

# Generative Design Colour Experiment

## OVERVIEW

Create a p5.js script that will simulate a daylight cycle, incorporating aspects of the colour work we have completed so far. The idea is to have a sun which moves down the page and clouds are randomly generated on top of the sun. This will create a daylight image, which will be affected by the position of the sun, as well as the clouds present on the screen.

## GOALS

1. Create a sun which moves up and down the screen.
2. Create randomly generated clouds on the screen.
3. Change the colour based on the number of clouds and position of the sun on the page.
4. Add user interaction.
5. Create random colour profiles the user can utilize.

## Research

- **Create Clouds**

Searched google for tutorial on how to create clouds in javascript. This lead me to bezier curves being the best option. [1] Followed this simple tutorial on painting a cloud in javascript. Ported it into p5.js. Began playing with the variables and creating my own clouds.

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- **Default Day Colours**

I want to create a day cycle that looks like a normal day would, before allowing the user to completely change the colours. I decided I want the colours to reflect that of the movie toy story's poster. This is due to the fact I like the cartoony colours of the poster, which contrast nicely. Also the clouds I been creating are more of a cartoonish nature and thus this colour scheme reflects the theme I have created.



- **Colour Scheme's**

Using the colour scheme I have created, I began reading through colour guides, and have decided to create the colour scheme harmonies featured on [2]. Using Adobe's Colour Wheel [3], is how I will create the colour schemes.

## **Revised Goals**

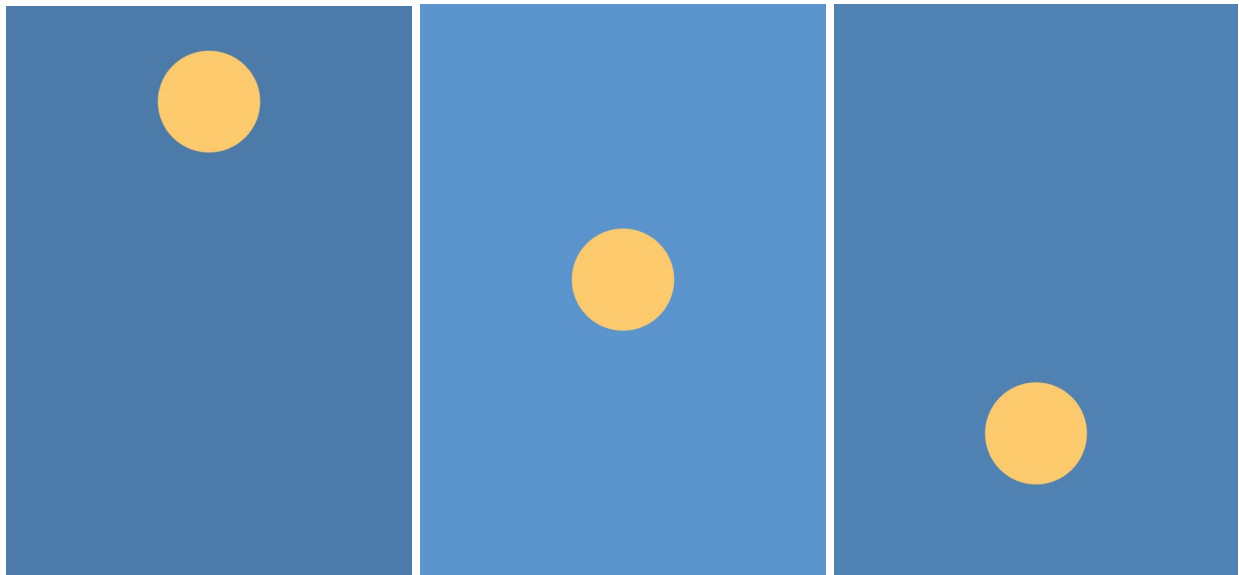
1. Create a sun which moves up and down the screen.
2. Create bezier curved clouds on the screen
3. Change the colour of the canvas based on the number of clouds and position of the sun on the canvas.
4. Add user interaction.
5. Create colour harmony schemes, as well as allow randomness.

