

NCBA BEE SCHOOL 2026

- Smoker Lighting right at 7PM outside the Café with Mo – bring your Smoker
- **NCBA's Resources**
- **Take the OPEN BOOK FINAL TEST – with Ed and the Faculty – NO PRESSURE**
- **Q&A - Answer any final questions**
- **Sign Ups for April 11, 25, 26 LIVE Bee demos**
 - Norfolk Aggie, Sweet Meadow Farm Apiary, Capron Park Zoo
- **Evaluations**
- **Hand Out NCBA Bee School Certificates**
- **And Snacks / Cake**

Thank You for taking our Class!

1. Club Meetings the 1st Monday of the Month

- State-of-the-Art Beekeeping Speakers and socializing with fellow Norfolk County beekeepers – Online/Zoom and In-Person meetings

2. Website – <https://www.norfolkbees.org/>

- Continuing Education - Bee School Resources & Faculty, Intermediate Bee School
- Calendar
- Scholarships – Bee Education & for your kids
- Borrow Resources - Bee Suits for Kids, Extractors,
- Subsidized Improvement of Norfolk County's Queen Genetics - Re-Queen Certificates
- NCBA Facebook Group, & NCBA Google Group, NCBA Newsletter
- Volunteer Opportunities for the club members; NCBA Board, with MassBee, for special events (MassBee Fall Event, Ag Day at State House)

3. Other Resources / Organizations

- MDAR and their Inspectors
- MassBee – Join and participate in their Spring and Fall meetings
- All county Beekeeping Associations in MA – join more clubs
- Eastern Apiary Society (EAS), Bee Culture Magazine...



And Now...

The NCBA Bee School
Final Exam 😊

NCBA Bee School Final Exam

1. Who is Lorenzo Lorraine Langstroth ?

a) Clergyman

b) Beekeeper and Inventor of “Bee Space” $1/4$ ”to $3/8$ ”

c) Inventor of the Langstroth Bee Hive with removable frames

d) Has a Special Day / Festival annually at the Second Congregational Church in Greenfield, MA

e) All of the Above – **All of the Above**



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1. The standard Langstroth movable-frame hive is designed to hold _____ self-spacing frames.

a) 8

b) 9

c) 10

d) 11 **Either 8 or 10 frames**



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1a. Alternative configurations of Langstroth movable frame hives are

a) 10-frame deep configurations - **YES**

b) 8-frame deep configurations - **YES**

c) 10-frame medium configurations - **YES**

d) 12-frame medium

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2. Deep hive bodies used in the production of brood and food stores are an overall depth of _____.

Extra Credit – what is a medium depth?

a) $9 \frac{5}{8}$ Deep

b) $5 \frac{11}{16}$

c) $7 \frac{5}{8}$

d) $6 \frac{5}{8}$ Medium

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3. What are the two primary functions of comb in the honeybee colony

a) **Store Nectar and brood** _____

b) _____



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4. Bee space is between $1/2$ to $3/4$

TRUE or FALSE False – $1/4$ to $3/8$ ”
is bee space

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5. During the summer, the worker bee lives approximately _____ weeks

a) 3 weeks

b) 6 weeks – **about 40 days**

c) 12 weeks

d) 0 weeks

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5a. During the winter, the worker bee lives approximately _____ months

a) 1 month

b) 3 months

c) 6 months

d) 4 months **About 4 months**

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6. Queens develop from fertilized eggs less than _____ days old?

a) 3.5

b) 5.0

c) 3.0 **YES**

d) 4.0

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7. Name the three caste of honeybees normally found in a bee colony

a) Queen _____

b) Worker _____

c) Drone _____

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8. A queen will emerge from her cell in _____ days

a) 16 **YES**

b) 19

c) 21

d) 24



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9. Name the four developmental stages in the life cycle of the honeybee

a) Egg_____

b) Larva_____

c) Pupa_____

d) Bee_____



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10. In northern climates, colonies normally start the brood rearing process in March

TRUE or FALSE **TRUE** – depends upon the weather though

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11. On a sunny day, what is the minimum temperature for active foraging?

a) 20/30 F

b) 40/45 F

c) 50/55 F **Bees fly around 50**

d) 60/65 F



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12. Forager bees are able to distinguish sweet, salty, sour, and bitter tastes

TRUE or FALSE



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13. Wax glands are located in the **Abdominal** region of the bee.



