

TGC Fellow Unit Template

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School/Location: Carl Von Linne Elementary School, Chicago, IL

Subject: Science Grade: 1 Interdisciplinary Unit Title: Plants, bees, and me
Time Needed: 3 weeks

Unit Summary: First grade students will engage in an inquiry-based research unit on the interdependence of humans, bees, and plants. Students will learn about the plant life cycle, habitats and ecosystems, pollination patterns and preferences, the honeybee life cycle, and the connection to agriculture and food supply for human populations. Students will understand the interdependence of humans, honeybees, and plants, and apply this understanding to the potential impact on local and global ecological systems.

STAGE 1: Desired Results

ESTABLISHED GOALS:
Science (NGSS)

- 1-LS1-2 Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
- 1-LS3-1 Make observations to construct and evidence-based account that young plants and animals are like, but not exactly like, their parents.

ELA (CCSS):

- RI.1.1 Ask and answer questions about key details in a text.
- RI.1.2 Identify the main topic and retell key details of a text.
- RI.1.3 Describe connection between two individuals, events, ideas, or pieces of information in a text.

Transfer

Students will be able to independently use their learning to:

1. Identify examples of interdependent relationships in nature.
2. Make environmentally conscious choices, particularly in relation to gardening and food.
3. Peacefully coexist with honeybees, particularly within school grounds.

Meaning

UNDERSTANDINGS

Students will understand that:

1. Humans, plants, and animals are interdependent.
2. Honeybees and flowering plants depend on each other for survival.
3. Humans depend on food, provided by honeybees relationship with plants, for survival.

ESSENTIAL QUESTIONS:

1. How are humans, plants, and animals interdependent?
2. Why should I protect plants and honeybees?
3. Why are plants and honeybees important?
4. How would our world be different without plants and/or honeybees?

	Acquisition	
<p>RI.1.5 Know and use various text features to locate information in a text.</p> <p>RI.1.7 Use illustrations and details in text to describe its key ideas.</p> <p>RI.1.8 Identify the reasons an author gives to support points in a text.</p> <p>RI.1.9 Identify basic similarities in and differences between two texts on the same topic.</p> <p>W.1.2 Write informative/explanatory texts.</p> <p>W.1.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing.</p> <p>W.1.7 Participate in shared research and writing projects.</p> <p>W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided resources to answer a question.</p> <p>SL.1.1 Participate in collaborative conversations.</p> <p>SL.1.2 Ask and answer questions about key details in a text read aloud or information presented orally or through other media.</p> <p>SL.1.3 Ask and answer questions about what a speaker says to gather</p>	<p><i>Students will know (content):</i></p> <ol style="list-style-type: none"> 1. Honeybees live in colonies comprised of one queen bee, male drones, and female worker bees. 2. Honeybees collect nectar to make honey, while simultaneously spreading pollen among plants, to enable plant reproduction. 3. Honeybees prefer certain types of plants and flowers. 	<p><i>Students will be able to (skills):</i></p> <ol style="list-style-type: none"> 1. Use scientific tools to observe plants and bees. 2. Record observations and organize data. 3. Identify foods that are made possible by bees 4. Identify types of plants from which bees gather nectar. 5. Communicate and share learning through visuals and writing. 6. Develop an action plan to protect plants and bees. 7. Implement an action plan.

<p>additional information or clarify something.</p> <p>SL.1.4 Describe people, places, events, and things with relevant details, expressing ideas and feelings clearly.</p> <p>SL.1.5 Add drawings or other visual displays to descriptions when appropriate to clarify thoughts, ideas, and feelings.</p> <p>GLOBAL COMPETENCIES:</p> <ol style="list-style-type: none">1. Investigate the world2. Recognize perspectives, others' and their own3. Communicate ideas effectively with diverse audiences4. Take action <p>TECHNOLOGY USED:</p> <p>Google Docs Google Classroom</p> <p>RESOURCES:</p> <p>Community organizations</p> <p>Texts: 1. <i>The Magic School Bus Inside a Beehive</i> by Joanna Cole</p> <p>2. Let's read and find out science, <i>Honey in a Hive</i> by Anne Rockwell.</p> <p>3. <i>Are you a bee?</i> By Judy Allen and Tudor Humphries</p> <p>4. Variety of texts on bees at various reading levels to support individual student research.</p>		
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Videos: 1. Magic School Bus In a Beehive (Season 3, number 27).

