

**Grades: 4-5**

## **SciGirls, “Bee Haven”**

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: What's the buzz in urban gardens? The SCIGIRLS use math, mapping and data visualization to help a colony of bees thrive in a downtown Phoenix neighborhood.

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

### **Question Box 1**

- What is your analysis of the program? What evidence did you identify to support your analysis of the TV show?
- What is the central idea? How is the central idea developed?
- Cite evidence from the TV Show to support your determination of the central idea.
- Provide an objective summary of the program.
- What interaction influenced future events? Provide evidence.

Setting the Stage:

- What is a community garden?
- How did the girls get involved in the “grow house”?

Identify the Problem:

- Why are the girls interested in having a beehive in the community garden?
- Why do we depend on bees?

Research:

- How do the girls prepare to learn about bees?
- Why is a “smoker” needed when studying bees?
- What are the different types of bees in the hive? What is each gender of type of bee and what is their “job”?
- Which bee must the girls’ box have in it to make it a successful colony? Explain why?

Data Collection and Analysis:

- What is “sampling”?
- What data are the girls collecting?
- What is the distance bees forge from the hive?
- What is the distance from the hive the girls choose to research?
- The girls plan to use a chart to observe bees, what 2 data points will each “block” on the chart include?
- Why are these two data points important?
- Describe the rating system used on their chart.

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- Compare and contrast the findings on their chart after sampling each type of location?
- What were the findings of the girls sampling?
- Describe the map the girls created from their data. How does the “legend” help the girls “see” their results?

Test:

- Describe the set-up and rationale of the “color test”.
- What color were the most bees attracted to?
- Were the bees more attracted to color or location? How did the girls test this theory?
- What type of plants did the girls decide to plant in their garden and why?

Share

- How do the girls prepare to share their information with others? What do they want others to learn from their investigation?

### **Question Box 2**

- What were some of the most interesting parts to this program? Explain.
- What were some of my most powerful learning moments and what made them so?
- What surprised you in the program, and why?
- What’s the most important thing you learned from the TV show? Why do you think so?
- What in the program made you curious? Explain.
- Why do you think bees are attracted to certain colors and not others?
- Before watching this episode, how did you feel about bees? After watching this episode, how do you feel about bees now? Did your feelings stay the same or change? Tell why?

### **Box 3 (Tasks)**

- Make a model of an urban garden.
- Make a model of a beehive and label the parts.
- Research the bees in your neighborhood. Prepare a data chart that looks the same as the SciGirls in this episode.
- Observe bees in at least 3 different location types and record your data.
- Tell where you are finding the most and least number of bees and tell why.
- Make a colored map to show the evidence of your findings.

### **Box 4 (Enrichment)**

- Discuss with evidence the role bees play in the environment.
- How did the girls use science and math to help the bees thrive?
- Do a color test in your own backyard.
- Using the same colors in the episode: blue and yellow, tell whether your results were the same as the girls. Tell why or why not.
- Select two different colors you’d like to test, not blue or yellow. Repeat your test.
- Test the bees favorite color, by running the test again, using the two most popular

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colors from your first two tests.

- Make a presentation board to show your data.

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

- Research and discuss why bee populations worldwide are decreasing.
- Think Like a Scientist: Watch [High speed summary of Life inside the Beehive](#)
- Take notes on what is happening within the beehive over time.
- Notice the time clock in the bottom left-hand corner, do the math:
  - calculate the amount of time it took for the bees to complete their job
  - calculate the length of time for each step to be completed