**Assessment Rubrics – Math in the Real World Series - Geometry: Math in Nature**

**Pre- and Post-Test** **Evaluation Rubric**

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**Prerequisite Skills Preparation Evaluation Rubric**

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**Project Integration**

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**Option 2 Design Project:** **Explore Phase** **Evaluation Rubric**

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**Option 2 Design Project:** **Define Phase** **Evaluation Rubric**

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|  | **Excellent** | **Good** | **Fair** | **Poor** |
| **Design Criteria Worksheet** | Exceptional effort was invested by the student to use the worksheet to expand their understanding of the design challenge, the factors that shape the project, or the types and quality of prior solutions. | Substantial effort was made by the student to use the worksheet to expand their under-standing of the design challenge, the factors that shape the project, or the types and quality of prior solutions. | A minimal amount of effort was made by the student to use the worksheet to expand their understanding of the design challenge, the factors that shape the project, or the types and quality of prior solutions. | No effort was made by the student to use the worksheet to expand their understanding of the design challenge, the factors that shape the project, or the types and quality of prior solutions. |
| **Design Journal** | The design journal provides outstanding evidence that the student has identified and assessed the critical criteria that will shape their project. | The design journal provides solid evidence that the student has identified and assessed the critical criteria that will shape their project. | The design journal provides a minimal amount of evidence that the student has identified and assessed the critical criteria that will shape their project. | The design journal provides no evidence that the student has identified and assessed the critical criteria that will shape their project. |
| **Collaboration** | Almost always listens to, shares with, and supports the efforts of others. Tries to keep people working well together. Exhibits exceptional leadership abilities in helping others identify the critical project design criteria. | Usually listens to, shares with, and supports the efforts of others. Does not create conflict in the group. Helps team members identify the critical project design criteria. | Sometimes listens to, shares with, and supports the efforts of others, but sometimes is not a good team member.  Contributes little towards helping team identify the critical project design criteria. | Never listens to, shares with, and supports the efforts of others. Often is not a good team member. |

**Option 2 Design Project:** **Ideate Phase** **Evaluation Rubric**

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|  | **Excellent** | **Good** | **Fair** | **Poor** |
| **Ideation** | Exceptional effort was invested by the student to generate concepts or potential solutions. A variety of media was used to explore ideas. | Substantial effort was made by the student to generate concepts or potential solutions.  A variety of media was used to explore ideas. | A minimal amount of effort was made by the student to generate concepts or potential solutions. | No effort was made by the student to generate concepts or potential solutions. |
| **Design Journal** | The design journal provides outstanding evidence that the student has explored multiple design solutions. | The design journal provides solid evidence that the student has explored multiple design solutions. | The design journal provides a minimal amount of evidence that the student has explored multiple design solutions. | The design journal provides no evidence that the student has explored multiple design solutions. |
| **Collaboration** | Almost always listens to, shares with, and supports the efforts of others. Tries to keep people working well together. Exhibits exceptional leadership abilities in facilitating the creation and assessment of multiple ideas. | Usually listens to, shares with, and supports the efforts of others. Does not create conflict in the group. Helps team members generate and assess multiple ideas. | Sometimes listens to, shares with, and supports the efforts of others, but sometimes is not a good team member.  Contributes little towards helping team members generate ideas. | Never listens to, shares with, and supports the efforts of others. Makes no contribution towards generating ideas. |

**Option 2 Design Project:** **Prototype Phase** **Evaluation Rubric**

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|  | **Excellent** | **Good** | **Fair** | **Poor** |
| **Prototype Development and Testing** | Exceptional effort was invested by the student to visualize and test physical models and/or virtual prototypes. | Substantial effort was made by the student to visualize and test physical models and/or virtual prototypes. | A minimal amount of effort was made by the student to visualize and test physical models and/or virtual prototypes. | No effort was made by the student to visualize and test physical models and/or virtual prototypes. |
| **Design Journal** | The design journal provides outstanding evidence that the student has documented and evaluated prototype(s) or considered possible changes or refinements. | The design journal provides solid evidence that the student has documented and evaluated prototype(s) or considered possible changes or refinements. | The design journal provides a minimal amount of evidence that the student has documented and evaluated prototype(s) or considered possible changes or refinements. | The design journal provides no evidence that the student has documented and evaluated prototype(s) or considered possible changes or refinements. |
| **Collaboration** | Almost always listens to, shares with, and supports the efforts of others. Tries to keep people working well together. Exhibits exceptional leadership abilities in facilitating the production and assessment of prototypes. | Usually listens to, shares with, and supports the efforts of others. Does not create conflict in the group. Helps team members develop and assess prototypes. | Sometimes listens to, shares with, and supports the efforts of others, but sometimes is not a good team member.  Contributes little towards developing or assessing prototypes. | Never listens to, shares with, and supports the efforts of others. Often is not a good team member. |

**Option 2 Design Project:** **Refine Phase** **Evaluation Rubric**

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|  | **Excellent** | **Good** | **Fair** | **Poor** |
| **Refine Solutions** | Exceptional effort was invested by the student to refine ideas. Proposed solutions are very closely aligned to the critical design criteria. | Substantial effort was made by the student to refine ideas. Proposed solutions are aligned to the critical design criteria. | A minimal amount of effort was made by the student to refine ideas. Proposed solutions somewhat aligned with the critical design criteria. | No effort was made by the student to refine ideas. Proposed solutions do not relate to the critical design criteria. |
| **Design Journal** | The design journal provides outstanding evidence that the student has significantly enhanced the design through the use of the software. | The design journal provides solid evidence that the student has refined aspects of the design through the use of the software. | The design journal provides a minimal amount of evidence  that the student has refined aspects of the design through the use of the software. | The design journal provides no evidence that the student has refined aspects of the design through the use of the software. |
| **Collaboration** | Almost always listens to, shares with, and supports the efforts of others. Tries to keep people working well together. Exhibits exceptional leadership abilities in facilitating the refinement of ideas and details. | Usually listens to, shares with, and supports the efforts of others. Does not create conflict in the group. Helps team members refine their original ideas. | Sometimes listens to, shares with, and supports the efforts of others, but sometimes is not a good team member.  Contributes little towards refining designs. | Never listens to, shares with, and supports the efforts of others. Has made no attempt to help refine designs. |

**Option 2 Design Project:** **Solution Phase** **Evaluation Rubric**

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|  | **Excellent** | **Good** | **Fair** | **Poor** |
| **Preparation of Presentation** | Exceptional effort was invested by the student to develop a high-quality final presentation. | Substantial effort was made by the student to organize and prepare all aspects of the final presentation. | A minimal amount of effort was made by the student prepare the final presentation. | No effort was made by the student to prepare the final presentation. |
| **Communication and Team Dynamics** | Exceptional effort was made to help the team conduct the final presentation. The quality of the verbal and visual elements of the presentation was outstanding. | Substantial effort was made to help the team conduct the final presentation. The quality of the verbal and visual elements of the presentation was good. | Minimal effort was made to help the team conduct the final presentation. The verbal and visual elements of the presentation were of mediocre quality. | No effort was made to help the team conduct the final presentation. |
| **Presentation Content** | Exceptional effort was invested towards developing and presenting a quality design solution that is aligned to the design criteria for the project. | Substantial effort was invested towards developing and presenting a quality design solution that is aligned to the design criteria for the project. | Minimal effort was invested towards developing and presenting a quality design solution that is aligned to the design criteria for the project. | No effort was invested towards developing and presenting a quality design solution that is aligned to the design criteria for the project. |