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14. Name the three primary body regions of a bee.

a) Head _____

b) Thorax _____

c) Abdomen _____



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15. There are 2 sets of eyes on a bee.



a. Extra Credit— they are called Compound Eyes (2) and Ocelli (3)

b. EXTRA CREDIT— what is the total count of eyes 5

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16. The bee transports nectar back to the hive in its _____

a) Stomach

b) **Honey stomach**

c) Thorax

d) Intestines

e) Gucci Purse

Extra Credit: Describe what happens in the honey stomach – **Enzyme invertase convert sucrose in nectar to glucose and fructose**

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17. 1:1 Sugar syrup for feeding bees in the spring is comprised of_____.

17a) The recipe for 1:1 spring sugar syrup is ____cup(s) sugar and _____cup(s) water

17b) The recipe for 2:1 fall sugar syrup is ____cup(s) sugar and _____cup(s) of water

Various feeding options: 1:1 Sugar Syrup • Ingredients: Use standard white granulated sugar and water. Do not use brown or organic sugars, as they can be harmful to bees. • Ratio: Mix equal parts of sugar and water by volume or weight. For example, mix 10 2/3 cups of sugar with 10 2/3 cups of water for one gallon of syrup.

- Mixing: Combine the sugar and water in a bucket.
- Heating: Gently heat the mixture while stirring until the sugar is completely dissolved. Do not boil it.
- Cooling: Remove from heat and allow the syrup to cool to room temperature before feeding.
- Optional additions: You can add supplements like Lemongrass oil, Nozevit Plus or Honey-B-Healthy to the cooled syrup to help with bee health and attraction

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18. Colonies should not be opened for FULL inspection until the temperature reaches at least _____

- a. 65 F
- b. 40 F
- c. 50 F
- d. 75 F

Extra Credit – what do you risk if it's too cold? **KILL BROOD**

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19. At what point should a new deep or brood chamber be added? When the current one is

- a. 40-50% drawn out
- b. 60-70% drawn out
- c. **80-90% drawn out**
- d. 100 % drawn out



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20. Match the symptoms with the disease with the following questions

1) Dark streaks of bee poop on the top bars of the frames

2) 2) Dead larva strings out or is ropy

3) Deformed wings, lethargy, no or few foragers

4) Dead larvae or mummies are often found at the front of the hive

A) American Foulbrood

B) Chalk brood

C) Nosema

D) Tracheal Mites

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21. Wax moths are a continuous threat except when temperatures drop below 32 F.

TRUE or FALSE



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22. Healthy honeybee larvae are:

- a. yellowish brown
- b. white with a dark head
- c. **pearly white**
- d. mottled white and yellowish brown



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23. The most common bee disease found in the US is

a. American Foulbrood

b. **Nosema**

c. Chalk brood

d. Sac brood

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24. Menthol and formic acid, naturally occur in honey.

TRUE or FALSE

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25. Varroa mites prefer worker brood over drone brood for reproduction.

TRUE or FALSE



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26. Dysentery is an infectious disease of adult honeybees that is commonly found in late winter/early spring.

TRUE or FALSE

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27. When nectar is ripened into honey, the bees cap it when it reaches a moisture content of:

- a. 30%
- b. 21%
- c. 18%
- d. 10%

Extra Credit: What happens if you bottle honey that contains too much moisture?
Ferments



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28. Honeycombs should be at least _____ capped before they are removed from the colony for extraction.

- a. 100%
- b. 85%
- c. 50%
- d. 25%



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29. Propolis is a resinous mixture from the bark or buds of various trees?

