

**Grades: 4-5**

## **SciGirls, “Insulation Station”**

This series showcases bright, curious real girls putting science and engineering to work as they answer questions and make unexpected discoveries in the world around them. In this episode it's cold weather, hot science! SCIGIRLS Greta and her sixth-grade pals use passive solar heat and bubble-wrap insulation to warm up an ice shanty on a frozen Minnesota lake.

**After watching this episode, choose from the following questions and/or tasks to extend your learning**

### **Question Box 1**

- What are the program's supporting claims that support the central message?
- What is the author trying to say through the TV program? What makes you believe this?
- What evidence does the TV show director give to support his or her central idea?
- What is this program "saying"? Cite evidence to support your analysis.
- Which details support the key idea? Look for the who? What? When? Where? Why? How much? How many?
- What is the task the SciGirls set out to do?
- What was the shanty made of?
- How did Angela help the SciGirls?
- What did the SciGirls discover about heat loss?
- How did the girls find a mentor?
- Why do the girls build a prototype?
- Describe the experiment the girls perform on their prototype.
- How do the SciGirls test the insulation?
- What were the results of the insulation test?

### **Question Box 2**

- What did you find most interesting and why?
- How much did you know about the subject before we started?
- How do you feel about this program? Why?
- What parts of it do you particularly like? Dislike? Why?
- What did you enjoy about this program?
- Why do you think they chose cardboard, sponge, and bubble wrap as insulators?
- Would you have chosen something else?
- Do you think that popping the bubble wrap will change the insulation effect?

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**Box 3 (Tasks)**

- Compare and contrast the energy usage of a solar house to that of a regular house.
- Describe different insulation materials that can be used for energy efficiency.
- Research and define passive solar heat in everyday language.
- What does it mean to be an insulator?

**Box 4 (Enrichment)**

- Draw a model to show why wood is a better insulator than metal.
- Describe the process the SciGirls used to insulate the shanty.
- Build a prototype of an ice shanty. What types of insulation could you use?
- In our area we are more concerned with keeping homes cool rather than warm. Would the same insulation work to keep a come cool?

**Box 5 (Extend/Real-Life)**

- Research and describe the ways that the home you live in is insulated.
- Some researchers us other products to insulate. Check out <https://www.calearth.org/>
  - What do they use to insulate the homes they build? Do you think you might want to live in this type of house? What might be the benefits? What would be the drawbacks?