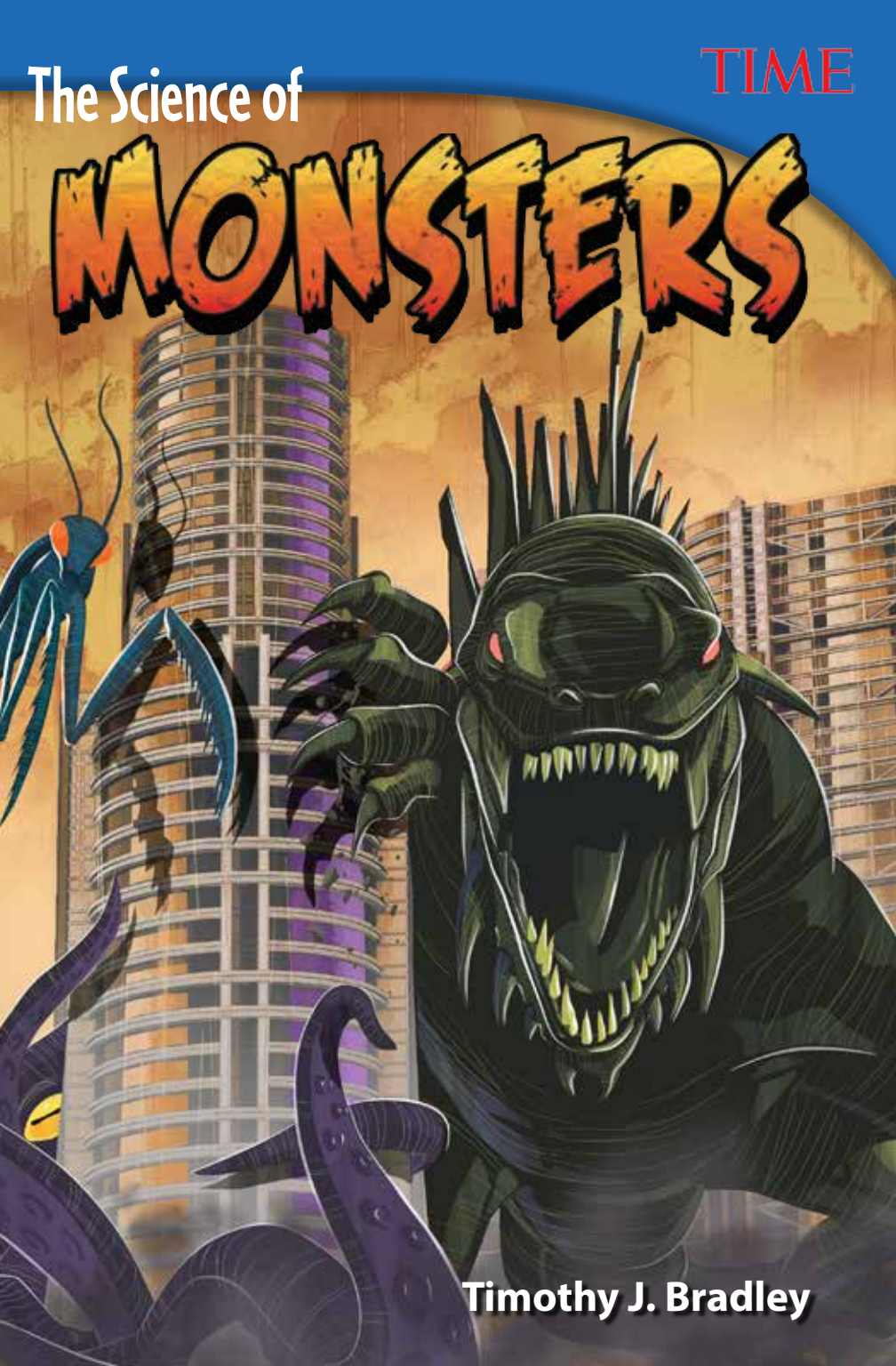
TIME

The Science of MONSTERS



Timothy J. Bradley

For teachers' inspection ONLY

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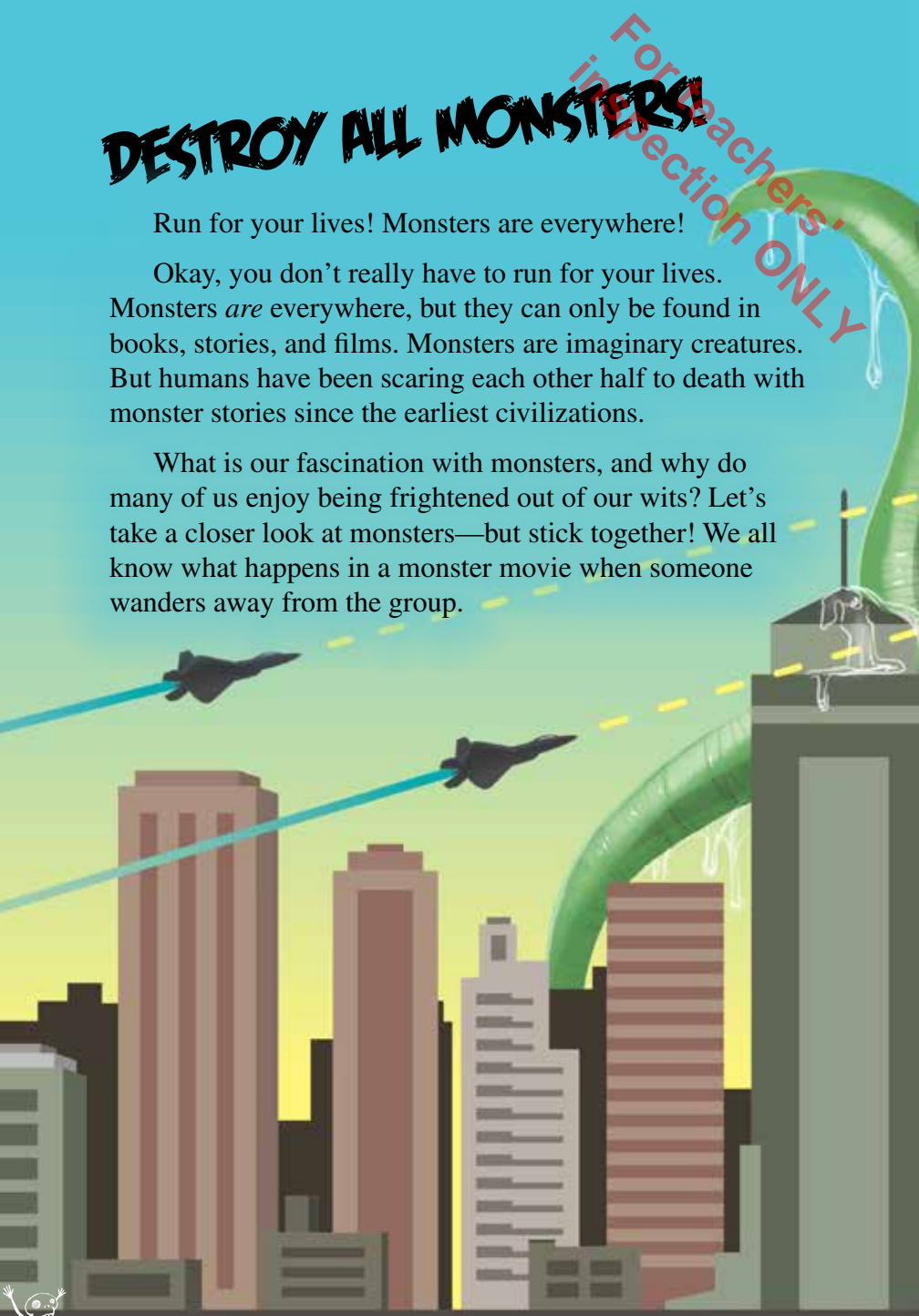
DESTROY ALL MONSTERS!

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Run for your lives! Monsters are everywhere!

Okay, you don't really have to run for your lives. Monsters *are* everywhere, but they can only be found in books, stories, and films. Monsters are imaginary creatures. But humans have been scaring each other half to death with monster stories since the earliest civilizations.

What is our fascination with monsters, and why do many of us enjoy being frightened out of our wits? Let's take a closer look at monsters—but stick together! We all know what happens in a monster movie when someone wanders away from the group.



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THINK LINK

Pseudoscience is a belief or opinion that sounds scientific but is not science.

