



MOUNTAINFILM
FOR STUDENTS

DETROIT HIVES

DIRECTORS Palmer Morse
Rachel Weinberg
DURATION 6 min

Honeybees lead the charge in Tim Paule and Nicole Lindsey's fight against urban blight in Detroit. Their fast-growing Detroit Hives has resurrected seven of the city's approximately 90,000 abandoned lots by setting up flourishing beehives. With Detroit's more than 2,000 registered hives, the couple are part of a growing community movement. They built their first apiary on a lot purchased for \$340 in partnership with Detroit Land Banks. As Nicole says, "you don't have to have a million dollars in your bank account to start an idea."



Standards

COMMON CORE ANCHOR STANDARDS FOR READING

CCSS.ELA-LITERACY.CCRA.R.1 / Key Ideas and Details

Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

CCSS.ELA-LITERACY.CCRA.R.7 / Integration of Knowledge and Ideas

Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words

CCSS.ELA-LITERACY.CCRA.R.10 / Range of Reading and Level of Text Complexity

Read and comprehend complex literary and informational texts independently and proficiently.

COMMON CORE ANCHOR STANDARDS FOR WRITING

CCSS.ELA-LITERACY.CCRA.W.1/Text Types and Purposes

Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.

CCSS.ELA-LITERACY.CCRA.W.4 / Production and Distribution of Writing

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience.

CCSS.ELA-LITERACY.CCRA.W.5 / Production and Distribution of Writing

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

COMMON CORE ANCHOR STANDARDS FOR SPEAKING & LISTENING

CCSS.ELA-LITERACY.CCRA.SL.1/Comprehension and Collaboration

Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

CCSS.ELA-LITERACY.CCRA.SL.5 / Presentation of Knowledge and Ideas

Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

Tags honey bees, food production, community restoration

Key Vocabulary pollination, pollinators, community, restoration

Filmmaker Interview



**PALMER MORSE &
RACHELWEINBERG**

Why did you become a filmmaker and how did you get started?

We both actually met while attending film school in college. It seemed we both had an appreciation for telling authentic, real-life stories and navigated towards studies in documentary and the humanities. For both of us, we wanted to and now strive to tell the often untold or under-told stories of our time.

When you made the film, did you have a specific audience in mind?

Knowing that Tim and Nicole visit many schools throughout the year to educate on the importance of honey bees, we felt like the film catered towards students and particularly a younger audience. Many kids that Tim and Nicole work with have never seen a honeycomb before, and when Tim and Nicole bring that experience to them for the first time, there's an incredible sense of awe. We wanted to bring that experience to young audiences through this film.

When editing the film, was there anything you wished you could have included in the final cut?

There's so much to learn from Tim and Nicole about keeping bees and it was difficult to edit out a lot of amazing fun facts about honey bees that they shared. We decided to focus on their story and be able to share those important facts about honey bees when screening the film or working with students. That being said, we always wish there was more room for those incredible anecdotes.

with breweries in the area to take their excess waste and up-cycle it into super enriched flour. It's a truly beautiful and amazing process to witness, and we're excited about the film already!

What is one piece of advice you can give students that you wish someone had shared with you?

Getting a start on something you are passionate about is often the trickiest step. Whether it's making a film, writing a book, starting a business, etc. There

“It's on all of us to enact change in our community.”

What are some of the challenges you encountered while making this film?

Filming honey bees was definitely a challenge. Operating a camera in a swarm of bees while wearing a beekeeping suit was not only tricky but somewhat comical. Palmer only got stung once! Of course, it was a result of neglecting to wear gloves so that he could operate the camera.

Is there an action you hope people are inspired to take after seeing this film?

We hope that when someone watches this film, they'll not only feel inspired to care for our bees and realize their importance, but also feel enthralled to make a change in their own community. *Detroit Hives* started with a simple idea to address an issue and the will power to make it happen. It's on all of us to enact change in our community. As Nicole says in the film: “You don't need a million dollars to act on an idea”.

What's the next big adventure or film project on the horizon for you?

