


Finding a solution for The Greenhouse Effect (Gr. 7)




Driving Question

How can we construct a solution for the environmental, social, and infrastructure needs of the future?

Challenge 1: Brainstorm a purpose

 What major global issues are being discussed in your class? What problems is the world facing due to climate change? How will these problems change in the future?

Brainstorm some problems your community might face in the future:

 What do greenhouses usually do for us and how do they do it? Why might we be building a greenhouse for the future?

Brainstorm how you can solve one or more of the problems your community might face in the future using a greenhouse:

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Challenge 2: Identify a detailed plan



What happens to different shapes when we apply force to them? Is this the same for every type of force? How can shapes and forms found in nature help inform design? Why is planning important when designing a structure?

Describe some forces that may act on or within your structure:

List the materials you will use to build your structure:

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Challenge 2: Identify a detailed plan



What might happen if you ignored the possible impact of one or more forces while designing your greenhouse? Why do greenhouses come in different shapes and sizes? How can your design make your problem easier to solve? What are some limitations of greenhouses?

The problem my greenhouse will solve is:

Sketch your greenhouse design and/or outline the steps you will follow to build your model:

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Challenge 3: Build a model greenhouse



What are the pros and cons of having a stepwise plan and a sketch to use during the building process? Should absolute freedom be allowed in the building process? Why or why not? Do you think your greenhouse will be able to withstand the various forces you will test against?

Make observations about what worked well or did not work well during the building of your greenhouse model:

Challenge 4: Test it out!



How can you test the various forces that are likely to impact your greenhouse? What are the independent and dependent variables in your experiment? What are you able, and unable, to control? What modifications would you make to your greenhouse design to make it stronger?

List the forces you would like to test against your greenhouse model:

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Challenge 4: Test it out!



What do you notice as you perform your test(s)? How are these simulated forces similar to the real-world forces your design might face?

List the steps you will follow to test your greenhouse against one or more forces. How will you control different variables to make sure your test is fair? Which variables are you controlling, which are you changing, and which are you measuring?

Record your observations before, during, and after your test. What modifications could you make to your design to help it better withstand the force acting on it?