



## **Mathematics**

### **The Beekeeper**

Working bees (female bees) collect pollen and nectar for the hive. Pollen is used in the hive as a protein source during brood-rearing. The bees make honey from the nectar they collect from flowering trees and plants. Honey is a pure food that will last forever.

Beekeepers use hives called supers that have frames for the bees to build combs for honey and for brood chambers. The Beekeeper places the hives where the bees can find flowering trees and plants. Hives should face south and be protected from the west winds. Bees need fresh water daily. Place water close to the hive.

In the spring give your bee's food in the form of Sugar Syrup (1 kg of sugar to 500 ml of water) as available nectar is still scarce. Hives need to be visited weekly.

During the summer the Beekeeper must visit the hives weekly and watch for swarming and over-crowding. Supers need to be removed when the cells have been capped over and extracting of the honey soon thereafter. New supers need to be added. The main harvesting of the honey is done from late summer to autumn. Pollen and Beeswax are also products that are produced by the honey bees and can be sold.

Fall is the season when your queen bee's egg laying is dramatically reduced, the drones begin disappearing and your hive population decreases.

Beekeepers take honey from the supers but leave the brood chambers in place. Honey stored in this part of the hive will see the colony through the winter. Bees will also need more Sugar Syrup in their feeders for the winter. Wrap your hives and narrow the opening so that a very small opening exists, but still allows for good ventilation.

[www.ontariobee.com](http://www.ontariobee.com) Visit service, for a great teacher's kit and tons of fun information.  
[www.dickeybeehoney.com](http://www.dickeybeehoney.com) For school tours

Each hive will produce 45kg of honey, approximately 2 kg pollen and 4 kg beeswax.

### Equipment You Will Need To Become A Beekeeper

Hive with supers and frames	\$200.00	Pollen Trap	\$15.00
Nucleus Colony – 4 frames of bees with eggs, workers, and a laying queen	\$175.00	Stainless Steel	
Metal Hive Tool for Opening Hives	\$8.00	Smoker	\$30.00
Knife or Scraper to remove caps	\$5.00	Bee Brush	\$7.00
Zippered Fencing Veil	\$20.00	Leather Gloves	\$20.00
50 kg Honey Tank Stainless Steel	\$150.00	Extractor	\$200.00
Plastic Containers 1kg (each)	.65	Strainer	\$35.00
Winter Hive Wraps	\$17.50	Glass Jar 1kg (each)	.75
Uncapping Tank	\$125.00	Wax Melting Pot	\$125.00
		Extra Frames (each)	\$1.50

### Sales

Creamed Honey 1 kg	\$11.00	Liquid Honey 1 kg	\$11.00
Bee Pollen ½ kg	\$21.00	Beeswax Bar ½ kg	\$11.00

### Suggested Questions

#### Grade 1

Fold paper in four sections.  
Use both sides giving room to answer 8 questions.

Draw 5 working bees and 1 queen bee.  
Draw 3 drone (male) bees.  
Draw 1 beehive with 3 super boxes.  
Draw 4 honeycombs.

Draw 5 plastic containers for creamed honey.  
Draw 7 glass jars of liquid honey.  
Draw 2 glass jars of Bee Pollen.  
Draw 8 bars of Beeswax.

#### Grade 2

Show the above work using numbers and pictures.

#### Grade 3

Show the above work using pictures, numbers and words to explain your answer. Total the cost of sale items.

Grades 4 – 8

How much would it cost you to become a Beekeeper?

If you had 1 bee hive would you make a profit the first year? Explain with numbers and words.

How many bee hives would you need to have the first year to pay for your start-up equipment? Explain with numbers and words.

How many bee hives would you need to have the first year to make a \$500.00 profit for all your hard work? Explain with numbers and words.

What would your profit or loss be the second year if you just kept one bee hive? Explain with numbers and words.

If, you paid yourself \$20.00 per hour for 2 eight hour days per week from April to the end of October, would you make a profit the third year with one bee hive? Explain with numbers and words.