



BC Agriculture in the Classroom Foundation



Blossom's Big Job

Pollination Station Simulation

After reading “Blossom’s Big Job”, students will have the chance to experience hands on pollination through participation in two activity stations. These activities are designed to promote physical activity, allow students to question and reflect on their experiences through the Check, Connect, Reflect model of assessment, and promote experiential learning.

Subject Levels/ Suggested Grade

K-5 Physical and Health Education

K-1; 3-4 Science

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Adaptation of lessons found in:

<http://www.seplessons.org/node/799>

<http://static1.squarespace.com/static/569ec99b841abaccb7c7e74c/t/57841c94d2b85790440f6608/1468275882011/Bee+and+Pollinator+Activities+for+Kids.pdf>

<https://www.livestrong.com/article/560368-pollination-activities-for-kids/>

CCR Evaluation Model – Used in the STAMP Champions for Health Promoting Schools Exchange 2017, taught by Dr. Joanna Sheppard, UFV Kinesiology Program



<u>Grade and Subject</u>	<u>Curricular Competencies</u>	<u>Content Connections</u>
Physical and Health Education K-5	<p>Develop and demonstrate a variety of fundamental movement skills in a variety of physical activities and environments</p> <p>Develop and demonstrate safety, fair play, and leadership in physical activities</p> <p>Participate daily in physical activity at moderate to vigorous intensity levels</p> <p>Identify opportunities to be physically active at school, at home, and in the community</p> <p>Develop and demonstrate respectful behaviour when participating in activities with others</p> <p>Explain how participation in outdoor activities supports connections with the community and environment</p>	<ul style="list-style-type: none"> Relationships between food, hydration and health Practices that promote health and well-being, including those relating to physical activity, nutrition, and illness prevention Proper technique for fundamental movement skills, including non-locomotor, locomotor, and manipulative skills How to participate in different types of physical activities, including individual and dual activities, rhythmic activities, and games
Science K-4	<p>Demonstrate curiosity and a sense of wonder about the world</p> <p>Observe and make predictions about objects and events in familiar contexts</p> <p>Identify questions about familiar objects that can be investigated scientifically</p> <p>Ask questions about familiar objects and events</p> <p>Experience and interpret the local environment</p> <p>Share observations and ideas orally</p> <p>Communicate observations and ideas using oral or written language, drawing or role play</p>	<p>Science K-1</p> <ul style="list-style-type: none"> Basic needs of plants Adaptations of local plants Living things make changes to accommodate daily and seasonal changes Names of local plants Behavioural adaptations of animals in the local environment <p>Science 3-4</p> <ul style="list-style-type: none"> Biodiversity in the local environment Sensing and responding to humans, environment and animals Energy is needed for life

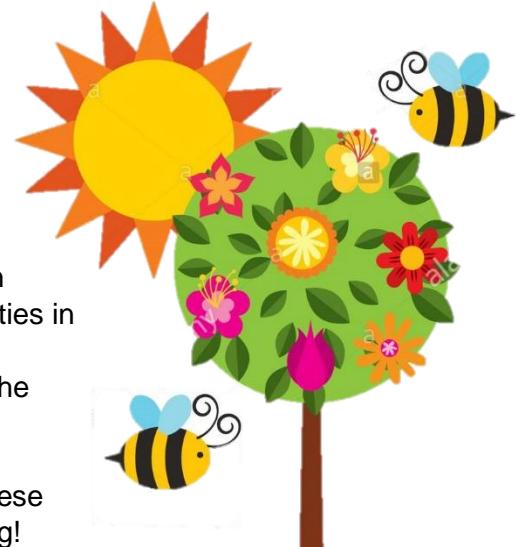
Teacher Background

Pollination is the process in which many plants are fertilized, involving transfer of pollen from the stamen of one plant to the stigma of another plant of the same species. Often, pollination cannot occur effectively in plants without the aid of pollinators, such as bees, moths, butterflies, birds, and bats. Pollinators and plants exist in largely mutual symbiosis – the plants provide the pollinators with food in the form of nectar, and in turn the pollinators transfer pollen directly to the plants when they move to their next meal, allowing for fertilization.

Most of our food supply is dependent on pollination to ensure bountiful harvests, and in turn on pollinators to effectively fertilize the flowers allowing for the development of fruit.

Although some plants such as the Warba Potatoes used in the Spuds in Tubs program are capable of self – pollination, many others cannot effectively fertilize themselves.

Although many students will understand the basics of pollination from a simple description or diagram, the use of hands-on activities in this lesson plan is designed to further aid in the student's understanding of the process. By allowing students to become the pollinator, they will experience the physical labour required by pollinators to effectively transfer the pollen from one plant to another. Promoting physical activity in the classroom through these simulations not only gets students moving – it gets them learning!



The Check, Connect, Reflect (CCR) model of PHE Evaluations allows for students to think deeply and reflectively about the activities they have just participated in, focusing on the social emotional skills they develop through physical activities. These skills include teamwork, sharing, cooperation, caring, and leadership, and more than one skill may be present in each game. For the purposes of CCR, focusing on one skill set will help to direct student's learning as they are participating in the activities. Questions can be adapted and modified as needed for grade level, but should focus on requiring more than a simple "yes" or "no" answer.

