Text Complexity Analysis Template

Text complexity analysis			
Created by:	Catherine Ellis	**Event/Date:**	Teachfest Summer Academy CT- July 2014
Text and Author	"3-D printers use lasers on plastic and metal, not ink on paper." Hartford Courant, 7/16/13	**Where to Access Text**	https://newsela.com/articles/manufacturing-3d/id/563/

Text Description

This article is originally from the Hartford Courant and describes the use of 3-D printers in manufacturing airplane parts, specifically used by Pratt & Whitney and GE Aviation. The article describes how printers can make airplane parts more efficiently for less cost, thus saving the companies both time and money. The article provides a brief history of traditional manufacturing processes for airplane parts, and contrasts it to the advances made in 3-D printing, and shows how printing has been incorporated not only into plastic parts, but is also being used for the manufacture of metal parts as well.

Quantitative

Lexile and Grade Level	1070-9TH grade	**Text Length**	936 words

Qualitative

Meaning/Central Ideas	**Text Structure/Organization**
The central idea focuses on technological advancements using computers, and specifically 3-D printers, to manufacture airplane parts. It makes the argument that this technology is in use today and will continue to grow in the manufacturing sector. The article also points out that this particular application does have the specific requirements of being able to withstand extreme stress and temperature on the parts themselves, and that they have advanced into metal printing from printing originally on plastics. The implied meaning in the article is that this technology will continue to grow and have future impacts on manufacturing.	The text structure is moderately complex. The article is very well organized and flows from the over-arching idea (using 3-D printers in manufacturing) to how they save time and money to the ease with which the parts are made using the printers, to the advancements in efficiency and weight of the parts themselves. Individual section headings help to delineate each topic, and help facilitate the flow in the article. There was only one picture in the article underneath the headline. It shows the image on the computer screen of the item that was to be "printed" using the 3-D printer, and in the background, someone picking it up off the printer. I feel that the image should have been more focused on the printer, perhaps while it was in the middle of the printing, to showcase better how the process works. A "before and after" picture might have illustrated the process more effectively.
Prior Knowledge Demands	**Language Features**
The authors give a brief history of traditional manufacturing to showcase how things are now changing within the industry. I do feel, however, that the author assumes that there is knowledge about manufacturing prior to reading this article. I do think that the author assumes that the reader has a basic knowledge of computer technology in that the possibilities are seemingly endless as to what they can accomplish. There were no references to other texts or theories that might be required in the comprehension of this article.	The language features are moderately complex. The vocabulary was not very advanced and seemed to be easily understandable, almost conversational. There are some vocabulary words that are content-specific to this particular genre. Sentence structure was predominantly simple, with the addition of clarifying clauses, in certain circumstances.

Potential Reader/Task Challenges
I think that students may have trouble “wrapping their head around” or comprehending and understanding the central idea. The concept of 3-D printing is still such a new technology that most people have not had any exposure to it, so I expect the students will have a limited, if non-existent, frame of reference for this technology. Students’ exposure to manufacturing processes may be limited based on their own family’s involvement in industry, and therefore the total ramifications and impact that this technology presents may not be fully appreciated by the students.
Big Takeaway
Manufacturing is moving towards the use of 3-D printers and will be the future of manufacturing. This technology allows engineers to develop new ideas quickly so that they can be tested and implemented faster than ever before. This will increase the individual companies’, and the military’s, ability to produce products in a much more efficient manner, thus saving time and money.

Vocabulary Analysis Template

	Words that demand less teaching time (i.e. the definition is singular and concrete)	Words that demand more teaching time (i.e. words with multiple meanings and/or that are part of a word family)
Words that can be determined in context	• 3-D/three-dimensional • Brackets • "floating factory" • Component • Mainstream • Manufacturing • Heat treated • Withstand • Fused • Emerges • Analysis	• Sculpting • Testing fires • Designers (engines) • Transform • Stress • Milling
Words that cannot be determined in context	• Milestone • Additive/Subtractive manufacturing • Laser • Turbofan engine • Fuel nozzles • Air pathway (engine) • Production speed • Lathing	• **Technology** • **Processes** • **Economy** • **Printing** • **Engineering** • **Materials**