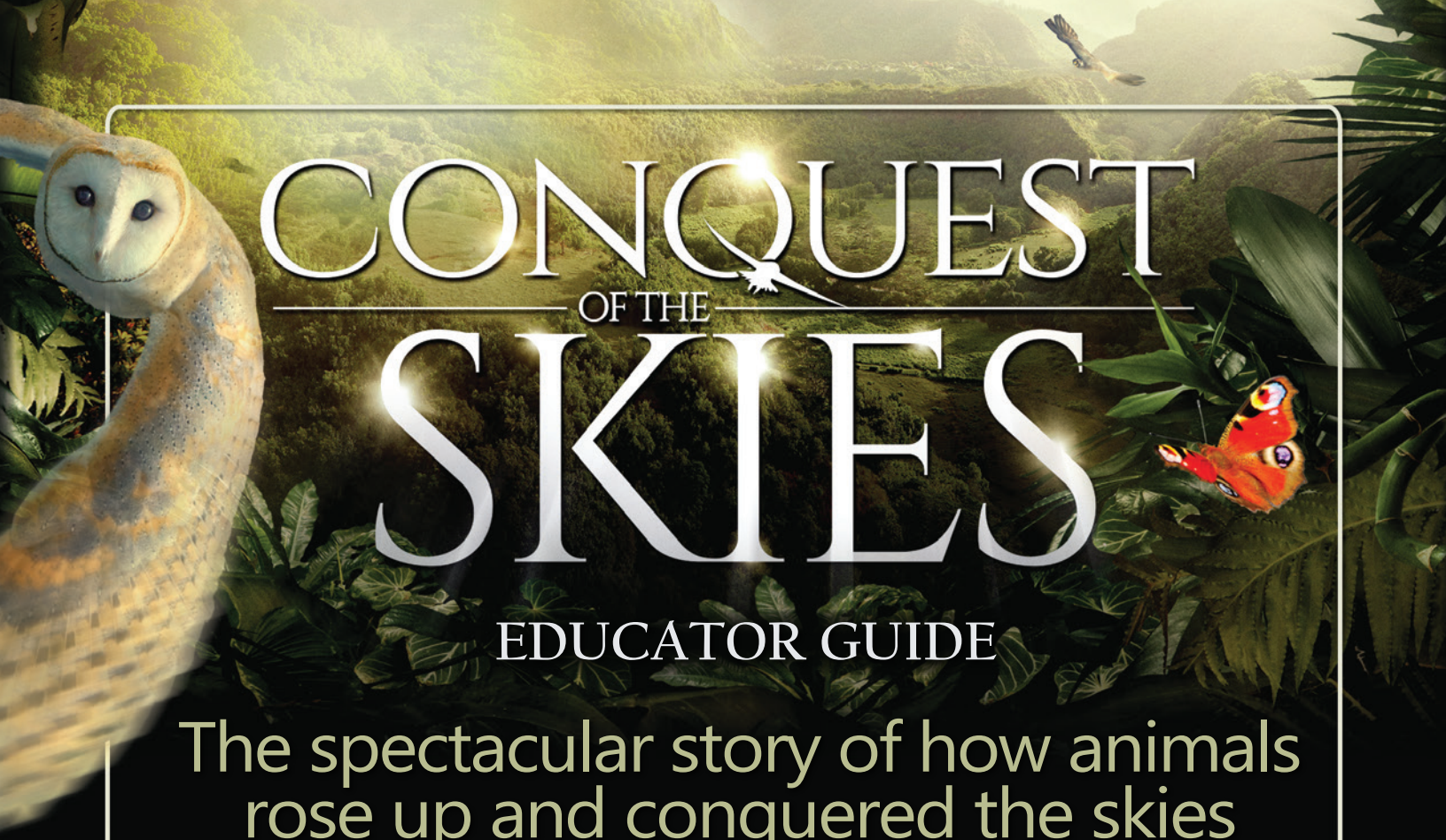

CONQUEST OF THE SKIES

EDUCATOR GUIDE

The spectacular story of how animals rose up and conquered the skies

The ability to fly is one of the greatest wonders in the natural world. ***Conquest of the Skies*** uses the latest science and stunning special effects to showcase the beauty and excitement of flight. From Borneo rainforests to deserts in Spain, students will witness the mechanics of animal flight as never before. Uncover how groups of creatures—**insects, amphibians, pterosaurs, birds,** and **mammals**—all adapted their own distinct styles of movement through the air. Students' innate curiosity about flying creatures makes them an excellent gateway to **STEM subjects** and provides numerous opportunities for **geographic cross-curricular connections**.

An Educator Guide, complete with reproducible content like worksheets and answer keys, is provided to support student learning before and after the film. **Standards-based activities** for students **grades 3-5** are designed to deepen student engagement with film topics. Invite students **grades K-8** to join in the fun with activity adaptations for younger and older students. Additional activity ideas, organized by subject, can be used in museum, classroom, and home settings.

The Educator Guide activities address the following U.S. education standards and skills:

National Standards

- ✔ National Science Education Standards
- ✔ Next Generation Science Standards
- ✔ Common Core State Standards for Mathematics
- ✔ Common Core State Standards for English Language Arts

Key Skills

- ✔ 21st Century Student Outcomes
- ✔ 21st Century Themes
- ✔ Critical Thinking Skills
- ✔ Science and Engineering Practices

ACTIVITY PREVIEWS

Film activities are primarily designed for students grades 3-5, but adaptations and extensions broaden their use to grades K-8.

WINGING IT

Using their knowledge of adaptation, students predict how insects' wing characteristics inform their behavior. Students evaluate their predictions after watching the film, *Conquest of the Skies*.

FORCES OF ANIMAL FLIGHT

Students explore the four forces of flight—lift, thrust, gravity, and drag—in the context of bird flight. They analyze how the size and shape of different bird wings provide lift, power, and maneuverability in the air. They apply what they learn through paper airplane trials and share their conclusions.

CONVERGENT EVOLUTION

Students examine an example of convergent evolution (birds and bats) and apply what they learn about adaptations and environments to identify an additional example of convergent evolution (flying squirrels and sugar gliders).

BIOMIMICRY: INSPIRED BY NATURE

Students define biomimicry and how engineers often imitate nature while designing innovative products. Students demonstrate their knowledge of biomimicry by developing an idea for a new flying machine, drawing inspiration from the animals featured in the film.

FEATURED CREATURES:

- bat
- beetle
- butterfly
- Draco lizard
- dragonfly nymph & dragonfly
- falcon
- fly
- hummingbird
- owl
- *Microraptor* (feathered dinosaur)
- pterosaur (flying prehistoric creature)
- starling
- tree frog
- vulture
- whooper swan

Additional activity ideas address topics in science, technology, engineering, math, biology, ecology, and geography.

COLOSSUS PRODUCTIONS

SERENGETI ENTERTAINMENT