TRUE or FALSE

30. What else is Propolis made from?

Saliva and Wax

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31. Describe four features of a normal human reaction to a bee sting

a. Pain_____

b. Redness_____

c. Swelling_____

d. Itching_____

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32. A three-pound package of bees will contain approximately _____ bees

- a. 1,000 to 2000
- b. 3000 to 4000
- c. 10,000 to 13,000
- d. 60,000



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33. A queen excluder keeps the queen out of the _____.

a. Brood chamber

b. Honey super

c. Inner cover

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34. Langstroth is credited with the invention of the movable frame hive.

TRUE or FALSE

(Optional Extra Credit)

What Divinity School did Lorenzo Lorraine Langstroth graduate from? **Yale**

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35. Name two types of foundation available for use in frames:

Plastic _____ & Wax _____

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36. Worker bees typically become foragers when they are _____ days old

- a. 15 b. **21** c. 30 d. 45

Life Cycle and Roles for Worker Honeybees

Day 1- 2
Nurse Bee feeding
new bees

Day 6-11
Wax Building for
new comb

Day 3-5
Hive Cleaning and
Air Circulation

Day 12-17
Guard Bee

Day 18-40
Forager - bringing nectar, pollen, and water back to hive...

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37. Besides nectar and pollen, what other materials do honeybees collect from the environment

a. **Water and Resin**

b. Water and bee bread

c. Propolis and bee bread

d. Water, Propolis, and bee bread

Extra Credit: What is Bee Bread-

Honey and Pollen

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38. In general, the direct transfer of food between bees involves younger bees to older bees

TRUE or FALSE

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39. Honey is one of the basic food groups in the FDA's NEW Food Pyramid.

TRUE or FALSE

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40. A prime swarm is made up of...

- a. worker bees, some drones, and the old queen
- b. worker bees, some drones and one of the new queens just raised
- c. no drones but many worker bees and a new queen
- d. worker bees, drones and virgin queens



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41. A dangerous situation exists if the person stung by a bee begins to:

- a. Have pain in the area of the sting
- b. Have swelling in the area of the sting
- c. Show great discomfort such as complaining about the pain
- d. **Have difficulty breathing**



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42. Honey bees are more likely to starve _____?

a. in the fall

b. during mid-winter

c. during late winter/early spring

d. late summer

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43. How do you know if a queen is successfully released from her queen cage?

- a. the cage is empty
- b. new queen cells are being built in the hive
- c. the bees seem very agitated
- d. you see eggs in cells

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44. Examination of brood frames shows a series of tunnels lined with silken webs going through the cell wall. This is caused by:

a. Ant

b. wax moths

c. yellow jackets

d. small hive beetles

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44a. How can you combat an ant infestation of your hive:

a. spread cinnamon around your hive

b. spread diatomaceous earth around your hive

c. spread honey around your hive

d. allow hive beetles to attack the ants

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45. Opening a Beehive in cold weather can lead to chilled brood...killing them.

What is the lowest temperature to safely open a hive for an inspection?

- a. 85 F
- b. 40 F
- c. 65 F
- d. 30 F

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46. What are some of the approved products to treat for Varroa mites?

a. Formic Acid _____

b. Oxalic Acid _____

c. Amatraz _____

d. HopGuard _____

Extra Credit: What flyer should you look at for all the details about when, what temperature, use if honey supers are on – you can use Mite Treatments? **MDAR MITE TREATMENT GUIDE**

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46a. Which of these Mite Treatments can be applied with honey supers on:

a. Apivar

b. Formic Pro / Mite-Away-Quick-Strips MAQS

c. Apiguard

d. Api Life Var

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46b. Which mite treatments must be applied with protective gear including an approved respirator?

a. Oxalic Acid Vaporization

b. Formic Pro / MAQS

c. Varrozan

d. HopGuard

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46c) Which treatment for Varroa Mites can kill Varroa Mites under brood cappings

a. Oxalic Acid Vaporization

b. Formic Pro / MAQS

c. Apivar

d. HopGuard

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47. If you have only one hive of bees and it dies during the winter, which is the most likely to happen to the hive if no bees are put into the hive for the upcoming season?

