*What is the problem?*

*What is the setting?*

*Who is the user or client?*

*What are the constraints?*

***SLED Design Model with Teacher Questions***

***SLED Design Model***

The design model is based upon five interactive processes that students use to solve an ill-structured problem. Students work in teams to first identify the overall context of the problem, including the overarching problem and needs of a particular user. Second, students individually generate possible ideas or solutions using what they know about the problem as well as using relevant scientific knowledge. Then students share their ideas within their design teams and mutually agree upon one detailed plan and/or solution. Third, design teams create and test their plan or model. During this process, emphasis is given to recording results from testing and using existing scientific knowledge to explain what is happening. Fourth, design teams share their ideas with either one other team and/or the entire class. Finally, design teams gather feedback from other teams and return to their original design to revise, improve, and retest their original model.

Figure 1 illustrates the five processes. Adjacent to these processes are questions a teacher may ask students when they are engaging in each respective process.

*How will you improve your solution?*

*What are the results from your retest?*

*Which solution best addressed the problem?*

*What are your ideas?*

*What are others’ ideas?*

*What materials will you need?*

*What will your team measure?*

*How might your scientific knowledge inform your design?*

*How did your model, prototype, or solution perform? What were your results?*

*What feedback did your team receive?*

*How will you use this feedback to inform your model or solution?*

*What kinds of scientific concepts could explain your results?*

*How will your team create a prototype, model, or solution?*

*Does your solution match the team’s plan?*

*How will you record results from testing?*

*What kinds of scientific concepts could explain your results?*