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## Iterations

### Create Daylight - 01

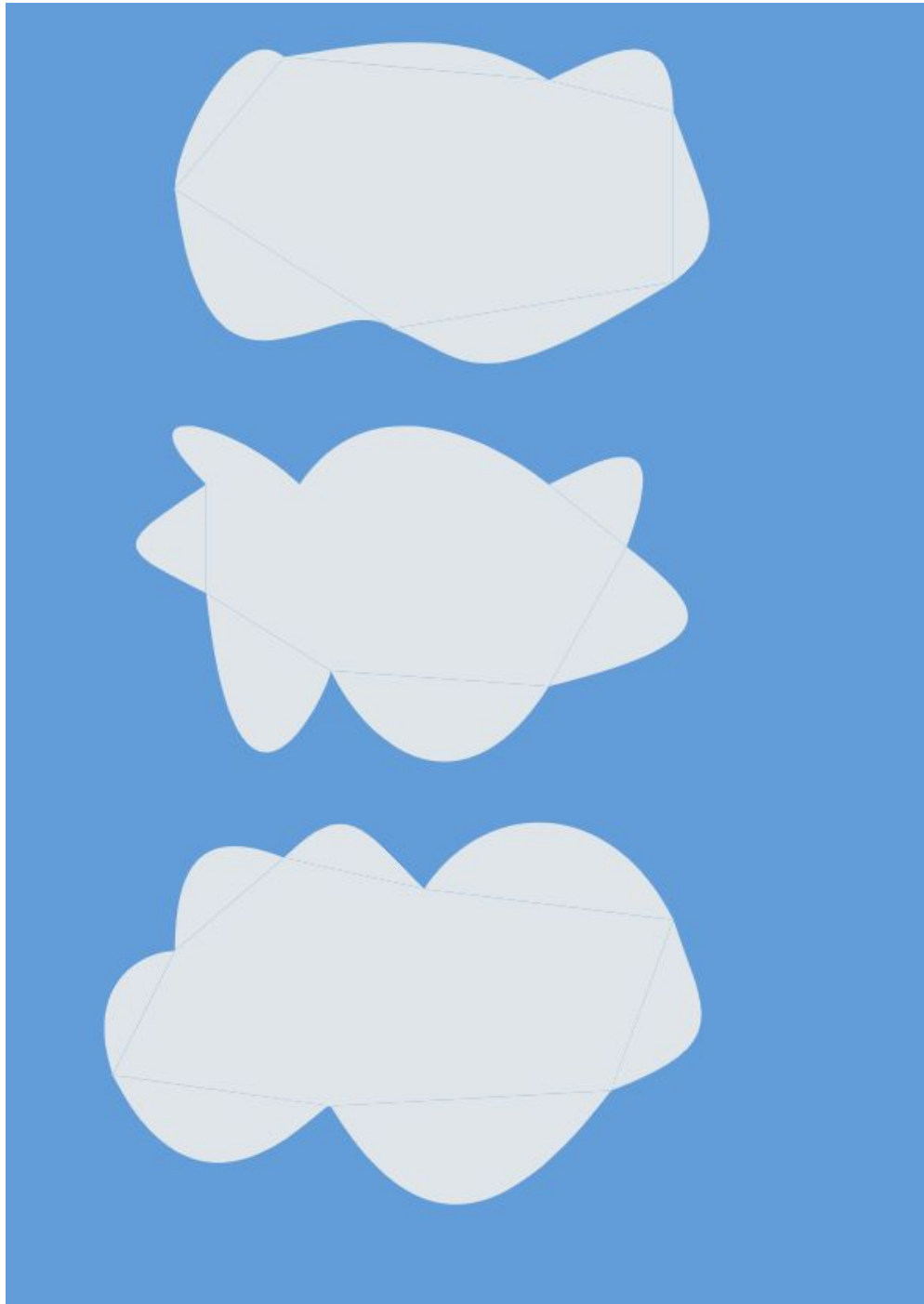
The first step was creating daylight. This involved creating an ellipse which was positioned based on the y position of the cursor on the canvas. The background of the canvas changed in brightness as the sun moves, being brightest while it is in the middle and darkest at either end of the canvas.



