



That's the Truth Backgrounder: Episodes 11-13

Episode 11 – “The Buzz on Bees”

Pollination & Colony Collapse

Episode 12 – “Bees Can Boogie”

Waggle Dance

Episode 13 – “Who’s Who in the Hive”

Bee Types/Roles

CURRICULUM CONNECTIONS

Kindergarten: Environment and Community Awareness

Grade 1 Science Topic E: Needs of Plants and Animals

Grade 2 Science Topic E: Small Crawling and Flying Animals

Grade 3 Science Topic E: Animal Life Cycles

Grade 4 Science Topic E: Plant Growth and Changes

Grade 6 Topic E: Trees and Forests

Quick Facts:

- Honey bees are super-important pollinators for flowers, fruits and vegetables. This means that they help other plants grow! Bees transfer pollen between the male and female parts, allowing plants to grow seeds and fruit.
- Honey bees live in hives (or colonies). The members of the hive are divided into three types:

Queen: One queen runs the whole hive. Her job is to lay the eggs that will spawn the hive's next generation of bees. The queen also produces chemicals that guide the behaviour of the other bees.

Workers: these are all female and their roles are to forage for food (pollen and nectar from flowers), build and protect the hive, clean and circulate air by beating their wings. Workers are the only bees most people ever see flying around outside the hive.

Drones: These are the male bees, and their purpose is to mate with the new queen. Several hundred live in each hive during the spring and summer. But come winter, when the hive goes into survival mode, the drones are kicked out!

- What are these **buzzing** bugs most famous for? Delicious **honey**! But did you know they produce honey as food stores for the hive during winter? Luckily for us, these efficient little workers produce 2-3 time more honey than they need, so we get to enjoy the tasty treat, too!
- If the queen bee dies, workers will create a new queen by selecting a young larva (the newly hatched baby insects) and feeding it a special food called "**royal jelly**". This enables the larva to develop into a fertile queen.
- Honey bees are fab flyers. They fly at a speed of around **25km per hour** and beat their wings **200 times per second**!
- Each bee has **170 odorant receptors**, which means they have one serious sense of smell! They use this to communicate within the hive and to recognise different types of flowers when looking for food.
- The average worker bee lives for just five to six weeks. During this time, she'll produce around a twelfth of a teaspoon of honey.

- The queen can live up to five years. She is busiest in the summer months, when she can lay up to **2,500** eggs a day!
- Honey bees are also brilliant boogiers! To share information about the best food sources, they perform their '**waggle dance**'. When the worker returns to the hive, it moves in a figure-of-eight and waggles its body to indicate the direction of the food source.
- Sadly, over the past 15 years, colonies of bees have been disappearing, and the reason remains unknown. Referred to as 'colony collapse disorder', billions of Honey bees across the world are leaving their hives, never to return. In some regions, up to 90% of bees have disappeared!

Source : <https://www.natgeokids.com/uk/discover/animals/insects/honey-bees/>

Discussion Questions:

- Why do you think bees might be disappearing?
- What factors might affect bee health?
- What is "colony collapse disorder"? Is it still happening?
- Why are bees important?
- How do bees pollinate flowers, fruits and vegetables?
- Why do bees boogie? What purpose do their movements serve? (Waggle Dance)
- What are the different types of roles involved in bee colony?

Activity Ideas/Sources:

- Canadian Honey Council - School Kits
http://honeycouncil.ca/archive/chc_teachers_kit.php
- Bees Matter Learning Centre – Videos, Infographics, Toolkits
<https://www.beesmatter.ca/learning-centre>

- Bumble Bee Conservation Trust - Activity sheets, games and crafts Ages 4-11+
<https://www.bumblebeeconservation.org/bumble-kids/activities/>
- HoneyBee Conservancy – Lesson Plans Pre K - Grade 12
<https://thehoneybeeconservancy.org/bee-lesson-plans/>
- Pollinator.org Learning Centre
<https://www.pollinator.org/learning-center/education>
- Planet Bee Teaching Resources
<https://www.planetbee.org/teacher-resources>

Additional Resource Links:

Pollination:

<https://bees.techno-science.ca/english/bees/pollination/default.php>

<http://www.honeybeecentre.com/learn-about-pollination#.Xsgd3dNKjGI>

How Bees Make Honey:

<https://www.livescience.com/37611-what-is-honey-honeybees.html>

<https://thekidshouldseethis.com/post/how-do-bees-make-honey>

Colony Collapse & Threats to Bees:

<https://www.britannica.com/science/colony-collapse-disorder>

<https://www.epa.gov/pollinator-protection/colony-collapse-disorder>

<http://greatpollinatorproject.org/conservation/major-threats-to-pollinators>

Waggle Dance:

<https://www.scienceworld.ca/resource/bee-waggle-dance/>

<https://askabiologist.asu.edu/bee-dance-game/introduction.html>

Bee Flight:

<https://askabiologist.asu.edu/how-do-bees-fly>

<https://www.livescience.com/528-scientists-finally-figure-bees-fly.html>

Other General Sources:

<https://www.wwf.org.uk/learn/fascinating-facts/bees>

<https://www.britannica.com/animal/honeybee>

<https://www.businessinsider.com/bees-interesting-facts-to-know-2019-7#the-oldest-bee-fossil-is-100-million-years-old-1>

<https://honeycouncil.ca/bee-facts/>

<https://www.ontariohoney.ca/kids-zone/bee-facts#:~:text=A%20bee%20must%20collect%20nectar,of%20honey%20in%20her%20lifetime.>