- What kind of clues could help you tell the difference between real science and pseudoscience?

WHAT MAKES A MONSTER?

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Monsters come in a wide array of shapes and sizes. But they all have one thing in common: They are *imaginary*.

Early humans made up monsters. They were trying to explain natural events such as thunderstorms and earthquakes. We humans like to assign causes. But thousands of years ago, scientific explanations weren't known. We didn't understand **meteorology** and **plate tectonics**.

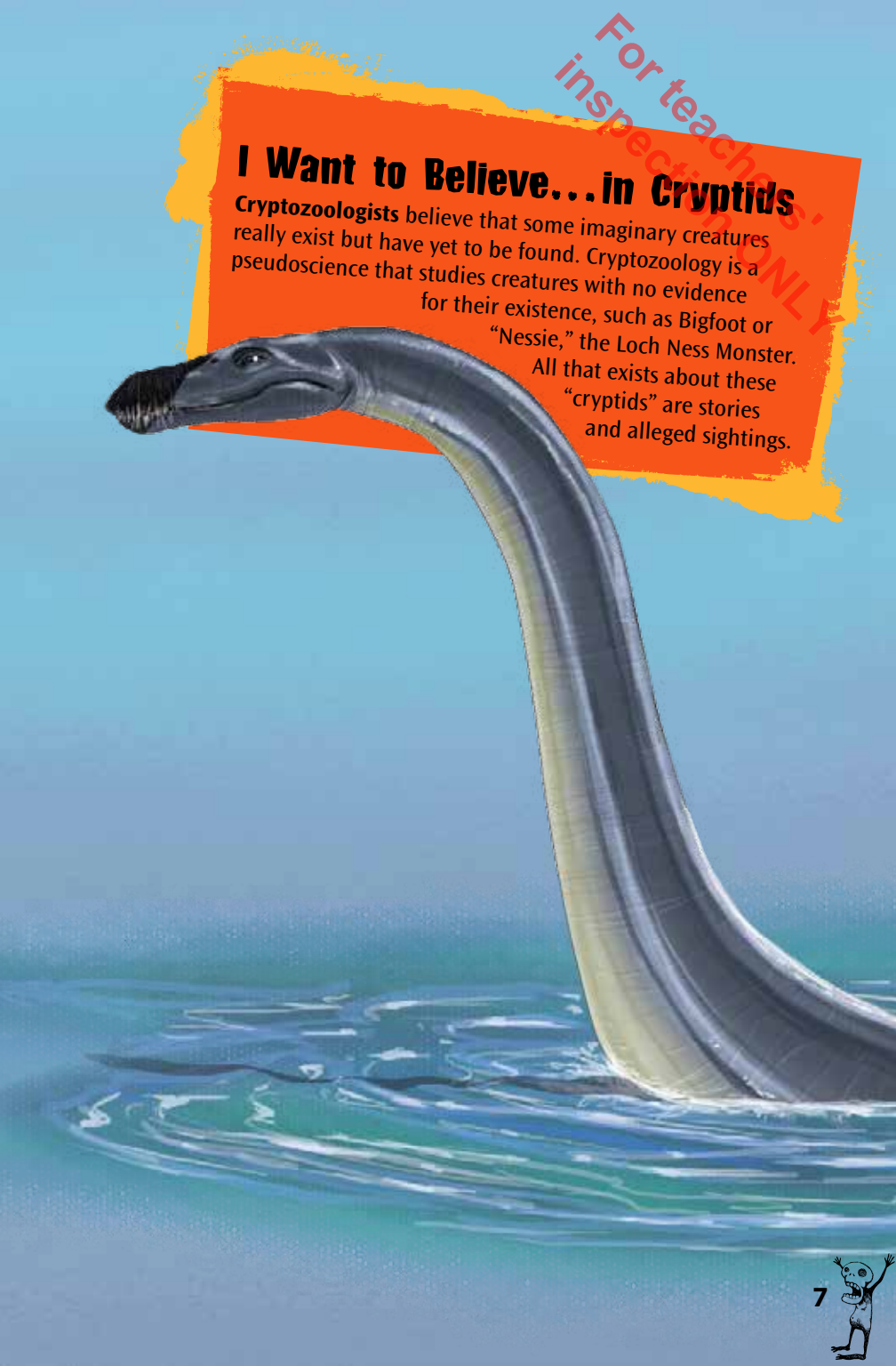
More recently, monsters showed up in films. This was a result of worldwide anxiety about the horrors of the atom bomb and genetic engineering. People realized that atomic **radiation** causes changes in DNA. This results in weird biological **mutations** in plants and animals (including humans). Such engineering has the potential for misuse.