- a. a swarm will find the hive, enter and make a new home
- b. wax moths will destroy the wax comb in the hive before next year
- c. the hive will be okay if mice are kept out
- d. the equipment will have to be destroyed because bees will reject the equipment in the future



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48. If you move a hive of bees from one location in your yard to another location 20 yards away, you can expect the bees to:

a. Immediately search out the new location and behave as if nothing has changed

b. Return to find the hive not in the expected location and settle either on the ground or seek out a nearby tree limb

c. fly away not to return

d. die of starvation because they have nowhere to go

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49. A hive that has very mean bees (also called a “hot” hive) can be changed by...

- a. Hey - you can't change a mean hive.
- b. Kill the old queen and replace her with a queen from gentle stock
- c. Move the hive to a new location
- d. Smoke the bees with a lot of smoke

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50. Honeybees generate heat during the winter.

They use this heat to:

- a. warm the interior of the hive
- b. to heat the upper part of the hive because heat rises
- c. to keep the cluster warm, the cluster is round and insulated somewhat to retain the heat
- d. to heat only the area where there is honey so it can be liquefied for winter use

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51. A package of bees will develop faster if they are given?

a. drawn comb + syrup for feed

b. new foundation + syrup for feed

c. new foundation + syrup + pollen substitute

d. a second queen to lay more eggs and therefore produce more bees

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52. If left without a queen for more than two days, the bees in a newly split hive will...:

- a. reject any new queen given to them even if the beekeeper cuts all queen cells in the hive
- b. will try to raise new queens called supersedure queens
- c. will readily accept any new queen given to them even if queen cells are present in the hive
- d. will try to raise new queens called emergency queens

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53. Where is the very worst place to locate a hive of bees?

- a. facing in a southwestern direction
- b. Under a shade tree
- c. Near shrubs that block their flight path
- d. On your lot-line facing the neighbor's yard

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54. American foulbrood can be spread most likely by which of the following?

- a. sugar syrup
- b. queen cage candy
- c. honey/Robbing
- d. water

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55. If you have capped Queen cells the queen should emerge in no more than _____ days

- a. 5
- b. 7
- c. 9
- d. 10



Egg Stage: fertilized eggs in individual cells of the hive.

Larval Stage: fed royal jelly exclusively. Nurse Bee Care: Nurse bees provide continuous care and nutrition to the developing queen larvae.

Pupal Stage: the larvae are capped and enter the pupal stage, where they undergo metamorphosis.

Emergence: The queen emerges from her cell about 16 days after the egg was laid, ready to mate and assume her role.

Mating Flight: She takes one or more mating flights to mate with drones, ensuring genetic diversity for the hive.

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56. If you find dead bees with their heads inserted into cells during your spring inspection, the most probable cause of their death is:

- a. Nosema disease
- b. pesticide poisoning
- c. dysentery
- d. **starvation**

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57. A honey bound hive is....:

a. a hive in which the bees are storing honey in what should be brood cells

b. a hive that has filled every honey super placed on it

c. a hive that has produced a surplus of honey

d. a hive that has had no honey removed from it by the beekeeper

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58. If you set up an outside feeding station what are the potential hazards to your hive?

ROBBING _____

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59. When using Oxalic Acid Vaporization what protective gear is needed?

Bee Suit _____

Approved Respirator _____

Nitrile Gloves _____

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60. When you are installing a package should you spray the Bees with Sugar water first?

NEVER – That would chill the bees_____

THANK YOU TO OUR BEE SCHOOL FACULTY

- Archie Acevedo (Mentor Coordinator)
- Carolyn Holmes (Board Member)
- Neil Kaiser
- Mo Khalil (NCBA President)
- Bruce Klenk
- Tony Lulek(Past President)
- Brian McCafferty (Treasurer)
- Greg Rushton (NCBA Web Guru)
- Dana Wilson (Bee School Admin)
- And me - Ed Rock (Vice President and Bee School Director)



- Thanks for joining the 2025 NCBA Bee School and Our NCBA Beekeeping Community
- Sign-Up for Live Bee Demos
 - April 11, 25th , 26th
- School Certificates
- Bee School Evaluation
- Cake and Refreshments

