

- 1 clipboard
- 2 magnifying glasses
- 1 map of the area
- 1 model of a wildflower with assembly instructions
- 1 roll of masking tape
- 4 pencils
- 4 pipecleaners
- ** 1 *Take-home* booklet
- 1 *Wildflowers of the Canadian Rockies*

**Indicates that you may keep this item.

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KANANASKIS COUNTRY WILDFLOWERS DISCOVERY PACK

ACTIVITY BOOKLET



WILDFLOWERS OF KANANASKIS COUNTRY



Kananaskis
Country

Alberta
ENVIRONMENT





HELLO!

There is a chance for you to discover exciting secrets about wildflowers. You will find that different wildflowers can be found throughout Kananaskis Country depending upon the time of year, the soil, temperature, moisture and elevation.

The activities found in this booklet will help you in your wildflower explorations. The following trails are recommended for wildflower viewing:

Peter Lougheed Provincial Park	Bow Valley Provincial Park	Elbow Valley
Ptarmigan Cirque	Many Springs	Paddy's Flat
Marl Lake	Montane	Little Elbow
Mt. Everest Expedition	Flowing Water	Riverview
Mt. Indefatigable	Middle Lake	Elbow Valley

Trails differ in their display of flowers. For current information on the **best** wildflower trails, along with trail hiking times, check with the Visitor Information Center nearest you.

Two booklets are included in this Discovery pack: a Take-home booklet and this Activity booklet. Feel free to keep the *Take-home* booklet as it contains fun activities and a list of references so you can discover more about flowers living near your home.

SAFETY: Stay on marked hiking trails. Wildflowers are of interest to everyone. Please leave them as you found them.

When you are ready to return the pack, please ensure that all the pack's contents are present. A list of the contents is located at the back of this booklet.

HAVE FUN!

flypaper substance which you felt when you touched the leaves. The second type secretes digestive juices which allow the plant to absorb the insect's protein, providing a convenient source of nitrogen for the plant. Each tiny gland is only used once, and each leaf on the butterwort only lives five days.

Look for slightly curled up leaves. Once an insect has become stuck to the leaf, the leaf slowly curls inward in order to increase the amount of the leaf that touches the insect. It may take up to two hours for the leaf to start to curl. The digestive process begins at the same time. Within two or three hours, nutrients from the insect's body will have moved into the cells of the leaf, and within twelve hours will have been transported to the roots.

Why do you think the butterwort does this? To find out, look at the soil where it is living. Chances are the soil is moist, but rocky and shallow. Butterworts are rarely found far from a wetland environment. Although it does manage to find some nutrients in the soil, the butterwort gets most of its nutrients (especially nitrogen) from the insects it catches.

Stop and take a moment to examine some of the other flowers of this habitat. How do they differ from those you've seen on other parts of the trail where the soil was drier?

HOW AND WHY BUTTERWORTS CAPTURE THEIR PREY.

TIME TO EXPLORE: 30 minutes

DISCOVERY TOOLS: magnifying glass
Wildflowers of the Canadian Rockies

WHAT'S UP: The relationships between plants and animals can be complex and fascinating. We usually think of plant-eating animals (herbivores), but how often have you seen animal-eating plants? Here is your chance to meet one of these carnivorous (meat-eating) plants and find out how it functions.

HERE'S HOW: Look at the illustration of the butterwort on page 149 of the *Wildflowers of the Canadian Rockies*. The butterwort can be found in moist and shaded areas along pond, stream or river banks. Good trails include Paddy's Flat along the Elbow River and Many Springs along the boardwalk in Bow Valley Provincial Park. Although it blooms from late June through July, you can do this activity at any time in the summer.

Look at the bright green leaves of the plant with the magnifying glass. Can you see any insects inside? If you find some, why do you suppose they are there?

Carefully examine the butterwort for hidden weapons. You may be familiar with other insect-eating plants. Do you see any hidden spring traps as in the Venus flytrap? How about pitfall water traps as in the pitcher plant? No? Gently touch the surface of one of the leaves. What does it feel like? Each butterwort leaf is covered with two different kinds of glands. The first kind secretes a

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HOW TO IDENTIFY THEM.

TIME TO EXPLORE: 15 minutes

DISCOVERY TOOLS: magnifying glass
Wildflowers of the Canadian Rockies

WHAT'S UP: There are literally hundreds of varieties of flowering plants in Kananaskis Country. To the first-time flower watcher, the task of identifying them can seem a bit discouraging. This activity will help you get started.

HERE'S HOW: The easiest way to identify wildflowers is to look at the colour of the flower.

Choose a flower along the trail. What colour is it? Turn to the appropriate colour section of the book *Wildflowers of the Canadian Rockies*. For example: If you find a yellow flower, look it up in the section on yellow flowers in the book. Now flip through the pages until you find a picture which matches your flower. Read through the description in the book. Does it sound like you flower? If you are certain of the identification of the flower, note whether you found it in the forest, in a field or in a wet area. Check off the flower and its location in the checklist beginning on page 3 of your *Take-home* booklet.

