GEOMETRIX: Layout & Testing Report

1. Why the Layout Looks the Way It Does

We designed the GEOMETRIX website to be both easy to use and pleasant to look at.

It uses a two-column layout: a fixed sidebar on the left for navigation, and a flexible main area on the right for learning content. This setup helps users easily find what they need without getting overwhelmed.

On smaller screens (like phones), the sidebar moves above the main content so everything is still accessible and clear.

We chose calm blue colors and soft gradients to make the site feel relaxing and focused. Blue is often connected with trust and intelligence, which fits a math site well. The gradient adds depth and keeps the site looking modern.

The sidebar uses slightly darker blues to help guide your eyes, but without being distracting.

We picked simple, clean fonts like Verdana and Trebuchet MS that are easy to read on any screen. Headings are bold so it's easy to tell titles apart from regular text. Font sizes adjust to fit different screen sizes, and we used consistent spacing to keep the site from feeling crowded.

All of this helps users stay comfortable-even if they're on the site for a long time.

The layout is responsive too. That means it works smoothly on desktops, tablets, and phones. We used Flexbox (and sometimes CSS Grid) to make sure the site adapts well no matter what device

someone is using.

2. Layout Testing: Grid vs Flexbox

We tried out both CSS Grid and Flexbox for the layout.

Grid worked well for more structured, multi-column layouts:

```
.container {
  display: grid;
  grid-template-columns: 1fr 4fr;
}
```

But for this site, Flexbox made more sense. It's easier for layouts with just one direction-like a sidebar next to content. It also adjusts better on small screens, stacking elements neatly without needing a lot of extra code.

3. Testing Responsive Design

We tested how the site behaves on different screen sizes using tools in Chrome and Firefox.

- On wide screens: the sidebar and content appear side by side.

- On smaller screens: everything stacks vertically and still looks good.

- Buttons, text, and forms adjust based on screen size, keeping things easy to read and use.

- Padding and spacing change to stay neat and readable.

4. Testing JavaScript Features

We tested the interactive parts of the site:

- A live character counter appears while typing into forms.

- If the user types fewer than 10 characters, a warning message pops up.

- Page content fades in smoothly when loading.

- Clicking on level labels makes them pop with a small animation.

All of these were tested to make sure they work well and make the site more engaging and user-friendly.