Bees provide essential ecosystem services in natural and agricultural landscapes as pollinators of three-quarters of flowering plants and as soil-builders. For people, this means every third bite of food along with fibers, nutrients and beverages is the result of pollination. Plants rely on pollinators to reproduce and set seed. Honey bees pollinate crops, but native bees also have a role in agriculture and they are essential for pollination in natural landscapes. There are 1,300 native species of ground-nesting, twig-nesting and parasitic bees found within Arizona. This guide gives information for identifying 10 major groups of bees commonly observed in Arizona including key characters, sizes (in mm), nesting habits, floral preferences, and distinctive behaviors.

**Leafcutter and Mason bees (Megachile and Osmia spp.)**

Family: Megachilidae. Head as broad as thorax; large mandibles; black body with pale bands on abdomen (metallic green or blue for Osmia); scopa under abdomen; 7–20 mm. Solitary, nest in beetle holes or wood nesting blocks, some in soil. Female Megachile cut circular pieces from leaf margins to form larval cells. Other species collect mud (Osmia) or resin as nesting materials.

**Bumble bees (Bombus and Psithyrus spp.)**

Family: Apidae. Robust, hairy colorful bees; black body covered with black, yellow, orange or whitish hair bands; pollen baskets on hind legs; 10–28 mm. Bumble Bees live in social colonies; nesting underground, under boards or rodent burrows. They buzz pollinate flowers like tomatoes, which have pored anthers.

**Sweat bees (Agapostemon, Augochlorella, and Halictus spp.)**

Family: Halictidae. Diverse group including small brown or black bees with abdominal bands to vividly colorful metallic green and yellow. Pollen-carrying hairs on hind legs; 3–12 mm. Parasitic forms often have red abdomens and lack pollen carrying hairs. Solitary, communal and semisocial soil nesters; some are attracted to salt in your sweat.
A Bee or Not a Bee?
There are two kinds of insects that are often confused with bees -- flies and wasps. Many flower-visiting flies (e.g. the Syrphidae) are bee and wasp mimics in color, form and actions. By mimicking bees and wasps in appearance, they gain protection from predators. So, how do you tell these pollinators apart?

Fly Identification: Flies have only one pair of wings, while bees have four wings. Flies usually have short, stubby antennae with single hairs, or feathery antennae. They have piercing/sucking or sponging mouthparts. Many flies have huge eyes that meet at the top of their heads.

Wasp Identification: Wasps have four wings, chewing mouthparts, a sting in females, and long antennae. One hair character sets bees apart from wasps. When magnified, bee hairs are branched (plumose) not simple and straight like those on wasps. Bees are also usually hairier and more robust than wasps. Think of a “wasp waist” a constriction in the petiole than many wasps have. Wasps never have pollen-carrying hairs (although masarid wasps feed on pollen). Wasps are carnivorous predators or parasites.

Now that you know how to tell the difference between bees, wasps and flies, try identifying the insects in the photos below. Answers are at the bottom.


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