- For example, questions such as "Did you like the activity?" are not suitable for this type of reflection. A better way to phrase the question would be "How did you show teamwork in this activity?"

Students start by **Checking** their learning (What was our skill we focused on in these activities today? What activities did we do? How were we moving our bodies?), **Connecting** it to previous knowledge or other activities (What skills were we using in this game that we use in the classroom? How do these games reflect our skill of the day? How does this game help us learn about pollination?) and finally, **Reflecting** on their learning and overall experience (How did I/we show our skill of the day in this game? How can I continue to show this skill? How can I use my knowledge about pollination?

Younger students may find it more beneficial to participate in oral CCR circles, where all members of the group have the opportunity to answer questions posed by the teacher. Participation in the CCR at the end of the games can count towards an Assessment OF learning. A worksheet example with questions has been provided at the end of this lesson.

The following activities are designed to be used as extensions to learning as part of the Spuds in Tubs programming, and in accompaniment to the book "Blossom's Big Job".

Materials

- Activity instruction sheets for teacher use
- Specific activity materials listed in instructions
- Student handouts
 - CCR Evaluation Worksheet

Procedure

Activity 1 – Pollen Trail (Cheetos powder)

- **Materials: paper bags, white paper flower, glue sticks, scissors, Cheetos or other powdery substance**
1. Give each student an empty paper bag and image of a flower. Students may decorate their flowers as they wish, leaving the flower's center white. Cut the flowers out and glue them to the center of one side of their paper bag.
 2. Once the glue is dry, add a small amount of Cheetos or another food that leaves a powdery residue that is easy to spot on white paper to their bags.
 3. Have students touch the food and note the powder left on their fingers. Instead of licking it off, try touching the middle of the flowers. There should be some transfer of the powder from finger to flower.
 4. Once they have placed pollen on their own fingers, have students rub their fingers on the middle of their flowers, leave their bags in place and then find another bag to transfer the pollen to in a different area (not beside them). Rub and transfer pollen from the centre of the flower pictures on three other bags before having students return to their original bag to finish their snack (after washing their hands). Challenge them to move in a variety of ways!

Activity 2 – Relay Race

- **Materials: buckets (2/group), ‘beehives’ (1/group), laminated paper coins labelled P and N (yellow for P and orange for N)**
1. Prior to the activity, have students help you prepare paper “coins” representing pollen and nectar. You will need an even amount of both coins to be distributed amongst two buckets per team. Your total coin amount will depend how long you want students to run! There should be enough for each student in the team to pick up at least one nectar and one pollen coin (ex. Teams of 5 students → 10 pollen and nectar coins per bucket)
 2. Separate your students into even teams.
 3. When setting up the game, place one bucket 1/3 of the way, the second at 2/3 of the way, and the beehive at the end of the running distance (ex. length of gym). Fill the two buckets with the coins. Half of them must have a "P" written on the top for pollen and the other half "N" for nectar.
 4. Instruct the children to line up. One student from each team will go at a time, pretending to be the bee (discuss with class ahead of time how bees move, and agree on a movement to do while running the relay).
 5. The students must run to the first bucket, grab a pollen coin and a nectar coin, and head to the second bucket to deposit a pollen coin. Keep the nectar coin.
 6. Next, the students run to the second bucket, grab another nectar coin and a new pollen coin, and run to the beehive to deposit three coins (2 nectar, 1 pollen).
 7. Students then run back to their teammates and pass the bee off to the next person in line. The team who finishes first wins.

Extension Activities

- Have students create their own pollination games to share with the class.
- If students are moving quickly through the activities or aren't finding them enough of a physical challenge, consider changing the movement style (ex. In the relay race, have students hop on one foot or crawl instead of running). Several rounds of play can be used for the same game by incorporating different movements.
- Explore the role of pollinators other than bees, including nocturnal pollinators such as bats.
- Find an answer to the question "Why are some plants able to self-pollinate?"
- Explore the "Plant Something Bee Friendly" resources available on the BCAITC website.

CCR Physical Activity Worksheet Example

Name: _____

Date: _____

Skill of the Day → Teamwork.

Activity → Pollination Relay Race

Check:

"What were the steps in our relay race activity?" (bucket 1, 2, beehive, home)

"How were we moving our bodies?" (running, bending)

"How did we know it was our turn to go?" (when we were high fived)

"How did we know when the game was over?" (when all the coins were in the hive)

Connect:

"How did we use teamwork in our game?" (we took turns and worked together)

"Where else can we use teamwork?" (in the class, at home, in the community [with examples])

"How do bees use teamwork during pollination?" (waggle dance, pollinate different areas)

Reflect:

"How did I participate as a team member?" (I was ____)

"How can I use teamwork in other games?" (I can ____)

"What will I be able to do with my knowledge about pollination?" (I will be able to ____)

CCR Physical Activity Worksheet

Name: _____

Date: _____

Skill of the Day → _____

Activity → _____

Check:

Q: _____

A: _____

Q: _____

A: _____

Connect:

Q: _____

A: _____

Q: _____

A: _____

Reflect:

Q: _____

A: _____

Q: _____

A: _____