WILD Kids

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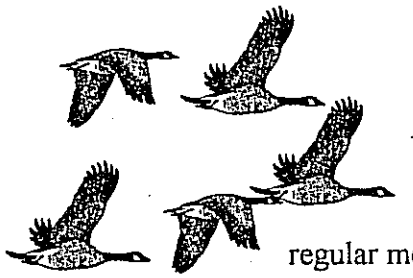

Bird Migration

Many birds have two homes - one for winter and one for nesting (generally in the spring and summer). The process of regular movement between two areas is called **migration**. Migration is from the Latin *migrare*, meaning to go from one place to another.

Birds migrate for a number of reasons. The longer days of summer provide more time to look for food to feed hungry young. Food is also more plentiful when days are longer and warmer. Summer days also tend to be warmer, allowing for faster growth of the young. By moving south in the colder seasons, birds winter in much warmer areas than if they stayed put. Southern states of the U.S., Mexico and Central America are much warmer the Alaska, Canada and the northern states of the U.S. in the winter. Birds are able to locate more food than if they stayed on their nesting grounds.

All birds do not migrate. At least 10% of bird species in an area do not migrate. There are even year-round resident birds in the Arctic. Resident birds are adapted to the colder temperatures of winter. These birds may have feathers on their legs to retain more body heat. They have a heavy layer of fat, and their feathers are adapted to retaining body heat. Even though there is less food in the winter, there are also fewer competitors for the food since most other birds migrated to the south. Some winter residents will even store food for the winter, such as the acorn woodpecker that is found in the Chiricahua Mountains of southeastern Arizona.

What causes birds to migrate? The keys is **photoperiod**. A photoperiod is the amount of daylight an individual bird is exposed to during a 24 hour period. A decreasing photoperiod (shorting daylight, longer night) causes profound hormonal changes. Changing hormones cause migratory birds to accumulate large deposits of fat just under their skin. These fat deposits will be used by the birds during their long migration flights when they cannot eat. For example, the blackpoll warbler flies nonstop for 85 hours across the Atlantic to mainland South America to its wintering grounds. Before migrating, the blackpoll gains about 9 to 11 grams of fat. This is a body weight increase of 82% to 92%!

Migration can exhaust many birds. When a migrating bird arrives at a **staging area** (stopping place) along its migration way, it has often used much of its fat reserves. The hormonal changes that induced migration allows migrating birds to eat more than usual. Overeating allows birds to replenish their fat reserves for the next leg of their journey.

Finding Their Way

Bird **navigation** (the ability to maintain a course of direction without the use of landmarks) and **orientation** (the ability to sense direction) have been the focus of many studies. So, how do birds find their way to and from wintering and nesting grounds?

Orientation by the sun

Birds can use the sun as a compass to sense correct migratory directions.

Orientation by the stars

Birds that migrate at night use stars instead of the sun.

Landmarks

Birds use prominent earth features to guide their migration flight plans.

Earth's magnetic field

Many birds can sense the earth's magnetic field and may use it to supplement other cues when migrating.

(turn over)

The whole process of hormonal changes and storing of fat is repeated again in the spring. Many, but not all, migrants follow the same path north to their nesting grounds. Those migrating birds that do not follow the same path can make a huge ellipse through North America. The ellipse can be as long as 8,000 miles and 2,000 miles wide as it is with the Pacific golden plover.

Activity I: Complete the crossword puzzle below.

Across

4. The ability to maintain direction without using landmarks.
7. Type of AZ woodpecker that stores food for winter use.
9. Many birds use the Earth's _____ when migrating.
11. A resting or stopping place for migrating birds.
12. One of two homes migratory birds use.
13. Process of regular movement between two areas.
14. Prominent Earth features.

Down

1. Diurnal migrating birds use this to sense direction.
2. Allows birds to replenish their fat during migration.
3. Storage of this is used for fuel during migration
5. The ability to sense direction.
6. Amount of daylight exposure in a 24 hour period.
8. One of two homes used by migratory birds.
10. Changing _____ allow birds to store large amounts of fat.
11. Nocturnal birds use this for orientation.

Activity II: The Three M s - Migration, Maps and Math

1. The white-rumped sandpiper (a shore bird) nests just north of Inuvik in the Northwest Territories of Canada. It winters in the Falkland Islands off the coast of Argentina.
   * How far, approximately, do white-rumped sandpipers migrate one-way? round trip?

2. A male ruby-throated hummingbird traveled 26 hours at 25 miles per hour nonstop over the Gulf of Mexico.
   * How far did it travel before stopping?
   * If the hummingbird started at Port Arthur, Texas, where did it reach land if it traveled in a southwesterly direction?

3. A bald eagle nested in the Wrangell-Saint Elias National Park in Alaska. It then traveled south and slightly east to winter along the Verde River near the confluence with the Salt River in Arizona.
   * About how far did it travel?
   * If a bald eagle flew at 40 miles per hour, how long would it tale to reach its winter grounds if it flew nonstop?
   * Bald eagles cannot travel from Alaska to Arizona without stopping. Bald eagles only migrate during the daytime and average around 210 miles a day. How long does it take for a eagle to reach Arizona?