Use the following completed six-page template as a guide as you design your UbD units.

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| Unit Cover Page |

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| **Unit Title:** | Designing My Dreamcar | | | | | | **Grade Level:** | | 1st |
| **Subject/ Topic Awareness:** | | | | Design—STEAM | | | | | |
| **Key Words:** | | Design Process, industrial design, automotive design, communication, model/prototype, measurement (units-inches and centimeters) | | | | | | | |
| **Designed By:** | | C. Bryant | | | | | **Time Frame:** | 2 weeks | |
| **School District:** | | | Atlanta Public Schools | | **School:** | Drew Charter School | | | |
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| **Brief Summary of Unit (including curricular context and unit goals):** | | | | | | | | | | | | | | | |
| Students will learn about the design process (outlined by James Dyson of Dyson Vacuums in Great Britain). The teacher will read the book: **"If I Built a Car" by Chris Van Dusen.** Students will receive a project brief to design their (each student is their own client) dream car. Students will learn about the job of an industrial designer and will learn about the field of automotive design. Students will research the field of automotive design through examining the “Dream Cars” exhibit at the High Museum. Students will learn about the importance of sketching (if iPads are available this will be done using technology—if not sketching with pencil and paper will do) and prototyping—as well as the materials used in the industry to communicate ideas effectively. Students will communicate the idea for their dream car using materials and methods from the industry. Students will participate in evaluation processes at several intervals: sharing and receiving feedback on their sketches and peer critiques throughout the building process. A final evaluation of the design should be completed by the students as well as the teacher. | | | | | | | | | | | | | | | |
| **Unit Design Status:** | | | | | | | | | | | | | | | |
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|  |  | Completed Template (Stages 1, 2 and 3) | | | | | |  |  | Completed rubrics | | | | | |
|  | | | | | | | | | | | | | | | |
|  |  | Completed blueprint for each performance task | | | | | |  |  | Materials and resources listed | | | | | |
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|  |  | Directions to students and teachers | | | | | |  |  | Enrichment plan | | | | | |
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|  |  | Remediation plan | | | | | |  |  |  | | | | | |
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| **Status:** | | | | | | | | | | | | | | | |
| Initial Draft Date: | | |  | | | | Revised Draft Date: | | | | | |  | | |
|  | | | | | | | | | | | | | | | |
|  |  | Peer Reviewed | |  | Content Reviewed |  | Field Tested | | | |  | Validated | |  | Anchored |
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| Stage 1 – Identify Desired Results |

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| **Standards:** |
| **Science**  S1CS1, S1CS2, S1CS3, S1CS4, and S1CS5. |
| **Arts**  VA1C.1, VA1P R.3, VA1P R.2, VA1CU.1, VA1MC.2 and VA1MC.1 |
| **Math**  MCC1.MD.1, MCC1.MD.2, MCC1.G.1, and MCC1.G.2 |

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| **What essential questions will be considered?** |  | **What understandings are desired?** |
| What is the design process?  How does a designer communicate an idea? |  | *Students will understand that…* |
| There is a process utilized for engineering design.  Research/ observation/ understanding a client’s needs helps an individual come up with a better stronger design.  Sketching ideas is important in communicating ideas to a group or even for selling an idea.  Creating a model/prototype is helpful in gaining a 3d understanding of an idea.  Evaluating effectiveness of ideas is important when designing and choosing the best solution. |

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| **Objectives:** | | |
| **What key knowledge and skills will students acquire as a result of this unit?** | | |
| *Students will know…* |  | *Students will be able to…* |
| … the steps in the design process. …the importance of sketching ideas.  …the importance of research in design.  …the importance of creating a model.  …the importance of evaluating ideas to create outstanding solutions. | … conduct research/ observe/record needs of the client.  … complete a series of sketches that show their idea.  … create a model of their idea.  … present their idea to the class.  … utilize the design process. |

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| Stage 2 – Determine Acceptable Evidence |

**Assessment Task Blueprint *(Task 1)***

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| **What understandings or goals will be assessed through this task?** |

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| ***Students will know…*** |  |  |  |
| … the steps in the design process. …the importance of sketching ideas.  …the importance of research in design.  …the importance of creating a model.  …the importance of evaluating ideas to create outstanding solutions. |  |  | **Criteria** |
| **See attached rubric.** |
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| ***Students will …*** |  |  |
| … conduct research/ observe/record needs of the client.  … complete a series of sketches that show their idea.  … create a model of their idea.  … present their idea to the class.  … utilize the design process. |
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| **Through what authentic performance task will students demonstrate understanding?** |

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| **Task Overview:** |
| Students will learn about the design process (outlined by James Dyson of Dyson Vacuums in Great Britain). The teacher will read the book: **"If I Built a Car" by Chris Van Dusen.** Students will receive a project brief to design their dream car. Students will learn about the job of an industrial designer and will learn about the field of automotive design. Students will research the field of automotive design through examining the “Dream Cars” exhibit at the High Museum. Students will learn about the importance of sketching (if iPads are available this will be done using technology—if not sketching with pencil and paper will do) and prototyping—as well as the materials used in the industry to communicate ideas effectively. Students will communicate the idea for their dream car using materials and methods from the industry. Students will participate in evaluation processes at several intervals: sharing and receiving feedback on their sketches and peer critiques throughout the building process. A final evaluation of the design should be completed by the students as well as the teacher. |

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| **What student products and performance will provide evidence of desired understandings?** | | |
| Presentation, sketches, model, photographs |  | Student’s completed rubric |

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| **By what criteria will student products and performance be evaluated? (Rubric Dimensions)** | | |
| * **see attached rubric** |  |  |