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## Create Clouds - 02

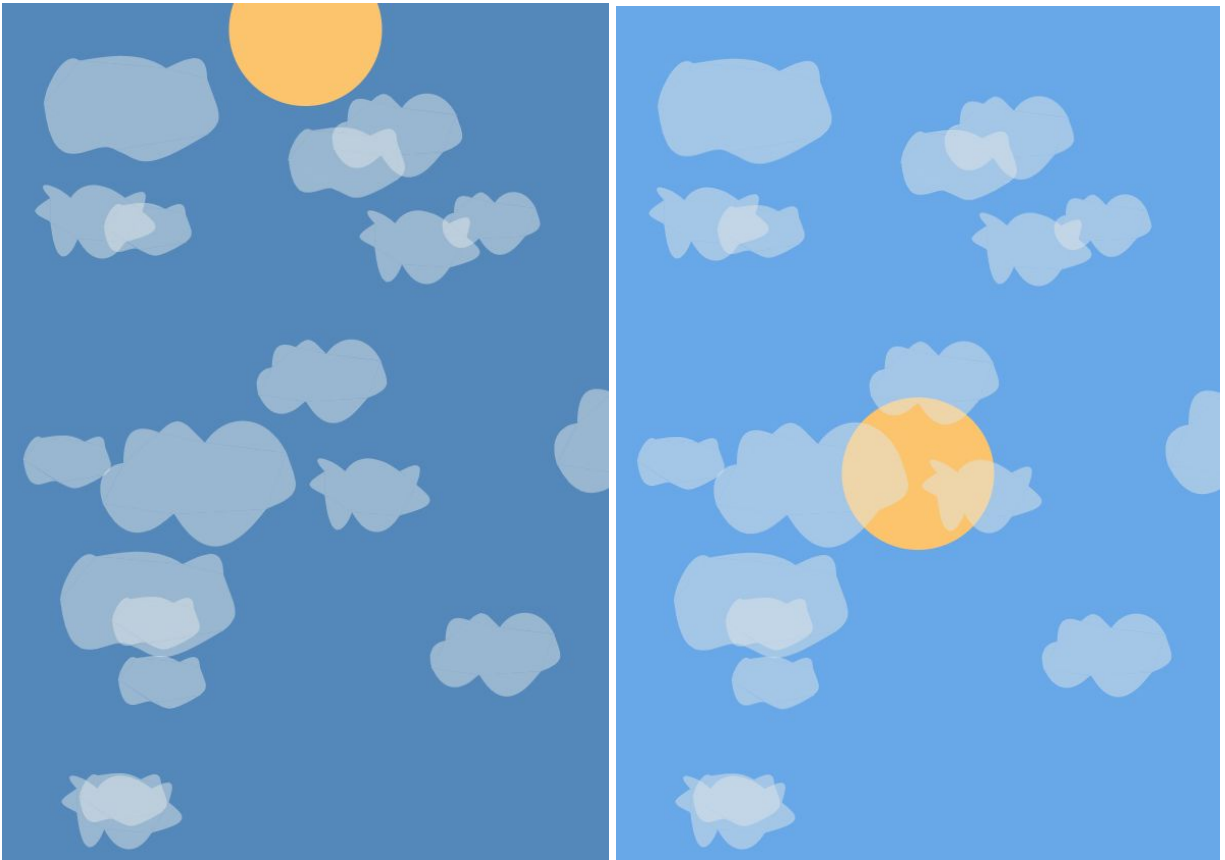
To create the clouds we needed to use bezier curves. Each cloud was hand made, I created each point and made three separate cloud functions so there would be different shaped clouds on the canvas.



