**STUDENT ACTIVITY: Pass the pollen**

**Activity idea**

In this activity, students take on the role of flower parts and act out the process of insect pollination.

By the end of this activity, students should be able to:

* understand that pollination involves the transfer of pollen from stamens to stigmas of flowers
* understand that some flowers attract insect pollinators and offer them a reward.

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**Introduction/background**

This role-play activity was developed to help cement student understanding of the basic pollination process. There is no one way of doing this role-play activity. Some variations are suggested, but you will also develop your own. It may take a bit of organising, but it’s worth it.

This activity represents some aspects of pollination more accurately than others, so make sure your students understand its limitations. The discussion at the end of the activity should help.

**What you need**

For each group of four students:

* Ping-pong balls (6–10) to represent pollen – cheaper alternatives include polystyrene beads and scrunched up coloured paper balls
* Hooked Velcro dots (one per ball) – you could use double-sided tape or loops of tape instead of Velcro but they don’t tend to stick so well.
* Coloured pens or adhesive coloured dots to mark balls – a different colour for each flower
* Woolly sock
* 2 x woolly hats or beanies
* Small lollies, such as M&Ms or similar – a different colour for each flower
* 2 x small containers for lollies

**What to do**

1. Organise students into groups of four. Allocate the roles of stamen, stigma and nectary – these students will represent a flower. The fourth student will be a pollinating bee. Make sure each student knows what their part is in pollination. Possible variations:

* If you have an odd number of students, you could have more than one stamen in a flower.
* Have boys as stamens and girls as stigmas to emphasise the male and female roles of these plant parts.

1. Have students get ready for their roles:

* Stamen: Mark each ball (or bead) with the flower colour (this is the pollen). Put a woolly sock on one hand and attach the pollen to it using Velcro dots (or tape).
* Stigma: Put on a woolly hat or beanie (to attach pollen to).
* Nectary: Put small lollies, such as M&Ms, in a small container. Each flower to have lollies of a different colour. These represent the sugary nectar that plants give as a reward to insect visitors. (Variation: You could use cartons of juice for the bees to collect with straws. This more closely represents nectar and an insect’s proboscis, but later on it will be harder to keep track of which flower the nectar has come from.)
* Bee: Put on a woolly hat or beanie (to attach pollen to) and get an empty small container for lollies. (Variation: The bee could wear a striped shirt or jumper and antennae on their hat.)
* You may like each ‘flower’ to create petals out of paper or card and use them to attract pollinators. You could even use scent.

1. When all the teams are ready, arrange the groups of three flower parts so that there is plenty of space between the flowers. You may like to mark the ground in some way to indicate where the flower parts must stay. This is probably best done outdoors or in a hall. Collect all the bees together a short distance away from the flowers – this location is the hive.
2. Get each stigma to sit down as they are not needed to start with – explain that this is a way some flowers avoid self-pollination. (Variation: Start with half the stigmas and half the stamens sitting down, then swap after a set time.)
3. Pollination: Set the bees off. Stamens should wave their pollen-covered hands in the air to attract bees. When a bee visits a flower, the nectary gives it one lolly (to be stored, not eaten at the moment). At the same time, the stamen attaches a single ping-pong ball to the bee’s head. The bee then moves on to another flower to collect another reward and more pollen.
4. After a set time, all the stamens sit down and the stigmas stand up.
5. Now when a bee visits a flower, it gets a lolly reward from the nectary and the stigma takes a ping-pong ball from the bee’s head and puts it on their own. When a bee has no more pollen on its head it should return to the ‘hive’ where it started (still not eating the reward!).
6. After a set time, or when all the bees have returned to the hive, stop the activity. Gather the original groups together (the three flower parts and a bee) so you can discuss what happened.

**Discussion questions**

* How many different coloured lollies does each bee have? What does that tell you? (For example, the number of different flowers visited.)
* How many different coloured dots do the stigmas have on the pollen that they ended up with? What does that tell you? (For example, cross-pollination took place – they received pollen from different flowers.)
* In what ways did this activity accurately represent pollination?
* In what ways was it different to what actually takes place? (For example, nectar is a liquid, not solid like lollies; bees eat nectar and pollen when they visit a flower and also take some of each back to the hive for other bees and larvae.)
* Everyone can now eat their rewards, even the flower parts (though of course it should really be just the bees).