Honey Harvest Virtual Field Trip Educator's Guide

MATERIALS & RESOURCES:

- List of tools that are used for the harvest for reference -- smoker, fuel source like pine straw, lighter, brush, prying tool, knife, cup of hot water, pan for collecting wax, extractor, filter, bucket with spigot, jars with lids
- Parts of the Langstroth Hive -- outer cover, inner cover, medium supers, frames, elevated hive stand

Materials teacher will need for lessons:

- Computer with digital projection ability for whole-class viewing OR
- iPad for individual viewing or rewatching
- KWL Chart
- Comic Strip
- Venn diagram
- Card Work Materials
- Flow Chart
- Where Food Comes From: Bee To Honey by Sarah Ridley - K to 2nd grade, Guided Reading Level M, Lexile Level 590L, available on EPIC!
- The Life and Times of the Honey Bee by Charles Micucci - 3rd to 5th grade, Guided Reading Level N, Lexile Level IG910L, read aloud link
- Honey Harvest from a Press - video
- Colored and regular writing pencils

SUMMARY/BIG IDEA:

The purpose of this field trip is to demonstrate to the students how a beekeeper safely removes honey from a Langstroth hive, using the proper tools and steps. The students will be able to put the steps in order using picture and word card materials and a flow chart. The students will also be able to trace the honey bee's steps from the flower to the production of honey. Finally, the students will be able to compare and contrast different methods of harvesting honey after watching the field trip video and a second video of harvesting with a honey press.

CARD WORK INSTRUCTIONS

- Color print onto cardstock and laminate the Card Work documents
- Cut the cards horizontally, there are 3 cards per page
- Each of the 10 steps and its picture will be on 10 separate cards

STEPS:

PART ONE:

1. Begin part one with a class discussion using the KWL Chart, encouraging students to explain what they already know about the honey and bee connection. Students can fill in their own chart or it can be done as a whole class through a digital platform or face-to-face on large chart paper.
2. Read Where Food Comes From: Bee To Honey by Sarah Ridley. This title is available on EPIC which can be used digitally or face-to-face.
3. Discuss with students the basic steps from the book of how a honey bee makes honey: bees leave hive searching for flowers, bee flies from flower to flower searching for nectar, bee sucks nectar into her honey stomach, bee visits other flowers to gather pollen which is put

into pollen baskets on her hind legs, the bee flies back to the hive to unload her resources, inside the hive the bees pass nectar back and forth slowly turning into honey, the bees fan the honey in the comb with their wings, they cap the completed honey.

4. Show students the Comic Strip and let them know that in preparation for the honey harvest field trip, they will be creating a timeline of events from bee to honey. Describe or model how they should use the comic strip boxes to put the steps from the book in order from the flower to the production of honey.
5. Assessment -- Allow the students to write and illustrate their Comic Strip using colored and writing pencils.
6. Allow students to share their Comic Strips.

PART TWO:

1. Begin part two with a group discussion using KWL Chart, adding to the Wonder and Learn sections with students.
2. Read The Life and Times of the Honey Bee for background information about the hive, the jobs of the bees, and the bees body parts and function - read aloud link.
3. Tell students that they are going to go on a virtual field trip to discover how the beekeeper gets the honey out of the hives.
4. Tell students that they will use card work to put the steps of the harvest honey in order and then make their own flow chart after watching the video.
5. Show students the card work, they should be presented out of order to increase interest.
6. Watch the Honey Harvest video link at https://www.youtube.com/thebeecauseproject.
7. Assessment -- Allow students to work together in small groups or the whole class to put the 10 steps in order, then draw/write the same steps on their personal Flow Chart.

PART THREE:

1. Begin part three by having the students recall the order of steps for the Honey Harvest field trip, they can use cards again or refer to their Flow Chart.
2. Let students know that beekeepers use other methods of harvesting honey including honey pressing.
3. Show students the Venn diagram, discuss that it is a tool for organizing ideas, especially when two items have things in common.
4. Show students that on one side of the Venn Diagram, they are going to gather information about the honey harvesting method using the extractor, the other side is for information about the honey press, and the area in the middle is what the two methods have in common.