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### Sun and Clouds - 03

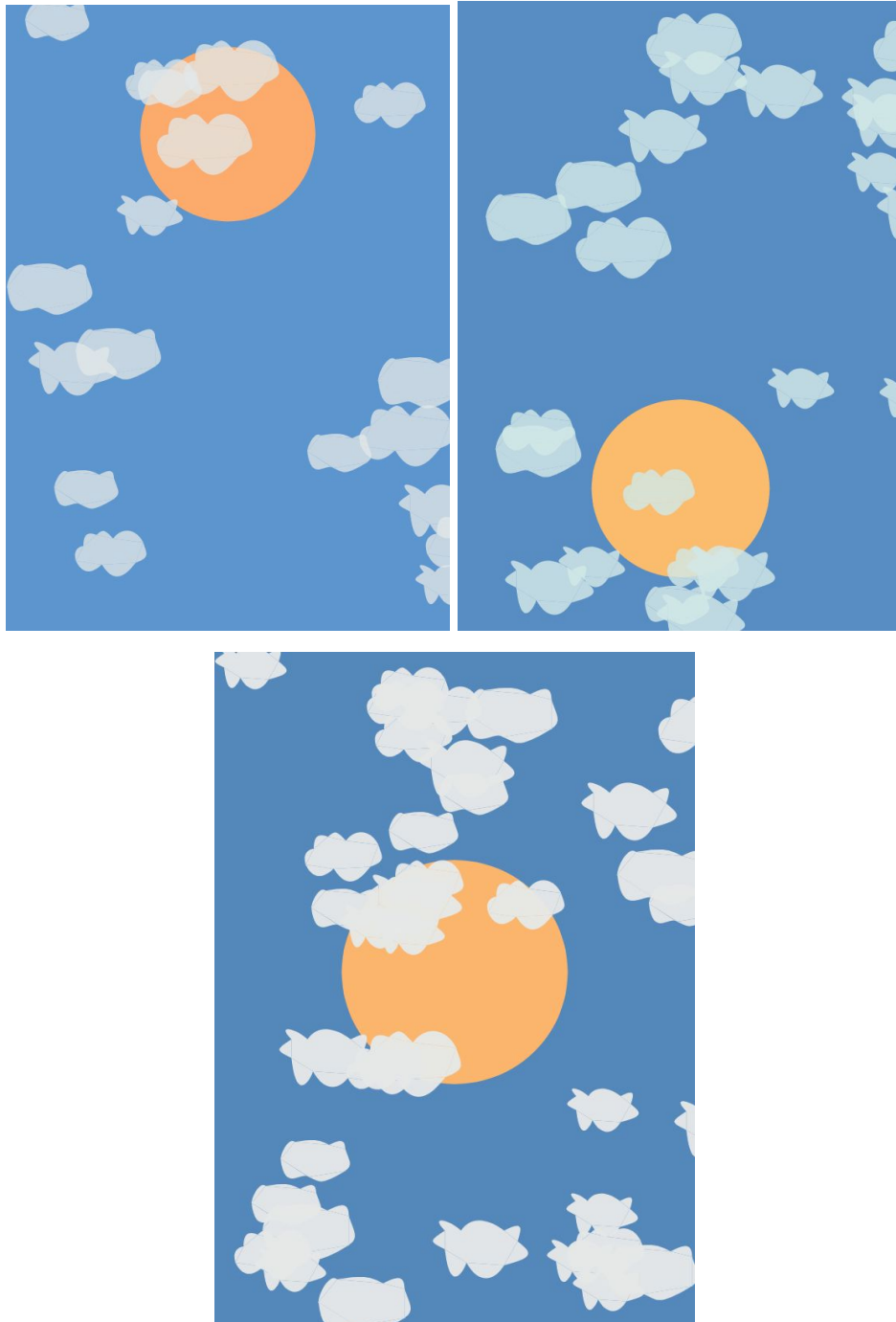
Now I need to combine the sun and clouds. This is where the first randomness of script comes in. We are randomly generating multiple clouds from the functions we created in the last step. The functions have been altered slightly so that the clouds are of different sizes. The clouds all have an equal chance of appearing on the screen.



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## User interaction - 04

Now we are adding user interaction to the script. The user has the ability to regenerate the page by clicking. This will create a whole new set of clouds. The colour of the sun and clouds also changes slightly, and the more clouds the more opaque the clouds are. The amount of clouds appearing on the screen also affects the brightness, the more clouds the darker the day.

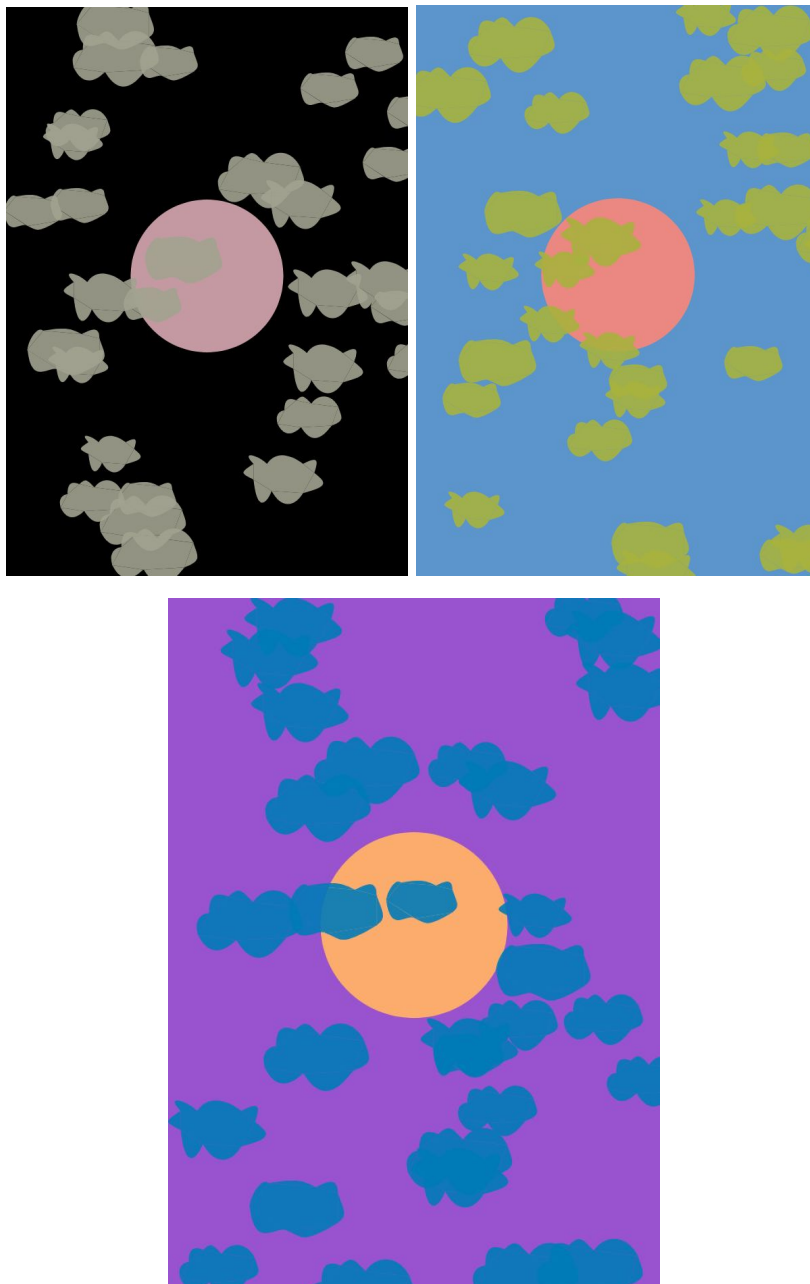


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## Adding Colour - 05

Now we are adding the colour scheme harmonies set out by the creativeboom guide. We also created some more user interactivity. We have given the user the option of letting the sun follow the mouse or have the sun run through a cycle from its current position to the bottom of the canvas.

