



9th Grade

In addition to continued work with bees in the school garden and the honey harvest, students can also sow flowering plants. Planting flowering trees inside and outside the school grounds is a fine opportunity to do something good for bees. It could be fun to prepare "Guerilla gardens" on fallow sites, building ruins, or other unused areas to support bees. Schools that provide a ninth grade farming practicum could encourage that work in beekeeping.

10th Grade

Environmentally sound beehives can be made in woodwork classes. Explanatory information about bees can be distributed at marketplaces or wild bee nesting sites can be set up near school. Younger schoolmates can be mentored on how to best care for bees. Planting and caring for trees can be continued, and seminars about beekeeping can be offered.

11th Grade

If main lesson themes include using microscopes, then the anatomy of bees can be researched, examining compound eyes or the mechanism for transporting pollen on their legs. As a part of cytology in biology class, the subject of genetic engineering can be discussed. With respect to bees, their pollination

performance is a decisive factor, which makes it impossible for genetically changed and unchanged plants to coexist. Related topics such as organic honey and honey without genetic engineering can follow. Ecological research projects can be chosen and independently pursued throughout the year.

12th Grade

What part of a bee's behavior is inherited and thus attributable to instinct? What do bees actually learn – and how? Such topics can be central questions in the twelfth grade. An interesting research topic with possibly significant import is whether the bee, that is the entirety of a bee colony, is more than just the sum of its parts. A sociologically interesting question is how does a bee colony come to a decision, and what does this have to do with humans? Can we perhaps learn something from this?

Wild bees

Despite the dominance of the honeybee, lesson plans should also include wild bees, bumblebees, and other pollinating insects, as well as robbers like wasps and hornets. Building nesting site aids and then observing wild bees or establishing a bumblebee colony would fit in horticulture or natural history lessons in various different grades, and offer valuable information for the holistic experience of the world and nature.

Reference works

9 Lectures on Bees: Given to Workmen at Goetheanum, Dornach, Switzerland, 1923

Wisdom of the Bees: Principles for Biodynamic Beekeeping
by Erik Berrevoets, SteinerBooks (September 1, 2009)

Becoming Sophie
by Susan West Kurz (November 23, 2011)

Biodynamic Beekeeping
library.uniteddiversity.coop/Beekeeping/
Biodynamic_Beekeeping_QA.pdf

Standards for Beekeeping
www.demeter-usa.org/forms/standards/
DI%20bee%20stds%20Demeter%20
Biodynamic%2012-e.pdf

Internetlinks

gaiabees.com
mellifera.de/en/about/hapicultuur.be/en/themelissagarden.com
honeybeesuite.com/what-is-biodynamic-beekeeping/rudolfsteinercollege.edu/beekeeping
newsreview.com/chico/smitten-with-bees/content?oid=2978078
naturalbeekeepingtrust.org/

waldorf-resources.org
The international internet portal of the Pedagogical Section at the Goetheanum offers Waldorf teachers a rich selection of ideas and material. Further teaching material about bees will be continually added to the Lessons area until 2019.

spikenardfarm.org
Excerpt: "Our mission is to promote sustainable and biodynamic beekeeping through education, experience-based research and a honeybee sanctuary and to help restore the health and vitality of the honeybee worldwide."



Waldorf100 is an initiative of the International Forum for Steiner/Waldorf Education.

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Repeat order: www.waldorfschule-shop.de

Printed on Blue Angel recycling paper.

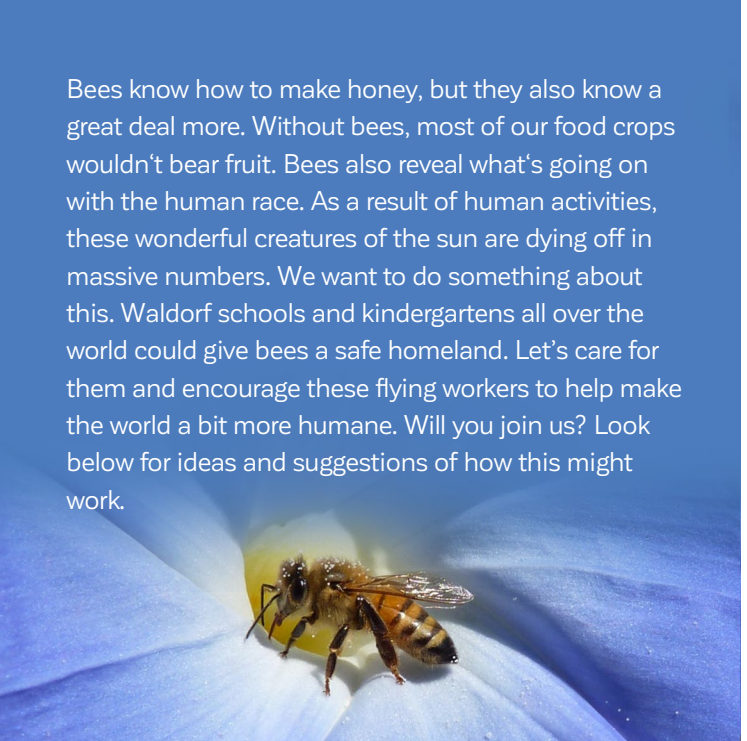
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Project Bees & Trees

