



# HONEYBEE CENTRE

*A Hive of Activities*



## Bee-cology

The monthly e-newsletter for teachers from Honeybee Centre  
[www.honeybeecentre.com](http://www.honeybeecentre.com)

### **From the WEB**

#### Spring and Summer Classroom Projects

[www.kidsgardening.com](http://www.kidsgardening.com) has great ideas for hands-on projects that your students can do in the classroom. For your honeybee unit, consider incorporating a lesson on pollination partners or on developing an appreciation of pollination with “Who Made My Meal?”. These, among other lessons, can be built on for mathematics, social studies and art learning outcomes, as well as science.

[www.honeybeecentre.com](http://www.honeybeecentre.com) has all of the information and classroom ready activities from the Surrey Teacher’s Association Convention, for those who missed it. Our workshop, “Enhancing Science and Math With Honeybees” was a success. We had a full house for both morning and afternoon sessions.

[www.ag.arizona.edu/pubs/insects/ahb/lsn24.html](http://www.ag.arizona.edu/pubs/insects/ahb/lsn24.html) has a great lab exercise for GRADES 4-6! Students will enjoy the hands-on nature of this teacher-friendly lab exercise. Try it out on the during your unit on the Plant Kingdom.

#### Did You Know?

Honeybees can fly up to 14 kilometers from their hive in search of nectar.

The queen bee can lay up to 1500 eggs each day during her 3-4 year lifespan.

The brain of a worker honeybee is about a cubic millimetre, but has the densest neuropile tissue of any animal.

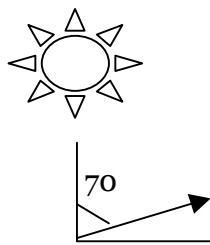
In a healthy hive, the queen is the only honeybee who lays eggs.

All worker bees are female. They raise young, forage and defend the hive.

Workers are the only honeybees that sting.

## The Secret Language of Honeybee Dancing

Have you ever wondered how an animal with a brain that could fit on the head of a pin can find its way from its hive to a patch of flowers? The secret is in the waggle...the waggle dance performed by the forager worker bees. When the worker bee returns to the hive, she shares both distance and direction information with her sisters in the form of a dance. The dance takes on the shape of a figure-eight. The direction information is contained in the angle from vertical of the straight portion of the dance. The angle between the sun and the flower patch is depicted in a fervour of abdomen waggles as the honeybee translates the horizontal flight path into a dance on the vertical honeycomb. If the honeybee runs directly up the honeycomb for the straight portion of the figure-eight, the other bees are instructed to fly in the direction of the sun. If instead, she runs directly down the honeycomb, the flower patch is located in the opposite direction of the sun. As in the diagram below, if the honeybee indicates an angle of 70 degrees, then she keeps the sun at 70 degrees to her left. The critical angle is that between the sun and the food.



Cloudy days require an exceptional ability, one that most people don't even possess. It is the ability to sense the polarization pattern of sunlight in the sky. Honeybees are able to detect bands of light, even on cloudy days. We can detect polarization patterns too, by using a tool called a "Sky Compass". It shows the direction of the sun, even if you can't directly see it.

Distance information is contained in the round parts of the figure-eight. The closer the flower patch, the faster the honeybee runs.