5. Watch Honey Harvest from a Press.

6. Assessment -- Students should complete Venn diagram either in small groups or individually.

JOURNAL PROMPTS AND RESEARCH TOPICS

- Would you like to be a beekeeper and harvest your own honey? What steps would you like to do? What steps would cause you to worry?
- Write about what it would be like to live inside of a hive if you were a honey bee. What job would you want to do in the hive? How would you respond to having part of your honey taken by the beekeeper?
- Write a letter to the bees. What would you want to say to a bee? Would you thank them for honey and pollination? What could you offer to do to help the bees in your community?
- Research recipes using honey as a natural sweetener. Write your own recipe that utilizes honey or rewrite a recipe and replace the sugar with honey.
- Research other methods of honey harvesting and write a description for each to share with your class.

DISCUSSION QUESTIONS

Can be used at any point in the lessons or as a culminating discussion

- What are things in the environment that help or harm honey bees?
- Look closely at the body of the Honey Bee. (see The Life and Times of the Honey Bee) What are some of its parts that are vital to its job of collecting pollen, nectar, and living within a hive?
- How does living in a hive help honey bees survive?
- Why do the drones get kicked out of the hive?
- Why do the workers die so quickly?
- Why does the queen live longer than the other bees?
- How do the bees know there is danger near the hive? How does the beekeeper help the bees feel less threatened?
- Explain how the extractor works to get the honey out of the frame.

ANSWER KEY

- Help: flowering plants, open space, beekeepers provide sugar water harm: weather/hurricanes, other animals taking their honey supplies like bears, beekeepers taking to much honey, hive beetles, mites, and other invasive pests.
- Head, compound eye, antennae - help bees find flowers, find the hive, drink nectar, sense danger Thorax, wings - legs are attached to the thorax for movement, wings assist bee in flying Abdomen, Stinger, Pollen baskets on hind leg - stinger to protect the hive from intruders, pollen basket for gathering and transporting pollen, the abdomen has wax producing glands for building the combs and capping honey.
- Warmth and shelter to survive weather and temperature changes, hiding from intruders or animals looking to take its honey source, jobs in the hive help them all get food and continue to grow the hive members.
- Drones are no longer needed in the winter months because there is no need for mating, the drones will eat too much of the honey stores if left in the hive.
- The worker bees will work themselves to death doing whatever job they are in charge of like nurse for baby bees, gathering nectar and pollen, worker bees only live 5-6 weeks.
- The queen lives 3-4 years, her job is laying eggs, she lives longer because she is protected by her sisters and is larger than all of the other bees.
- Bees can sense danger buy eyesight, the sensation from antennae, they can smell danger pheromones released by other bees, the beekeeper uses a smoker to help calm the bees and block the smell of pheromones.
- The extractor extracts the honey without destroying the comb by centrifugal force, a drum holds a frame basket which spins, flinging the honey out and down into the drum.

BECOME A BEE HIVE LESSON STANDARDS

NEXT GENERATION SCIENCE

3-LS3-1; 3-LS3-2; 3-LS4-3; 3-LS2-1; 3-5-ETS1-1 ; 3-5-ETSI-2

4-LS1-1; 4-LS1-2

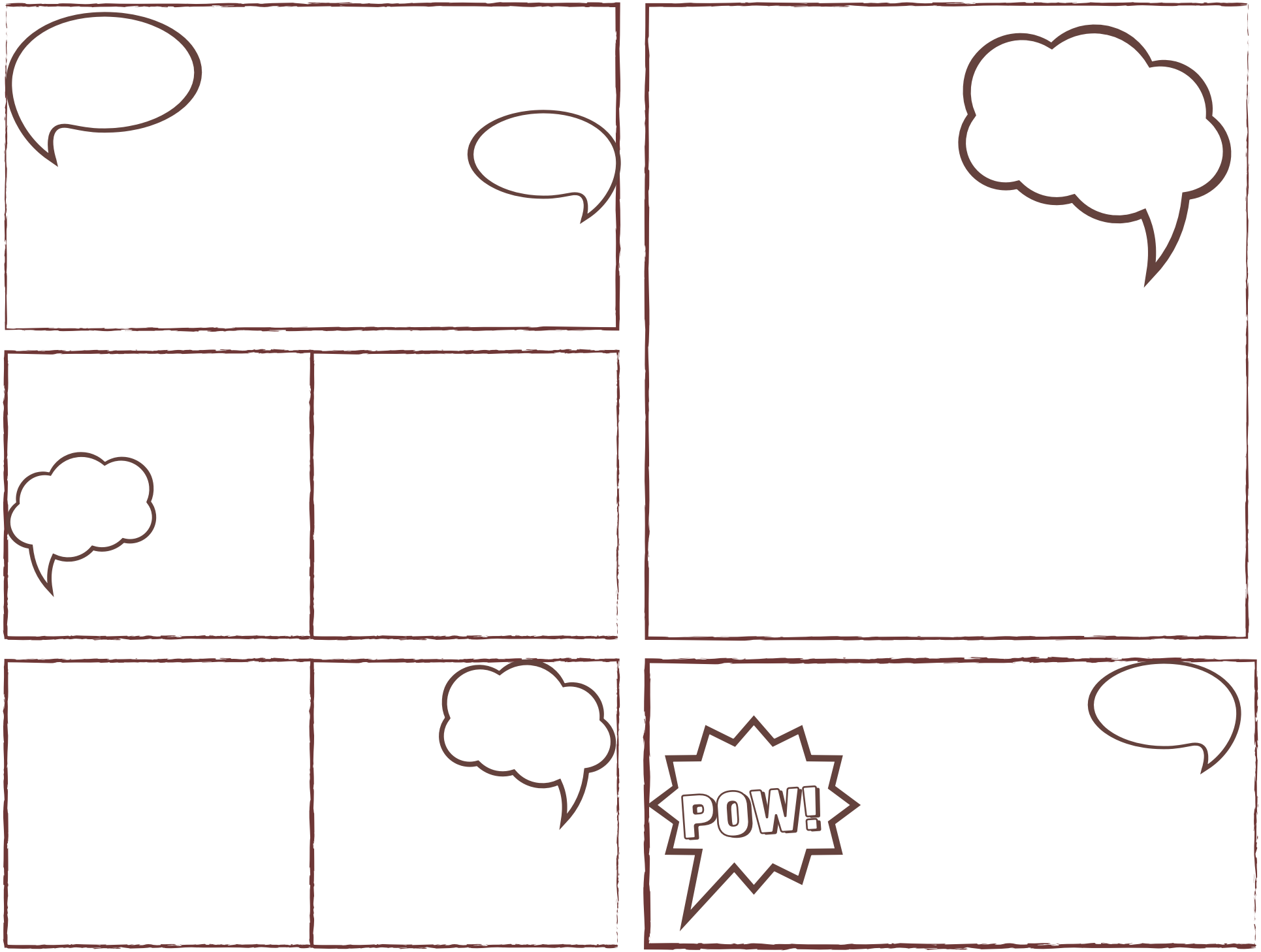
5-LS2-1; 5-PS2-1

ELA COMMON CORE

W.3.1; W.3.2; W.3.3; W.3.7; W.3.8

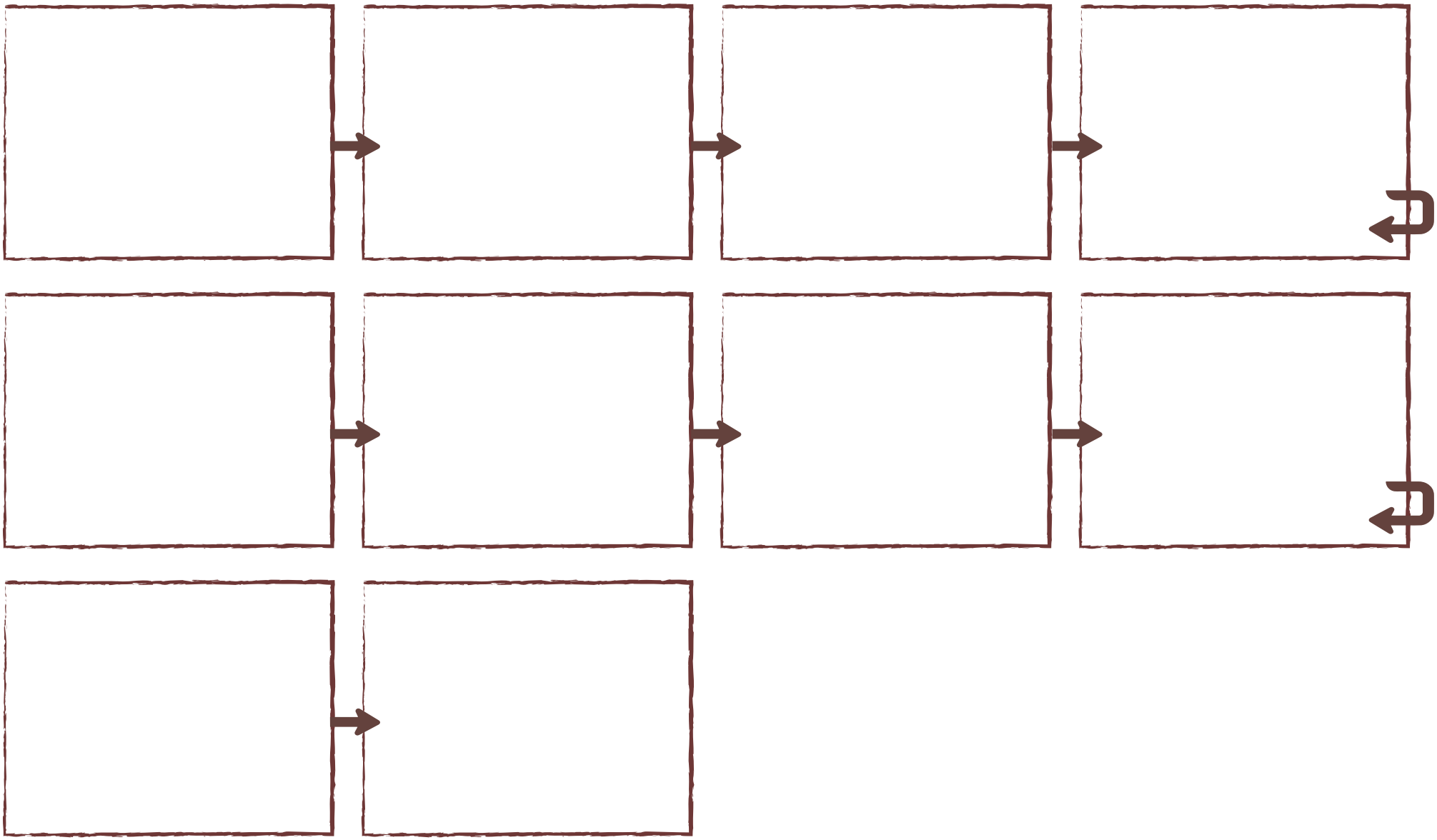
W.4.1; W.4.2; W.4.3; W.4.7; W.4.8

W.5.1; W.5.2; W.5.3; W.5.7; W.5.8



The Bee Cause Project

FLOW CHART FOR HONEY HARVEST



The Bee Cause Project

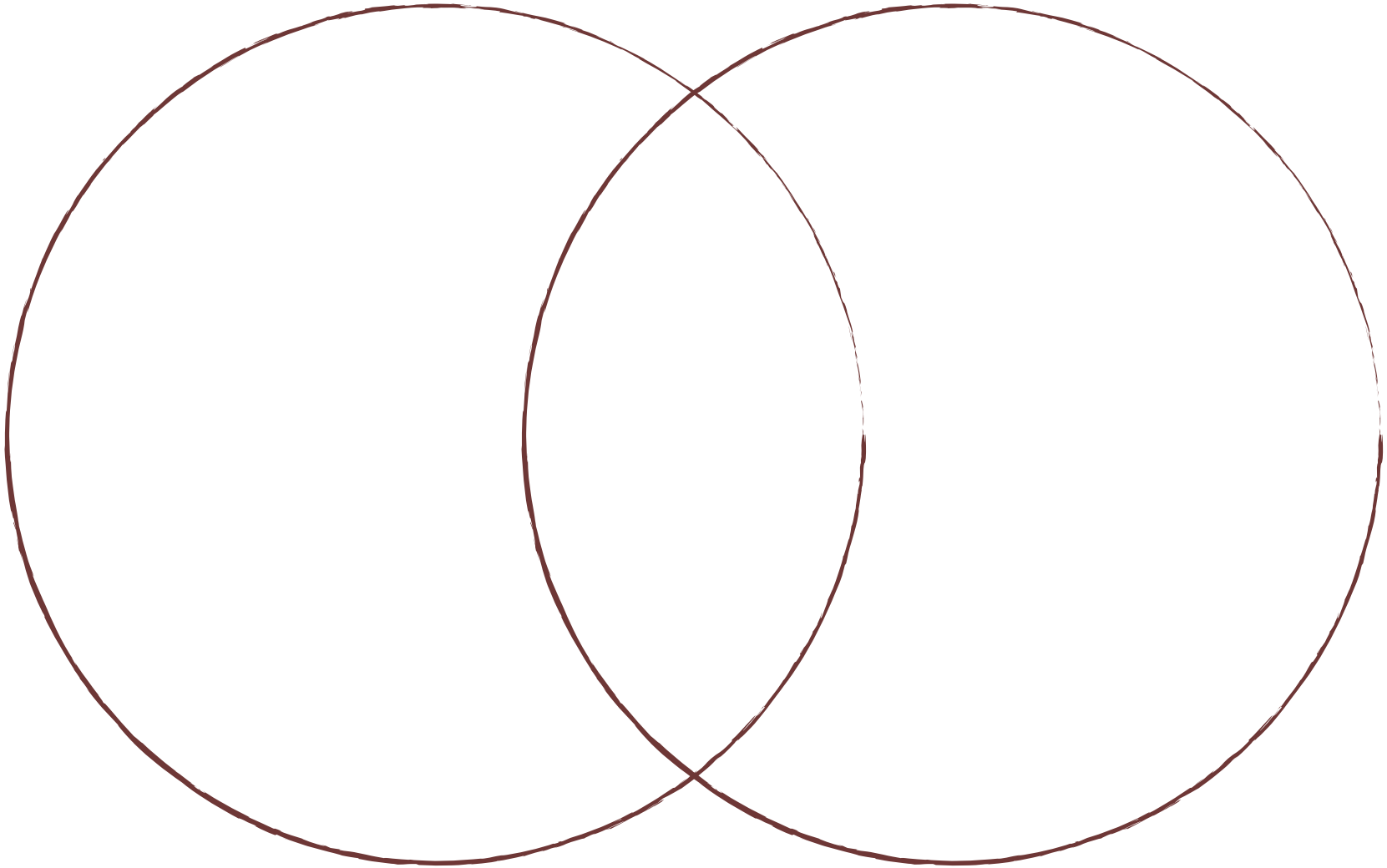
Name: _____

KWL CHART FOR HONEY HARVEST

KNOW	WONDER	LEARN
What do you already know about bees and honey?	What do you wonder about bees and honey? Write your questions here.	What did you learn after the digital field trip of a Honey Harvest?

Name: _____

VENN DIAGRAM FOR HONEY HARVEST



STEP 1

Get the smoker ready.

