

3D Printed Dice Rubric

Standards	Lesson Objectives	Advanced 3 Points	Intermediate 2 Points	Beginner 1 Point	Points
<i>MS-ETS1-2</i> <i>ITEE-12:D, E & F</i> <i>FAB-DESIGN.1</i> <i>FAB-PROGRAMMING.1</i> <i>FAB-MODELING.1&2</i>	Using Computer Aided Design Software (CAD)	Follows along with instruction, is able to use tools taught, and anticipate next steps. Creates a design with detailed thought. Is able to learn more tools than those taught and can redesign without assistance.	Follows along with instruction and is able to use tools taught. Creates a design similar to instructors. Is able to redesign using the same steps taught with little to no assistance.	Completes steps with minimal design thought and needs instructor's direct guidance for tool use. Needs assistance with redesign.	
<i>MS-ETS1-2</i> <i>ITEE- 8:C & D; 9:C, D & E</i> <i>FAB-DESIGN.1</i> <i>FAB-MODELING.1&2</i>	Design Thinking	Creates multiple designs based on competing solutions to find optimal design for dice. Utilizes creativity and critical thinking skills to determine how to lay out their dice. Make decisions about what features to include on each face that reflect personal interest/taste.	Creates one or more entirely new designs utilizing creativity and critical thinking skills to determine how to lay out their dice. Make decisions about what features to include on each face that reflect personal interest/taste.	Creates one design with some consideration for how layout will impact their design. Make decisions about what features to include on one or more faces of the die that reflect personal interest/taste.	
<i>MS-ETS1-2</i>	Evaluation	Determines the probability of an occurrence based on multiple trials. Calculates probability as a fraction, decimal, and percentage. Identifies trends and is able to make predictions.	Determines the probability of an occurrence based on multiple trials. Is able to calculate probability as a fraction, decimal, or percentage.	Needs assistance to determine the probability of an occurrence based on multiple trials and to calculate probability as a fraction, decimal, or percentage.	
<i>FAB-DESIGN.1&2</i>	Constructive Feedback	Is able to give, receive, and incorporate constructive feedback. Actively seeks feedback from peers and instructors. Is able to hold discussions to explain choices or is able to explain why offered changes are not needed. (Can defend design choice)	Is able to give, receive, and/or incorporate constructive feedback.	Struggles to give, receive, or incorporate constructive feedback.	
<i>3-5-ETS1-3</i> <i>ITEE-13: F, G & I</i>	Communication	Able to communicate design choices based on optimal die shape and personal preference. Is able to identify constraints on design and materials used.	Able to communicate design choices based on optimal die shape or personal preference. Is able to identify constraints on design or materials used.	Attempts to communicate design choices. Is not able to identify constraints on design or materials used.	
Point System Key:		11 - 15 Points	6 - 10 Points	1 - 5 Points	Total: