

1 Growing New Parts



Sharks lose their teeth all the time. They might lose a tooth when they bite another animal. They might lose a tooth when they eat a meal. That's OK. Sharks can **regenerate** (ri•JEN•uh•rate) their teeth. They can grow new ones.

Sharks have several rows of teeth.

When one tooth falls out, a tooth from the next row moves into that spot. Then a new tooth starts to grow in the back. Sharks may grow 24,000 new teeth in their lives!

People only grow two sets of teeth in their lives. But what if you could grow new teeth any time? What if you could grow a new arm, or a new leg?

That might sound funny. But it happens a lot in the animal world. Some animals grow new body parts. They have the power of **regeneration**.

What Is Regeneration?

Regeneration happens when an animal

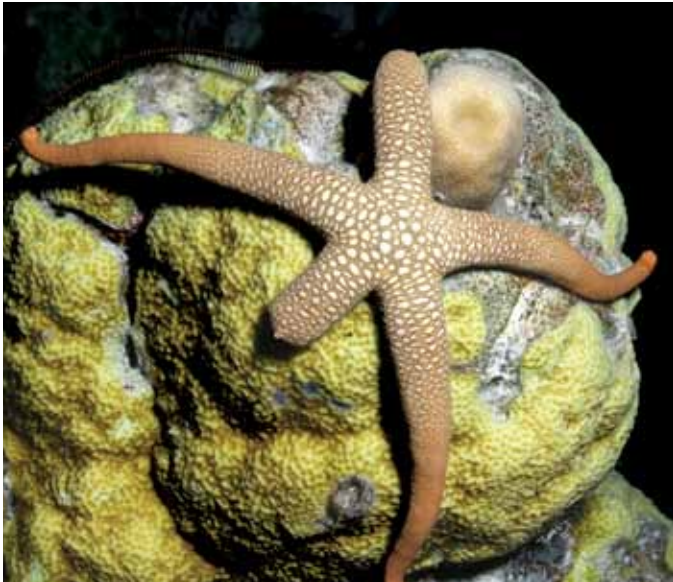
grows a new body part. When you get sick, your body works to get better. Regeneration is sort of the same. Regeneration helps some animals get better. It is a way to fix a body part that's missing or hurt.

Not all animals have the power of regeneration. But lots of animals do. Some spiders grow new legs. The new leg grows where the old leg fell off.

Many kinds of lizards can grow new tails. This can be a big help if another animal tries to catch a lizard by the tail. If the tail is torn off, it will keep moving. The other animal might try to catch the tail while the lizard runs away. It takes

about nine months for a lizard to grow a new tail.

Sea Stars Grow New Arms



This sea star is growing a new arm.

A starfish is not really a fish. So scientists call them sea stars. Many sea

stars have five arms. Some sea stars have ten arms or more.

There are lots of ways a sea star can lose an arm. The sea star can be pushed into rocks by a wave. Another animal might try to catch it for food. It can be caught in a fishing net. That's OK. Most sea stars can grow new arms. It takes many months for a whole arm to regenerate.

Some sea stars can do more than just grow new arms. They can grow new bodies, too. All they need is one arm!

Flatworms Grow New Bodies

What would it be like to grow a new

head? **Flatworms** can do that. There are different kinds of flatworms. There are big ones and small ones. There are ones that live on land and ones that live in water.



**This flatworm is growing two new heads!
Can you see its four eyes?**

A flatworm does not have teeth like a shark. It does not have arms like a sea star. It just has a long, flat body. But it can regenerate any part of that body. It can grow a new head. It can grow a new tail, too.

There is one kind of flatworm that lives in fresh water. You can cut it into hundreds of pieces. Every one of those pieces can grow into a new flatworm!

Flatworms also use regeneration to make new flatworms. First, a flatworm tears off part of its body. Then a new flatworm grows from that part. Each flatworm looks just like the old one.

Regeneration and You

People can regenerate just a few new parts. If we lose a nail, a new one will grow. But we can't grow a whole new finger. If we get a cut on our face, new skin will grow. But we can't grow a new face.

Scientists study regeneration in animals. They want to know how to make people grow new arms and legs!