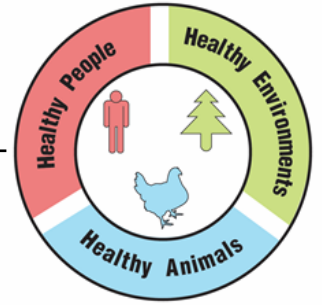


A Bee's Life

Activity Guide



Overview:

Participants will test their bee knowledge by playing this trivia twist on the *Chutes and Ladders* game. Topics covered in this activity include bee adaptations, pollinated plants, and evolutionary obstacles and environmental challenges encountered by bees. This activity is recommended for audiences with some prior knowledge about bees, other pollinators, and pollination. Questions are true/false or multiple choice.

Time Needed:

20-45 minutes for gameplay, depending on group size

Audience:

This activity is recommended for ages 8-adult and for groups of up to 20. It can be adapted for different sized groups and ages.

Objective:

- Participants will recall or learn information about bees by answering trivia questions.

Materials:

- *Chutes and Ladders* game board (repurposed or create your own!)
- 4 game pieces (*optional*: create your own bee-themed game pieces!)
- **Bee Trivia Cards**
- **Bee Trivia Answer Key**
- Game spinner or 6-sided die

Preparation:

- Print and cut out the 50 **Bee Trivia Cards**. Laminating the cards is recommended if you plan to reuse the cards. You can also cover the cards in clear packing tape or glue them to index cards to increase longevity.
- Print out the **Bee Trivia Answer Key**.
- Decide if you will use all the cards, based on your groups' knowledge level, reading level, and desired challenge level. Remove any cards that you don't want to use. The cards are

divided into 2 levels of difficulty. The cards with red question numbers (questions 26-50) are more difficult (higher vocabulary, more dependence on prior knowledge, and/or more challenging). However, **all** questions are true/false or multiple choice and can be guessed!

- **Note:** This activity assumes that participants have a general understanding of what pollination is and why it is important, and some prior knowledge about bees. You may need to prepare your group with background knowledge. For groups with less background knowledge, we recommend playing in teams. The ***Do Bees Feed You?***, ***Bees and Biodiversity***, or ***Meet the Billion Dollar Bees*** activities can provide some background information on bees!
- **Note:** This game can also be adapted into a trivia game without the game board. The game board is recommended because it incorporates an element of luck, giving all participants equal opportunities to succeed. This is especially helpful for groups with less prior knowledge. However, **groups with strong prior knowledge, older groups (including adults), or larger groups** may enjoy trivia without the game.

Description of Activity and Suggested Procedure:

1. Divide the group into up to 4 equal teams. Explain that you will be playing *Chutes and Ladders*, except with a twist! Each team will spin the spinner or roll the die to move. If they land on a ladder, they'll need to correctly answer a bee trivia question to climb up the ladder. Players can also avoid going down a chute if they can correctly answer a question.
2. Assign each team to one of the game pieces. Team members can work together to answer the bee trivia questions.
 - **Note:** If playing with teams larger than 2 people, we recommend placing the game board in a central location where everyone can see it, but having teams seated away from the board. On their turn, teams can send a representative up to spin/roll and then move their game piece.
3. Shuffle the ***Bee Trivia Cards*** and place them near the game board.
 - **Note:** Decide based on your group's age and reading level if the facilitator will draw the cards and read the questions or if the teams will draw the cards and read their own questions.
4. Begin the game. Spin or roll to determine which team will go first (the highest number of spin/roll). Rotating clockwise, each team takes turns spinning the spinner or rolling the die and moving that many squares on the game board.
 - If the player lands on the base of a ladder, draw a ***Bee Trivia Card*** and read the question aloud. If the team answers correctly, they can go up the ladder. If they do not answer correctly, they must stay where they are on the game board.
 - If the player lands on the top of a chute, draw a ***Bee Trivia Card*** and read the question aloud. If the team answers correctly, they remain where they are on the game board. If they do not, they must go down the chute.
 - **Note:** Teams may discuss their answer, but the team will only get one try at answering the question. Facilitators can find the answers by matching the question number on the bottom of the card with the ***Bee Trivia Answer Key***. Some answers come with bonus facts or explanation (italics on the answer key) - teams are not required to know this to get the question right.
5. The first team to reach the final square wins the game!

There are over 20,000 species of bees in the world. How many are native to the United States?

- A. 16,000
- B. 10,000
- C. 4,000
- D. 700

1

How much of our food is pollinated by bees?

- A. 1 out of every 10 bites (10%)
- B. 1 out of every 6 bites (about 17%)
- C. 1 out of every 3 bites (about 33%)
- D. All of our food (100%)

2

Which of these bees has been domesticated?

