricks

## Find out what a block does




Click and hold on a block to see what it does.

## Undo & Redo

Press Ctrl + Z ( ) or ⌘ + Z ( ) to undo your last change

Press Ctrl + Y ( ) or ⌘ + Shift + Z ( ) to redo your last undo

## Colors and Shades

The color numbers in TurtleArt are between 0 and 100.
The shade numbers are between 0 and 100.

Color

0 10 20 30 40 50 60 70 80 90 100

Shade

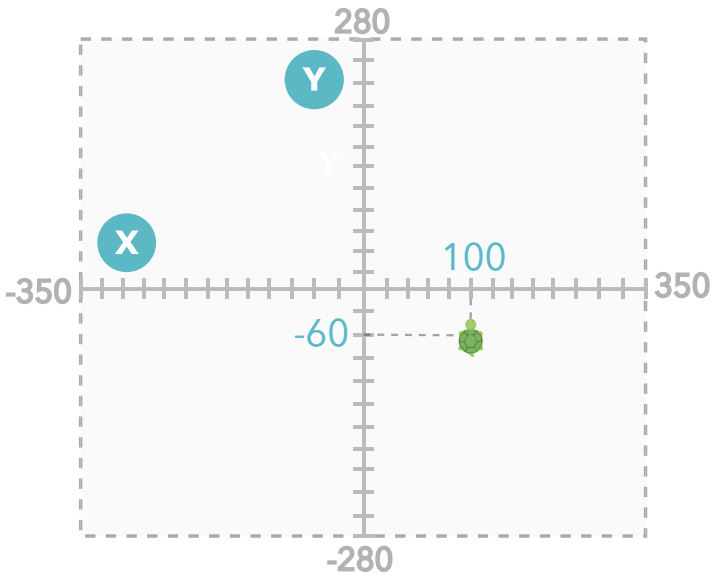
0 10 20 30 40 50 60 70 80 90 100

The default color is 0 and the default shade is 50.
Black color is -9999 and shade 0.
White is color -9999 and shade 100.

# Web TurtleArt Tips and Tricks

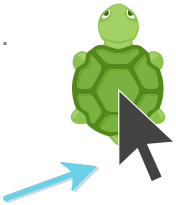
## Coordinate System

TurtleArt works with a coordinate system. The Turtle's default position is (0, 0), which is the middle of the TurtleArt canvas.

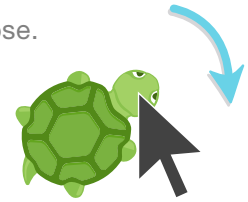



## Move and turn the turtle

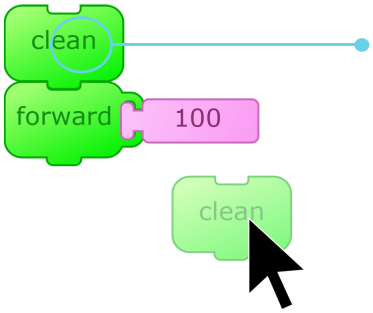
Move the turtle by dragging it by its shell.



Turn the turtle by dragging it by its nose.



## Copy & Paste

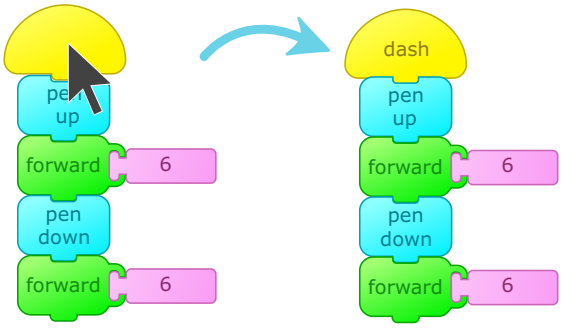



Hold the Shift key and drag to get a copy of a stack. You'll only see the ghost of the block you are draggin. Yet when you release the mouse, you'll get the copy of all the blocks attached to that block.