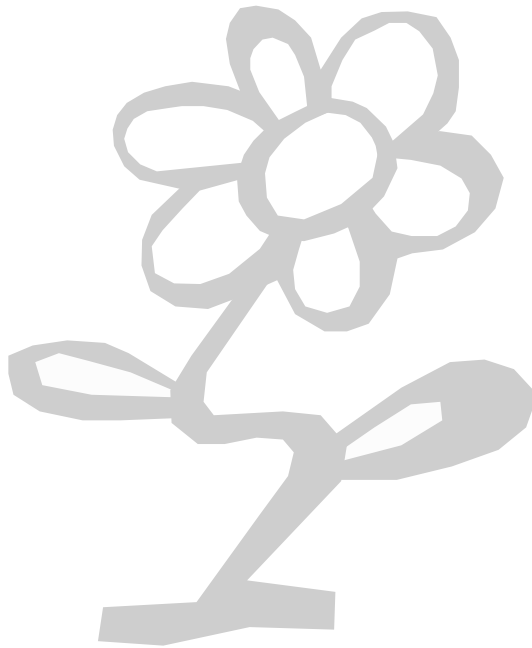
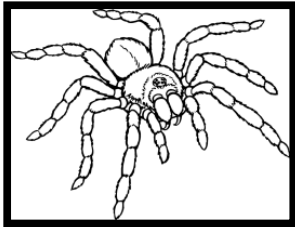
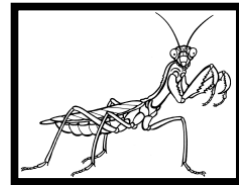
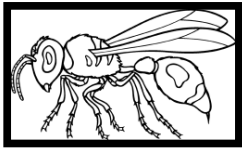
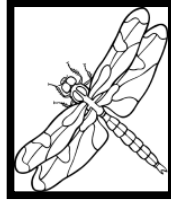
Intermediate teachers can incorporate the science of honeybee language into science and math curriculum. Additional information and a sky compass are available at [www.polarization.com](http://www.polarization.com). Bring your students to Honeybee Centre for our **Honeybee Navigation** workshop where students can explore polarization with demonstrations and hands-on experimentation.

## **WHAT ARE THE HONEYBEES DOING THIS MONTH?**

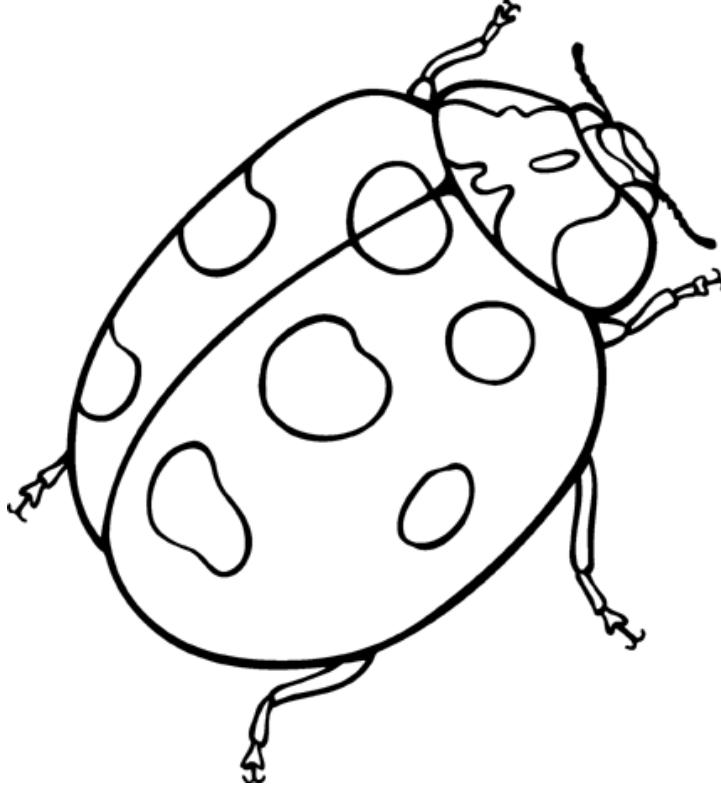
April and early May is BLUEBERRY time in the fields of the Fraser Valley. Honeybee Centre places nearly 500 hives into local fields for pollination and the production of BLUEBERRY HONEY. The honey made from the nectar of blueberry plants has a distinct flavour reminiscent of rich brown sugar with hints of floral. According to the Honey Council of Canada, ninety percent of the value of Canada's blueberry crop is attributed to pollination by honeybees. Farmers pay approximately \$40 to rent a honeybee colony. There is a cost/benefit ratio of \$41.00. Pollination by honeybees is imperative to the fruit industry in Canada. Students can investigate the effect of Varroa mites, which destroy honeybee colonies, on the Canadian and local economy. Visit <http://concer-tina.co.uk/hyper/start.html> for a fun, online game about pollination.

# You're NOT a HONEYBEE!

Colour and Learn



You're not a honeybee!



Your shell is too spotty!

