

## EDUCATIONAL GUIDE

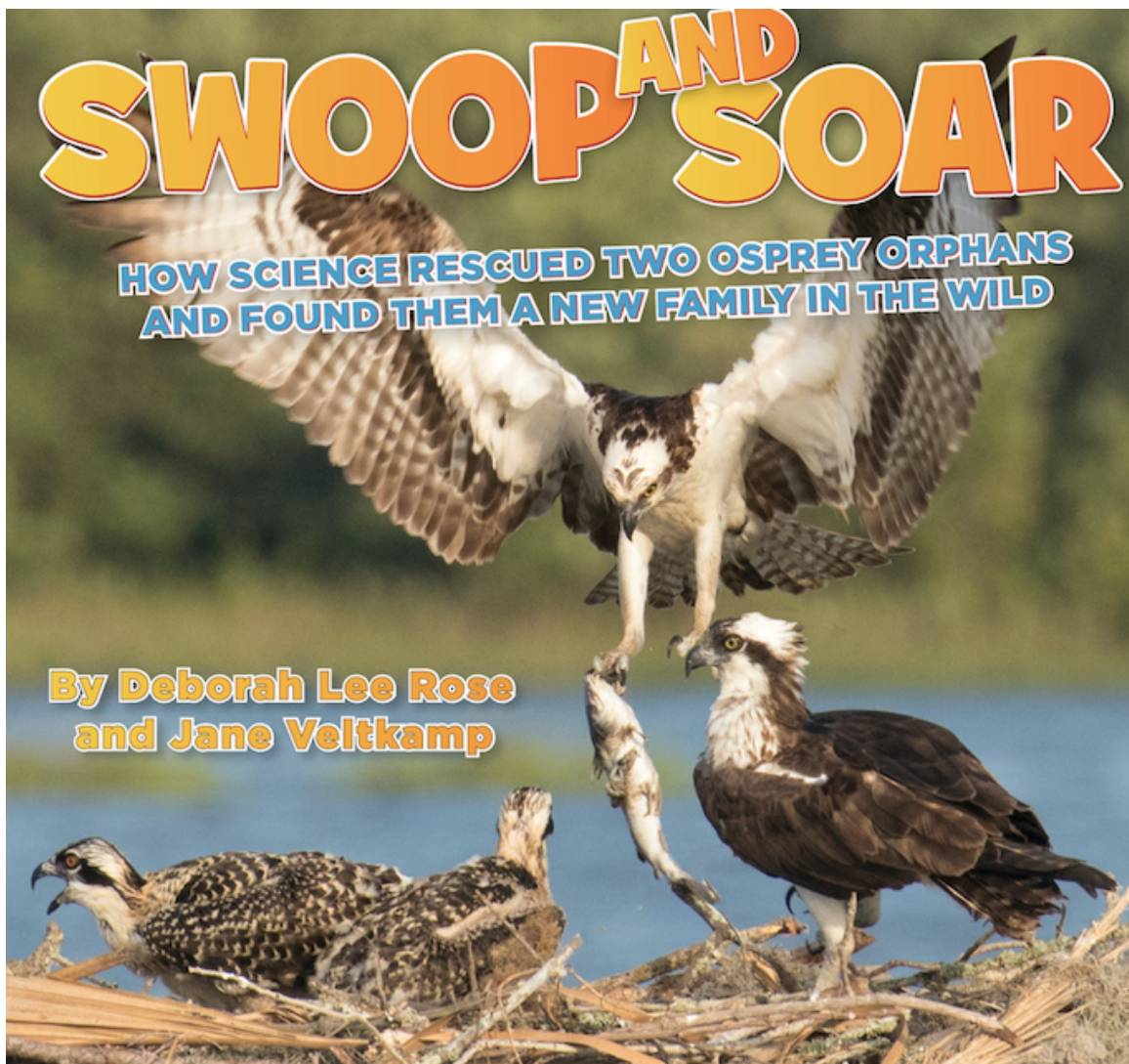
### ***SWOOP AND SOAR: HOW SCIENCE RESCUED TWO OSPREY ORPHANS AND FOUND THEM A NEW FAMILY IN THE WILD***

Written by Deborah Lee Rose and Jane Veltkamp

Authors of ***BEAUTY AND THE BEAK***

[www.deborahleerose.com](http://www.deborahleerose.com) and [www.birdsofpreynorthwest.org](http://www.birdsofpreynorthwest.org)

Two osprey orphans need a new nest and new osprey family. How do scientists rescue ospreys and help protect their species in the wild?