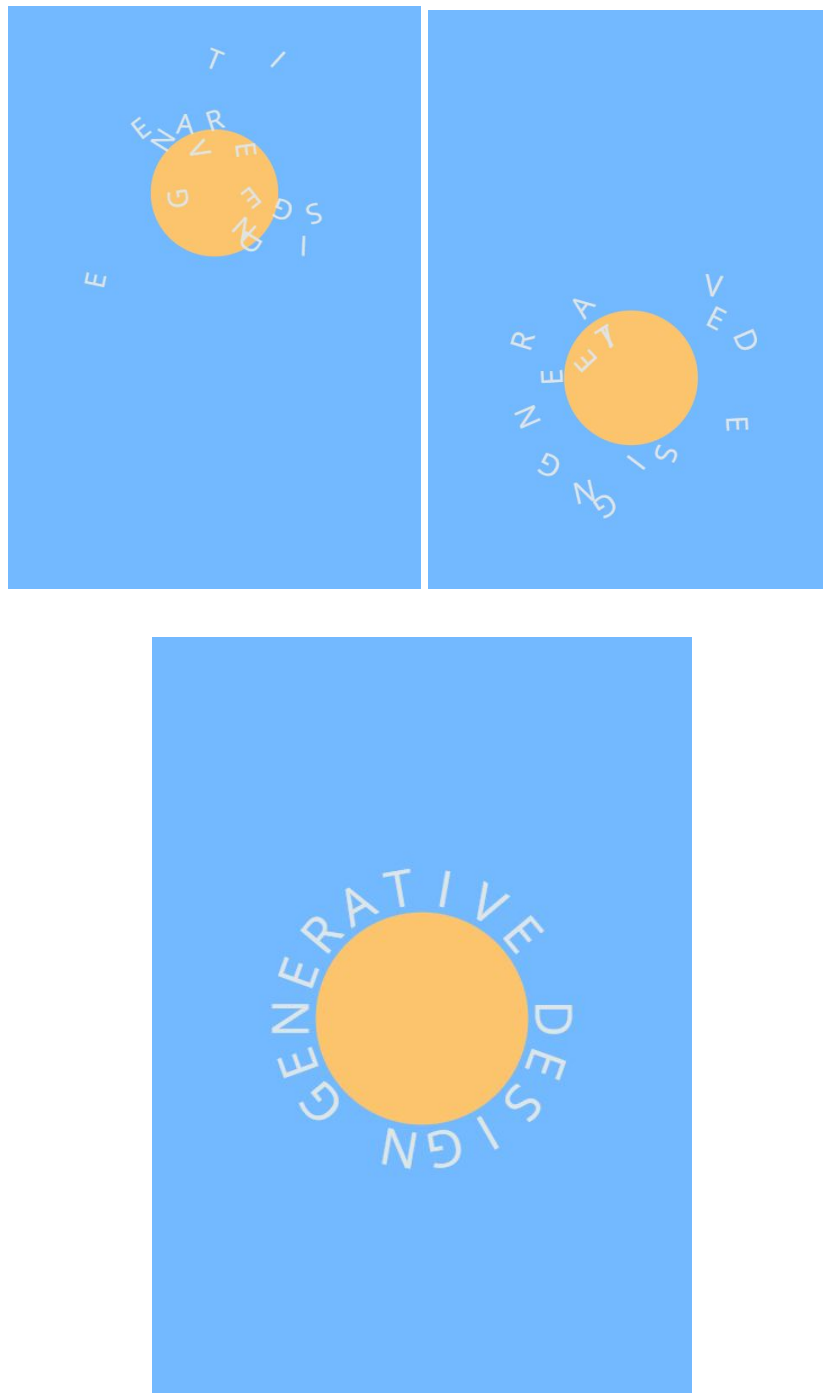
To add the colour harmonies we have also allowed the user to press keys 1 to 0 to change the colour palette of the sky, sun and clouds. This allows the user to experiment with the different harmonies created by the colour scheme.



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## Clouds to text - 06

Changing the idea completely and removing the clouds. Now in the theme of a book cover we add the words generative design around the sun. The letters are spawned randomly around the sun, at random angles. The letters line the sun perfectly when the sun is in the middle of the canvas.