Choose a different flower and follow the same steps to identify it. As you discover new flowers, look for characteristics which make them unique. In this way, you will find out more than just the names of the flowers.

How tall is the plant? How tall are the other plants in the area? Plants living in windy areas often grow close to the ground.

Feel the leaves of the plant. What do they feel like? Why do you think they are like that? Can you see other plants in the area with similar leaves?

Many plants growing in mountainous areas have characteristics similar to the dryad. Look for other plants with the following features, that prevent loss of water and protect the plant from the harsh environment:

- woolly hair covering
- waxy leaf surfaces
- evergreen leaves
- tough, leathery leaves
- plant growing close to the ground

FOLLOW-UP: Turn to page 11 in your *Take-home* booklet. There you will find a list of some of the dryad's adaptations to its environment. Try to come up with ways in which people adapt to the same mountain conditions. To get you started, the first one is completed for you. When you're finished, you will have a checklist of what to take with you on your next trip to Kananaskis Country.

HOW THE YELLOW DRYAD HAS ADAPTED TO SURVIVE IN THE MOUNTAINS.

TIME TO EXPLORE:

30 minutes

DISCOVERY TOOLS:

Take-home booklet
Wildflowers of the Canadian Rockies

WHAT'S UP:

Many plants have special adaptations to allow them to survive in their environment. This activity will look at one plant which has a variety of adaptations which allow it to survive in harsh mountain conditions.

HERE'S HOW:

Look at the illustration of the yellow dryad on page 79 of the *Wildflowers of the Canadian Rockies*. Now look for them along a trail.

If you're in the Elbow Valley, look for these flowers along Paddy's Flat trail near the river, on the Little Elbow trail near Forget-Me-Not pond, or on the river flats at Gooseberry campground.

At Bow Valley Provincial Park, yellow dryad can be found on the ridge halfway along the Flowing Water trail and on the first half kilometre of Many Springs trail.

In Peter Lougheed Provincial Park look for the flowers beside Upper Lake trail on the south side of the lake and along the rocky sections of Ptarmigan Cirque trail.

What kind of soil is the dryad living in? Gravelly soil usually means that moisture doesn't stay long. How do you think the dryad overcomes this problem?

FOLLOW-UP:

All the flowers which grow in your garden are related to wildflowers. When you find a new wildflower, look at it closely and see if it looks familiar. As you look up each flower in the book *Wildflowers of the Canadian Rockies*, note the name of the family it belongs to. For example, the aster belongs to the composite or daisy family.

Each flower family has a set of characteristics which makes it unique. As you get to know the flowers better, you will start to recognize similarities between family members. Here is a list of some of the common families in the area, along with some wild and domestic members of those families.

COMMON NAME OF FAMILY	LATIN NAME OF FAMILY	DOMESTIC MEMBERS OF FAMILY	WILD MEMBERS OF FAMILY
Pea	Leguminosae	Garden Pea	Late Yellow Locoweed
Lily	Liliaceae	Tiger Lily	White Camas
Rose	Rosaceae	Rose	Wild Strawberry Yellow Dryad Prickly Rose Shrubby Cinquefoil
Heather	Ericaceae	Heather	Bearberry False Huckleberry
Daisy	Compositae	Daisy	Aster Heartleaf Arnica Brown-eyed Susan

To assist you in identifying plant families, turn to page 4 in the *Take-home* booklet for a list of common families and their characteristics.

A LOOK AT FLOWER PARTS.

- TIME TO EXPLORE:** 20 minutes
- DISCOVERY TOOLS:** flower-making materials
magnifying glass
- WHAT'S UP:** Almost all flowers have petals, sepals, pistils and stamens. The variety of shape, size and colour of these features accounts for the over 275,000 species of flowering plants known today. This activity will help you recognize these flower parts and give you a sense of how amazing the world of flowers really is.
- HERE'S HOW:** Take the flower-making materials out of the pack. Put together the flower without looking at the instructions. Now read the instructions included with the materials. How did you do?
- Now look at a real flower. Can you recognize the petal, sepals, stamens and pistils? How many of each part are there? Use the magnifying glass to help you. Are they the same shape as the parts which made up the model? Are there any flower parts missing?
- Look at the other flowers around you and see how many shapes and sizes of flower parts you can find. Why do you think there is so much variety? In the spring and early summer, look at trees and grasses. You might be surprised at where a flower blossoms.
- FOLLOW-UP:** Flowering plants are made up of roots, stems, leaves, flowers and seeds. How many parts of a flowering plant have you eaten in the last week? What would happen if all the flowering plants disappeared?

through the digestive system of an animal before they can germinate. The seeds are then deposited, along with a little fertilizer!

Look for berry-producing plants such as wild strawberry, red osier dogwood, bunchberry, twinberry, bearberry or buffaloberry. Now look around the berry producing plants for bird and animal droppings. Can you see any seeds in the droppings?

