

The Pollinator Game:

How difficult is it for a solitary cavity-nesting bee to find enough food to feed its young? What dangers does she meet?

What you will need:

- **Flowers:** Construct flower shapes from brightly coloured construction paper. (One for every 5 or 6 children participating) Flowers should be approximately 24 in. (60 cm.) across.
- **Bowls** to hold the pollen balls. Cut out a circle in the middle of the flower and stuff a bowl into the cut out circle. Tape in place.
- **Mud:** shredded paper, bits of gray fabric or substitute. (I found the easiest & cleanest are very small pieces of felt or
- **1 or 2 extra bowls** to hold the 'mud'.
- **Pollen Balls:** various small colored pom-poms approximately .75 in. (2 cm).
- **Mandibles:** Multi purpose vinyl clips or wooden clothes pegs painted to match the pollen ball colours. Each participant gets one mandible.
- **Nesting cavity tunnels:** clear $\frac{3}{4}$ inch (2 cm) malleable plastic irrigation pipe cut into 6 inch (15 cm) lengths. Each child gets one tunnel.
- **Scopa** for each child: 2 inch (5 cm) wide Velcro (hooked side) cut into 4 in (10cm) pieces with a pin attached to each piece. These will be pinned to each child's shirtfront.
- **Bee's eggs:** dried white beans (5 per child)
- **Cuckoo bee eggs** (*Stelis montana*): dried black beans or colored beads.
- A timer
- **Pencils or sticks** might be needed to press the mud and pollen balls to the end of tunnel.
- One small spray bottle filled with water to represent a pesticide spray.
- Optional: a noisemaker to simulate bad weather.
- Optional: small coin envelopes to hold the "eggs" safely.

Preparation:

- Place the flowers around the room or outdoor area.
- Fill each bowl with various small colored pom-poms. (Five pom-poms per child).
- Place the extra bowl filled with 'mud' in an area away from the flowers.
- Pin a scopa on each child.
- Give each child 1 tunnel and five eggs. Eggs can go into their pockets or hidden beside their nest.

Questions to ask students:

What was the first renovation that BOB did to the tunnel in the bee condo?

- She made a back wall of mud
- Demonstrate the "mud" & how to collect with the "mandible"

What did she have to collect for food for her babies?

- Pollen – demonstrate the pollen balls, emphasizing that they collect only **ONE** at a time with their "mandible", it has to be the same colour as their "mandible" and carried on their "scopa".

She now needs to lay her egg – just one at a time.

How does she make her baby nursery safe?

Closes it off with mud.

Emphasize the order:

Mud, pollen, egg... mud, pollen, egg, mud, pollen, egg -- finishes everything off with mud.

How to play the game:

1. Choose your nesting site and hide your nest tunnel in a good spot. Once you have placed it there, you may not move it. It might be a good idea to hide your eggs there too.
2. When the signal to begin is given, fly to the mud source, and with your mandibles gather a bit of mud, take it back to your tunnel and make a back wall. Pack it down well.
3. Now fly to a flower, collect one pollen ball, and place it on your scopa. The pollen ball must match the colour of the mandible.
4. **Take only one pollen ball at a time.** Fly back to your nesting tunnel and put it inside.
5. Next, lay your egg in the nest tunnel. It should touch the pollen ball. Time to make another mud wall. Gather more mud & pack it down to protect the egg and pollen ball.
6. Go to another flower and repeat this process.
7. Keep filling your nest cavity with pollen--egg--mud until you've run out of eggs or you've run out of time.

But wait! There are dangers all around you.

- If you are sprayed with a pesticide you can no longer fly properly and you must drag one foot behind you everywhere you go.
- If the weather turns bad you will need to fly back to your nesting site and hide.
- If a cuckoo bee lays an egg in your nest, you must unfortunately leave it there.

The role of the teacher/leader during the game is to periodically make noise with a noisemaker to simulate inclement weather; to occasionally spray someone with a pesticide (water) and to place cuckoo bee eggs in the hidden nests. (You may decide that spraying with "pesticide" is not appropriate for your class).

Set the timer for a predetermined amount of time (example 5 minutes). Explain that this represents the relatively short life span of a mason bee.

After the game, gather everyone together to talk once again about the life cycle of a mason bee and the dangers that she encounters.