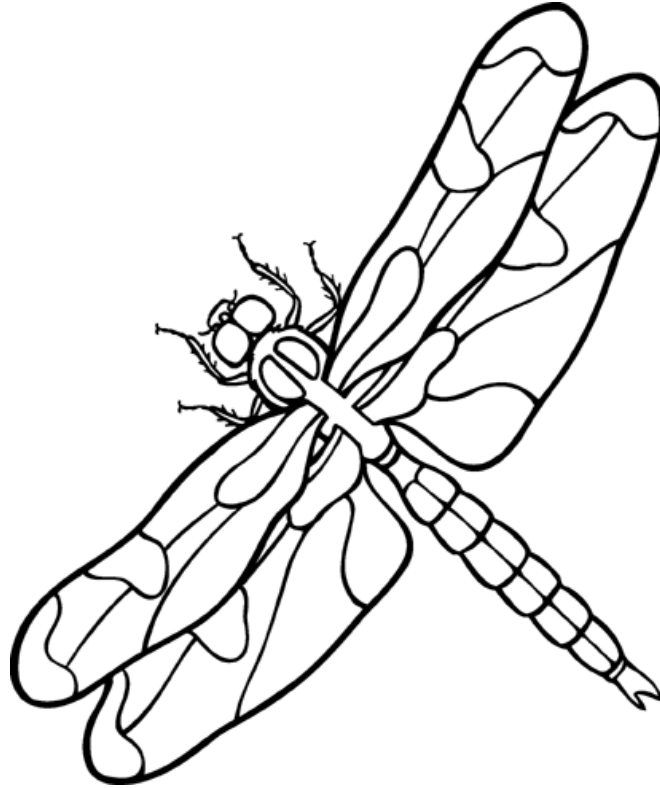
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L a d y b u g

**You're not a honeybee!**



**Your body is too skinny.**

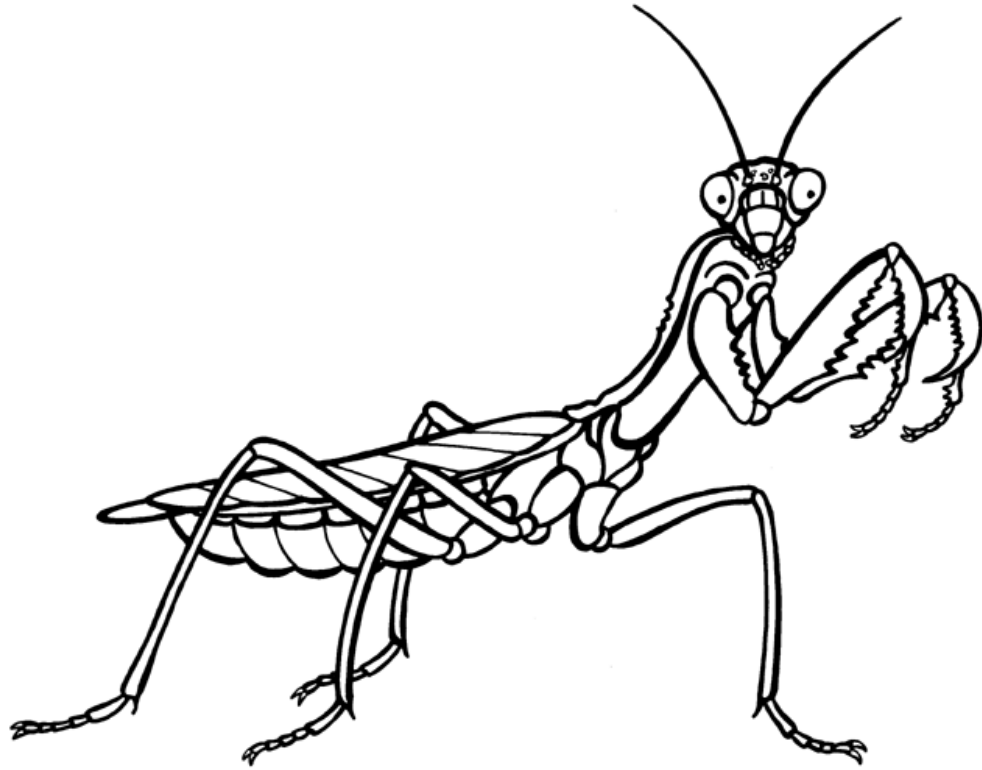
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**D r a g o n f l y**

You're not a honeybee!