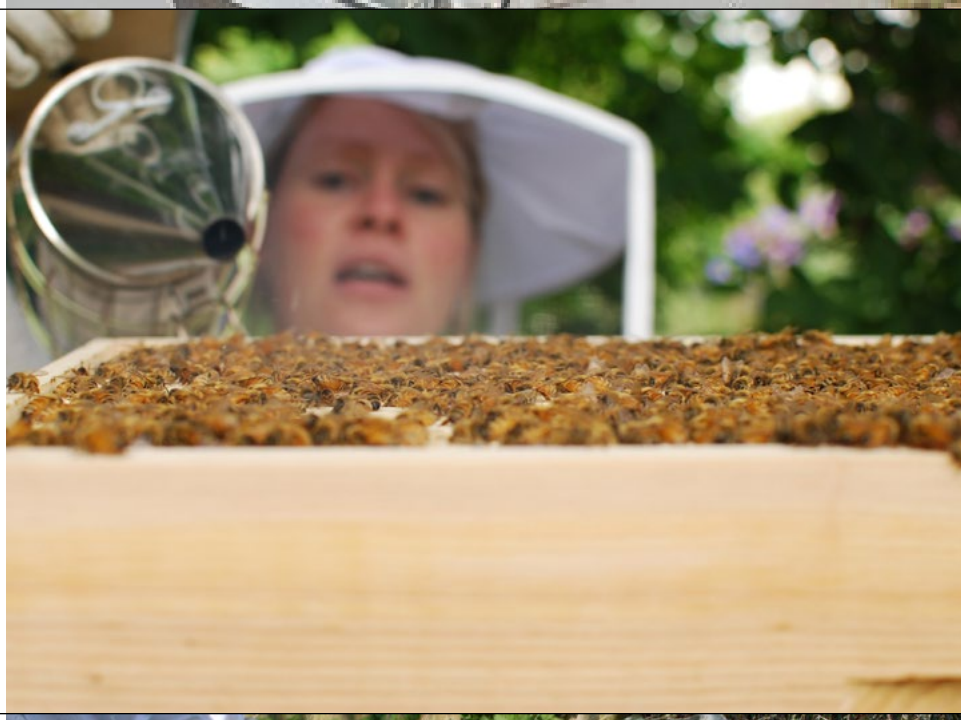
Photo Credit: "Secrete Lives of Scientists: Bill Gasper - Honey harvest" by Argonne National Laboratory is licensed under CC BY-NC-SA 2.0

THE BEE CAUSE PROJECT

STEP 2

Smoke the hive.

Photo Credit: "most beekepers use a smoke to hide the bees" by nicolas.boullosa is licensed under CC BY 2.0



THE BEE CAUSE PROJECT

STEP 3

Take off the top of the hive.

Photo Credit: "Taking off top cover from hive" by nickodoherty is licensed under CC BY 2.0

THE BEE CAUSE PROJECT

STEP 4

Remove the top super from the hive.

Photo Credit: "2012 Honey Harvest" by grepsy is licensed under CC BY-SA 2.0

THE BEE CAUSE PROJECT

STEP 5

Brush the bees off the frame containing the honey.

Photo Credit: "Brushing off the bees" by Hotels-HPRG is licensed under CC BY-NC-ND 2.0

THE BEE CAUSE PROJECT

STEP 6

Cut the capped honey in the frame with a knife.

Photo Credit: "Refugee Women Beekeepers Plan Bee Honey Harvest on Dec. 16, 2014" by Hashoo Foundation USA - Houston, TX is licensed under CC BY-SA 2.0

THE BEE CAUSE PROJECT

STEP 7

Put the frame in the extractor.

Photo Credit: "Uncapped frames in the extractor" by richardoyork is licensed under CC BY-NC-ND 2.0

THE BEE CAUSE PROJECT

STEP 8

Spin the honey out of the frame in the extractor.

Photo Credit: "Wirowanie odsklepionych plastrów / Honey extracting" by foka kytutr is licensed under CC BY-NC-SA 2.0

THE BEE CAUSE PROJECT

STEP 9

Filter the honey from the extractor into a clean bucket with a spigot.

Photo Credit: "triple filter" by kt.ries is licensed under CC BY-NC 2.0

THE BEE CAUSE PROJECT

STEP 10

Fill a clean bottle with the filtered honey and put the cap on.