Without bees we wouldn’t have any delicious honey to help sweeten our cookies and cakes. Honeybees work diligently to harvest honey in a multi-step process that is both wonderful and a bit disgusting.

First, honeybees use their tongues to slurp out the pollen and nectar from flowers. They actually digest all of this, allowing the pollen and nectar to mix with the proteins and enzymes of their stomachs. When the honey bees return to their hive, they regurgitate — a fancy word for throwing up this pollen/nectar/protein/enzyme mix into a beeswax comb.

The bees then flap their wings to help the mixture thicken before covering the combs with a wax cap.

After beekeepers take out these honeycombs, all they do is process and clean out the combs. The odd combination of flower parts and bee proteins has turned into honey!

- Did you know that a honeybee can fly around 15 mph?
- Honeybees gather 10 pounds of nectar to make one pound of honey.
- A foraging honeybee can carry 80% of their weight in pollen or nectar.
- Honeybees make up 80% of all pollinators.
- Honeybees use several dances in the hive to communicate the location of nectar and water to other bees.
- One well-known dance is called the waggle dance.
- There is only one queen per colony. More than one queen will fight and only one will survive.
- The queen honeybee lays between 1,000-3,000 eggs per day!
Measuring Activity: The bees are so busy working hard to make honey for us..... Let us add up how much honey they produced.

\[
\frac{1}{4} + \frac{1}{4} = \frac{1}{2}
\]

\[
\frac{1}{4} + \frac{1}{4} = \frac{1}{2}
\]

\[
\frac{1}{4} + \frac{1}{2} + \frac{1}{4} + \frac{1}{4} = \frac{3}{2}
\]
Complete the chart below filling in the correct stages of the life cycle of a bee. You can write the stages, then cut out pictures and glue them in the correct circle.

- LARVA
- ADULT BEE
- PUPA
- EGGS
COLOR BY NUMBER

Color each flower by number to see the difference between how we see flowers and how bees see the same flowers.

HOW HUMANS SEE IT
1. Green
2. Dark green
3. Blue
4. Brown
5. Red
6. Yellow
7. White

HOW BEES SEE IT
1. Light orange
2. Dark orange
3. White
4. White
5. Gray
6. White
7. Red
BEE CROSSWORD PUZZLE

Complete the activity.

ACROSS
1. A sweet fluid produced by bees from nectar
3. Dance bee will do as they get close to food
5. Male bee whose only function is to mate with the queen
6. Dust like cells of the anthers of flowers
7. Cells where honey is stored

DOWN
1. A structure for housing bees
2. Sweet liquid of flowers gathered by bees for making honey
4. Bee that attends to the queen, the babies, or larvae of the hive

WORD BANK:
- Honey
- Honeycomb
- Pollen
- Drone
- Round
- Hive
- Nectar
- Nurse Bee
NAME THE PARTS OF A BEE

Write the correct body part next to the number and arrow pointing to the bee.

ANTENNA  THORAX
LEG       ABDOMEN
HEAD      COMPOUND EYE
WINGS
ARE BEES INSECTS?

Ants are insects. Are bees? In the outside of each circle, write down how they are different. Where the circles intersect, write down how they are the same.
WHAT DO BEES POLLINATE?

(Science: 112.14 3.2a, 3.2d, 3.10a, 3.10b)

Do you like apples? How about kiwi and oranges? Are you nutty for cashews or almonds? Do you love pumpkin pie and carving Jack-o-lanterns at Halloween?

If you answered “yes” to any of these questions, you can thank honeybees. They are important pollinators of all of these plants and many more. In fact, bees help produce $15 billion in U.S. crops each year. What do you think would happen if we did not have bees?

Circle the items that bees pollinate.
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<tr>
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<tr>
<td>EBE</td>
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<tr>
<td>REPEKBEEE</td>
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<td>CINRTOSONCUT</td>
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<td>WAGEGL CNEDA</td>
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</table>
HOW IS A COLONY ORGANIZED?

QUEEN
- There is only one queen bee per colony
- Her primary function is laying eggs, as she is the only bee with fully-developed reproductive organs
- She lays up to 3,000 eggs per day and lives for 2 to 3 years
- Fertilized eggs become female, or worker bees
- Unfertilized eggs become male, or drone bees

WORKER
- Worker bees make up about 90% of the hive's populations, which can grow up to 80,000 bees in summer
- Though all worker bees are female, they do not reproduce
- Their many roles include: housekeeper, nursemaid, construction worker, grocer, undertaker and guard
- At 21 days old, they get promoted to foragers, tasked with collecting their food: pollen and nectar

DRONE
- Drone bees make up 0-10% of the colony
- Their main role is to mate with queens from other colonies
- Drone bees do not have stingers

ANSWERS
Bee Math: 2 ½, 3 ¼, 2 ¼, 2
Life Cycle of a Bee: Egg, Larva, Pupa, Adult Bee

WORD SCRAMBLE ANSWERS
ABDOMEN
AGRICULTURE
BEE
BEEKEEPER
CASTE
COLONY
CONSTRUCTION
DRONE
HIVE
HONEY
LAPPING
LARVA
NURSE
POLLINATION
PUPA
QUEEN
ROUND DANCE
STINGER
THORAX
WAGGLE DANCE
RODEO ART CONTEST

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Grade Level: _______________________________________

School District: ___________________________________________  Teacher's Name: ________________________

School: ____________________________  School Phone: ____________________________

School Mailing address: __________________________________________________________________________

School City: ________________________  State: ________________________  Zip: ________________________

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Signature: ____________________________________________  Printed Name: ____________________________________________

All entries must be received by Feb. 7, 2020. Return your entry to the classroom, or submit your entry to: Angela Gutierrez, Houston Livestock Show and Rodeo Coloring Contest, P.O. Box 20070, Houston, TX 77225-0070. For questions, contact us at gutierrez@rodeohouston.com. Visit rodeohouston.com for more information about the Houston Livestock Show and Rodeo.