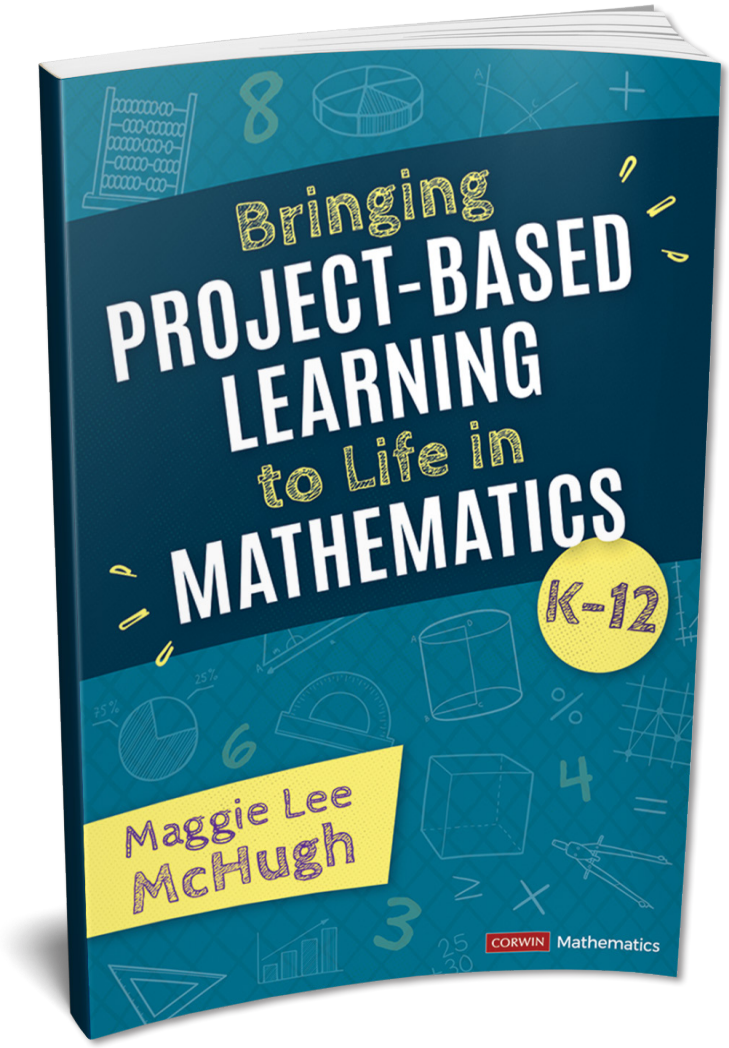


Thank you

FOR YOUR
INTEREST IN
CORWIN

Please enjoy this complimentary excerpt from Bringing Project-Based Learning to Life in Mathematics, K-12.

LEARN MORE about this title!

CORWIN

BEE HOTEL

Grade: 2

Driving Question: How can we attract bees and other pollinators to our community?

Summary: Bees play an important role in our world. Sadly, the bee population is decreasing rapidly. How can we save the bees by attracting them to our community? Second-grade students tackled this question, building prototypes of bee hotels and planting bee-friendly seeds in their school garden.

Content Standards:

- Nonfiction text reading
- 2D and 3D shapes
- Measurement

Mathematical Habits of Mind:

- Use Tools Strategically
- Communicate Mathematically

Success Skills:

- Cooperation

LAUNCH

Engaging Hook

Place food that needs bees for pollination on a table (options: apples, blueberries, watermelon, pumpkin, almonds, cranberries, honey). Read the children's book *The Thing About Bees: A Love Letter* by Shabazz Larkin. Use the food and book to discuss the importance of bees. Serve students food during "need to knows" (if appropriate, check food allergies).

Driving Question

How can we attract bees and other pollinators to our community?

Project Overview

Send a one-page letter to families describing the project. Read the letter to students.

"Need to Knows"

Create a T-chart with "What I Know About Bees" on one side and "What I Wonder About Bees" on the other. Ask students to write on sticky notes what they know about bees. Have students post on the T-chart. Ask students to write questions about bees. Remind students of the five *W*s and one *H* when posing questions. Scribe for students as need be.

Photo (right): Miss Allie Graumann (teacher) reads *The Thing About Bees* to students. Food pollinated by bees is displayed on the table to her left. A T-chart ready to gather "need to knows" is on her right.

Photo (below): A student posts a sticky note of her "need to know" question.

MILESTONE 1

Anticipated "Need to Know"	Inquiry Activities:	Formative Assessment
What kinds of bees can we attract in our state?	Research • Gather several nonfiction books, ebooks, and audiobooks about bees. • Allow students to access books individually or in partners. • Provide a note-catcher for students to capture research notes. Expert • Invite expert(s) to discuss bees, beekeeping, pollination, and so on in the community. • Prepare questions before the expert's presentation. • Create thank-you cards or a thank-you video to share with the expert(s). Poster • Provide question prompts for students to create a poster showing the knowledge gained from both the research and the expert(s). • Hang posters around the room or in the hallway. Revisit "Need to Knows" • Discuss which questions were answered based off research and which questions have yet to be explored.	Poster about bees in our community
Content Standard, Mathematical Habit of Mind, & Success Skill • Nonfiction text reading		Reflection • Written or verbal reflection • Prompt: A new vocabulary word or concept I learned was _____. This word is important because . . .

