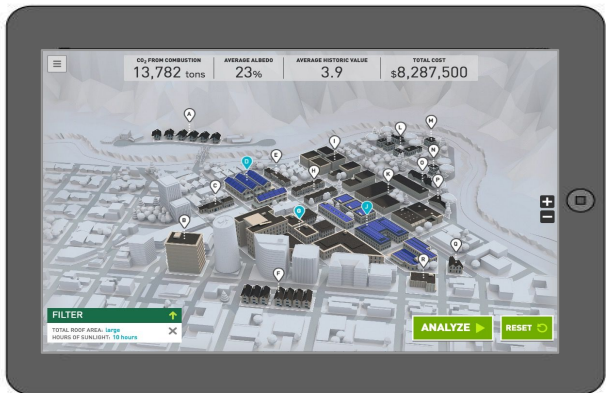


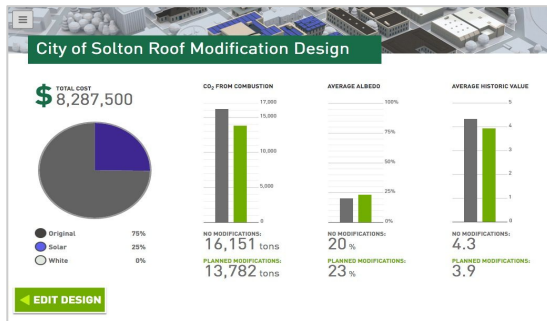
DIMES Digital Internship Modules for Engineering



DIMES are designed to be compelling, immersive learning experiences for middle school science students and to enable authentic, diagnostic assessment of engineering as a *practice*

<p>TsunamiAlert Warning Systems for Tsunamis Plate Motion</p>	<p>RoofMod Rooftops for Sustainable Cities Earth's Changing Climate</p>
<p>SupplyDrop Supply Pods for Disaster Aid Force and Motion</p>	<p>RecipeTest Health Bars for Disaster Relief Metabolism</p>
<p>MalariaMed Fighting Drug Resistant Malaria Natural Selection</p>	<p>BabyWarmer Portable Incubators for Premature Babies Phase Change</p>

Virtual Engineering Internships



design, test, analyze, iterate, optimize...

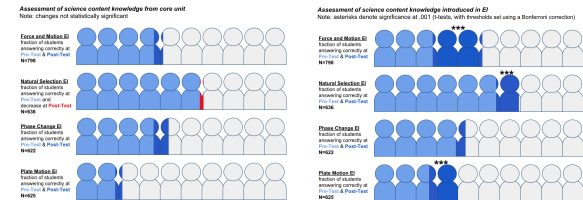
<p>DAY 1 Project Summary</p> <p>Project Summary</p> <p>Describe the project and your understanding of the design process. How do you think the design process will be used to solve the problem? How do you think the design process will be used to solve the problem?</p>	<p>DAY 2 Optimal Design Preparation</p> <p>Optimal Design Preparation</p> <p>How do you think the design process will be used to solve the problem? How do you think the design process will be used to solve the problem?</p>	<p>DAY 3 Trade-Offs Reflection</p> <p>Trade-Offs Reflection</p> <p>How do you think the design process will be used to solve the problem? How do you think the design process will be used to solve the problem?</p>
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...and argue for the best solution

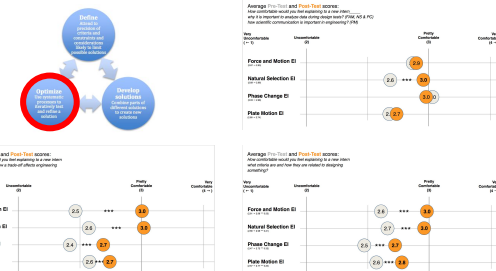
<p>Design Feedback Summary</p> <p>Submitted Version # <u>2</u> original <u>3.9</u> % solar <u>23</u> % white <u>0</u> %</p> <table border="1"> <thead> <tr> <th>Criterion</th> <th>CO₂ from Combustion</th> <th>Average Albedo (%)</th> <th>Historic Value</th> <th>Cost (\$)</th> </tr> </thead> <tbody> <tr> <td>Submitted Design Results</td> <td>13,782</td> <td>23</td> <td>3.9</td> <td>\$8,287,500</td> </tr> <tr> <td>Feedback from Project Director</td> <td>WELL: reduce the amount of CO₂</td> <td>MORE: make more white</td> <td>OK: stay the same</td> <td>WELL: use less materials</td> </tr> <tr> <td>Target Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Ranking Strategy</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Criterion	CO ₂ from Combustion	Average Albedo (%)	Historic Value	Cost (\$)	Submitted Design Results	13,782	23	3.9	\$8,287,500	Feedback from Project Director	WELL: reduce the amount of CO ₂	MORE: make more white	OK: stay the same	WELL: use less materials	Target Value					Ranking Strategy					<p>FINAL PROPOSAL</p> <p>Complete your Final Proposal. Use your responses to the Project Summary to describe the project goal and criteria. Then, address to the sentences to describe your optimal design.</p> <p>Remember to write in a clear and professional manner.</p> <p>Save your work often!</p>
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Ranking Strategy																										

Initial Findings:

science content knowledge



competency-beliefs for engineering practices



learning analytics to assess engineering as a practice

Integrating process and product data

With a focus on optimizing solutions, current analyses use a dynamic belief network in conjunction with theory-grounded evidence rules to draw inferences about students' developing engineering practices.