Swoop and Soar cover photo © Ann Kamzelski

**Swoop and Soar, two young osprey chicks, are safe in their forest nest until a powerful storm sends their tree crashing to the ground.**

**The STEM book *SWOOP AND SOAR* is the true story of how raptor biologist Janie Veltkamp used science to rescue the orphans and find them a new osprey family in the wild.**

**In a race against time, Janie sets out to find the chicks a new nest and new parents. *But will the new osprey parents accept Swoop and Soar as their own chicks, or fly away from the nest forever?***



Photo © Ben Wurst, from *Swoop and Soar*, used by permission

## **READ *SWOOP AND SOAR***

Through inspiring wild bird photos and STEM-rich text in the book ***SWOOP AND SOAR***, young readers see closeup how two orphaned osprey chicks grow and survive. How do their parents feed them and protect them from hungry predators? How do the chicks take their first flights? How do they dive and crash underwater to catch fish, their only food?

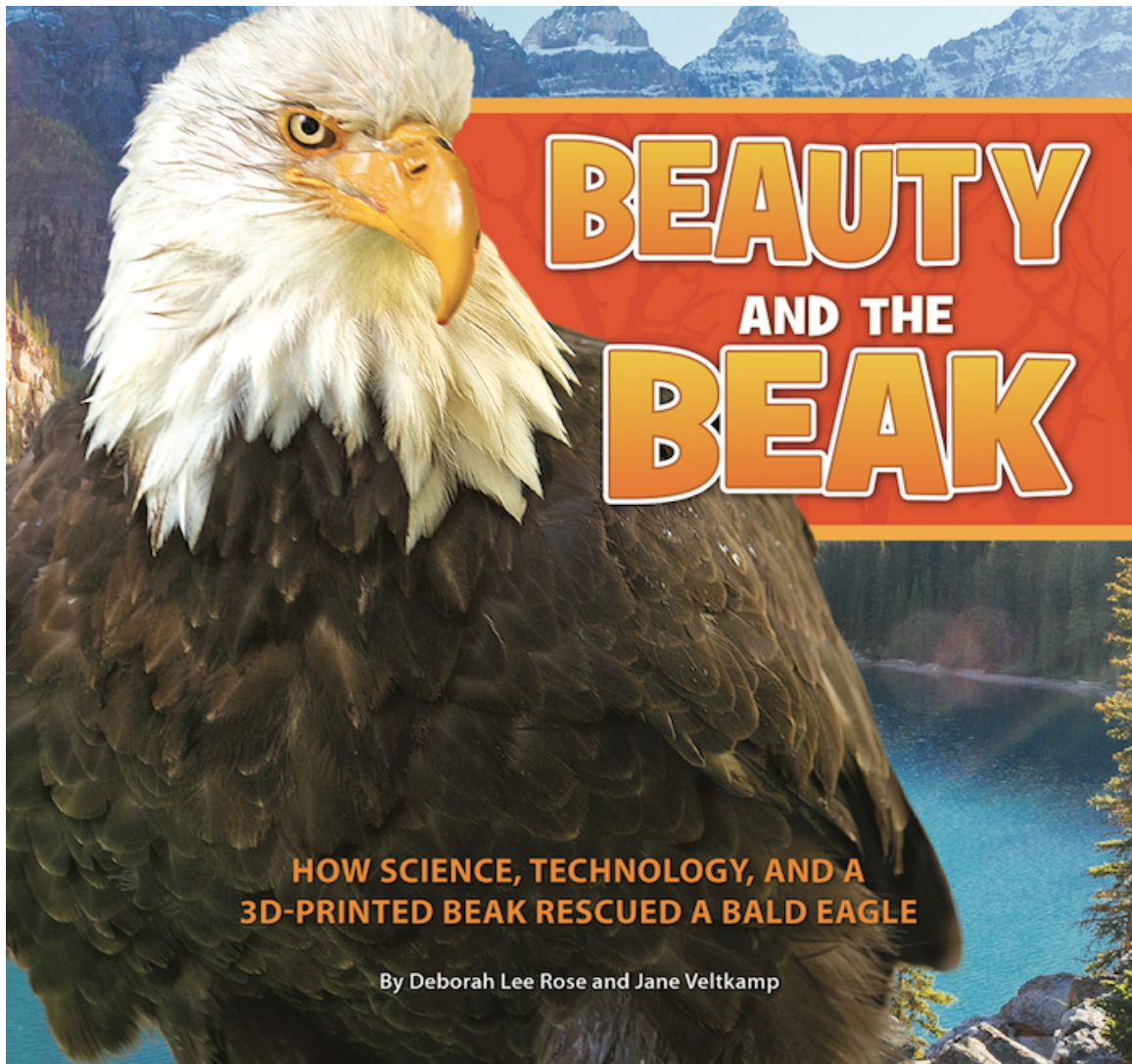
***SWOOP AND SOAR*** also teaches how ospreys were once endangered because of the insect spray DDT, and how scientists including Janie reintroduced ospreys and brought them back from near extinction in parts of the US and other countries.