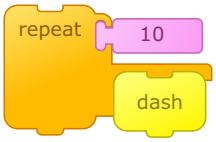
# Web TurtleArt Tips and Tricks

## Defining Procedures

Place a hat on top of a stack. Click to give it a name.

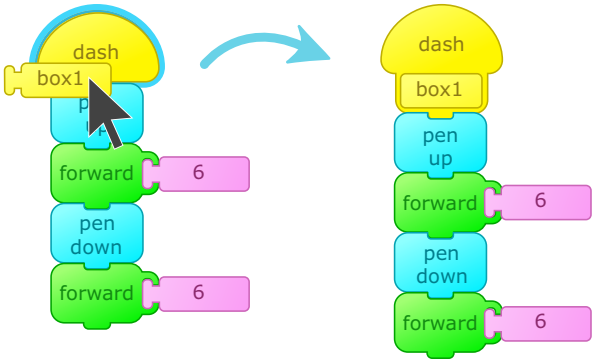



A block with that name will appear on the yellow blocks palette. Use that block alone or in other stacks.

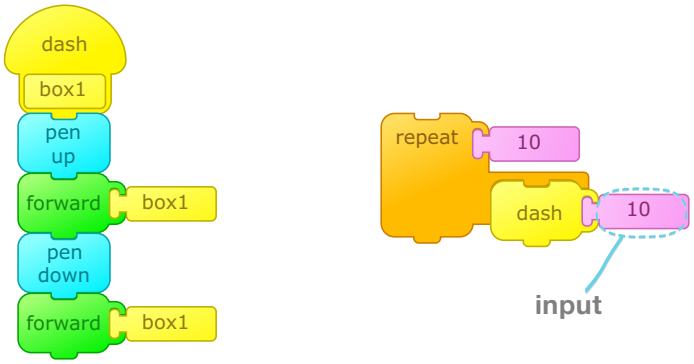



## Local Boxes

To add an **input**, drag a box block (box 1, 2, or 3) and drop it on a named hat.




Change the **input** to temporarily change the value of the box.




Hats can have a maximum of 2 **inputs**.

## Turtle

### clean


Clear the screen and reposition the turtle to the center.

### forward


Move the turtle forward.

### back


Move the turtle backward.

### right


Turn the turtle right.

### left


Turn the turtle left.

### arc


Draw an arc.

### setxy


Set the position of the turtle.

### x coordinate


The x (horizontal) coordinate of the turtle.

### y coordinate


The y (vertical) coordinate of the turtle.

### set heading


Set the heading of the turtle.

### heading


The heading of the turtle.

## Pen

### pen up


Raise the turtle's pen so that it will not draw.

### pen down


Lower the turtle's pen so that it will draw.

### set pen size


Set the width of the turtle's pen.

### pensize


The width of the turtle's pen.

### set color


Set the color of the turtle's pen.

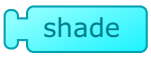
### color


The color of the turtle's pen.

### set shade


Set the shade of the turtle's pen.

### shade




The shade of the turtle's pen.

### start fill


Mark the start of an area to be filled.

### end fill


Mark the end of the area and fill it.

### fill screen


Fill the screen with a color and a shade.

## Numbers

Arithmetic in TurtleArt proceeds from left to right. 1+2*3 is read as (1+2)*3 not 1+(2*3).

### number


A number to be used as an input.

### add


Add two numbers.

### subtract


Subtract one number from another.

### multiply


Multiply two numbers.

### divide


Divide one number by another.

### modulo


Calculate the remainder when dividing two numbers.

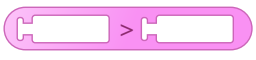
### random


Generate a random number between the two specified values.

### one of


Choose one of two numbers.

### greater

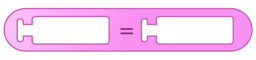



Test if one number is greater than another.

### less


Test if one number is less than another.

### equal




Test if two numbers are equal.