We're currently working on a short film about a group of immigrants in the U.S. who are working to address food waste here in the states. This young couple from different parts of the world started a small company in New York City working

are often many doubts we have about ourselves and our abilities. We have both found that to negate that doubt, finding friends to collaborate with and support your passion is key. We certainly would not have been able to make this film without each other and all of our work is often done with friends who we can be open with and share our ideas. Having someone there to bounce ideas off of, challenge your ideas, and help you grow is so crucial to creative success.

Pre-Screening Activities

Grades 3–6: Activity 1

For this activity, students will review the definition of the word “pollination” and/or “pollinate” and discuss how pollinators are important to our everyday lives, specifically the food we eat.

pollination (noun): how plants spread pollen from plant to plant to produce more plants and fruit

Write the word **pollination/pollinate** at the top of the board, and divide the rest of the board into three columns to create a **K-W-L (know, want to know, and learned)** chart.

Ask students what they know about the word pollination and list their responses under the **K/know column**.

After a discussion, pass out sticky notes to students and ask students to write a question and or statement of something they want to know about pollination.

Some potential sentence stems to provide for students who need additional support are:

“I would like to know more about how _____.”

“I am curious about understanding how _____ works.”

Once students have written their question/statement, ask them to put it on the board in the **W/want to know column**.

K (know)	W (want to know)	L (learned)

After completing the **K & W** sections of the chart watch video (3:32), “Pollinators: Putting Food on the Table” from Nature Works Everywhere (of the Nature Conservancy): <https://vimeo.com/7781127>.

When the video is done, pair students off to summarize what they learned in the video. Decide who will go first, that will be **Partner A**.

1. **Partner A** summarizes video uninterrupted for 30 seconds as **Partner B** listens.
2. When the 30 seconds is up, **Partner B** repeats back what **Partner A** said (ex: “What I heard you say is...”).
3. **Partner B** summarizes video uninterrupted for 30 seconds as **Partner A** listens.
4. When the 30 seconds is up, **Partner A** repeats back what **Partner B** said.

When both partners have shared, pass out sticky notes and ask students to write down 2-3 things they learned from the video and put under the **L/learned column** on the board.

Grades 3–6: Activity 2

For this activity, students will review the definition of the word “pollination” and/or “pollinate” and discuss how pollinators are important to our everyday lives, specifically the food we eat.

Write the word pollination/pollinate at the top of the board, and ask students if they have heard the word before and in what context. Ask them to come up with a definition of the word “pollinate.”

pollination (noun): how plants spread pollen from plant to plant to produce more plants and fruit

Ask students to either pull out their lunches, think about what they had for lunch, or use your lunch and/or the school lunch menu as an example.

Think about all of the ingredients either in your sandwich, salad, or in the school lunch for that day. (ex: An enchilada would have a tortilla, which requires corn, and the sauce would have tomato, spices, etc.)

Divide the board into two columns, can be made without pollination and requires pollination. Ask students to make predictions based off of the food displayed and/or discussed, and their ingredients and divide into the appropriate column. There is no wrong answer for this activity, just ask the students to make guesses.

Example: Can a raspberry be made without pollination?
Can bread be made without pollination?

Can be made without pollination	Requires pollination

Watch video (3:32), “Pollinators: Putting Food on the Table” from Nature Works Everywhere (of the Nature Conservancy): <https://vimeo.com/77811127>.

When video is done, revisit the chart you made on the board, and see if anything needs to be moved from one column to another.

Pass out sticky notes, and ask students to write one thing they learned about pollination. Have them share with the class and/or partner to edit for complete sentences.



Pre-Screening Activities

Middle/High School

For this activity, students will be asked to review key vocabulary and to write predictions about the film, *Detroit Hives*, to activate prior knowledge and engage student interest.

Write the following words on the board: stereotype, pollinate, beekeeping, conservation, science, problems, community, urban, blight, bee.

Review each word and ask students to define the word to check for understanding. If it is evident that the student does not know the meaning of the word, define it for the class.

Ask students to write a prediction about what they think the movie, *Detroit Hives* will be about using the words on the board. They do not have to use all of the words in one sentence, but they are only allowed to write one sentence for their prediction.