Your eyes are too beady.

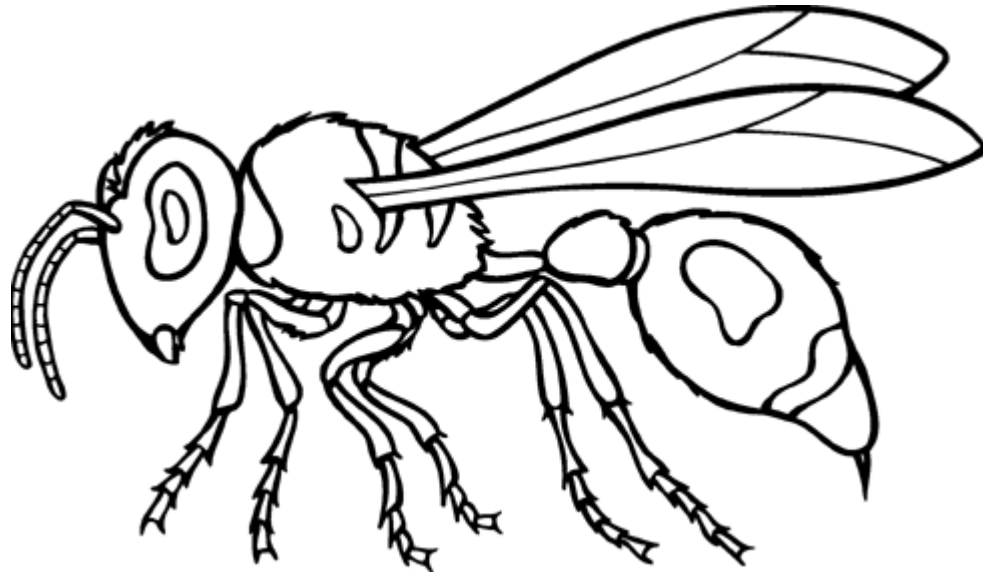
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Praying Mantis

**You're not a honeybee!**



**Your waist is too stringy.**

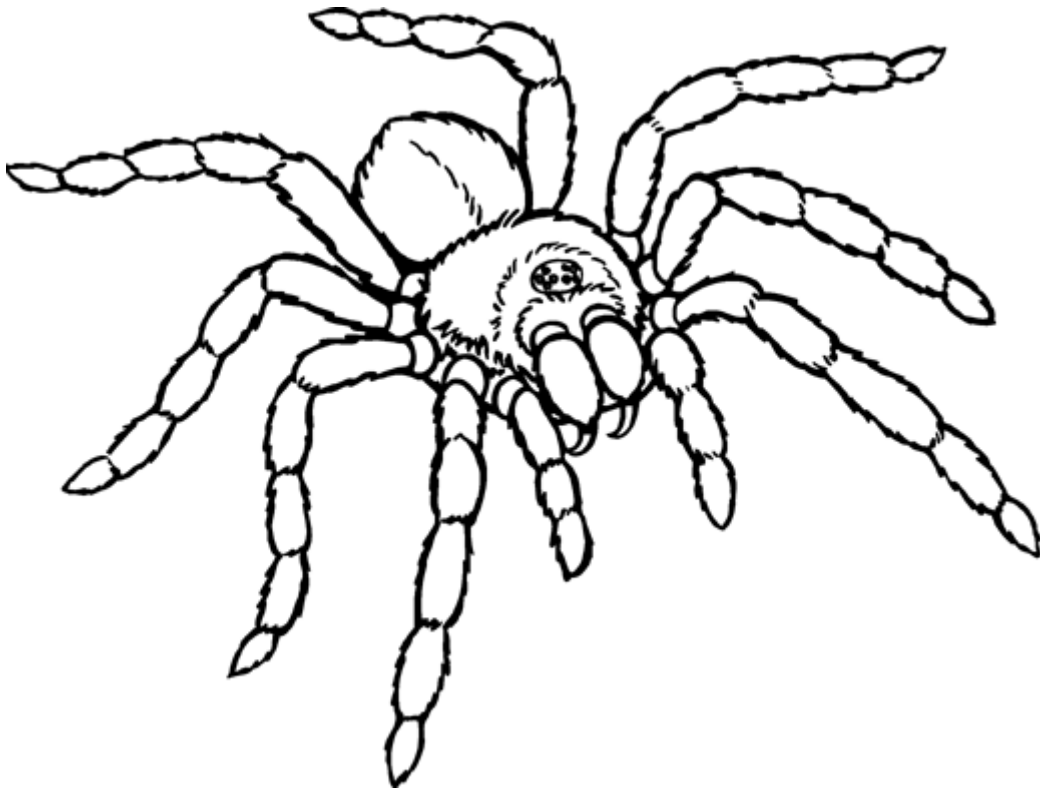
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W a s p

