



**Using:**

On shape, Inventor, or Tinker CAD 3D modeling software, design a car and print it on the 3D printer.

**The procedure: (15 minutes)****1-Choose your own design:**

Conduct research and choose your own design. (I encourage each student to choose a different design than his or her classmates.)

**2- Thumbnail sketches:**

Use an engineering notebook and start your design.

**3- Refined sketches:**

Choose 3 different thumbnail sketch design ideas and create a refined sketch for each one.

**Activity: (10 minutes)**

Divide the class into groups to share their work with their peers to get feedback. Students need to conduct research and choose the design that they like the most. Each student should choose a different design than his or her classmates. Then they should use their engineering notebook and start their design. First, they should start their thumbnail sketches. They should sketch 5-10 thumbnail sketches. Second, they should choose 3 different thumbnail sketch design ideas and create a refined sketch for each one, refined sketches are more detailed and include main dimensions! (height, width, length).

**Assessment:**

Prepare an engineering notebook and pencil for a test. Students should start their project with thumbnail sketches and then they should do refined sketches by using their engineering notebook.

**Closure:** Last week we went over designing a fancy cube. This week we cover all the materials that students need for designing a hot wheel car. Next week students will start their project.

**Training Aids/Notes:**

I think this lesson plan fits with the students' level of understanding.

**Reference:**

- Mr. John Hammons, *Hot Wheels Design Challenge*
- <https://www.youtube.com/watch?v=HlvK6DLwCz4>
- [https://www.123rf.com/stock-photo/measurement\\_tool.html](https://www.123rf.com/stock-photo/measurement_tool.html)
- [https://www.reddit.com/r/HotWheels/comments/t58qok/another\\_preview\\_of\\_the\\_nfth\\_bone\\_shaker\\_yes\\_its\\_a/?rdt=43274](https://www.reddit.com/r/HotWheels/comments/t58qok/another_preview_of_the_nfth_bone_shaker_yes_its_a/?rdt=43274)

