



# Varroa Mite Activity —Sugar Shake Method



**Introduction:** A Varroa mite is a tiny parasite that attacks honey bees. They hide in between parts of a bee's body, making it difficult for the bee to remove. Varroa mites cause the decline of honey bee populations needed to pollinate many crops, which decreases our supply of fruits, vegetables, and nuts. When adult honey bees are infected, their immune systems are weakened, and they may get lost and won't find their way back to the hive.

In order to keep honey bee populations healthy, beekeepers must regularly check their beehives for mites. This allows the beekeepers to estimate the mite infestation level and whether they need to treat the hive to kill the mites and save the honey bees.

**Beekeeper Sugar Shake Method:** To check their hives for mites, without harming the bees, beekeepers use the "sugar shake method." They use a large screen-topped jar that allows the mites to fall out but keeps the bees inside.

Approximately 200 to 400 bees are removed from the hive and placed in the jar at a time. The beekeepers add in two tablespoons of powdered sugar and close the jar with a screen lid attached. Then they gently shake the jar to coat the bees with the powdered sugar. After letting the jar sit for a couple of minutes, it is tipped upside down over a white plastic container to shake the mites out through the screen. The bees are returned to their hive, where other bees clean the sugar off their bodies and return to normal. The mites taken from the jar are counted to determine what percentage of the hive is infected. If there were 100 bees in the jar and five mites are found, there are probably 5 to 10 mites per 100 bees. More mites than this can harm a bee colony, and the colony should be treated for mites.

**Goal:** Create a visual for students to show how beekeepers remove mites from honey bee hives

**Supplies:** glass jar, mesh screen, rope or rubber band, sprinkles, dried beans, powdered sugar or flour, & paper

## Steps:

1. Place beans (honey bees) and sprinkles (varroa mites) in the glass jar.
2. Add a small amount of powdered sugar/flour.
3. Cover the jar opening with a mesh screen and tie a rope/rubber band over it. Gently shake the jar to coat bees with powdered sugar/flour.
4. Turn the jar upside down over the piece of paper. The sprinkles (mites) should come through the screen while the beans (bees) stay in the jar.