You're not a honeybee!



Your teeth are too pointy.

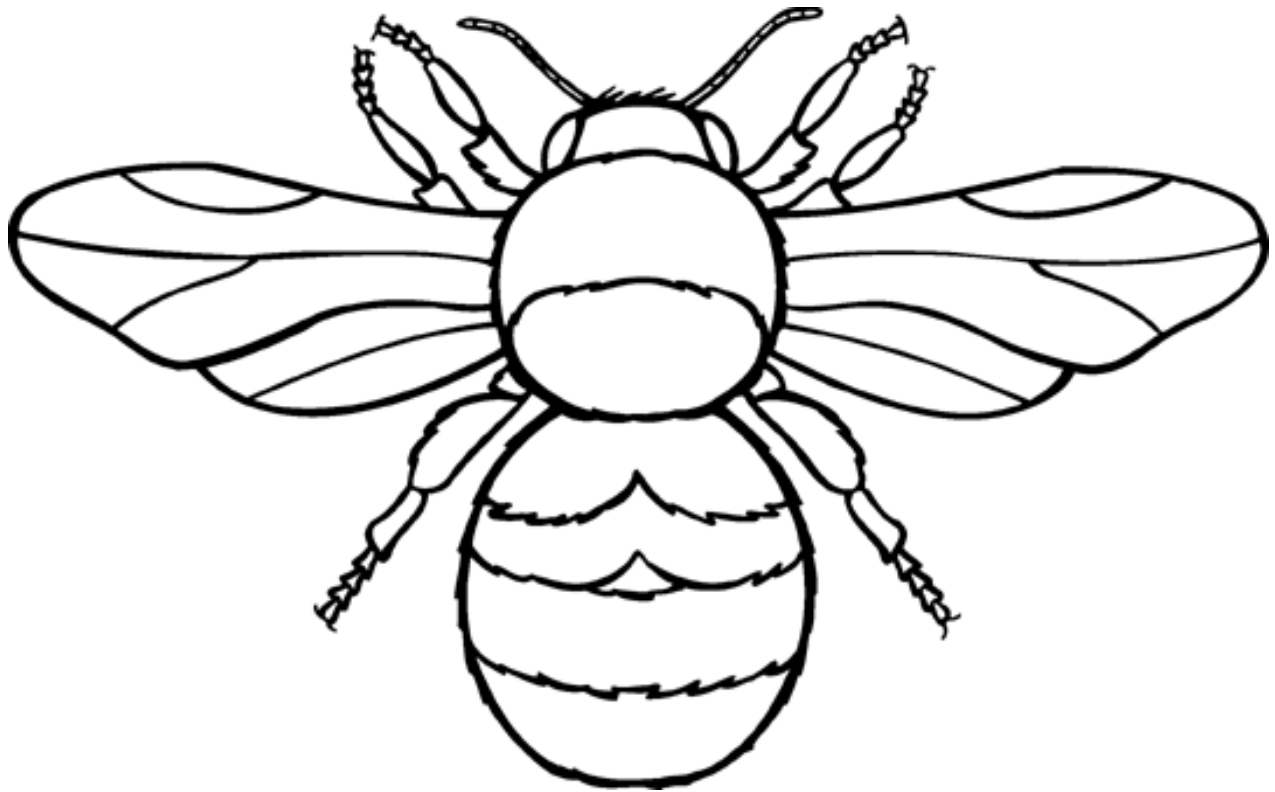
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S p i d e r

You ARE a honeybee!



Your body is so fuzzy!

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Honeybee