Readers learn that ospreys still face challenges of extreme weather, habitat loss, and plastic pollution—but human efforts to protect our environment offer hope for ospreys' future.

- **Where was Swoop and Soar's first nest?**
- **What and how did their parents feed them in the nest?**
- **When did the baby birds lose their nest and their parents?**
- **Who helped rescue and nurse the osprey orphans back to health?**
- **What idea did Janie have to give the chicks a second chance for life in the wild?**
- **Why was Janie worried after she put the orphaned chicks into the new nest?**
- **How did the new mother protect the chicks? How did the new father bring them food?**
- **How did the chicks get ready for and take their first flights?**
- **How did Swoop and Soar's feathers and eye color change as they became adults?**



READING THE BOOKS ***SWOOP AND SOAR***  
AND ***BEAUTY AND THE BEAK*** TOGETHER



***SWOOP AND SOAR*** and ***BEAUTY AND THE BEAK***, by Deborah Lee Rose and raptor biologist Jane Veltkamp, are true stories of rescuing birds of prey and using STEM to help them survive. In ***SWOOP AND SOAR*** the osprey chicks go back into the wild, but in ***BEAUTY AND THE BEAK*** the bald eagle must remain in Janie's care at Birds of Prey Northwest in Idaho. Find a special section in ***SWOOP AND SOAR*** about teaching with and learning from these two books together. Find the ***BEAUTY AND THE BEAK*** educational guide at [www.birdsofpreynorthwest.org](http://www.birdsofpreynorthwest.org) or [www.deborahleerose.com](http://www.deborahleerose.com).

Janie is founding director of Birds of Prey Northwest. Both books are published by Persnickety Press/WunderMill Books, as are Deborah's STEM books ***Astronauts Zoom!*** and ***Scientists Get Dressed***.