Online resources:

<http://safeshare.tv/v/ss5712a1d858bce>

PBS Silence of the Bees – Inside the Hive -

<https://www.youtube.com/watch?v=IE-8QuBDkkw#t=33>

Honey Bees – Natural History 2 -

<https://www.youtube.com/watch?v=VsCmSWoF8PY>

Bees – A Honey of an Idea - [http://bees.techno-](http://bees.techno-science.ca/english/bees/default.php)

[science.ca/english/bees/default.php](http://bees.techno-science.ca/english/bees/default.php)

Ted Talk – First 21 Days of a Bee’s Life -

[http://ecowatch.com/2015/05/19/ted-](http://ecowatch.com/2015/05/19/ted-talk-bees-life/)

[talk-bees-life/](http://ecowatch.com/2015/05/19/ted-talk-bees-life/)

Every City Needs Healthy Honey Bees -

[https://www.ted.com/talks/](https://www.ted.com/talks/noah_wilson_rich_every_city_needs_healthy_honey_bees?language=en)

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[y_honey_bees?language=en](https://www.ted.com/talks/noah_wilson_rich_every_city_needs_healthy_honey_bees?language=en)

Fairmont Hotel Bee Sustainable Program

- [http://www.fairmont.com](http://www.fairmont.com/promotions/fairmontbees/)

[promotions/fairmontbees/](http://www.fairmont.com/promotions/fairmontbees/)

The Green Belt in Austin (picture)

[https://www.flickr.com/photos/zug55/402](https://www.flickr.com/photos/zug55/4028516990/in/photostream/)

[8516990/in/photostream/](https://www.flickr.com/photos/zug55/4028516990/in/photostream/)

Order a honeycomb from a local source:

<http://www.rangehoney.com/HUGE-TEX>

<p>AS- Honeycomb-Just-Cut-Comb-Honey.htm;jsessionid=90BC9EE0FDDFDF1E3135310A3D5C44EB.m1plqscsfap01 (Texas)</p> <p>Time lapse video plant>flower>strawberry: http://www.youtube.com/watch?v=FP5ZgawTJVw Bee pollination slow motion: http://www.youtube.com/watch?v=N72KFpvliss</p> <p>Virtual Field Trip- CC Pollen Virtual Beehive http://www.iamhomeschooling.com/virtual-field-trips?limitstart=0</p> <p>International connections https://www.penpalschools.com</p> <p>Curriculum resources: 1. FOSS New Plants unit</p>		
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Stage 2 - Evidence

Assessment	Evaluation Criteria (Learning target or Student Will Be Able To)
Assessments FOR Learning:	<p>Students will create a KWL chart</p> <p>Students will add to a growing question chart</p> <p>Students will record learning and thinking in science journals like real world scientists</p> <p>Students will contribute learning to a classroom knowledge board</p>
Assessments OF Learning:	<p>Students will create digital texts to present and share knowledge about honeybees</p> <p>Students will communicate learning and ask questions with online pen pals</p>

Stage 3 - Learning Plan

Week 1

1. Hook: Show students Brainpop video about the environment and how relationships in nature are interdependent. Have the school art teacher discuss the 2 beehives that the school maintains on-site and show students photographs of the beehives and the samples of honey produced from the school's beehives. Have students sample a salad made from plants grown in the school garden and discuss how the school's beehives and gardens are related.
2. Activate prior knowledge and build schema. Students will begin by identifying what they know about bees. Students will generate a list of questions on that they want to know about bees.
3. Students will participate in shared group reading of *Are you a bee?* and *Honey in a Hive*. Students will write and draw about things they learned from these two books in their science notebooks.
4. Students will work together to complete an organizer identifying what bees are, can, and have.
5. Based on research, students will compare and contrast worker bees with drones, and honeybees and butterflies.
6. Student understand and identify the stages of the bee life cycle.
7. Student will investigate how bees make honey and how beekeepers work with bees.
8. Students will identify the three types of bees in a colony (drone, worker, and queen) and investigate why drone bees leave the hive and how long a queen bee lives.
9. Students will label the parts of a bee.

Week 2

1. Students will watch videos that identify current environmental threats to honeybees.
2. Students will identify threats to honeybees.
3. Identify student task: to generate ideas to help save honeybees.
4. Students will prepare questions for a beekeeper interview. Students will interview onsite school beekeeper. Students will interview a beekeeper through an on-line connection (Skype).
5. Students will design and organize a data collection form to keep track of bee sightings.
6. Students will work in groups to research and present information on bees, habitats, life cycles, behaviors, diet, roles, pollination, threats, and conservation.
7. Students will build bee hotels and then select places to set up the bee hotels in the local community.
8. Students research, design, and plant a pollinator garden on school grounds.
9. Students will plan and record a video bee commercial on threats to the bee population.
10. Students will create a poster collage in PicCollage on bees.
11. Students will create information books on bees and the related environmental threats in Storybird.

Week 3

1. Students will continue to research and complete projects on honeybees.
2. Students will prepare to share what they have learned through in person presentations, on-line sources, and in traditional written

and visual format.

Lesson

How are honey bees like humans?

- As a class, students will make a list of what humans need to survive. Students will differentiate between 'wants' and 'needs'.
- Watch the videos "All Things Animal TV – BEES" and "NATURE – Silence of the Bees".
- Students examine the habitat of a honey bee. Students will understand that the hive as well as the outer environment provides all the basic needs for the honey bee.
- Students will draw a detailed diagram of a honey bee's habitat. The diagram should clearly show all the basic needs of the honey bee.
- Students will identify what survival needs both bees and humans have in common.

