

ADAPTATION and SURVIVAL

SUSAN GLASS



For teachers' inspection ONLY



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chapter one

Survivor!



One in a Million

The word *species* ends in *s* whether it is singular or plural. You are a member of one species, but there are millions of species in the world.

THE STORY ON SPECIES



WHAT MAKES YOU different from a dog or a frog or a pine tree? Each of you is a member of a different **species**. What is a species? A species is a particular type of living thing. Members of a species resemble one another and can **mate** to produce more members of the same species. Humans are a species and so are cats, mosquitoes, and dandelions (and dogs, frogs, and pine trees).



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Even though you and your parents and your best friends are all members of the same species, does that mean you're exactly alike? Of course not.

Members of a species share certain common characteristics, but there are also differences, or **variations**, among them.

For example, all humans walk on two feet, use two hands, and have a brain and a heart that function the same way. However, some people are tall and some are short. Some are thin and some are heavy. Some have red hair and some have black hair. Some have brown eyes and some have blue eyes. These variations make each member of the human species unique.

Over time, changes in a population's characteristics will occur. Birds may develop different-shaped beaks. The color of a bear's fur may change. Fish may produce

their own light to see in dark waters.

Species are constantly changing, but these changes don't happen overnight. They happen over long periods of time, one generation at a time.

Try This!

Dump out a pile of peanuts in their shells. Ask a few friends to take a couple of peanuts and draw pictures of them. Put all the peanuts back in the pile. Can you identify each peanut from its drawing? Even though all of the peanuts have a crunchy outer shell, are a brownish color, and taste alike, there are still differences in each one. No two are exactly the same.

THE GAME OF SURVIVAL

Why do species change? To survive! Survival is a challenge. It is a serious game with winners and losers. Those species that win continue to live on Earth. Those that don't, die off.

Why do some species live and some die? The world is always changing. Mother Nature throws a lot of curves. She might send a drought or an ice age or a flood or an epidemic. Other times, new species cause the disappearance of existing species. A new **predator** with big teeth or new competitors that gobble up the food supply can be dangerous to weaker species. Humans are also responsible for some of the changes on the Earth. They cut down trees in the rain forest, pollute river water, and clear out **habitats** to make room for malls and businesses. It's a tough world out there, and if a species wants to survive, it has to **adapt**.

To adapt means to change and adjust to new circumstances or conditions. All living things are constantly adapting to their **environments**, or surroundings.

Over time, generations of species adapt in order to survive when the environment changes. Those who can't successfully adapt don't make it. They become **extinct**.



Adaptations are characteristics that help an **organism** survive in its environment. Adaptations can be physical properties (how something looks) or behaviors (how something acts).



Adaptations are inherited, or passed down from one generation to the next. A frog can't just change its color from green to brown one day because it decides to. But if a common green frog mates with a rare brown frog to produce a new brown frog and that brown frog mates with another brown frog and so on and so on, over time, the species may change from green to brown.

Sometimes these variations within a species improve an organism's chances of survival. For example, imagine that the forest where the green frogs live experiences a climate change. It becomes hotter and drier in the forest. The green trees wither and die. Now the bright green frogs are easily spotted and eaten by predators. The few brown frogs are able to remain hidden in the dry brown leaves, branches, and tree trunks. Eventually, the green frogs will die out, and the brown frogs will survive and **reproduce**, filling the forest with more brown frogs.

Adaptations are the key to an organism's survival. Those that are able to adapt to their changing environment will survive. They will outwit and outlast those organisms that can't adapt.



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chapter two

Evolution According to Darwin



A CHANGE IN A species over time is known as **evolution**. All living things on Earth today are evolved, or changed, forms of living things that came before them.

Many scientists have had ideas about how evolution works, but the man whose theory is most widely accepted today was an English scientist named Charles Darwin. Darwin

presented his theory of evolution to the world in 1858 after he'd spent more than 20 years gathering evidence and putting the pieces together.