

# *It's All About Birds!*

## Grade 8 Math

### *I. Introduction to Birds*

With feathers that make them unique and wings that lift them into the air (or that once lifted them into the air), birds are everywhere! Birds come in a variety of colors, sizes, and shapes, are found on all continents, and live in nearly all habitats.

### *II. Birds in Oklahoma*

Oklahoma is a host to hundreds of breeding or resident birds. The 'Sooner State's' aquatic, forested, and prairie habitats provide a variety of food sources and shelter for many different species of birds. Some Oklahomans put out bird feeders to attract birds for viewing and to help migrating birds 'fuel up' for their long flight. Seed-eating birds such as Cardinals, Jays, Mourning Doves, and Starlings are commonly seen at feeders across Oklahoma.

#### Grade 8

Standard 2:1.c – Apply ratios and proportions to solve problems.

Standard 5:1 – Select and apply appropriate formats (e.g., line plots, bar graphs, stem-and-leaf plots, scatter plots, histograms, circle graphs) to display collected data.

Standard 5:3 – Determine how samples are chosen (random, limited, biased) to draw and support conclusions about generalizing a sample to a population (e.g., is the average height of a men's college basketball team a good representative sample for height predictions?).

#### **Activity: Backyard Birds**

Objective: Students learn to identify and observe common backyard and feeder birds, analyze data, and present findings in graphic representations.

Materials: [Observation Sheets](#)

Pens/Pencils  
Colored Pencils or Markers  
Bird Field Guide or Pictures  
Compass  
Glue  
Texture Supplies (yarn, beans, seeds, etc.)

Procedure:

- 1) Divide students into groups of 2-3. Familiarize students with which birds are most common at feeders and how to identify them (use Field Guide or pictures).
- 2) Have each group observe bird feeders for a designated amount of time. Students should identify and record frequency of bird species observed. Be sure that each student has a copy of his/her group's data.

\*If it is not possible to observe birds at feeders, consider printing out several pictures of birds at bird feeders, distributing different pictures to each group of students, and having students calculate their data from the pictures.

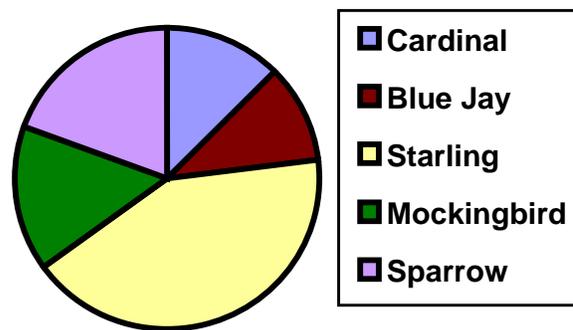
Check out pictures at:

[www.birdsofoklahoma.net/Byardfeed.htm](http://www.birdsofoklahoma.net/Byardfeed.htm)

[www.backyardbirdcam.com/bird-pics.htm](http://www.backyardbirdcam.com/bird-pics.htm)

- 3) Using data collected as a group, each student will individually complete an Observation Sheet.
- 4) Using calculations from the Observation Sheet have each student construct a circle graph (see below). Allow students to use color and/or texture.

**Birds Observed at Feeder**



### **Activity: Bird Feeder Analysis**

**Objective:** Students observe birds at feeders, make predictions, collect data, perform calculations, and display results in graph format.

**Materials:** Bird Field Guide (or other identification resources)  
Bird Feeder Supplies and Instructions (See Bird Feeder Handout)  
[Observation Sheets](#)  
[Sample Graphs](#)  
[Feeder Preferences Table](#)  
[Feeding Preferences of Favorite Backyard Birds Poster](#)

### **Procedure:**

1. Teacher: Choose your variable (Feeder or Seed).

Feeder Variable: Use the same seed mix in all feeders. Study which feeder a bird prefers.

Seed Variable: Use the same feeders but vary the seed. Study which seeds a bird prefers.

