Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Due:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

By now, you’ve learned a lot of very big words (and some small, tricky words) to describe physical phenomena. You’ve learned how to calculate numerous values for physical characteristics of objects. You’ve also learned a little bit about oscillations and waves.

Part of being an engineer or a scientist or a doctor or a businessperson (lawyers do not follow this rule, even though they should) is explaining things in simple terms. What good does it do to explain to your city council that the live load from two- and four-axle vehicles has worn through the bituminous surface of the thoroughfare and ejected aggregate, creating a driving hazard? Instead, you’d probably say that there is big a pothole in the road.

In this project, you will take a look at an everyday object and, in pretty simple words, explain how it works. Our reference will be *Thing Explainer* by Randall Monroe, which looks at some complicated things, some scientific and some not so much, and uses the 1000 most common words to describe them. (You can use a few more than that.) The challenge is on!

1. Pick a decently complicated object or device or idea (a toaster would be a good one, or a grandfather clock, or HVAC, or a garbage disposal, or a….) that is NOT in the book. A component of something in the book is acceptable. You should choose something to do with physics or math.
2. Research how that device or thing or whatever works, what it’s made from, how it’s used, interesting historical tidbits, etc. You will cite your sources using APA format. You will turn in your research notes, and citations will be checked for accuracy.
3. Draw a blueprint or a flowchart as best you can. If you chose an idea, this might be hard, or it might not. You’ll get a really big piece of posterboard for the final product.
4. Pick important parts or features of the device / idea and describe them as thoroughly and simply as you can at the same time. This could be a material, a moving part, a function, etc. (Example of a Toaster Coil: When electricity goes into this part, the metal heats up and gets bright. The heat comes out and makes the bread get toasty.) Pretend you’re explaining this to a small child.
   1. Features such as “This is the part you hold.” or “This part holds the other part up.” or “This part is blue.” will not be considered advanced. When in doubt, ask your teacher.
5. Make your poster look really good and present it to us.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **Beginning (0-2)** | **Improving (3-4)** | **Accomplished (5-7)** | **Excellent (8-10)** | **Score** |
| **Research** | Student made minimal attempt to gather information, and/or cited no sources | Student gathered basic information and cited one or two sources | Student gathered a wide variety of information and cited three or four sources | Student gathered extensive information and cited at least five sources |  |
| **Components** | Less than 7 features explained AND there are several factual errors | Less than 7 features explained OR there are several factual errors | Student explained 7-8 features without errors | Student explained at least 9-10 features without errors |  |
| **Simplicity** | Descriptions were too general; specialized words were consistently used | Only basic ideas expressed in simple terms; some specialized words used | Some advanced ideas and some basic ideas expressed in simple terms | Majority of ideas are advanced and expressed neatly in simple terms |  |
| **Complexity** | Student showed little or no understanding of the topic | Student showed surface level understanding of the topic | Student showed working understanding of the topic | Student showed exceptional understanding of the topic |  |
| **Originality** | Uses other peoples’ ideas and does not give them credit | Uses other peoples’ ideas and gives credit, but little original work | Student makes some original work and shows creativity | Student shows a large amount of original thought and creativity |  |
| **Polish** | Project is messy, disorganized, and hard to understand  Project is incomplete AND shows little effort | Project is messy, disorganized, and hard to understand  Project is either incomplete OR shows little effort | Project is neat, organized, and easy to understand  Project is complete with some evidence of effort | Project is neat, organized, and easy to understand  Project is complete with strong evidence of effort |  |

Exceptional illustrations or bursts of creativity may receive a “Best in Show” award. This will not be judged by your teacher.