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I Want to Believe...in Cryptids

Cryptozoologists believe that some imaginary creatures really exist but have yet to be found. Cryptozoology is a pseudoscience that studies creatures with no evidence for their existence, such as Bigfoot or "Nessie," the Loch Ness Monster. All that exists about these "cryptids" are stories and alleged sightings.

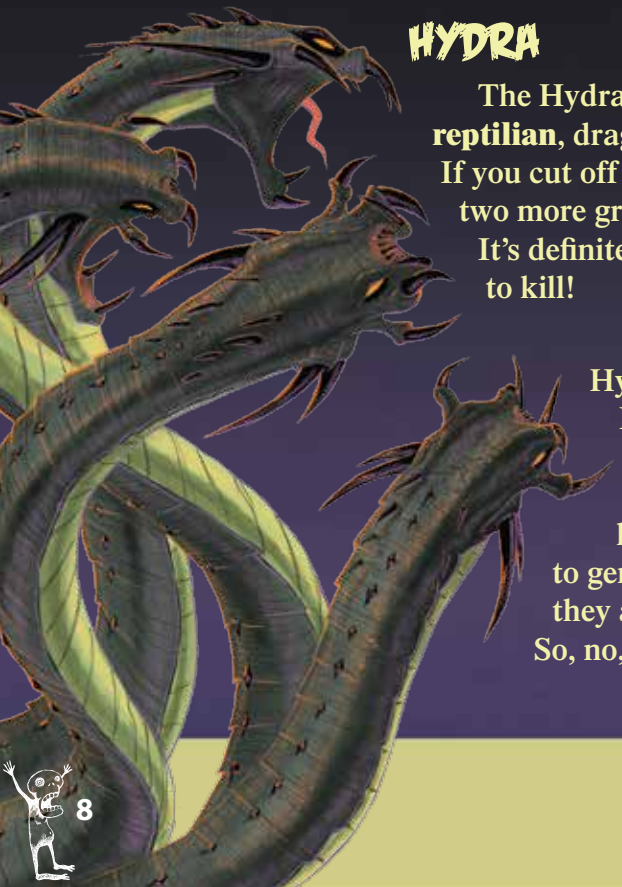


MYTHOLOGICAL MONSTERS

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The ancient Greek civilization was very creative in many ways. Greeks designed and built amazing cities. They produced many works of art and sculpture. They even developed the principles of thought that led to the scientific method.

The Greeks also created an extensive **mythology**. It started out as a way to explain natural phenomena. But it turned into a tangled, complicated soap opera of stories. Among the gods and **demigods** were some really cool monsters that challenged the heroes of Greek myth.



HYDRA

The Hydra is a multi-headed, **reptilian**, dragon-like creature. If you cut off one of its heads, two more grow in its place. It's definitely a tricky creature to kill!

But can a Hydra really exist? Living things can sometimes be born with extra limbs or fingers due to genetic mutations, but they are *not* monsters. So, no, not real.

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MEDUSA

Medusa is a specific type of monster called a Gorgon. According to myth, Medusa is a beautiful woman. But instead of hair, her head is covered with a squirming nest of live snakes. Looking into Medusa's eyes will turn a living thing to stone.

There is nothing in the real world like Medusa. Changing living organic tissue to stone is part of the myth and not something that could happen in the real world.



Myth vs. Reality

Greek mythology is very complicated. The imaginary gods and creatures were part of a culture that produced very creative stories and plays. At the same time, the culture embraced critical thinking and evidence-based reasoning.

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READER'S GUIDE

1. Which is scarier: something extra large or something extra small? Explain your reasoning.
2. Defend your opinion on this statement: *The creation of artificial intelligence is a good thing for humans*.
3. The fight-or-flight response humans have in scary situations is discussed on page 54. What do you think you would do in a dangerous or frightening situation?
4. If alien life does exist, describe whether it's likely to be monstrous like some of the aliens mentioned in this book.

