

Focus Question:

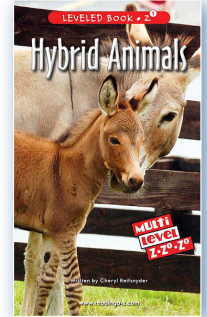
What are the pros and cons of interbreeding different species?

Book Summary

Text Type: Nonfiction/Informational

The ancient Greeks imagined creatures that were half one animal and half another. These mythical creatures may not exist, but animal hybrids do! Both nature-made and human-made hybrids are fascinating animals. While some would argue that hybrid animals are a threat to at-risk species, others claim that they are nature's way of speeding up the adaptation process. Students will enjoy the detailed text and the supporting text features.

The book and lesson are also available for levels Z and Z2.



Lesson Essentials

Instructional Focus

- ☐ Summarize to understand text
- ☐ Compare and contrast
- ☐ Recognize and use dashes
- ☐ Describe information provided by text features
- ☐ Identify synonyms and antonyms

Materials

- ☐ Book: *Hybrid Animals* (copy for each student)
- ☐ Compare and contrast, dashes, synonyms and antonyms worksheets
- ☐ Discussion cards
- ☐ Book quiz
- ☐ Retelling rubric

Vocabulary

Boldface vocabulary words also appear in a pre-made lesson for this title on VocabularyA-Z.com.

• Words to Know

Story critical: *DNA* (n.), *fertilize* (v.), *genetic* (adj.), *hybrids* (n.), *reproduce* (v.), *species* (n.)

Enrichment: *adapt* (v.), *chromosomes* (n.), *embryos* (n.), *interbreeding* (v.), *offspring* (n.), *sterile* (adj.), *susceptible* (v.), *test tube* (n.), *transgenic* (adj.)

- **Academic vocabulary:** *affect* (v.), *instance* (n.), *obtain* (v.), *produce* (v.), *similar* (adj.), *techniques* (n.)

Guiding the Reading

Before Reading

Build Background

- Write the word *hybrid* on the board and read it aloud to students. Invite students to share what they know about the word *hybrid*. Point out that the word *hybrid* is often associated with cars that use both a battery and gasoline to power them.
- Explain to students that *hybrid* means *a thing made by combining two different elements*. Point out that with a hybrid car, the two elements joined are the battery and the gas. Explain that students will be reading a book about hybrid animals, or animals that are produced by two different types of animals.

Introduce the Book

- Give students their copy of *Hybrid Animals*. Guide them to the front and back covers and read the title. Have students discuss what they see on the covers. Encourage them to offer ideas as to what type of book it is (genre, text type, and so on) and what it might be about.
- Show students the title page. Discuss the information on the page (title of book, author's name).
- Preview the table of contents on page 3. Remind students that the table of contents provides an overview of the book. Ask students what they expect to read about in the book, on the basis of what they see in the table of contents. (Accept all answers that students can justify.)

Introduce the Reading Strategy: Summarize

Explain to students that effective readers pause to think about and summarize what they have read. Point out that it is useful to stop at the end of each section and consider the most important information presented by the author. Explain that a summary often answers the questions *who*, *what*, *where*, *when*, and *why*. Create a chart on the board with the headings *who*, *what*, *where*, *when*, and *why*. Read the first section of the book aloud, then complete the chart on the board and model summarizing.

Guiding the Reading (cont.)

Introduce the Comprehension Skill:

Compare and Contrast

- Explain that one way to organize information in a book is to explain how topics are alike and different, which is called *comparing and contrasting*. Create a Venn diagram on the board. Label the left side *horse* and the right side *dog*.
- Invite students to share how horses and dogs are similar and different. Model how to record each response on the Venn diagram. Remind students that by organizing information in this way, they will better understand and remember what they have read.

Vocabulary

Have students turn to the “Words to Know” box on the copyright page. Discuss each word with students. Then, have students turn to the glossary on pages 19 and 20. Explain that the glossary provides definitions for the vocabulary words in the book. Point out the use of each content word and academic vocabulary word in the book, and then use each word in a different model sentence. Have students work in groups to create posters for these words. Have them include on each poster the word and its part of speech, the definition, the word in an example sentence, and a picture illustrating the meaning of the word.

Set the Purpose

- Have students read to find out more about hybrid animals. Write the Focus Question on the board. Invite students to look for evidence in the book to support their answer.
- Have students make a small question mark in their book beside any word they do not understand or cannot pronounce. These can be addressed in a future discussion.

During Reading

Text-Dependent Questions

As students read the book, monitor their understanding with the following questions. Encourage students to support their answers by citing evidence from the book.

