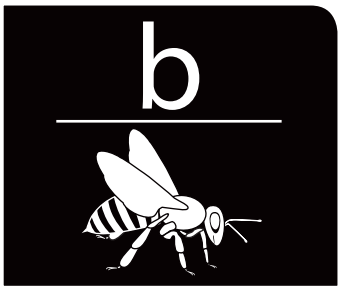
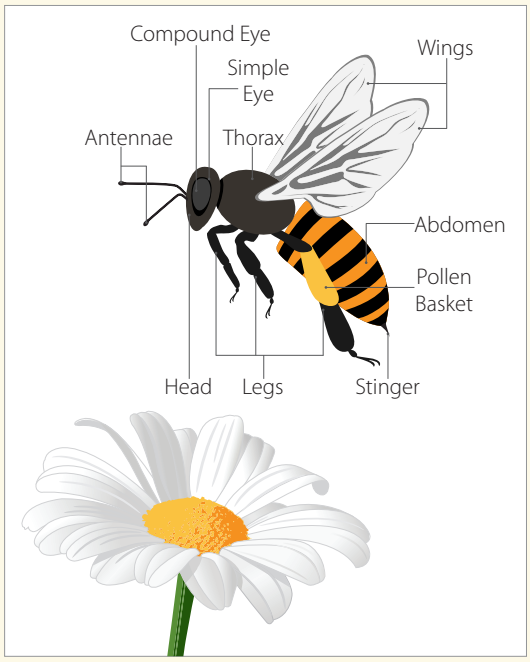
CREATIVE ACTIVITY : **BEES**

the pollinator



Take a close look the anatomy of the bee in ***The Life and Times of the Honeybee*** or another nonfiction book about bees. The bee has many specialized body parts — from compound (multiple) eyes with ultraviolet vision to pollen baskets on the outside back legs. Bees are built to contribute to the survival of their colony (family).



Bees also contribute to our survival. Without their pollination of many fruits and vegetables, our food supply would be greatly reduced. As a bee visits flowers in search of their food (nectar), tiny grains of pollen from the anther (the male part) of a flower stick to the bee's body. As the bee moves on to other flowers, it takes the pollen along, transferring it onto the stigma (the female part) of the next flower and starts the pollination process — how a flower or plant develops new seeds.

This drawing activity challenges your child to design and draw a robot that could complete the transfer of pollen from one blossom to another and help a plant grow its fruit.

Supplies

>> Drawing supplies: paper, pencil, markers, ruler

>> Household junk — containers, boxes, rubber bands, pipe cleaners, paper clips, Styrofoam, toothpicks, etc. — or a building set such as LEGO or K'NEX (optional)

Getting Started

Ask your child to think about what you read about how a bee performs her pollen-collecting task. You might want to read more with your child to help him understand pollination and which bee body parts and bee senses make pollination possible. Then, ask your child to draw a bee and have him point out the bee anatomy that makes the bee good at pollinating.

Now help your artist focus on a new type of pollinator — a robotic one of his own design. To get him started, you might discuss:

>> What materials would he use to build the robot?

>> What tasks does the bee robot need to complete?

>> How could it be constructed?

>> What could be the harm or benefit to nature of having robots perform pollination?

>> How will his robot understand its environment?

Let him create and explain his design to you. If he's interested, provide some materials to create his robot or a 3-D model. When he's finished, talk together about what kind of reaction his robot might get from a real bee.

Buzz about Robots

Compare or get inspiration from the robot bees at Harvard University: http://micro.seas.harvard.edu

Learn why cuteness counts in robot design: http://labcast.media.mit.edu/?p=206