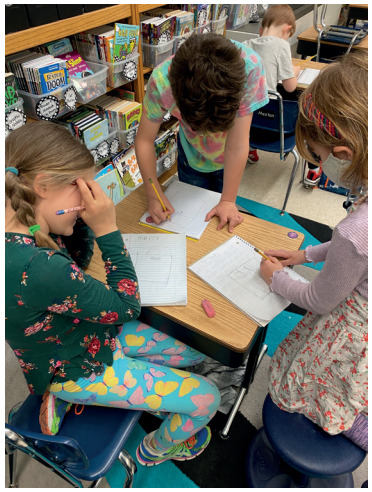
Photo (left): A second-grade student reads about bees on an iPad and fills out a note-catcher of research.

MILESTONE 2

Anticipated "Need to Know"	Inquiry Activities:	Formative Assessment

How do we make a bee hotel?	Team Formation
	• Intentionally place students in teams of two or three.
	• Establish team roles (designer, builder, materials manager).
	2D and 3D Shapes
	• Develop an investigation to guide students in learning the names and properties of 2D and 3D shapes.
	• Create a word wall of important vocabulary terms.
	Prototype
	• Help teams brainstorm a design for a bee hotel.
	  ○ Begin by having individual team members complete a drawing.
	  ○ Have team members share their ideas before creating one final design.
	• Provide teams with a variety of 3D objects to create a prototype of a bee hotel.
	  ○ Items may include cardboard boxes, paper towel rolls, packing peanuts, egg cartons, coffee trays, food storage containers, and so on.
	• Conduct a critique opportunity through a shortened See-A-B protocol.
	• Revise the prototype based on critique feedback.
	Revisit "Need to Knows"
	• Discuss which questions were answered based off inquiry activities and which questions have yet to be explored.
		Bee hotel drawings
		Bee hotel prototype

Content Standard, Mathematical Habit of Mind, & Success Skill		Reflection
• 2D and 3D shapes • Use Tools Strategically • Cooperation		What feedback did you hear that helped you make revisions to your bee hotel prototype? How did your role help you to be a good team member?

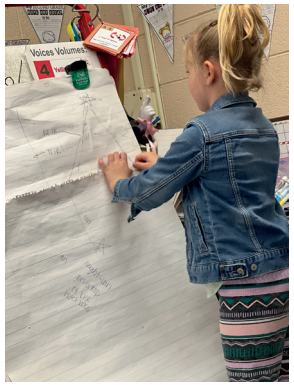
		Photo (far left): Three students create drawings and designs of their bee hotel. Photo (center): Students use materials to create a prototype of their bee hotel.

MILESTONE 3

Anticipated "Need to Know"	Inquiry Activities:	Formative Assessment

How can we make blueprints for a bee hotel? How do we find and write measurements?	Measurement
	• Use previous knowledge or preassess students for understanding of measurement.
	• Provide students with a variety of standard and nonstandard measurement tools.
	  ○ This may include rulers, yardsticks, metersticks, cubes, paper clips (same size), and so on.
	• Engage in measurement investigations and activities.
	• Add vocabulary to the word wall.
	Blueprint Creation
	• Guide students to create a blueprint of their bee hotel.
	• Create scaffolds to help students take measurements and translate them to blueprints.
	  ○ Consider creating a scaffolding sheet for students to draw the *front* view, *side* view, and *top* view of their bee hotel.
	  ○ Scaffold student estimation to the nearest inch or centimeter.
	NOTE: During the blueprint creation activity, Miss Allie invited experts to her classroom to assist each team of students. These experts were preservice students from a local university preparing to become teachers.
	Presentation Creation
	• Guide teams to prepare a short presentation about their blueprint and bee hotel prototype.
	  ○ Remind students the bee hotel carpenter will be at the presentation, taking notes for the final bee hotel design.
	  ○ Scaffold the presentation for students. Specifically assist students in using correct vocabulary, as found on the word wall.
	Revisit "Need to Knows"
	• Discuss which questions were answered based off inquiry activities and which questions have yet to be explored.
		Bee hotel blueprints

Content Standard, Mathematical Habit of Mind, & Success Skill		Reflection
• Measurement • Use Tools Strategically • Cooperation		Prompt: I grew as a mathematician by . . . Ask students to draw themselves as a mathematician, then write how they grew their mathematical brains during the project.

	Photo (right): A student works on her team's blueprint designs and measurements.	

PROJECT CONCLUSION

Critique

The whole class engaged in Glows & Grows after presenting to their classmates and the bee hotel carpenter *(a grandparent volunteered to create the final bee hotel)*.

Revision

After presentations, teams reviewed their blueprint designs and made changes.

Each team submitted the draft of their blueprint to the bee hotel carpenter. Teams drew a star next to the part of the blueprint design they wanted incorporated into the final bee hotel.

Final Product

- Prototype of bee hotel
- Blueprints with accurate measurements
- Presentation using mathematical vocabulary and researched information about bees

Culminating Experience

Installation of the final bee hotel. Signing of names on post. Planting pollinator-friendly plants in the garden around the bee hotel.

Reflection

Good, Better, Best

- Something I was *good* at during this project was . . .
- One thing I got *better* at (improved upon) was . . .
- The *best* part of the project was . . .

Photo (right): Students sign the post at the official bee hotel ceremony.

Photos (left and below): Students present their bee hotel prototype and blueprints to classmates and the bee hotel carpenter.