- *What is a hybrid animal?* (level 1) page 4
- *What is the effect when species that are too different reproduce?* (level 1) page 5
- *How do scientists define a species?* (level 1) page 11
- *What are the similarities between natural hybrids and human-made hybrids?* (level 3) multiple pages
- *Why do people create hybrid animals?* (level 3) multiple pages
- *Why have researchers inserted spider-silk proteins into goat DNA?* (level 2) pages 16 and 17

- *Why are hybrid animals usually poorly adapted to their environment?* (level 3) multiple pages
- *In what way is hybrid breeding a necessary means for adaptation?* (level 3) multiple page

Text Features: Graphics

Have students turn to page 4. Point out that the green box is a graphic provided by the author in order to expand upon and clarify the text. Ask a volunteer to explain what information the author is conveying through this graphic. Explain that this graphic includes a photograph, a chart, and a caption, all of which help clarify the text. Point out that such features are often present in nonfiction books. Have students turn to a partner and discuss why such graphics might be present in nonfiction texts.

Skill Review

- Guide students in a discussion about the similarities and differences between bison and beefalo. Have volunteers come to the board and record the similarities and differences on a Venn diagram.
- Model identifying key details of the text to create a summary.
Think-aloud: As I read a book, I pause often to think about the most important details and summarize what I just read. Effective readers pause at the end of each section of the book to summarize. For example, after reading the section “Animal Hybrids: Problem or Solution?” my summary might include the following: The topic of animal hybrids continues to be a controversial issue. Some argue that animal hybrids are poorly adapted to their environment and often fail to survive or reproduce. By contrast, some believe that when a species faces rapid environmental changes, having hybrid traits actually allows animals to survive when they might not otherwise. There is no clear answer to whether hybrid animals are a problem or a solution.
- Have students work in small groups to summarize a section of the book. Remind students that a summary includes only the most important details including *who*, *what*, *where*, *when*, and *why*. Invite each group to share their summary with the class.
- Have students work with a partner to discuss the similarities and difference between human-made hybrids and nature-made hybrids. Invite them to share their responses with the class.
- Model and discuss how to complete the **compare-and-contrast worksheet**, using evidence from the text. Have students discuss the details they noted with a partner.

After Reading

Ask students what words, if any, they marked in their book. Use this opportunity to model how they can read these words using decoding strategies and context clues.

Guiding the Reading (cont.)

Skill Review

Graphic Organizer: **Compare and contrast**

Review the compare-and-contrast worksheet that students completed. Have students share their work with the group. Create two Venn diagrams on the board and record their responses.

Comprehension Extension

Discussion cards covering comprehension skills and strategies not explicitly taught with the book are provided for extension activities.

Response to Focus Question

Have students cite specific evidence from the book to answer the Focus Question. (Students should include that there are both benefits and problems with hybrid animals, for example: *Hybrid animals are often bred to possess the positive qualities of each parent. In a natural setting, hybrid animals may adapt more readily to rapidly changing environments. Hybrid animals can also produce things that are useful or needed. Hybrid animals, however, can also be sickly and not adapt well to their environment. They may also pose a threat to at-risk species.*)

Comprehension Checks

- **Book quiz**
- **Retelling rubric**

Book Extension Activities

Build Skills

Grammar and Mechanics: **Dashes**

- Explain to students that a dash (—) is a punctuation mark that can be used for different purposes: to show an afterthought or summary at the end of a sentence, or to “set off” or clarify information within a sentence.
- Write the following sentence on the board:
DNA molecules carry instructions for how cells operate—instructions for everything from hair color to ear shape.
- Explain to students that in this sentence, the dash is being used to add a thought or more information to the end of the sentence.
- Review or explain the difference between a dash and a hyphen. Remind students that hyphens are used in compound adjectives, adverbs, and nouns, such as *at-risk species*. Point out that hyphens are shorter in length and are used to connect two or more words.
- **Check for understanding:** Have students reread page 9 and highlight the sentences containing a dash. Ask a volunteer to explain how the dash in each sentence is used.

- **Independent practice:** Introduce, explain, and have students complete the **dashes worksheet**. If time allows, discuss their answers aloud after students finish.

Word Work: **Synonyms and antonyms**

- Write the word *simple* on the board. Ask students to suggest a word that means almost the same thing (*straightforward, easy*). Review or explain that a word that means the same or almost the same as another word is called a *synonym*. Ask students to suggest a word that means the opposite of *simple* (*difficult, complex*). Review or explain that a word that means the opposite of another word is called an *antonym*.
- Have students turn to page 4 and locate the last sentence of the first paragraph. Read the sentence aloud and record it on the board: *They combine the traits of different species—and they are more common than most people realize.* Circle the word *common*. Ask students to suggest a word that means the same or almost the same as *common* (*everyday, familiar*). Ask students to suggest a word that means the opposite of *common* (*rare, abnormal*).
- **Check for understanding:** Give pairs of students a thesaurus. Ask them to find the word *common* and have them name the synonyms listed. If the thesaurus lists antonyms, have them find the antonyms for *common*. If needed, provide additional practice using the thesaurus.
- **Independent practice:** Introduce, explain, and have students complete the **synonyms-and-antonyms worksheet**. If time allows, discuss answers aloud after they are finished.

Connections

- See the back of the book for cross-curricular extension ideas