2. Have students learn to identify common local birds that would be likely to visit a bird feeder. Discuss what types of seeds specific birds typically feed on and their feeding behaviors (Ex: Doves prefer sunflower seeds on the ground).
3. Review the different types of feeders or different types of seed you will be using. Have students hypothesize which bird will frequent which type of feeder or which type of seed it will prefer.

- Place your feeders and watch.

For some great bird feeder instructions go to:

Milk Jug Feeder: [www.rosebudm.com/bluebird/mjug.htm#specialnote](http://www.rosebudm.com/bluebird/mjug.htm#specialnote)

Soda Bottle Feeder: [www.runnerduck.com/plastic\\_bird\\_feeder.htm](http://www.runnerduck.com/plastic_bird_feeder.htm)

Platform & Tube Feeder: [www.nashvillezoo.org/RecycleBirdFeeder.pdf](http://www.nashvillezoo.org/RecycleBirdFeeder.pdf)

These feeders don't fit neatly into the experiment but they sure are awesome to observe:

Suet Feeder: [www.npwrc.usgs.gov/resource/wildlife/ndblinds/suetdowe.htm](http://www.npwrc.usgs.gov/resource/wildlife/ndblinds/suetdowe.htm)

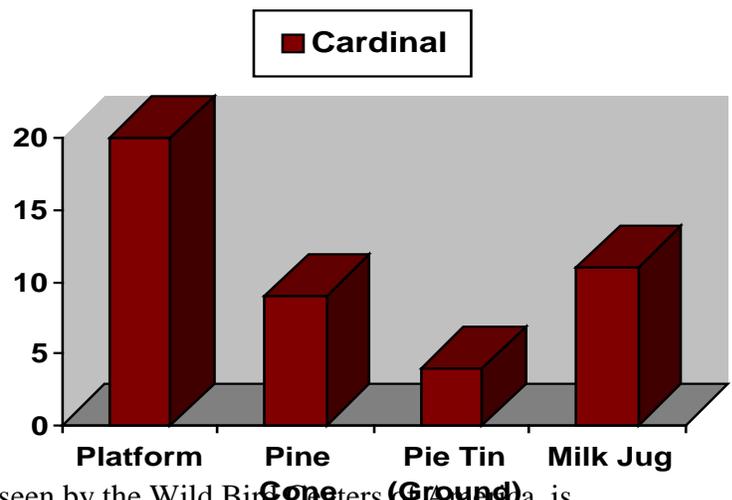
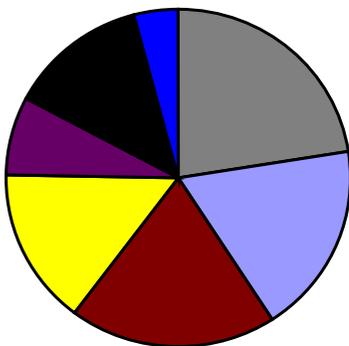
Hummingbirds: [www.kidsgardening.com/growingideas/PROJECTS/mar04/feeder.html](http://www.kidsgardening.com/growingideas/PROJECTS/mar04/feeder.html)

Various Feeders: [www.birdwatchersdigest.com/site/how\\_to/build\\_your\\_own.aspx](http://www.birdwatchersdigest.com/site/how_to/build_your_own.aspx)

**Unclean feeders or rotting, moldy bird seed can cause birds to get sick and spread disease to other birds. Be sure your bird seed is kept dry. Disinfect birdseed feeders with dilute bleach (10%) and water. – U.S. Fish & Wildlife Service**

- Use the Observation Sheet to record data (use tick marks to count # of visits).
- Using data from Observation Sheets have students construct circle or bar graphs (samples at the end of Procedure section).
- Review initial hypotheses and revise if necessary.
- Take a look at the collected data. Determine the most common bird for each feeder and the most common bird overall.
- Ask students if the most common bird at your school is representative of the most common bird in the area/town/city/state? (Not necessarily – there may be a bird more common that is not a seed-eater/feeder bird. Your school may be located in a particular habitat such as a prairie, but your state may be covered mostly in woodlands which could make the most common bird for your state something that you wouldn't see at your feeders on the prairie.)