Pass out sticky notes and ask students to write on the sticky notes using complete sentences, the words provided, and the sentence stem “I predict *Detroit Hives* will be about...”

Examples:

“I predict *Detroit Hives* will be about bee conservation in urban areas and the solving of community problems.”

“I predict *Detroit Hives* will break stereotypes about beekeeping and science.”

stereotype
pollinate
beekeeping
conservation
science
problems
community
urban
blight
bee

Bonus points to the wordsmith in your class who uses all of the words!

When done writing their prediction on a sticky note, ask students to share with a partner and trade their sticky note.

When done watching *Detroit Hives*, ask students if their partner was correct with their prediction.

Discussion Guide

GENERAL/OPEN PROMPTS

1. The term “urban blight” is used in the film, *Detroit Hives*. In your own words, define the term. Discuss how this is connected to the term “bee blight.”

EXPLORING SELF

1. In the movie, *Detroit Hives*, Tim Paule states “growing up as a kid, it wasn’t cool to be into science, or to keep bees, or to be outside in nature, so we didn’t really see a lot of those positive figures or people out there, so I think it’s important for someone like me to be in a position of leadership to inspire other people that it’s cool to learn about science, food that gives back to your environment and your community.” Can you think of someone that inspired you? Can you think of positive role-models that have inspired you to think more critically about science? How can you take steps to inspire others about science?

EXPLORING THE WORLD

1. In the movie, *Detroit Hives*, Nicole Lindsey states, “There was a problem that we see with our city, there was a problem that we see with our honeybees. What we’re doing here is solving both of those problems” Can you think of a problem that is affecting your community’s environment? What could you do to help?
2. What would happen if there were no pollinators? Where would we get our food? Would you want to be part of this world?

EXPLORING FILMMAKING

1. Think about how the filmmaker chose to tell the story of *Detroit Hives*. What do you think the filmmakers’ message was? Do you think they were effective in telling their story?
2. What is most compelling to you about the film *Detroit Hives*? Why?

EXPLORING SOCIAL ISSUES

1. What is a stereotype? What are the stereotypes you have of a beekeeper? Why do you think those stereotypes exist?

SENSE OF WONDER

1. Do you think it is important for Tim Paule and Nicole Lindsey to educate local schools about bees? Why? Who else do you think they should educate to help get their message across?

Activities

Grades 3–6: Activity 1

MATERIALS NEEDED:

1. 8 ½ x 11 sheet of paper
2. Markers or colored pencils

For this activity, students will be asked to identify different types of pollinators (specifically the hummingbird, butterfly, bees, and bat) and recognize that there is a co-evolution of physical characteristics between a flower and the pollinator. Students will be asked to review the characteristics specific to each pollinator and design a new flower that would attract their assigned pollinator.

Watch the video clip (4:18), “The Beauty of Pollination- Moving Art” from Disney Nature’s documentary *Wings of Life*: <https://www.youtube.com/watch?v=MQiszdkOwuU>

Once students have finished watching the video clip, ask them to list all of the different pollinators they saw in the video (hummingbird, butterfly, bees, bat).

Using the US Forest Service website, on Pollinator Syndromes, students will be asked to design or draw a flower that would attract their pollinator: https://www.fs.fed.us/wildflowers/pollinators/What_is_Pollination/syndromes.shtml#traits

Read the first paragraph from the Pollinator Syndromes website in the yellow box to the right and lead a discussion surrounding what this paragraph means as a whole class. You will most likely have to explain some of the vocabulary (co-evolved, characteristics, interact, reproduction).

Paragraph from Pollinator Syndromes website:

“Plants and pollinators have coevolved physical characteristics that make them more likely to interact successfully. The plants benefit from attracting a particular type of pollinator to its flower, ensuring that its pollen will be carried to another flower of the same species and hopefully resulting in successful reproduction.”

Assign each student a pollinator (hummingbird, butterfly, bees, bat) and review the table on the website and or adapted table below. Pass out pieces of paper and markers & colored pencils.