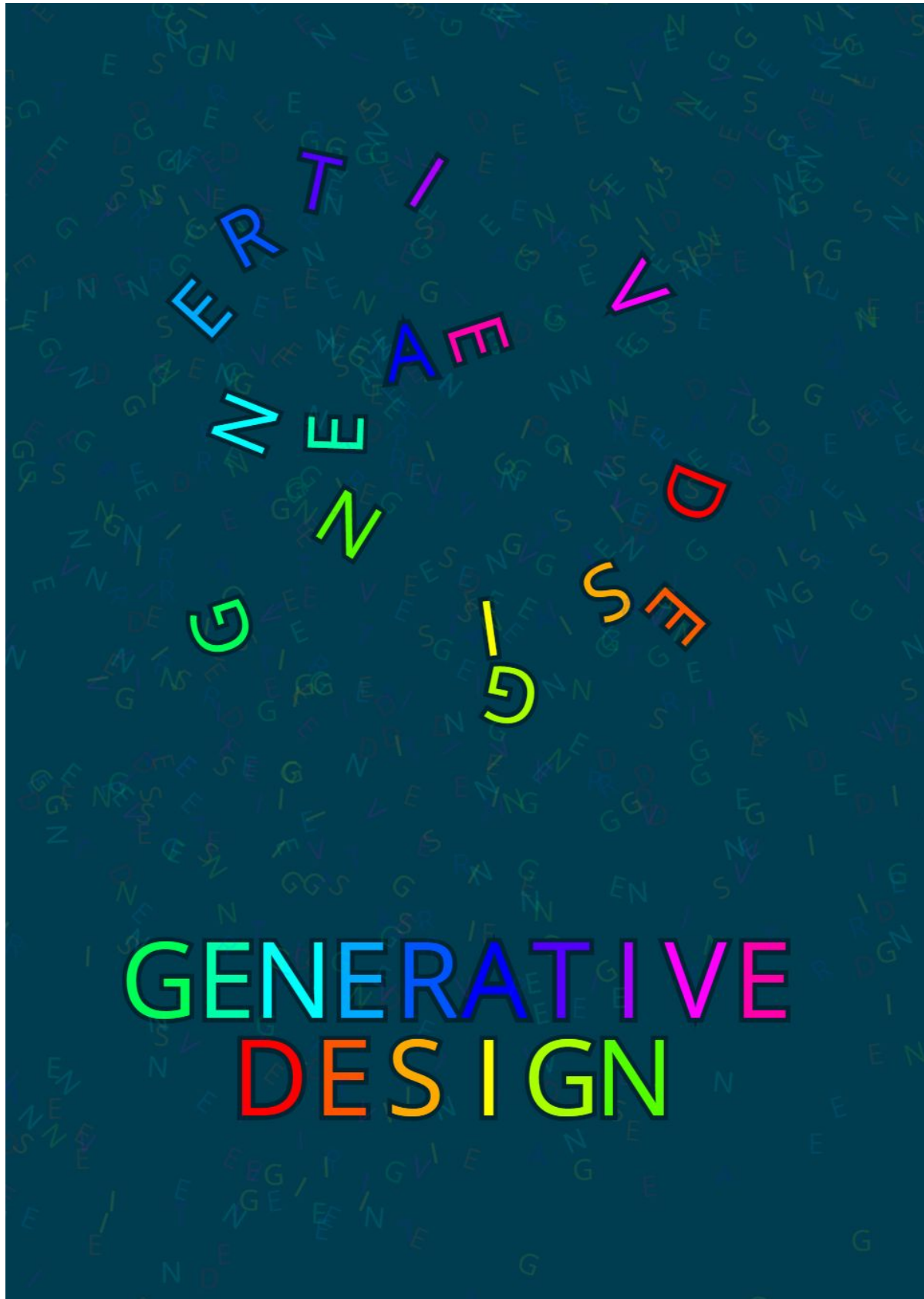
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## Creating a Book Cover - 07

Finally for the book cover, we remove the sun from drawing. The letters still act as though the sun is there. The colour of each letter represents a different hue. The hue is equal to the angle the letter is at around the sun.

Finally we add a title to the bottom of the page, and fill in the blank space of the background with randomly drawn and rotated smaller letters of the same hue values as their bigger counter-parts in the background.





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## References

- [1] - [http://www.java2s.com/Tutorials/Javascript/Canvas/Shape/Paint\\_a\\_cloud\\_by\\_using\\_bezier\\_curve\\_in\\_JavaScript.htm](http://www.java2s.com/Tutorials/Javascript/Canvas/Shape/Paint_a_cloud_by_using_bezier_curve_in_JavaScript.htm)
- [2] - <https://www.creativeboom.com/resources/essential-colour-guide-for-designers-understanding-colour-theory/>
- [3] - <https://color.adobe.com/create/color-wheel/>