Photo © Michele Barker, from *Swoop and Soar*, used by permission

## ***SWOOP AND SOAR READ—ANSWER—DISCOVER***

- 1. Ospreys are raptors or birds of prey. How do their adaptations—including sharp, curved beaks and talons, reversible toes, and protective eye membranes—make them expert fish hunters?**  
*Take a walk and look for birds along the way. What adaptations for survival do you notice for the birds you watch? Do all the birds have the same adaptations, or are they different? How do you think these adaptations help birds find and eat food, and take care of their young?*
- 2. How did the chicks Swoop and Soar lose their nest?**  
*Do you see any nests near your home, school or places you visit? Are there birds in or near the nests? Have you ever been in or seen a big storm? How do you think that storm affected birds and other wildlife?*

- 3. Janie Veltkamp, who put Swoop and Soar into their new wild nest, is a raptor biologist. Why could Janie feed and care for the rescued chicks without them becoming “imprinted” and dependent on humans forever?**

*Learn about Janie’s work at [www.birdsofpreynorthwest.org](http://www.birdsofpreynorthwest.org).*

- 4. How did Janie watch the chicks after she put them in the new nest? What did she observe the new osprey parents doing?**

*Have you ever seen baby birds with their parents, in a body of water or in their nest? How did the parents take care of their young?*

- 5. How did the mother osprey warn her chicks of danger? What did the chicks do to stay safe?**

*How do you stay safe at home or in other places?*

- 6. Choose a photo from the book *SWOOP AND SOAR*. What surprised you about this photo?**

*Take your own photos or draw pictures of any birds you can find, in the wild or cared for by humans. Write or tell someone about what your photos or drawings show.*

- 7. Visit a place or event to see live ospreys or other raptors.**

*You can also find osprey nest cams online, to watch osprey chicks grow and take their first flights.*

- 8. The osprey was once an endangered species. What is DDT and how did it damage osprey eggs?**

*How did Janie and other scientists reintroduce ospreys where DDT had almost or completely wiped them out?*

- 9. Ospreys today can be harmed by extreme heat, loss of habitat, and plastic pollution.**

*What can you do to help reduce and clean up plastic pollution?*

- 10. Ospreys are found on every continent except Antarctica.**

*Can you name all the continents where ospreys live and migrate? Find those continents on a map or globe, or draw your own picture of the world of ospreys.*





Photo © Jane Veltkamp, by Mary Gertsema, from *Swoop and Soar*, used by permission

## **STEM CAREERS and *SWOOP AND SOAR***

Many people in STEM related careers helped the two young ospreys and helped bring the book ***SWOOP AND SOAR*** to life, including the careers of RAPTOR BIOLOGIST, WILDLIFE BIOLOGIST, WILDLIFE RESCUER, WILDLIFE PHOTOGRAPHER, CONSERVATIONIST, AUTHOR, PUBLISHER and STEM EDUCATOR.

## **LANGUAGE ARTS/*SWOOP AND SOAR* ACTION WORDS**

Swoop and Soar's names are action words inspired by birds in flight. Can you find more verbs/action words in the book, such as...

hovered	flew
plunged	tore
crashed	whistled
lifted	flattened
shook	stretched
flipped	flapped
hunted	landed
gulped	grabbed
spread	dove
huddled	molted

## **STANDARDS CONNECTIONS FOR THE BOOK *SWOOP AND SOAR***

### **NGSS**

**Adaptation:** Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.

**Environmental change:** Populations live in a variety of habitats, and change in those habitats affects the organisms living there./When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.

**Information processing:** Different sense receptors are specialized for particular kinds of information, which may then be processed by the animal's brain.

Animals are able to use their perceptions and memories to guide their actions.

### **COMMON CORE STANDARDS FOR LITERACY**

#### **READING/LITERATURE**

**3** Explain how specific aspects of a text's illustrations contribute to what is conveyed by words in a story. **4** Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. **5** Determine the meaning of words and phrases as used in a text, including metaphors and similes.

#### **READING/INFORMATIONAL TEXT**

**3** Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur). **4** Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text. Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. **5** Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text. Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s). **6** Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes). Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.

#### **WRITING/RESEARCH**

**3** Conduct short research projects that build knowledge about a topic. **4** Conduct short research projects that build knowledge through investigation of different aspects of a topic. Draw evidence from literary or informational texts to support analysis, reflection, and research. **5** Conduct short research projects using several sources to build knowledge by investigating different aspects of a topic. Draw evidence from literary or informational texts to support analysis, reflection, and research. **6** Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.