Ask students to write their pollinator at the top and then design a flower that would attract their pollinators using the chart on the website, or adapted chart below*:

	bird	butterfly	bees	bat
color	scarlet, orange, red or white	bright, including red and purple	bright white, yellow, blue or UV	dull white, green or purple
shape	large funnel like, cups, strong perch support	narrow tube with spur, wide landing pad	shallow, have landing platform, tubular	bowl-shaped & closed during day
odor	none	faint, but fresh	fresh, mild, pleasant	strong & musty, emitted at night

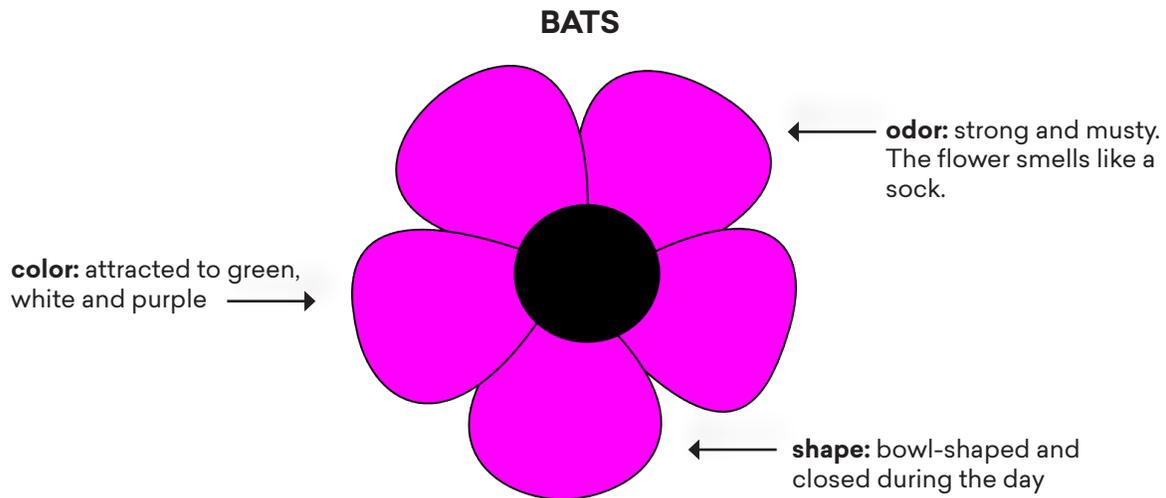
*as adapted from Pollinator Syndromes chart from the U.S. Forest Service

Grades 3–6: Activity 1 (cont.)

Ask students to label the **color**, **shape**, and **odor** of their flower once they have drawn it. If you would like, you could do a quick mini lesson on similes for the odor of the flower (comparing two similar things using the word “like”).

Mini Lesson Example: “The flower smells like fresh cut grass” could be used of the odor for a flower that would attract a butterfly).

Flower Example:



Grades 3–6: Activity 2

MATERIALS NEEDED:

1. A small, clean plastic soda or water bottle with cap
2. A small, clean deli container
3. A hammer and a large nail
4. Awl, ice pick or other instrument to cut plastic
5. A small paintbrush
6. 20 - 40 inch piece of thin bendable wire
7. 1/2 cup of white sugar
8. 2 cups of water
9. A pot for heating water

Build a homemade hummingbird feeder using recycled plastic. Here are complete directions: <https://www.fs.fed.us/wildflowers/kids/activities/documents/RecycledPlasticFeeders.pdf>

You could have students keep a journal based off of their observations and/or lead an experiment trying different types of sugar (brown sugar, corn syrup, cane sugar, etc. and or change the color of the water to see if it makes a difference in the amount of hummingbirds attracted).

Middle/High School: Activity 1

MATERIALS NEEDED:

1. 8 ½ x 11 sheet of paper
2. Pencils or pens
3. Sticky notes (optional)

For this activity, students will be asked to gain more information through reading about the honeybee stressors. They will then be asked to form an opinion about whether or not they agree or disagree with a new patent for the development of a robotic honeybee as a solution to the problem of honeybee stressors.

