SCIENCE 9: REPRODUCTION

SEASONAL OPTIONS: PHASES OF REPRODUCTION IN PLANTS

OUTCOME

- RE9.3 Describe the processes and implications of sexual and asexual reproduction in plants and animals

BACKGROUND KNOWLEDGE

- Review the mechanisms of sexual and asexual reproduction in plants.

ACTIVITY: SEASONAL ACTIVITIES

Fall: Observing Seed Structure and Function

1. Visit a green space that has some diversity of species. Most Meewasin sites are excellent sources of biodiversity.
2. Choose one plant to observe closely. Based on your knowledge of reproductive cycles, find the reproductive structures on your plant.
3. Sketch the plant and the seed structure in detail. Use lables where you can.
4. Take a look at the Saskatchewan Native Plant Societies' guide for sustainable seed collection. If possible, you can seek permission to gather a small amount of seed from the location you visit.

Extensions:

1. Examine seeds under a microscope and make inferences about seed dispersal mechanisms. 2. Research seed storage/stratification and store your seed to be planted in late winter.

MATERIALS

Materials vary depending on the season

- Clipboards (or something hard to write on)
- Writing utensils
- Paper or Journal for recoding observations
- Seeds
- Soil
- Plant trays
- Popsicle sticks (for lables)
- Spray bottle
- Garden spades
- Watering cans

Winter: Start a Native Plant Nursery

1. Contact Meewasin to inquire about working with their greenhouse staff. Seeds can also be collected from private property (with permission), or purchased from a native seed supplier.
2. In early March, seed your plants. Native plants prefer tall, narrow containers to grow in. You can purchase these or issue a challenge to come up with an up-cycled seed tray (there are lots of ideas online).
3. Fill your tray with soil and water thoroughly. In each pot, place 3-4 seeds on the soil surface and gently pat them down.
4. Place the pots in a sunny window.
5. In the coming weeks, keep the soil moist by misting every day. Be careful not to overwater and cause the seeds to be disturbed.
6. Seeds should germinate within a couple of weeks.
7. As the weather warms you can take the plants outside to harden them off. When the risk of frost has passed. When the risk of frost has passed, plants can be transplanted outdoors.

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Spring: Observing Emerging Reproductive Structures

1. After researching reproductive cycles in plants, visit a Meewasin site to observe various reproductive strategies in plants.
2. Each student should choose one plant to observe closely. Sketch and take notes, paying particular attention to reproductive structures. Contact Meewasin staff to inquire about which plants are in bloom.

(Early bloomers: crocus, moss phlox, pygmy flower, thorny buffalo berry, violet, three-flowered avens, early yellow locoweed, buffalo bean, dandelion, hascap, aspen, wolf willow, hoary puccoon)
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Summer: Planting

Planting native species is a great way to wrap up your reproduction studies.

Contact Meewasin to inquire about participating in their revegetation efforts.

If you planted seedlings in the winter, look for spots in your school yard, or neighborhood to plant them.

Students can take their plants home and continue to observe them throughout the summer.

EXTENSIONS

1. **RE9.1: Examine the process of and influences on the transfer of genetic information and the impact of that understanding on society past and present.**

   How has our society benefitted from the selective breeding practices of societies on Turtle Island when it comes to food, tools, and other resources? Contact Wanuskewin to inquire about programs that investigate plants, tools, and resources on the Northern Plains. The book, “Turtle Island: The Story of North America’s First People’s” is a good resource to support this line of inquiry.

ESSENTIAL QUESTIONS

1. How do native plants in Saskatchewan reproduce? What are the factors that influence reproduction here?
2. Which parts of plant reproductive cycles can we observe in each season?
3. How can we use our knowledge of plant reproduction to support more biodiversity in our schoolyards, neighborhoods, and public spaces?

HOME CONNECTION

- Even in urban settings, most students have access to plants in their backyards or nearby greenspaces. Encourage students to explore these spaces to find flowers, seeds, shoots, and spores.

DID YOU KNOW?

Planting native seeds for the first time can be intimidating, but it doesn’t have to be! Don’t be scared to reach out for advice from local organizations like Meewasin or the Native Plant Society of Saskatchewan

Meewasin