Buddy Banding

(Birds: Pre-lesson)

Audubon Center of the North Woods

Purpose: Introduce students to the concepts of data collection and migration by conducting a simulation banding activity. In this activity, students will collect and analyze data as well as learn how some wildlife research is done.

- **Concepts:**
  - Scientists gather data to help better understand birds and other wildlife.
  - Vocabulary:
    - Bird Banding
    - Scientific Method
    - Data
    - Population

Learning Outcomes: Students will be able to

- Describe bird banding.
- Identify information gathered by bird banding.
- Use the scientific process to gather data.

Minnesota Academic Standards:

Science:

- 5.1.3.4.1 Use appropriate tools and techniques in gathering, analyzing and interpreting data.
- 5.4.4.1.1 Give examples of beneficial and harmful human interaction with the natural systems.

For Background Information see end of lesson

CLASS LENGTH: 1 HOUR OR 2-25 MINUTE SESSIONS

AGES: 5TH TO 8TH (IS EASILY ADAPTED TO FIT MOST GRADES)

SEASON: ANY

SAFETY: NONE

MATERIALS: CONSTRUCTION PAPER, TAPE, "BANDING PERMITS"

OPTIONAL MATERIALS: HULA HOOPS

PRE-CLASS PREP: CUT THE CONSTRUCTION PAPER INTO STRIPS FOR THE "BANDS", PRINT OUT SEVERAL "BANDING PERMITS"

CLASS OUTLINE: (Class sequence of events)
I. Introduction – 5 min
I. Review scientific method - 5 min.
II. Brainstorm research question - 5 min.
III. Divide class into group and explain roles – 5 min.
IV. Data collection - 15 min.
V. Look at data – 5-10 min.
VI. Discussion - 5-10 min.

I. Introduction (5 min.)

A. **Lesson Preview** – Kids, especially, always want to know what comes next. Write a brief preview of the class schedule, on the whiteboard. This will decrease how many times they ask you what comes next during the class.

B. **Grabber** – Have the students brainstorm ways scientists gather data. Today, the students get to be scientists and gather data!

II. Class Experiences (40 min)

C. **Review the scientific method** (5 min)

Tell the students that today they are going to be scientists. To be like scientists, they will be using the scientific method. Today students will brainstorm a question, then gather and analyze data to get an answer to their question.

- Define the question
- Gather information – what is known already?
- Form hypothesis – what do you think the result will be based on known information?
- Perform experiment and gather data
- Analyze the data
- Interpret results – was the hypothesis correct?

D. **Brainstorm a research question** (5 min)

- Have the students think of research questions that pertain to the daily lives of the students.
- Then as a class, select which one they will gather data for.
- Examples: Where are the students in the class at the end of the day? Which door do students use to leave the building?

E. **Explain the activity and divide the class into 2 groups** (5 min.)

Tell the students that their goal for the day will be gathering data to answer the research question they just came up with. To do this, some students will be researchers while other students will be birds.

- One group will be the birds and the other group will be the researcher (there should be roughly 1 researcher/5 birds).
- Pass the construction paper bands out to the birds and instruct them to wear them as anklets.
- Give the researchers their "banding permit" because if they are going to band the students should have a permit just like real scientists. (The permits are found at the end of the lesson in appendix I.)

F. **Data collection** (15 min or multiple shorter sessions throughout the day):

- Researchers that have a banding permit should select a spot in the school to set up imaginary nets. Students that are banded, should go through their day as normal.
    - Researchers can be given a hula hoop to represent the net.
- Example: have students stand in the hallway to "catch" migrating birds. As the banded students walk by, the researchers can stop the students and collect data such as: has the student been caught before, time of day, location, color of clothing or anything else that is necessary to answer the research question.
- *at the end of collecting data, this would be a good spot to split the activity into 2 shorter sessions*

G. **Look at data** (5-10 min)

- Have the "researchers" share their data with each other.
- What was the result?
- Did the students answer their question?

III. Conclusion (5 to 10 min.)

H. Discuss the methods used to gather data.

- Benefits?
- Problems?
- Would additional data have helped answer the question?
- Was the question answered at the end of the lesson?
- How is this similar to what researchers do?

I. Answer questions and give positive feedback about session

J. Transitions – Remind the students that they will be taking a class about birds when they visit the Audubon Center. As part of this class, students will have the opportunity to see the banding process of a bird. What they learned today, is used by researchers around the world to learn more about all sorts of animals.

IV. Authentic Assessment

K. Students will be able to explain bird banding to another student.

V. Extensions/Variations

1. This can be incorporated into the many math lessons. For example, if students are doing a lesson on graphing, have them graph each location where students were banded and how many birds were caught there. If learning fractions, the students can figure out the lowest common denominator at each location. If the lesson is percentages, have students convert the fractions into percentages.
2. Multiple classes doing the same activity can wear different colored "bands." The data can be analyzed by each class or combined. It may be interesting to compare the data of different classes.
3. The students could wear the bands home. Have the parents return them with the student's home address (this is much like what happens with the real bands when they are found). This data can be used to see how far away the birds go – or which neighborhood has the most birds.

VI. Background Information

Many birds are found in Minnesota but not all species are found here year-round. Some birds pass through during migration, others nest in Minnesota and still others are hardy enough to live here all year.

Where do birds go in the winter? For many years, scientists did not know the answer to this question. Birds have been banded for more than 100 years now. Banding was first used to mark falconry birds as far back as 1595. The first record of bird banding experiments in the United States was John J Audubon banding an Easter Phoebe in the 1850's with a small piece of wire. Since all members of a species look identical, this experiment showed that individual birds will return to the same place each spring.

Bird banding today involves placing a small aluminum ring around the ankle of a bird. The size of the band changes with the size of the bird. In some cases, color bands will be added to the ankle so a bird can be identified for a distance without being recaptured. Other scientists will use a radio-transmitter attached to the bird to transmit data to a computer. The type of banding and capturing depends on the research question and bird species.

In order to band, researchers must get a permit from the government. One common way of capturing song birds is using a mist net. This is a really thin net which is almost invisible to the birds.

They fly into the net and get caught allowing researchers to take measurements and place the band. The band is so small and light that it does not impact the behavior or health of the bird.

Each band has a different number, allowing researchers to identify individuals. This allows researchers to gather data such as where birds go in different seasons, life-spans, population estimates etc. As more birds are banded, scientists start to record if a bird has been re-caught or found deceased (these both provide more important information for researchers). Many banded birds die without scientists ever knowing. If a banded bird is found, this information should be reported to the United States Geological Survey. This can be done easily online. Once the band number is submitted, a certificate will be sent with all the information known about the bird. Researchers from North and Central America then share data so more can be learned about the natural history of various species.

VII. References

Buddy Banding. One Bird, Two Worlds. Page 111-113.

Patuxent Wildlife Research Center – bird banding laboratory. www.pwrc.usgs.gov/bbl

APPENDIX I

This gives:

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