PART ONE

Ask students to visit website, the NAPPC Honey Bee Health Task Force from Pollinator Partnership:
<https://www.pollinator.org/learning-center/bee-issues>

Read the two introductory paragraphs and section titled “Honeybee Health” as a class. Then break class into eight groups and assign them a honeybee stressor – **parasites, viruses, bacterial diseases, pesticides, nutrition, genetics, queen quality, and management.**

Ask students to read their section and write a two-three sentence summary for each section to be shared with the class. Once done with their summary, have the group stand up and share their summary with the class.

PART TWO

Give each student a copy of the article, “Can Robotic Bees Replace the Real Thing? Walmart Files Patent for ‘Pollination Drone’” by James Hetherington for Newsweek (March 2018) and read to class:
<https://www.newsweek.com/can-robotic-bees-replace-real-thing-walmart-files-patent-pollination-drone-845861>

When done reading the article, have students reread the article independently and write a two to three sentence summary of the article at the bottom of the article, or on a separate sticky note.

Students will be paired off and share their summary with a partner, editing for a complete sentence. While students are reading their summary to their partner, write the question on the board:

Do you believe that developing robotic bees is helpful or harmful to bee populations?

Once students are done sharing, designate opposite sides of the classroom as agree/disagree. If a student agrees that robotic bees are helpful, have them stand on one side of the classroom, if they disagree and believe that they are harmful, have them stand on the opposite side.

Students will stand in a line and argue their point to the other side of the class, to see if they can persuade other students to agree with their point of view, drawing upon the information learned from the NAPPC Honey Bee Health Task Force in Part 1 of the activity.

Example: “I believe robotic bees are harmful to bee populations because they create more waste in the creation of the robotic bee and spray pesticides, which are harmful to bees.”

Middle/High School: Activity 1 (cont.)

PART THREE

Pass out sticky notes and/or a sheet of paper. Ask students to write the following sentence stem at the top of their paper:

“I believe robotic bees will be helpful/harmful to bees because it will impact...”

Have students list two to three reasons that support their belief (because it will impact **parasites, viruses, bacterial diseases, pesticides, nutrition, genetics, queen quality, and management**).

Once complete, the students can stand back in the line and re-share their thoughts with the class to see if their opinion has changed since the start of the class.

Middle/High School: Activity 2

MATERIALS NEEDED:

1. 8 ½ x 11 sheet of paper
2. Pencils or pens

For this activity, students will be assigned an EcoRegion of the country and/or Canada and design a garden that will help the assigned region's population of pollinators.

Using [Pollinatorpartnership.org](https://www.pollinatorpartnership.org), assign and/or have students choose one region for which they are to design a garden. There are a lot of guides, so there shouldn't be overlap. Every EcoRegion Guide has different pollinators and plants that attract the pollinators. Feel free to partner up students, if a partner and/or group project would work better for your classroom: <https://www.pollinator.org/guides>

To start the lesson, download the guide specific to your region using the website. Type in your school's zip code to find the EcoRegion you are in. Once you have downloaded the guide, read to, or have the class read the first page for the section on “Developing Plantings” and “Home Landscapes” (review the table of contents to find the correct sections).

The first page of the “Developing Plantings” section will have a section for food, shelter, water. This is the same in all guides, regardless of EcoRegion. After you have read this page, read aloud the page titled “Home Landscapes,” (again the same in all guides). Discuss what is necessary to have a thriving home garden for pollinators.

Middle/High School: Activity 2 (cont.)

Pass out sheets of larger paper and have the students fold into six squares and divide into six boxes. At the top of each column, students should write: food, shelter, and water.

After reading the sections and leading a small discussion, students should refer to the first page of the “Developing Plantings” and the “Home Landscapes” sections in the guide to fill in notes. The table below is filled in for you to help guide student thinking.

food	shelter	water
<ul style="list-style-type: none"> • flowers provide nectar to pollinators • fermenting fruits also provide food • plant flowers in groups so pollinators can be efficient with their transfer of pollen • plant with bloom season in mind • plant flowers with different color, fragrance, season, and heights • consider herbs • eliminate pesticides • look at surrounding gardens to ensure that you are complementing the food available to pollinators 	<ul style="list-style-type: none"> • pollinators need protection • have different layers in garden (trees, shrubs, different-sized plants) • build bee boxes and or/leave dead plants as nesting sites • leave some areas unplanted • group plantings to protect from predators 	<ul style="list-style-type: none"> • running water, pools, ponds, and small containers • water sources should have shallow or sloping side so that they can approach without drowning
<p>Students fill in this section for food specific to their EcoRegion</p>	<p>Students fill in this section for shelter specific to their EcoRegion</p>	<p>Students fill in this section for water specific to their EcoRegion</p>

