Thursday, June 25
11:30pm

SciGirls, "Pedal Power"
4th – 8th grades.

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 best friends Angela, Olivia, Margaret and Rebecca don welding masks and rev up power tools to engineer an ice cream-maker that's powered by their bikes.

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 from the text 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 several pieces of textual evidence to support your analysis.
- What are the program's supporting claims or reasons that support the central message?

Setting the stage:

- What do the girls want to make? Why?
- What do they plan to use?

Research:

- Why do the girls need to know the parts of a bicycle?
- What are the key parts to a bike?
- What part is like the "motor" of the bike?

Research and Brainstorm:

- Describe how the "ice cream trike" that Amber brought out for the girls to look at works.
- What did the girls discover as they rode the "ice cream trike"?
- What changes to the girls decide on as they plan their "ice cream bike"?

Plan:

- What is the "bump in the road" the girls are trying to overcome?
- How do they resolve this problem?

Mentor Moment:

- What advice does Yvonne give to the girls when building their "ice cream bike"?
- What do the girls discover as they test their bike?
- How do they redesign their bike to solve the problem?

Share:

- How do the girls present their "ice cream bike" to others?
- How was it received by the community?

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Question Box 2

- What is one thing I would like to add to this topic?
- What would you change about this program?
- If a part 2 of this program was created, what you like them to focus on?
- What would you like to research for extra credit? Why?
- Why is it important to have a passion for something you are planning, designing and testing?

Box 3 (Tasks)

- How did the girls use math and science to make their ice cream maker?
- How did the girls use engineering to make their ice cream maker?
- Draw a sketch of the ice cream maker the girls built. Identify each part and explain its importance to the machine.
- The girls made 3 different flavors of ice cream: vanilla, chocolate, and mint. If they made themselves a sundae with a double scoop of ice cream, how many different ways could they make their sundaes? How many different ways could they make their sundaes if they had three scoops? Explain your reasoning using words and or pictures.
- Make you own ice cream.
    - Visit the website: How to Make Ice Cream in a Bag
    - Gather the ingredients and follow the directions step by step. Record your observations for each step.
    - Share your ice cream with someone else and get their feedback.
    - Think of ways to change the flavor of your ice cream and conduct a few more tests. Recording your observations.
    - Compare and contrast the process and results of each flavor.

Box 4 (Enrichment)

- Make a model of a generator and describe the parts.
- Make a model of the girls' invention and show how energy is used along the way.
- Research the history of ice cream: Explore the History of Ice Cream | The History Kitchen
- Read the article.
- Find out more about sorbets and gelato.
- Compare and contrast the three… you may have to conduct taste tests!
- Make an information board with your findings.
    - Who invented it? When? How? Where?
    - how is each made?

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- include similarities and differences
- include ingredients for each
- include pictures

- Share your findings with a friend.

Box 5 (Extend/Real-Life)

- Describe the way ice cream is currently made in commercial settings.
- Conduct an ice taste test with your family.
  - Get three different brands of vanilla ice cream (or any other flavor).
  - Label 3 paper cups with Sample A, Sample B, Sample C (3 cups per taster)
  - Scoop a teaspoon of each into 3 separate paper cups.
  - Have each taster taste the three samples and put them in order from most to least favorite.
  - Record each tasters' results
  - Make a bar graph to show the brand that is the most popular to the least. Data Graphs (Bar, Line, Dot, Pie, Histogram)