Ideas for Schools and Kindergartens



Bees know how to make honey, but they also know a great deal more. Without bees, most of our food crops wouldn't bear fruit. Bees also reveal what's going on with the human race. As a result of human activities, these wonderful creatures of the sun are dying off in massive numbers. We want to do something about this. Waldorf schools and kindergartens all over the world could give bees a safe homeland. Let's care for them and encourage these flying workers to help make the world a bit more humane. Will you join us? Look below for ideas and suggestions of how this might work.

Kindergarten
It's never too early! Even in kindergarten it's possible to observe bees with the children – bees working among the blossoms or bee colonies going about their business. Under the supervision of a beekeeper, children can take a look at the hive's storage chamber or the bees' nursery room. They can see, hear, smell, and even stroke the bees.

1st Grade
In the first year of school, children can learn a great deal about bees through fairy tales and stories. „The Queen Bee“ by the Brothers Grimm or Jakob Streit's „Little Bee Sunbeam“ are two excellent examples, since they stimulate fantasy and imagination by letting bees tell their own stories. Observing nature, children can find the inner images they have created.

Practical activity: making candles, working with beeswax.

2nd Grade
Fables and legends, the story of Francis of Assisi for example, correspond beautifully with the emotional development of second graders. Appropriate stories and the continuation of time spent outdoors and observations made in nature form a natural framework for considering bees. Verses with bee motifs can accompany the children throughout the entire year. Practical activity: Students could create a bee meadow, draw pictures of bees and blossoms.

3rd Grade
The Practical Arts block and the main lesson theme of agriculture provide good opportunities for visiting a beekeeper. Children will learn about their work, but also develop an understanding of the service that beekeepers provide to bees and humans alike.

Practical activity: Given the right conditions, honey can be harvested before the summer holidays. The honey supply, sealed by the bees, is now collected, centrifuged and (very important!) tasted. These are unforgettable experiences.

4th Grade
After the first human and animal main lesson themes, it's worth the effort to take a closer look at honeybees, a preview of the main focus in 8th grade. At this age, children approach bees with open interest.

Practical activity: Bee-related tasks along with practical entomology and general knowledge of insect life by observing the metamorphosis of butterflies from caterpillars, from pupation to „flying blossom“.



5th Grade
If the main lesson theme of horticulture is given as spring approaches, it is easy for children to witness nature awakening and the activity of bees. The relationship between insects and blossoms can be observed and discussed in botany classes. Beekeeping in a school environment, however, means that important events such as swarming and a large part of the honey harvest often take place during school holidays, and therefore must be covered as subject material in advance or as follow-up lessons.

Practical activity:

6th Grade
The first year of horticulture includes the contact to bees. Experiencing the annual cycle of nature gains a new dimension by observing the bees. Around the time of the summer solstice, the bees have already passed the peak in their development.

Practical activity: In the main lesson theme of geometry, children can learn to construct hexagons with compass and straight edge, and the subsequent rediscovery of these forms in the beehive can lead from wonderment to knowledge.

7th Grade
It makes good sense to consider bees as a part of seventh grade main lessons. For example, students can more closely examine various substances such as honey, hive dross, or bee poison as a component of chemistry lessons.

Practical activity: Students can do repair work on beehives or beekeeping equipment.

8th Grade
The topic of insects can be the focus of zoology as a main lesson theme. The honeybee is probably the best-known colony-building insect, and deserves intensive attention and study due to its enormous importance for nature and humankind.

Practical activity: Eight grade students can take up the care of a bee colony as a class project and can work with the bees' offerings such as honey and ointments made of beeswax.



Nothing is more like a soul than a bee.
It goes from flower to flower
as a soul goes from star to star,
and brings back honey
as a soul brings back light.

Victor Hugo (1802 – 1885)