### Sunflower Seed



PROJECT WILDBIRD, a research project overseen by the Wild Bird Centers of America, is collecting data on seed and feeder preferences of backyard feeder birds. Consider entering your class's findings into their database to become part of a nationwide research project! For more information, visit [www.projectwildbird.org](http://www.projectwildbird.org).





## Feeder Preferences

Bird	Ground Feeder	Raised Feeder	Hanging Feeder (Seed)	Hanging Feeder (Suet)
Blackbird	X	X		
Blue Jay		X		
Cardinal		X		
Chickadee	X	X	X	
Dove	X			
Finch		X	X	
Grackle	X	X		X
Junco	X	X		
Mockingbird		X		X
Nuthatch	X	X	X	X
Robin	X			
Sparrow	X	X		
Starling	X	X	X	
Titmouse		X	X	
Woodpecker	X	X		X
Wren		X		

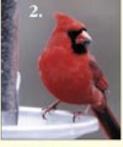
# Eastern Region



## FEEDING PREFERENCES OF FAVORITE BACKYARD BIRDS

WWW.WILDBIRD.COM

**Perching Birds**











**Ground Feeding Birds**

Birds	Oil Sunflower	Hulled Sunflower	Striped Sunflower	Millet	Nyjer® (Thistle)	Cracked Corn	In-shell Peanuts	Shelled Peanuts	Suet	Safflower	Mealworms	Fruit	Nectar*
1. Bluebirds													
2. Cardinal, Northern	■												
3. Chickadees	■												
4. Finch, House	■												
5. Finch, Purple	■												
6. Goldfinches	■												
7. Grosbeaks	■												
8. Hummingbirds													■
9. Jays													
10. Nuthatches	■												
11. Orioles													■
12. Siskin, Pine	■												
13. Titmouse, Tufted													
14. Woodpeckers													
15. Wrens													
16. Dove, Mourning	■												
17. Juncos													
18. Sparrow, House													
19. Sparrows, Native													
20. Towhees													

■ = Most Preferred  
■ = Preferred

\*Our own Pure Hummer Sugar™ • Nyjer® is a registered trademark of the Wild Bird Feeding Industry.

[http://www.wildbird.com/www\\_files/eastbirdfeedprefsfinal.jpg](http://www.wildbird.com/www_files/eastbirdfeedprefsfinal.jpg)

# Western Region



## FEEDING PREFERENCES OF FAVORITE BACKYARD BIRDS

WWW.WILDBIRD.COM

**Perching Birds**













**Ground Feeding Birds**

Birds	Oil Sunflower	Striped Sunflower	Hulled Sunflower	White Millet	Safflower	Nyjer® (Thistle)	Cracked Corn	Whole Peanuts	Shelled Peanuts	Suet	Mealworms	Fruit	Nectar*
1. Bluebirds													
2. Bushtit													
3. Chickadees	■												
4. Finches	■												
5. Flickers	■												
6. Goldfinches	■												
7. Grosbeaks	■												
8. Hummingbirds													■
9. Jays													
10. Kinglets													
11. Nuthatches	■												
12. Orioles													■
13. Siskin, Pine	■												
14. Titmouse													
15. Woodpeckers													
16. Wrens													
17. Doves													
18. Juncos													
19. Sparrows, Native													
20. Towhees													

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[http://www.wildbird.com/www\\_files/westbirdfeedprefsfinal.jpg](http://www.wildbird.com/www_files/westbirdfeedprefsfinal.jpg)

With color pictures and easy to read charts, these are excellent resources for the classroom. Check out [www.wildbird.com](http://www.wildbird.com) for a store near you.