- A. Alfalfa Leafcutting Bee
- B. Western Honey Bee
- C. American Bumble bee
- D. Blue Orchard Bee

3

True or false:

Some plants are evolving to pollinate their own flowers, instead of needing bees.

4

Which of these adaptations does a leafcutter bee have?

- A. Very hairy legs
- B. Metallic bodies
- C. Large jaws
- D. Hairless

5

True or False:

Domesticated honey bees can spread disease to wild bees.

6

True or False:

Honey bees are the only kind of bee that produces honey.

7

True or False:

Bees were in the news in August 2023 when a truck carrying 5 million bees crashed in Canada.

8

Bees are the most common pollinator.
Which of these other insects are also pollinators?

- A. Wasps
- B. Beetles
- C. Flies
- D. All of the above

9

Which of these types of bees is not native to the United States?

- A. Southeastern Blueberry Bee
- B. Eastern Honey Bee
- C. Yellow-faced Bee
- D. Rusty-patched Bumble Bee

10

True or False:

Mason bees get their name because they build walls out of mud inside their nests.

11

Why are there fewer native bees now than in the past?

- A. Competition with honey bees
- B. Pesticides
- C. Habitat loss
- D. All of the above

12

True or False:

All bees are yellow.

13

Where do bumble bees nest?

- A. Hives hanging in trees
- B. Hollow plant stems
- C. Underground burrows
- D. Rotten logs

14

Which of these can be pollinators:

- A. Birds
- B. Mammals
- C. Reptiles
- D. All of the above

15

Which of these animals does not prey on bees?

- A. Skunks
- B. Bears
- C. Deer
- D. Spiders

16

How fast can a honey bee fly?

- A. 1 mile per hour
- B. 5 miles per hour
- C. 15 miles per hour
- D. 20 miles per hour

17

How much honey does one honey bee make in a lifetime?

- A. Less than one teaspoon
- B. One teaspoon
- C. One tablespoon
- D. One cup

18

True or false:

The largest egg laid by an insect is laid by a bee.

19

Why are bees important for human health?

- A. Bees make food like honey
- B. Bees provide jobs
- C. Bees help us have enough food
- D. All of the above

20

Why are bees important for animal health?

- A. Animals eat bees
- B. Bees pollinate plants that animals eat
- C. Bees pollinate plants that provide homes for animals
- D. All of the above

21

Why are bees important for the health of the environment?

- A. Many kinds of plants need bees
- B. Many kinds of animals need bees
- C. Both A and B
- D. Bees don't matter for a healthy environment

22

What should you do if you see a bee?

- A. Panic and run away screaming
- B. Swat at it
- C. Stay calm and slowly wave your hand
- D. Call 911

23

Which is not a way to help the bees?

- A. Avoid using pesticides
- B. Grow native flowers
- C. Pull weeds daily
- D. Give them water

24

True or false:

Most solitary bees do not have stingers.

25

The squash bee only pollinates squash and melon plants (this is called a “specialist”). Which of these adaptations helps the squash bee?

- A. Their favorite color is yellow
- B. They have special hair on their legs to collect and carry squash pollen
- C. They live in underground burrows
- D. They have long antennae

26

250 Blue Orchard Bees can pollinate one acre of an orchard. How many honey bees would it take to pollinate the same area?

- A. 2-8
- B. 20-80
- C. 2,000-8,000
- D. 20,000-80,000

27

True or False:

We need pollinators to make beef, milk, and cheese.

28

True or False:

Bees live on every continent.

29

Some flowers hang on to their pollen more tightly, and bees must grab the flower and quickly move their wing muscles to shake the pollen loose. What is this behavior called?

- A. Buzz Pollination
- B. The Waggle Dance
- C. Bumbling
- D. Pollination

30

Alfalfa (hay) flowers are enclosed by petals, and pollinators must force their way in. The alfalfa flower’s stamen then smacks the pollinator on its head! What kind of bee pollinates alfalfa plants?

- A. Leafcutter bees
- B. Squash bees
- C. Carpenter bees
- D. Bumble bees

31

Which of these foods do not need bees?

- A. Potatoes
- B. Apples
- C. Zucchini
- D. Broccoli

32

Which of these foods are not pollinated by bees?

- A. Tomatoes
- B. Corn
- C. Blueberries
- D. Pumpkin

33

Which of these foods do not need bees?

- A. Steak
- B. Cheese
- C. Fish
- D. None of them need bees

34

Which of these foods are not pollinated by bees?

- A. Almonds
- B. Sunflower seeds
- C. Beans
- D. Cranberries

35

Which of these foods are not pollinated by bees?

