**Computational Thinking Alignment**

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| Practice | Description | Specific Connection |
| Understanding the relationships within a system | *Students who have mastered this practice will be able to identify the constituent elements of a system, articulate their behaviors, and explain how interactions between elements produce the characteristic behaviors of the system.* (Pg. 141) | * Stage 1 (City and Environmental History) requires students to produce a concept map that identifies and depicts the relationships between the elements involved in the demise of their city. |
| Assessing different approaches/solutions to a problem | *Students who have mastered this practice will be able to assess different approaches/solutions to a problem based on the requirements and constraints of the problem and the available resources and tools.*  *Developing* (Pg. 139) | * Stage 2 (Environmental Remediation Plan) requires students to conduct a cost-benefit analysis of multiple environmental remediation technologies to identify the best technology to use for cleanup of their town. * Stage 3 (Energy Plan) requires students to conduct a cost-benefit analysis of multiple forms of alternative energy generation in order to select the best energy generation portfolio for their town. |
| Analyzing Data | *Students who have mastered this practice will be able to analyze a given set of data and make claims and draw conclusions based on the finding from their analysis.* (Pg. 136) | * Stage 4 (Sustainable Home Design) requires students to analyze data from solar exposure and energy performance simulations to make claims about the energy efficiency of the home they have designed. |
| Creating Data | *Students who have mastered this practice will be able to define computational procedures and run simulations that create data they can use to advance their understanding of the topic under investigation.* (Pg. 136) | * Stage 4 (Sustainable Home Design) requires students to run multiple simulations to collect data on the solar exposure and energy performance of the home they have designed. |
| Using computational models to find and test solutions | *Students who have mastered this practice will be able to find, test, and justify the use of a particular solution through the use of a computational model as well as be able to apply the information gained through using the model when appropriate.* (Pg. 137) | * Stage 4 (Sustainable Home Design) requires students to engage in an iterative process of testing the energy efficiency of their home design and using the results of their simulations to make refinements to the design of their home. |
| Creating computational abstractions | *Creating an abstraction requires the ability to conceptualize and then represent an idea or a process in more general terms by foregrounding the important aspects of the idea while backgrounding less important features.* (Pg. 139) | * Stage 5 (City Plan) requires students to represent the design of the downtown region of the town in a simplified form that readily communicates necessary information to the viewer without cluttering the work with unnecessary details. |

**Practices and definitions from the Computational Thinking in Mathematics and Science Practices Taxonomy by Weintrop et al. (2016)**