CAUTION: When looking at animal droppings, always keep at arm's length and do not touch them, as some droppings may contain harmful parasites.

FOLLOW-UP: Return to the area in two weeks to see if there are any other plants in seed. Are there any seed dispersal methods which seem to be the most common?

Think of all the seeds you ate in the last week. Write your list on page 10 of your *Take-home* booklet. Did you remember the sunflower seeds in your cooking oil, the wheat in your bread? Life would not exist as we know it today without the seeds of flowering plants.

Grow a few wildflowers:

The flowers and seeds in our provincial parks and recreation areas are protected to ensure that more flowers will grow here in the years to come. You may collect a few seeds outside of these areas, such as along cut lines and road sides. Wrap them in a moist paper towel, put them in your freezer for three weeks, then take them out and plant them in potting soil. Keep the soil moist, but not wet. Pots or containers should be placed in a warm, sunny spot.

HOW PLANTS TRANSPORT THEIR SEEDS TO OTHER PLACES.

TIME TO EXPLORE: 30 minutes

DISCOVERY TOOLS: 2 magnifying glasses
roll of masking tape
Take-home booklet

WHAT'S UP: Plants have a variety of ways to distribute their seeds to other growing areas. Here is a chance to find out about some of them.

HERE'S HOW: Wind the masking tape around the toe of your shoe, with the sticky side out. Walk through a field or along a roadway for a few minutes. Carefully take the tape off. What sorts of things are attached to the tape?

Are there any seeds, grass or twigs? Look closely at the seeds. What shapes are they? How are they attached to the tape? Use the magnifying glass to help you. Remove the seeds and other debris from the tape. Do you think the seeds will grow where you dropped them? What do seeds need in order to grow?

Have you ever blown the seeds off the head of a dandelion and watched them parachute to the ground? Find another kind of plant which disperses its seeds in a similar way. Anemones, asters, fireweed, brown-eyed Susan and arnica are a few examples of plants which do this.

Have you ever eaten a berry? Why do you think the seeds are so well hidden in a sweet juicy coating? Some of the seeds of berry-producing plants have to pass

HOW ANIMALS HELP FLOWERS WITH POLLINATION.

TIME TO EXPLORE: 30 minutes

DISCOVERY TOOLS: 2 magnifying glasses
4 pipecleaners

WHAT'S UP: The flower is the reproductive part of a plant. Each flower usually contains both the male (stamens) and female (pistil) parts. If you are unfamiliar with these and other parts of a flower try *Activity B: Flower Power*.

Pollen from one plant must reach the stigma of another plant of the same species for pollination to take place. Once the pollen reaches the stigma, it grows a tube down to the ovaries and fertilization takes place.

Pollen cannot move from one plant to another on its own. Some plants overcome this problem by producing great quantities of pollen and relying on the wind to blow it to other plants. When this happens, the air is filled with pollen. If you have ever suffered from hay fever in the spring, pollen may be the reason for that congested nose and itchy throat!

Other plants rely on animals such as wasps, bees, butterflies, birds and bats to carry the pollen from one flower to the next. Animals come to flowers to get nectar for energy and pollen for protein. While collecting these foods, some of the pollen sticks to the animal's bodies. The animals remember the flower as a good source of food and move on to look for others of the same kind. In this way, pollen gets transferred among flowers of the same species.

Here is an opportunity to discover how flowers attract pollinating animals to them and how the animals transfer pollen from plant to plant.

HERE'S HOW:

Look at the flowers around you. How many different colours of flowers can you see? What colour seems to be the most common? Some insects are attracted to certain colours. For example, bees are attracted to yellow and blue flowers. Can you see any bees visiting flowers?

Bend down and smell the flowers. Flies are attracted to flowers with strong odours. Can you see any flies visiting the flowers with strong odours?

Can you see any lines or dots on the petals of the flowers? These patterns direct insects to the centre of the flower where the nectar lies.

Some flowers have a lower petal which serves as a landing pad for insects to stand on. Can you find any flowers with this feature?

To find out how animals pick up the pollen from the plants, try this activity. Take the pipecleaners from the pack. Gently insert a cleaner, or, if you have small hands, use your little finger and gently place it in a flower. How far into the flower would the bee have to get to get the nectar? Now remove the cleaner or your finger. Is there any pollen on it? What colour is it? Rub it between your fingers. What does it feel like?

Now, find another flower of the same type and gently rub the pollen from your pipe-cleaner or finger onto the stigma. You have just pollinated a flower!

FOLLOW-UP:

Find an insect which is pollinating a flower and follow it. Where does it go? What does it do? Does it always visit the same kind of flower? Can you see any pollen on its body? Look at a flower after the insect has left it. Is there any evidence that the insect has been there? Use the magnifying glass to help you.

Take the time to look at the different flowers around you. See how many different insects you can find pollinating flowers. What do you think would happen if all these insects were to disappear?

Come back to this area in a week or a month. You will see a great difference in the types of flowers. You may also see a new group of insects, busily pollinating the most recent bloom of flowers.