Place-Based Education at Our Table Cooperative Farm
Solitary Bees: Many characteristics of organisms are inherited from their parents

Life Science LS3 Heredity: Inheritance and Variation of Traits

Variation of Traits: Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. (LS3 – B) https://ngss.nsta.org/DisciplinaryCoreIdeas.aspx?id=23&detailid=56

Bees are insects and all insects share some traits. Do you remember the 1, 2, 3's of bees?
Let's remember the main things about an insect. They have three body parts – a head, thorax and abdomen. They also have one (1) pair of antennae, two (2) pairs of wings and three (3) pairs of legs!

We learned about European Honey Bees in another unit. They are the social bees who live in a huge group (colony), have a Queen, make their home of wax, make delicious honey, and protect themselves with a wicked sting!

There is another huge group of insects called Solitary Bees. These solitary (live all by themselves) bees include bumble bees, mason bees, sweat bees, leafcutter bees, and long-horned bees. This means the female builds her own nest (home) all by herself. She gathers the food, lays the eggs, and fills the nest.
Stats: Worldwide, there are approximately 20,000 species of bees! About 3,600 bee species are **native** to the United States and Canada. More than 90% of these bees lead solitary lives.

Most solitary bee species are gentle and many are stingless! These native bees are also important pollinators. Their **hairs** are one of their most important traits. Pollen sticks to the hairs. They do not have a pollen basket, like the European Honey Bee does. When a solitary bee visit a flower, they lose much more pollen than honey bees do. This makes them superior pollinators! We could call them Messy Bees!

Solitary bees pollinate most of the world's flowering plants (over 85%). This includes more than two-thirds of the world's food crops. Pollinators (solitary bees) are also a keystone species in most ecosystems. They are the super-pollinators that help create the fruits and seeds eaten in the food chain! Birds, small mammals, and even humans benefit from their busy work.

Solitary bees all eat pollen and nectar. They also build their home, or nest, in a similar way. The female bee looks for a good location. They like spaces between rocks, hollow plant stems, or holes left by wood boring insects. These spaces are usually the shape of a pencil. Some also use holes in the ground! She will gather pollen or pollen and nectar into the hole, lay an egg on it, and then seal the space with a "door". This is called a cell. She continues the process until the entire hole is filled with cells. We have some hints as to which type of bee she is by the door she uses to close her nest.

Take a walk outside and search for evidence of solitary bees. Can you find their home? Can you tell which type of bee they are? Look for different solitary bees on your adventure. Which colors did you find? What patterns? Do all bumble bees look the same? What is the largest solitary bee you found? What is the smallest solitary bee you found?

Spend some time learning about your favorite solitary bee. Where do they like to build their nest? How big is this bee? What colors is she? Can you see all the hairs on her body?

There is much more to learn about these super-pollinators! Watch one of the videos or read a book about these special solitary bees.