

Spring Seasonal Changes Program (From Winter to Spring)

Theme: Spring has Sprung! Today we are going to become nature detectives searching for signs of spring. Spring is a very busy time for plants, animals and insects. Let's explore where they've been all winter and how they adapt and prepare for a new season.

Question: How do we know when it is spring? Plants are blooming, animals awaking from hibernation, insects hatching and mating, birds returning from points south.... How do plants/animals know when it is spring? Internal alarm clocks

Advanced Info:

Plants:

- Phytochrome helps trigger seasonal change responses in the plant.
- Phytochrome is capable of responding to light information and communicating that information via chemical messages, behaving like a hormone to switch critical processes on or off.
- It's like an "alarm clock" that triggers the trees winterizing process before the cold comes.

Animals:

- Pineal gland is the "timekeeper" or alarm clock
- It is a club shaped organ usually found in the midline of the brain where the cerebral hemisphere and cerebellum come together
- It is photoreceptive to light (even when surgically removed) Adv
- Acts as an endocrine gland – secretes chemical products in the blood (melatonin) a hormone that regulates a # of processes.
- Melatonin – a key player in seasonal change. It is synthesized at night and its quantity in the bloodstream provides direct information to other tissues regarding day length/night length

Activity #1: Pass out Spring Scavenger Hunt (see other attached document) – have students look for items on the scavenger hunt. If it is windy, just give one small card to each student.

Activity #2: At McClintock Trail – look and smell even closer for signs of spring – pass out hand lenses – look closely at new flowers, buds, etc...

Next, as we start down the trail, use your ears to LISTEN for spring

Stop: at the water – ask "What did you hear? Water, birds, etc.

Activity #3: Water Pulse – Have students line up shoulder to shoulder, tallest to shortest and have them "pass" a drop of water from the mountains to the grasslands to fill our front range creeks. They pass a hand squeeze to resemble passing a water droplet. Time them to see how fast they can do it.

Stop: spring flower ID = Spring Beauty



Springtime can be a very important time because some animals need to find a mate. Birds in particular tend to mate in the spring.

Activity # 4: Bird Courtship Game - Female birds have to try to find their mate by looking for certain courtship behaviors.

Stop: Flower ID: Fendler's Water Leaf is all over the McClintock trail



Let's continue up the trail to find even more signs of spring, maybe we can even spot one of the mating behaviors that we talked about.

Stop: look/listen for Broad-tailed Hummingbirds in the McClintock drainage
Males are the only ones that can make the trilling noise with their wings. They fly in a U-shape pattern to attract a female. Hummingbirds can flap their wings faster than any other

birds at about 3,000-5,000 beats per minute. They are able to fly forward, backward, sideways, and stay in one place. Their heart beats up to 1,250 times per minute and they can fly up to 40 mph during migration. From Pfaffmann (2008)

Stop: Tent Caterpillars (look closely with bug boxes and talk about the life cycle). (see tent caterpillar pictures in the filing cabinet for more information on tent caterpillars).

If time, talk about a few other insects and how they survived winter...

- Some insects were in galls, some were another stage (nymph, larva, egg, adult...)
- Morning Cloak Butterfly –1st butterfly in the spring to see because it overwintered as an adult. It will come out on warm late winter/early spring days.
- Monarch butterflies – Migrate from Mexico
- Ants – active all year round

Stop: Bats - Talk about some of the bats that make OSMP their home and how they all need to have water to survive. Demonstrate a chaotic drinking hole where all bats are flying in a once version an organized system like an airport where one bat swoops down to grab a drink at a time.

Activity #5: Bats at the Watering hole (use blue poker chips).

Activity #6: Migration hopscotch - have students pretend that they are migrating waterfowl and need to have stop over spots. Use dog leashes to set up a hopscotch course and have the students go through it. The leashes will represent the wetland stop over spots. Then, take a few away and see if it is more difficult. Then add some more back to represent wetland restoration on OSMP and beyond.

Plant ID: Golden Banner and demonstrate the bee pollinator game to talk about how it takes large insects like bumble bees to open the trap door of a golden banner to get the pollen.

Activity # 7: Bee pollinator game



Conclusion: ID Tag - bring several pictures of plants, animals, insects that you talked about on the spring hike. Ask questions to review what the students learned on the hike and have them point or stand on the correct answer.

Encourage them to bring their families back to enjoy spring at OSMP. Also ask what students can do to keep this place beautiful all spring long.

ID Tag:

Questions

1. I am a small bird who makes a nonstop migration flight from Central America, who am I? = Broad-tailed hummingbird.
2. I am an animal who sleeps all winter and is hungry looking for food in the spring Who am I? = Bear
3. This is what Tent caterpillars turn into...= tent caterpillar moth
4. This is something that you can do in spring to protect wildlife? Stay on Trails, Leave it as you found it.
5. I am an early blooming wildflower that has lines to help direct bees to the pollen = spring beauty

Other possible spring activities to use on a spring hike:

Color chips (somewhere on McClintock Trail) – look for spring colors,

Who am I - using plants/animals/insects that are out already, or that do something special to prepare for spring/summer

Activity: Bee Pollinator

Other animals to talk about:

Bears

- After a long winter of hibernation and no eating, defecating or urinating, they expel a fecal plug, sometimes a foot long, full of roughage used to block their colon.
- Sows give birth to cubs in the den (show picture)
- What are bears doing now, what do they like to eat?