- A. Rice
- B. Watermelon
- C. Cucumber
- D. Cherry

36

True or false:

Ticks or mosquitos spread diseases to humans. Mites can spread diseases to bees.

37

How are bees exposed to pesticides?

- A. By contaminated plants
- B. By contaminated nesting locations
- C. By the environment – air, water, soil
- D. All of the above

38

How many eyes do bees have?

- A. Two
- B. Three
- C. Five
- D. Eight

39

A bee's pollen basket is called a:

- A. Corbicula (from the Latin word for basket)
- B. Colletidae
- C. Apidae
- D. Collectus

40

True or False:

The world's smallest bee is native to the United States.

41

How many plant species in North America need an insect for pollination?

- A. All of them (100%)
- B. 3 out of 4 (75%)
- C. 1 out of 2 (50%)
- D. 1 out of 4 (25%)

42

True or false:

Almost half of native bees in the United States only collect pollen from one type of plants.

43

Honey bees work together to keep the hive healthy. Which of these is not one of their strategies?

- A. Cleaning each other
- B. Removing sick or dead bees from the hive
- C. Eating sick bees
- D. Making the hive warmer

44

Which one of these is not a type of honey bee parasite?

- A. Blood-sucking mites
- B. Tapeworms
- C. Slime-producing beetles
- D. Wingless flies riding the bees

45

How many bee species live in hives with other bees?

- A. 9 out of 10 (90%)
- B. 6 out of 10 (60%)
- C. 3 out of 10 (30%)
- D. 1 out of 10 (10%)

46

How much money do bees add to the United States economy each year?

- A. \$20 billion
- B. \$2 billion
- C. \$200 million
- D. \$20 million

47

True or False:

Humans move bees around on large trucks to help farmers pollinate their crops.

48

Bees used for commercial farming may live shorter lives because of:

- A. Stress from travel
- B. Not enough food
- C. Predators eat them
- D. Competition with native bees

49

Honey bees can pollinate a lot of different plants, but not all plants! Which plant is not pollinated by honey bees?

- A. Dandelions
- B. Tomatoes
- C. Blueberries
- D. Pumpkins

50

Bee Trivia Answer Key

Easier Questions – these questions are simpler and are easier to guess without background knowledge.

1. C. 4,000
2. C. 1 out of every 3 bites (about 33%)
3. B. Western Honey Bee
4. True
5. C. Large jaws
6. True
7. False – *but they make the most!*
8. True – *it took 12 beekeepers to rescue all the bees!*
9. D. All of the above
10. B. Eastern Honey Bee
11. True
12. D. All of the above
13. False – *Bees can be black, red, blue, or green too!*
14. C. Underground burrows
15. D. All of the above
16. C. Deer
17. C. 15 miles per hour
18. A. Less than one teaspoon (*1/12th of a teaspoon*)
19. True – *Carpenter bee eggs are ½ inch long!*
20. D. All of the above
21. D. All of the above
22. C. Both A and B
23. C. Stay calm and slowly wave your hand
24. C. Pull weeds daily
25. True

Harder questions – these questions have more advanced vocabulary, are more complex, or are harder to guess without background knowledge.

- 26. B. They have special hair on their legs to collect and carry squash pollen
- 27. D. 20,000-80,000
- 28. True – *Cows eat alfalfa, which is pollinated by bees. **Note:** You may choose to accept either answer if participants can explain their reasoning*
- 29. False – *Bees do not live on Antarctica.*
- 30. A. Buzz Pollination
- 31. A. Leafcutter bees
- 32. A. Potatoes – *They are grown from pieces of other potatoes, not seeds.*
- 33. B. Corn – *Corn is pollinated by the wind.*
- 34. C. Fish – *Cows, which make steak and cheese, eat alfalfa, which needs bees to pollinate! **Note:** You may choose to accept either C or D if participants can explain their reasoning*
- 35. C. Beans – *Beans pollinate themselves.*
- 36. A. Rice – *Rice is pollinated by the wind.*
- 37. True
- 38. D. All of the above
- 39. C. Five
- 40. A. Corbicula (from the Latin word for basket)
- 41. True – *The *Perdita minima* bee is only 2 millimeters long – less than 1/10th of an inch.*
- 42. B. 3 out of 4 (75%)
- 43. True – *35-50% of US bees are pollen specialists - they rely on pollen from a single plant species, genus, or even family of plants.*
- 44. C. Eating sick bees
- 45. B. Tapeworms
- 46. D. 1 out of 10 (10%) – *Over 90% of bee species are solitary, building individual nests.*
- 47. A. \$20 billion
- 48. True
- 49. A. Stress from travel
- 50. B. Tomatoes – *Tomatoes are pollinated by bumble bees using buzz pollination.*