Once students have completed their notes, ask them to refer to the EcoRegion guide they have chosen and fill in the specifics for the bottom (i.e. what kind of food, shelter, and water is specific to their region).

Example: If they have a desert region, is it appropriate to have a water feature?

Once they have completed their notes, they will be asked to develop a garden for their specific EcoRegion

On the back side of the sheet, students will sketch out a garden, using vegetation and flowers specific to their region. They will be asked to use the section titled “Plants that Attract Pollinators.”

Ask students to create a water feature, and to choose at least **five different types of plants** that attract at least **three different kinds of pollinators**. If you would like to take it a step further, you could assign a budget and have the students work within the budget.

Example: Students are given \$500 to develop a garden and have to research how much a plant, soil and water feature cost and work within that budget.

Example of start for the Hawaiian Island EcoRegion:



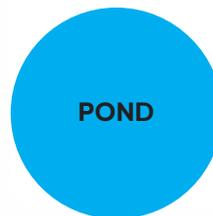
Mint: attracts bees and flies



Freycinetia arborea: attracts birds, bees and wasps



Bidens cosmoides: attracts birds, flies and bees



RECOMMENDED EXTENTIONS

Grades 3–6

The Educators Guide that was developed for Disney Nature’s film, *Wings of Life*, is a comprehensive tool for extending learning about pollination. Lesson 2 provides a game, where the students act as different pollinators and collect pollen from the field (using straws as hummingbirds, plastic bags and hula hoops as bees) which would be a great kinetic activity and game to play as a whole class. Here is the link:

http://cdnvideo.dolimg.com/cdn_assets/5ef249067a1485b3e379c632fc076b017fe727fe.pdf

Middle/High School

If you completed Activity 2, use your EcoRegion’s guide to develop a pollinator’s garden at your school and/or in your community to help attract pollinators.

Pollinator gardens have had surprising benefits for taxpayers, according to “Wildflower Planting Project is Saving Taxpayers Millions in Mowing” by David Williams for WOSU Public Media (June 2019):

<https://radio.wosu.org/post/wildflower-planting-project-saving-taxpayers-millions-mowing>

Could your classroom come up with a plan to create a pollinator garden as a service project? Pollinator.org sells a School Garden Kit (\$85 for the digital binder curriculum): <https://www.pollinator.org/bee-smart>

You can order a “Pollinator Push Garden” (\$75 for a 16-pack):

<https://store.modsprout.com/products/pollinator-push-garden-16-pack>

REFERENCES

“Bee Issues.” Pollinator.org, Pollinator Partnership, 21 May 2019, www.pollinator.org/learning-center/bee-issues. - Hetherington, James. “RoboCrop: Walmart Is Making Robotic Bees.” *Newsweek*, Newsweek, 19 Mar. 2018, www.newsweek.com/can-robotic-bees-replace-real-thing-walmart-files-patent-pollination-drone-845861.

LeMaster, J. (2011). *Critical reading: deep reading strategies for expository texts*. San Diego, CA: AVID.

“Planting Guides.” *Pollinator.org*, 24 June 2019, www.pollinator.org/guides.

“Pollinator Syndromes.” *Forest Service*, U.S. Forest Service, www.fs.fed.us/wildflowers/pollinators/What_is_Pollination/syndromes.shtml#traits.

Read the Standards. (n.d.). Retrieved July 16, 2019, from <http://www.corestandards.org/read-the-standards/>

Schwartzberg, Louie. *Disney Nature*, YouTube, 23 Dec. 2011, www.youtube.com/watch?v=MQiszdkOwuU.
Vimeo, *Nature Works Everywhere*, 16 Feb. 2019, vimeo.com/77811127.