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| **Student Self-Assessment, Reflection and Peer Critique:** |
| 1. Students will continuously receive feedback throughout the process from peers. 2. Students and clients will complete a rubric at the end of the unit. |

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| **What other evidence needs to be collected in light of Stage 1 Desired Results?** |

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| **Other Evidence (Minimum of 1 per week):** |
| **(e.g. tests, quizzes, writing prompts)** |
| Quizzes on measurement, the role of an industrial designer/ automotive designer, and the design process may be given.  Writing/ drawing assignments may be given to record observations or ideas. |
| **Please attach the tests, quizzes, and writing prompts to the Unit Plan.** |

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| Stage 3 – Plan Learning Experiences |

What sequence of teaching and learning experiences will equip students to engage with, develop, and demonstrate the desired understandings? Use the following sheet to list the key teaching and learning activities in sequence. Code each entry with the appropriate initials of the WHERETO elements.

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| WHERETO | |
| W | **Where** are the students in this class going? |
| **H** | How will I **hook** and **hold** my student’s imagination? |
| **E** | How will I **equip** all my students for success? |
| **R** | How will I encourage my students to be self-**reflective**, and self-evaluative? |
| **E** | How will I build into instruction opportunities for my students to self-**evaluate** & self-**express**? |
| **T** | How will I **tailor** my instruction to accommodate student’s strengths, needs, & learning gaps? |
| **O** | How will I **organize** the learning experience to maximize student understanding? |

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| **Use this chart to list the key teaching and learning activities in sequence.**  **Code each entry with the appropriate initials of the WHERETO elements.** | | |
| **Code:** | **Activity:** | |
| W | **1.** | Teacher will introduce lesson/tasks with the text. The teacher should explain the need for industrial/automotive designers. Each student will be given the brief to design their own dream car. |
| H, E | **2.** | Visit the high museum exhibit: “Dream Cars.” |
| H, E | **3.** | Demonstrate how to sketch for industrial design and use prototyping materials.  Demonstrate the importance of measurement and scale in designing for human use. |
| E, 0 | **4.** | Teacher and students to discuss possibilities and give suggestions—provide feedback throughout. |
| E, T | **5.** | Students will evaluate themselves with the final rubric. |
| R | **7.** | Students will critique their artwork throughout the process. Students will photograph their process with digital cameras—recording evidence of their thought process. |

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| **Stage 3 – Plan Learning Experiences (continued)** |

**Consider the WHERETO elements.**

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| **Monday** | | **Tuesday** | | **Wednesday** | | **Thursday** | | **Friday** | |
| **Opening:** Teacher reads **"If I Built a Car" by Chris Van Dusen.** | **1** | **Opening:** Teacher explains the purpose for the High Museum visit and what students should look for in the collection. | **2** | **Opening:**  Teacher shows several sketches of automotive designs. Students are asked to identify shapes in the sketches. | **3** | **Opening**: Teacher asks students to re-iterate a sketch of their car taking into account the idea from their partner from the last class. | **4** | **Opening:** Teacher shows a 3-d modeling of a car on the computer. | **5** |
| Students listen to tale and then hear that they will design a dream car for themselves. This is the project brief. Teacher shows some examples of dream cars (students and teacher discuss what makes them special cars) and explains that they will see the cars tomorrow at the High Museum. Explains in general the role of an industrial designer/automotive designer. Students make a list of traits they would find desirable in a car. | | Students are asked to pay attention to sketches and models in the collection. Students are asked to sketch their favorite car from the collection and describe what makes it better than the rest. | | Teacher and students will discuss the importance of sketching in communicating a design idea. Teacher will demonstrate sketching. Students will be given paper or iPads to practice sketching a prototype car. Next students will quickly sketch their own ideas. | | Teacher explains the importance of generating multiple ideas that build on previous ideas. Students create more sketches. | | The teacher discusses with students the importance of a synthesis sketch as well as drawing the vehicle from multiple viewpoints. The teacher demonstrates drawing from multiple viewpoints. Students create their final sketches. | |
| **Student Closing:** Describe a dream car… | | **Student Closing:** Describe the role of an industrial/ automotive designer. | | **Student Closing:** Share one of your sketches with a partner. Partner shares one thing they like and one idea for improvement (Plus 1). | | **Student Closing:** Students check features from each drawing that they wish to incorporate into a final synthesis sketch. | | **Student Closing:** Students are given a quiz on the design process. | |
| **Opening:** Teacher shows a clay prototype on the board and discusses with students the advantages to seeing a model versus a drawing. | **6** | **Opening:** Teacher shows an example car that does not follow scale… a person does not fit inside. | **7** | **Opening:** Teacher provides a recap of advice for modeling… troubleshooting based on conversations from closing yesterday. | **8** | **Opening:** Teacher explains the concept of final critique and the written documentation that should accompany the model. | **9** | **Opening:** Presentation Day! | **10** |
| Teacher will demonstrate modeling techniques, while discussing measurement and scale (use cm:foot). Students will begin creating their clay model. | | Students will model dream car. Students document with a digital camera. | | Students will model their dream car. Students document with a digital camera. | | Students verbalize and create documentation needed with their car so that it may be completely understood. *Car brochures might be helpful here… something that explains features.* | | Students will evaluate themselves. Students will present their idea to the class. | |
| **Student Closing:** Discuss the importance of a 3-d model. | | **Student Closing:** Students will share what is working materials wise on their car and what is not… receiving advice from peers. | | **Student Closing**: Discuss who is generating the most unique prototype. | | **Closing:** Students write what they plan to give the client along with the model to explain their model. | | **Closing:** Share what was learned in the project. | |