# Web TurtleArt Blocks

## open bracket


Open a parenthesis.

## close bracket


Close the parenthesis.

## print


Print a number.

# Flow

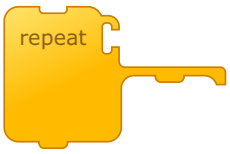
## wait


Wait for some time (in tenths of seconds).

## forever

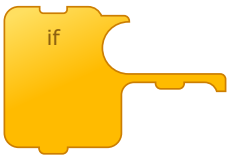

Run some blocks over and over.

## repeat




Repeat some blocks a specified number of times.

## if




Conditionally run some blocks.

## stop


Stop the stack that is running.

## vertical spacer

A spacer for layout purposes.

## horizontal spacer

A spacer for layout purposes.

## My Blocks

### store in box


Store a number in a box.

### box


The current value of a box.

### hat

Name a stack to create your own block.

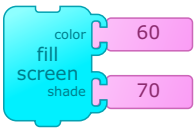
# Web TurtleArt Converter

## About

The TurtleArt Converter is an tool that converts your TurtleArt project into SVG images. It allows you to bring your designs life with digital fabrication tools, such as a craft cutter,  laser cutters, drawing machines (like axidraw), sewing machines, and so many other things, opening you to the world of Digital Fabrication.

Here are a couple of tips and tricks for TurtleArt and Digital Fabrication

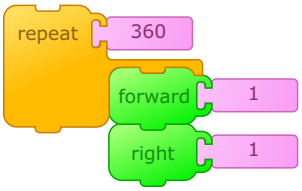
1. The main stack should start either with a 

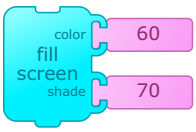
or a 

block.

2. Make sure the entire design can be generated by clicking on the  button.

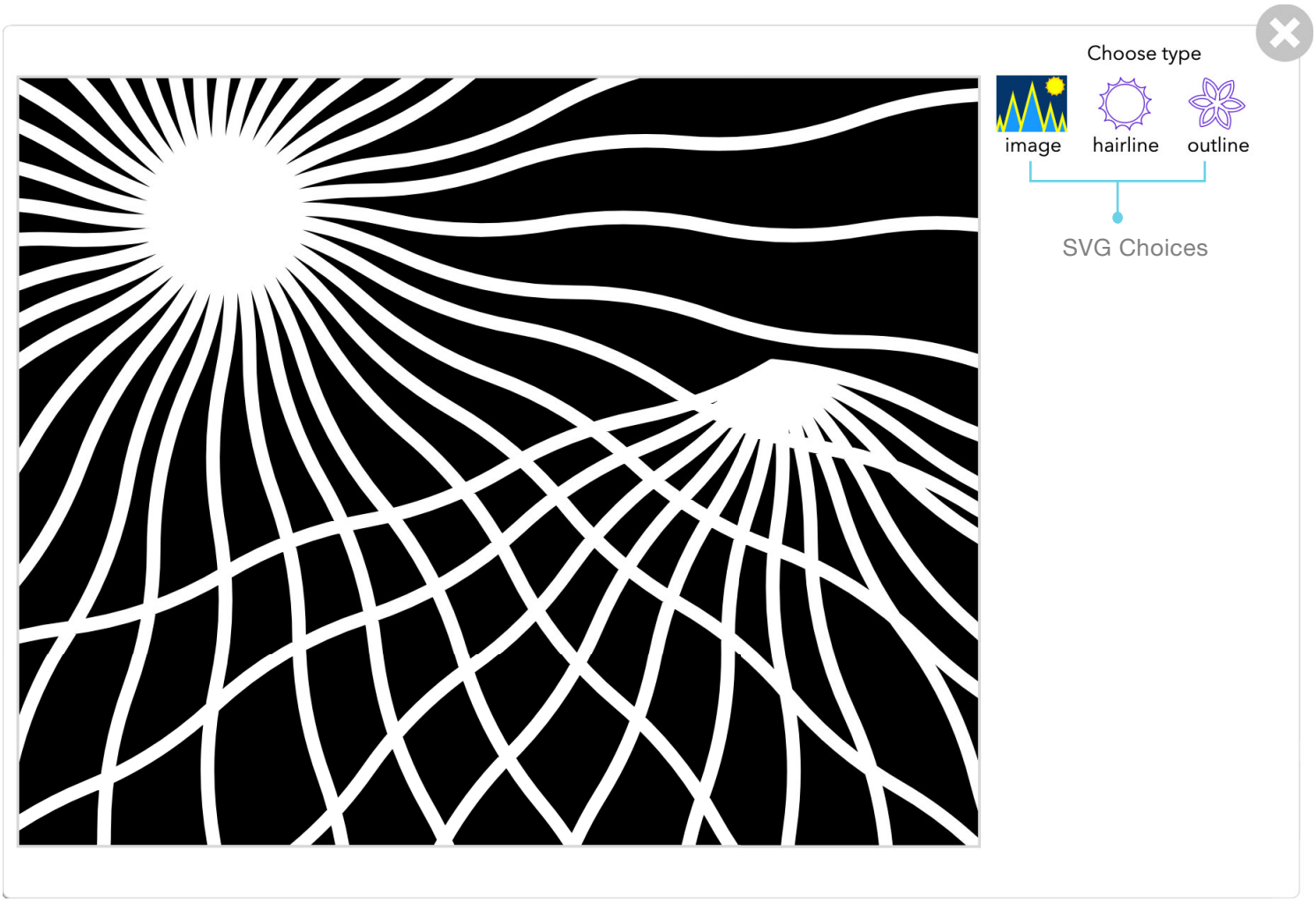
3.  Keep your design simple, if you are planning to use the TurtleArt Converter for Digital Fabrication, Avoid TurtleArt images that have too many small strokes. For example:

Instead of doing 

just use 


This tool won't run code that uses forever. It is also not recommend to run images with lots of small TurtleArt strokes (even if it is just to convert your colorful image to SVG), as it generates very large file. The TurlteArt Converter will warn you if the size is too large, but it won't prevent you from saving a very large file (though your browser may).

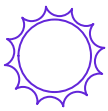
## Dialog Box




## Image

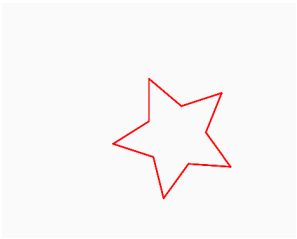
Converts a TurtleArt PNG image to SVG (clips the image to its canavas size).
Note that it will remove the background rectangle if its color is the default TurtleArt white: #FAFAFA.

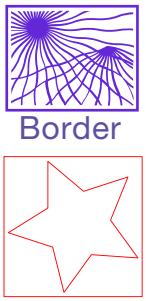
## Hairline



Generates an SVG using just the turtle path ignoring the pensize. It is useful for cutting polygones and non-crossing paths images. Choose between these options:

TurtleArt Image

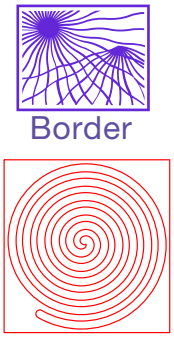


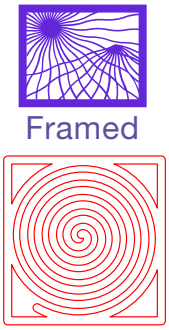




## Outline

Generates an SVG taking into account the pensize and fill areas. The frame option adds a border to your image. Choose the its thinkness, by typing a number on the number field.

TurtleArt Image


## Notes

Hairline and Outline modes generate SVGs with red 0.001px strokes, which are barely visible or not visible at all in your browser.

The TurtleArt Converter is an experimental feature. We update the version regularly.